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Are Universal Darwinism and Occam's razor enough to answer all Why? (Because of what?) questions?

0 (self.PhilosophyofScience)

отправлено 1 год назад, изменено * автор kiwi0fruit

I'm investigating possibilities and tools for creating a model of the Universe in which all Why? (Because of what?) questions can be answered.

The current best ideas I found are:

- Natural selection to explain structures that exist (including space properties and topology) - Universal Darwinism to full extent so as much structures as possible would have a history how they emerged in the model.
- To explain rules that govern dynamics of the model with natural selection we cannot again use natural selection. We can try use clasical combination of falsifiability and Occam's razor. The falsifiability can be applied only in a limited way (as described in pt.3 of the main article) - the current understanding of nature is far from explaining space and the set of laws of nature. So testing and predictions are unavailable for the model to create.
- Luckily we can still use Occam's razor and simplicity considerations. But it can justify only when comparing models that are practically-experimentally the same. Let's assume we extracted and proved the necessary and sufficient (NaS) rules from a set of models that provide important behavior for the model ("open-endedness" means that the evolution doesn't stop on some level of complexity but can progress further to the intelligent agents after some great time). NaS means that it's the simplest rules (may be rules be extracted with accuracy up to the isomorphism - or even

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kiwi0fruit (редактировать)

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Post your thoughts and links relating to the foundations, justification and social impacts of the scientific examination of the natural world, computing, religion, society, economics or other fields of mental endeavour. History of science posts also most welcome.

In a nutshell, this subreddit is for all the thinking **around and about** science. Not so much the science itself (unless it provokes philosophical questions).

Intelligent, respectful debate is encouraged.

Ideas for submissions

- Your own thoughtful reflections and questions

property like Turing completeness). So is it enough to justify/explain the rules that govern dynamics of the model?

- I'm aware that within this task some things should not be justified or explained. Natural selection postulates require "variation" that need random events that are actually just **are** and do not have a cause (the flip of a coin has a reason but whether it's heads or tails doesn't have a reason). So may be the extracted necessary and sufficient rules are also do not require explanation?

Maybe I missed something and there are other approaches to this problem (creating a model of the Universe in which all Why? questions can be answered)?

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[–] [удалено] 1 год назад*

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> [–] **kiwi0fruit** [S] 1 очко 1 год назад
>
> Am I right that you meant adding to the dynamic model to create? (I mean **not** to the way of justifying "why?" questions).
>
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[–] **Kerguidou** 2 очка 1 год назад

If I understand what you are getting at, you want to build a fully deterministic model of the universe? If that is the case, I have bad news for you.

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> [–] **kiwi0fruit** [S] 2 очка 1 год назад
>
> Not really. It should be an indeterministic model. And the best way to run the simulation (if the model would be lucky to have one) would be with hardware random number generator.
>
> The model uses natural selection that needs random in "variation" postulate.
>
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[–] **RemarkableBuyer** 2 очка 1 год назад*

We have the scientific method already. Its the best thing we have, in wich the Occam's razor is implemented. But often in science, especially physics and cosmology, it is hard to know wich explanation is the simplest. One example would be the disagreement between very prominet scientists about the interpretation of quantum mechanics. We can answer all "why" questions, but that does not mean those are good answers. We will never be able to explain everything, there's always gonna be something (maybe multiple things) that we'll have to accept as a "brute fact", without having an explanation for it.

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[–] **kiwi0fruit** [S] 2 очка 1 год назад

I guess there are some unanswerable questions like in which pocket there was a phone before the guy jumped into complete desintegrator. But I feel like we would have conjectures about it. Only one of which *might* be true.

So it feels like answers are possible (in theory not in practice). We just may never test if it's true. So this whole post was about how search for answers to as much "why" questions as possible even if we lack experimental data.

There is no established practice guideline how to do it. So I ask on philosophy subreddit.

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[–] **RemarkableBuyer** 2 очка 1 год назад*

i am not sure exactly what kind of model you are talking about, or what would categorize as a "why" question. there is no way to create one model or algorithm to answer all "why" questions with the optimal answer, given an arbitrary amount of data.

Exist many categories of questions (science, engineering, history, economics, psychology, etc). the only "model" that is ubiquitus when approaching all of those is rationality, in a broad sense.

> I guess there are some unanswerable questions like in which pocket there was a phone before the guy jumped into complete desintegrator. But I feel like we would have conjectures about it.

There plenty questions similar to this one that are impossible or extremely impractical to solve, but an answer exists in principle. And, importantly, we have an accurate conceptual model to describe the answer to those kind of questions if it was given to us. exemples would be: "How many atoms are composing your body right now?" "What are the last thoughts of the person who died precisely when you started reading this sentence?" etc... there are plenty of those. And we have the conceptual framework, we know exactly how the answer look like, even if we can't have the answer.

That's not what i meant by questions we can't know the answer. i was referring to questions like "why there is something rather than nothing" "what happened before the big bang". Our lexicon don't possess the appropriate concepts to describe a possible answer to those. Even the very questions are incorrectly formulated, probably.

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[–] **kiwi0fruit** [S] 1 очко 1 год назад

The last two questions are perfectly fine to me :-) "what happened before the big bang" is a normal interesting question. And "why there is something rather than nothing" is easily answered via antropic principle (there is a better version of it and I adress it in the original post).

