

Epicurus' Prolepsis vs Heraclitus' Flux

Post by "Cassius" of July 3, 2025 at 7:23 AM

There is one passage the relevance of which I think is underappreciated in the prolepsis discussion. This below from fragment 5 of Diogenes of Oinoanda gets referenced frequently in regard to Epicurus' canon in general, but I wonder if it not a specific reference to the function of prolepsis:

Quote

Fr. 5

....

Now Aristotle and those who hold the same Peripatetic views as Aristotle say that nothing is scientifically knowable, because things are continually in flux and, on account of the rapidity of the flux, evade our apprehension. We on the other hand acknowledge their flux, but not its being so rapid that the nature of each thing [is] at no time apprehensible by sense-perception. And indeed [in no way would the upholders of] the view under discussion have been able to say (and this is just what they do [maintain] that [at one time] this is [white] and this black, while [at another time] neither this is [white nor] that black, [if] they had not had [previous] knowledge of the nature of both white and black.

When you're living in an age when most every educated person would be aware that Heraclitus has said everything is in such flux and flows so fast that it is impossible to apprehend anything at all, you need a description of the process by which you DO apprehend things and make sense of them.

I wonder if prolepsis then might best be understood as Epicurus' answer not just to Plato and Aristotle, who were themselves apparently responding to Heraclitus by postulating that there are true forms or essences (neither of which exist).

Epicurus' prolepsis provides the foundation of an answer to Heraclitus' flux challenge in a natural faculty, just like pleasure and pain, to how we actually understand the things around us without reliance on forms or essences which do not exist, or on preexisting innate ideas from a time before birth. In providing a theory of understand the assembly of knowledge, it is parallel to atomism in providing a theory of physics.

Even as to the title we generally give to Lucretius' poem, how would we know what a "thing" is, or distinguish one "thing" from another, if we did not have a faculty which continuously organizes the raw data from the senses into something intelligible?

As I understand it there are not many reliable quotations from Heraclitus available, but those that do make it clear that this "flux" problem demanded a real-world answer.

Post by "Cassius" of July 3, 2025 at 10:04 AM

I've moved this over to a new thread so that it will be easier over time to explore this precise relationship. In the meantime pending a better source of quotes, here is what Wikipedia says:

Quote

Little is known of Heraclitus's life. He wrote a single work, only [fragments](#) of which have survived. Even in ancient times, his [paradoxical](#) philosophy, appreciation for [wordplay](#), and cryptic, oracular [epigrams](#) earned him the epithets "the dark" and "the obscure". He was considered arrogant and depressed, a [misanthrope](#) who was subject to [melancholia](#). Consequently, he became known as "the weeping philosopher" in contrast to the ancient [atomist](#) philosopher [Democritus](#), who was known as "the laughing philosopher".

The central ideas of Heraclitus's philosophy are the [unity of opposites](#) and the concept of [change](#). Heraclitus saw [harmony](#) and [justice](#) in [strife](#). He viewed the world as constantly in flux, always "becoming" but never "being". He expressed this in sayings like "Everything flows" (Greek: πάντα ῥεῖ, *panta rhei*) and "No man ever steps in the same river twice". This insistence upon change contrasts with that of the ancient philosopher [Parmenides](#), who believed in a reality of static "[being](#)".

...

Heraclitus is said to have produced a single work on [papyrus](#),^[a] which has not survived; however, over 100 fragments of this work survive in quotations by other authors.^[note 5] The title is unknown,^[20] but many later writers refer to this work, and works by other pre-Socratics, as *On Nature*.^{[21][a]}...

The opening lines are quoted by [Sextus Empiricus](#):

Of the *logos* being forever do men prove to be uncomprehending, both before they hear and once they have heard it. For although all things happen according to this *logos* they are like the unexperienced experiencing words and deeds such as I explain when I distinguish each thing according to its nature and declare how it is. Other men are unaware of what they do when they are awake just as they are forgetful of what they do when they are asleep.^[x]

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Also:

Diogenes Laërtius relays the story that the playwright [Euripides](#) gave [Socrates](#) a copy of Heraclitus's work and asked for his opinion. Socrates replied: "The part I understand is excellent, and so too is, I dare say, the part I do not understand; but it needs a [Delian diver](#) to get to the bottom of it."^[38]

Post by “Cassius” of July 3, 2025 at 10:13 AM

There is also a lot of good discussion at the [Internet Encyclopedia of Philosophy](#):

2. Theory of Knowledge

Heraclitus sees the great majority of human beings as lacking understanding:

Quote

Of this Word's being forever do men prove to be uncomprehending, both before they hear and once they have heard it. For although all things happen according to this Word they are like the unexperienced experiencing words and deeds such as I explain when I distinguish each thing according to its nature and declare how it is. Other men are unaware of what they do when they are awake just as they are forgetful of what they do when they are asleep. (DK22B1)

Most people sleep-walk through life, not understanding what is going on about them. Yet experience of words and deeds can enlighten those who are receptive to their meaning. (The opening sentence is ambiguous: does the 'forever' go with the preceding or the following words? Heraclitus prefigures the semantic complexity of his message.)