But to make it clear: when I talked about "why?" questions I sometimes mixed questions that appear inside desired model during simulation and questions of why the desired model is created this way. My bad :(

First questions are answered inside the desired model (and even questions like "desintegrator" can be answered withing the desired model). The second question is more like "why there is something rather than nothing". And I'm curious if it can be answered via formal necessary and sufficient proof (and I talk about it in the OP and original article).

But if the desired model is built and if it's really the model of our universe then it's explanation power can be joined with justification of "why the desired model is created this way". So all "why" questions would be answerable in principle... But in practice it would not be so good: it's hard to get answers from indeterministic simulation that should internally simulate many billions of years.

So the model would be locally applicable explanational framework or ontology framework. But it still seems like the existense of such a model (if built) would render all why questions about existing reality to answerable in principle -- like "desintegrator" question.

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[–] **as-well** 1 очко 1 год назад

I'm not sure what you're trying to accomplish?

So your goal - as per the main article - is that you want to create a simulation, right? So the idea isn't to make a scientific model, but a computer simulation? That's an important distinction.

Is there something you want to learn from it?

What it sounds like you aren't interested in is a simulation of the entire universe (which is good! I wouldn't want you to need a small nuclear powerplant to power your server system there).

One thought here - models are great because they allow us to abstract (isolate, or whatever other model ontology you subscribe to) from the real world. There's no need to accurately capture everything in the universe, as long as you capture the mechanisms you're itnerested in reasonably well. So I think you are overthinking it by quite a lot.

Edit: You might want to read up on the philosophy of models a bit.

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[–] **kiwi0fruit** [S] 1 очко 1 год назад

> So the idea isn't to make a scientific model, but a computer simulation?

I want a mathematical model **and** computer simulation. I wouldn't call it a scientific model as it would (if created) drastically differ from a common scientific model - very

hard to obtain testable results (only open-endedness is a criteria - but it still lacks formalization). It would be more like mathematical metaphysical model.

> Is there something you want to learn from it?
>
> There's no need to accurately capture everything in the universe, as long as you capture the mechanisms you're itnerested in reasonably well.

That's the juicy part: I want to capture everything in the first moments of existence of the universe. I assume that there's no chances that the simulation can reach our observable universe time - presumably the model would exponentially accumulate information and complexity (both junk complexity and - I hope - artificial life complexity).

> You might want to read up on the philosophy of models a bit.

Can you suggest where to start?

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[–] **as-well** 1 очко 1 год назад

I'm sorry, I think you need to back up there a bit. What is it you want to simulate? What's the variables you want to observe? Do you have the mathematical formulas ready?

I'm asking because it sounds like you're in way over your head unless you have thought long and deep about parametrization and which variables you're interested in. I'm also not sure what your goal is - do you want to do a model for the experience? Then maybe start with some simpler evolutionary models ignoring physical models. Also, simulating the chance of life developing sounds like a non-trivial thing, where you need to make a lot of assumpions.

Look, if you want to simulate the entire universe, you'll probably need a supercomputer and a handful of physics departments at your hand.

Obviously, that's out of the question. So start with what you're interested in - simulating/modeling evolutionary development of complex features.

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[–] **kiwi0fruit** [S] 1 очко 1 год назад

Oh, I actually make lots of assumptions about beginning of the universe - so that all why questions can be answered. That leads to the model and simulation of evolutionary development: the simplest artificial life model. So I don't need a supercomputer... I need a definition of the rules that govern discrete time model changes and that provide natural selection. It's a hard task and I'm aware of it.

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[–] **wuliheron** 1 очко 1 год назад

There is no evidence whatsoever to support Occam's Razor, while Quantum Darwinism suggest evolution naturally emerges from random interactions. Meanwhile, both Darwinian evolution and Relativity have turned out to share the same mathematics as thermodynamics, suggesting they provide a completely misleading view of reality. Of course, philosophers tell me I'm an idiot for referring to empirical evidence, while physicists tell me I'm an idiot for attempting to explain quantum mechanics in plain English, when you require the mystical magical mathematical runes.

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[–] **kiwi0fruit** [S] 1 очко 1 год назад

Math is not magical. It simply a language to write down things that you understand. At the same time it's then a language to think and reason about those things. Thoughts even can become more and more complex but math still helps to put it together.

In case of the desired model I bet that math should be not that complex. So the understanding is first.

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[–] **wuliheron** 1 очко 1 год назад*

All the physical and, increasingly, even the mathematical evidence indicates that classical logic is ultimately tautological and the simple explanation for quantum mechanics is that 42 is as good an explanation as anyone will get. Intuitionistic mathematics have much firmer empirical foundations and can be based solely on context dependent demonstrable evidence, but are four times more complex and await next generation supercomputers. They also imply that the next scientific revolution will revolve around self-organizing metaphorical systems logics. My own work suggests classical logic and physics describe the integrals in life, and the metaphor of what's missing from this picture describes how the integrals can exchange identities with the differentials, while the greater context inevitably determines the identity of its own contents, hinting at a self-organizing hyperuniform space-time.

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