On the one hand, Heraclitus commends sense experience: “The things of which there is sight, hearing, experience, I prefer” (DK22B55). On the other hand, “Poor witnesses for men are their eyes and ears if they have barbarian souls” (DK22B107). A barbarian is one who does not speak the Greek language. Thus while sense experience seems necessary for understanding, if we do not know the right language, we cannot interpret the information the senses provide. Heraclitus does not give a detailed and systematic account of the respective roles of experience and reason in knowledge. But we can learn something from his manner of expression.

Describing the practice of religious prophets, Heraclitus says, “The Lord whose oracle is at Delphi neither reveals nor conceals, but gives a sign” (DK22B93). Similarly, Heraclitus does not reveal or conceal, but produces complex expressions that have encoded in them multiple messages for those who can interpret them. He uses puns, paradoxes, antitheses, parallels, and various rhetorical and literary devices to construct expressions that have meanings beyond the obvious. This practice, together with his emphasis on the Word (*Logos*) as an ordering principle of the world, suggests that he sees his own expressions as imitations of the world with its structural and semantic complexity. To read Heraclitus the reader must solve verbal puzzles, and to learn to solve these puzzles is to learn to read the signs of the world. Heraclitus stresses the inductive rather than the deductive method of grasping the world, a world that is rationally structured, if we can but discern its shape.

For those who can discern it, the Word has an overriding message to impart: “Listening not to me but to the Word it is wise to agree that all things are one” (DK22B50). It is perhaps Heraclitus’s chief project to explain in what sense all things are one.

3. The Doctrine of Flux and the Unity of Opposites

According to both Plato and [Aristotle](#), Heraclitus held extreme views that led to logical incoherence. For he held that (1) everything is constantly changing and (2) opposite things are identical, so that (3) everything is and is not at the same time. In other words, Universal Flux and the Identity of Opposites entail a denial of the Law of Non-Contradiction. Plato indicates the source of the flux doctrine: “Heraclitus, I believe, says that all things go and nothing stays, and comparing existents to the flow of a river, he says you could not step twice into the same river” (*Cratylus* 402a = DK22A6).

What Heraclitus actually says is the following:

Quote

On those stepping into rivers staying the same other and other waters flow. (DK22B12)

There is an antithesis between ‘same’ and ‘other.’ The sentence says that *different* waters flow in rivers *staying the same*. In other words, though the waters are always changing, the rivers stay the same. Indeed, it must be precisely *because* the waters are always changing that there

are rivers at all, rather than lakes or ponds. The message is that rivers can stay the same over time even though, or indeed because, the waters change. The point, then, is not that *everything* is changing, but that the fact that *some* things change makes possible the continued existence of *other* things. Perhaps more generally, the change in elements or constituents supports the constancy of higher-level structures. As for the alleged doctrine of the Identity of Opposites, Heraclitus does believe in some kind of unity of opposites. For instance, "God is day night, winter summer, war peace, satiety hunger . . ." (DK22B67). But if we look closer, we see that the unity in question is not identity:

Quote

As the same thing in us is living and dead, waking and sleeping, young and old. For these things having changed around are those, and conversely those having changed around are these. (DK22B88)

The second sentence in B88 gives the explanation for the first. If F is the same as G because F turns into G, then the two are not identical. And Heraclitus insists on the common-sense truth of change: "Cold things warm up, the hot cools off, wet becomes dry, dry becomes wet" (DK22B126). This sort of mutual change presupposes the non-identity of the terms. What Heraclitus wishes to maintain is not the identity of opposites but the fact that they replace each other in a series of transformations: they are interchangeable or transformationally equivalent.

Thus, Heraclitus does not hold Universal Flux, but recognizes a lawlike flux of elements; and he does not hold the Identity of Opposites, but the Transformational Equivalence of Opposites. The views that he does hold do not, jointly or separately, entail a denial of the Law of Non-Contradiction. Heraclitus does, to be sure, make paradoxical statements, but his views are no more self-contradictory than are the paradoxical claims of Socrates. They are, presumably, meant to wake us up from our dogmatic slumbers.

Post by "Bryan" of July 3, 2025 at 11:01 AM

Plátō mocked the Heracliteans and their theory of flux by calling them "the fluxing ones" (Theaetetus 180c).

The mocking epithet Epíkouros used for Hērákleitōs was "Kykētēs" which means "the Agitator."

Epíkouros' term alludes to Hērákleitōs' own metaphor of the kykeōn (a mixed barley drink) which must be stirred to stay combined (DK B125)

Post by “Cassius” of July 3, 2025 at 11:05 AM

And of course Heraclitus comes in for direct mention in Lucretius:

[1-635 \(continuing in following sections....\)](#)

Wherefore those who have thought that fire is the substance of things, and that the whole sum is composed of fire alone, are seen to fall very far from true reasoning. Heraclitus is their leader who first enters the fray, of bright fame for his dark sayings, yet rather among the empty-headed than among the Greeks of weight, who seek after the truth. For fools laud and love all things more which they can descry hidden beneath twisted sayings, and they set up for true what can tickle the ear with a pretty sound and is tricked out with a smart ring.

Post by “Cassius” of July 3, 2025 at 9:28 PM

From Cicero's Academic Questions we see the same issue of the flux being too fast to be apprehended by the senses developed:

[Quote from Cicero's Academic Questions Part 1](#)

VIII.

The third part of philosophy, which is next in order, being conversant about reason and discussion, was thus handled by both schools. They said that, although it originated in the senses, still the power of judging of the truth was not in the senses. They insisted upon it that intellect was the judge of things. They thought that the only thing deserving of belief, because it alone discerned that which was always simple and uniform, and which perceived its real character. This they call idea, having already received this name from Plato; and we properly entitle it species.

But they thought that all the senses were dull and slow, and that they did not by any means perceive those things which appeared subjected to the senses; which were either so small as to be unable to come under the notice of sense, or so moveable and rapid that none of them was ever one consistent thing, nor even the same thing, because everything was in a continual state of transition and disappearance. And therefore they called all this division of things one resting wholly on opinion. But they thought that science had no existence anywhere except in the notions and reasonings of the mind; on which account they approved of the definitions of things, and employed

them on everything which was brought under discussion. The explanation of words also was approved of — that is to say, the explanation of the cause why everything was named as it was; and that they called etymology. Afterwards they used arguments, and, as it were, marks of things, for the proof and conclusion of what they wished to have explained; in which the whole system of dialectics — that is to say, of an oration brought to its conclusion by ratiocination, was handed down. And to this there was added, as a kind of second part, the oratorical power of speaking, which consists in developing a continued discourse, composed in a manner adapted to produce conviction.

With the result that the "intellect" is the judge of things.

Post by “Bryan” of July 3, 2025 at 9:40 PM

He was fundamentally a skeptic, saying "let us not hazard guesses about the most important matters." (Laertius 9.73)

Post by “Bryan” of July 6, 2025 at 3:28 PM

The current dominant interpretation in theoretical physics is far closer to Heraclitus' flux, which imagines a universe in constant transformation, where particles are not solid entities but fleeting excitations in dynamic fields. In this view, reality is a process (only occasionally a substance) shaped by tension, motion, and continual becoming -- this idea is not new, but a form of magical thinking that Epicurus considered and rightly rejected.

"The Stoics together with Heraclitus say that matter is wholly and completely changeable and alterable and mutable and fluid." Aetius 1.9.2

Post by “Rolf” of July 6, 2025 at 3:43 PM

[Quote from Bryan](#)

The current dominant interpretation in theoretical physics is far closer to Heraclitus' flux

Fascinating! Does this mean that we as Epicureans would be wise to align ourselves with modern scientific understanding, adopt this view as the most probable explanation, and ditch the Epicurean view on static atoms and void?

Post by "Don" of July 6, 2025 at 3:58 PM

[Quote from Rolf](#)

[Quote from Bryan](#)

The current dominant interpretation in theoretical physics is far closer to Heraclitus' flux

Fascinating! Does this mean that we as Epicureans would be wise to align ourselves with modern scientific understanding, adopt this view as the most probable explanation, and ditch the Epicurean view on static atoms and void?

Both are true. Neither don't necessarily adequately fully describe our lived experience.

There certainly appear to be such things as atoms and subatomic particles.

There certainly appear to be such things as quantum fluctuations in quantum fields.

My take on the "Epicurean perspective" has always been simply: We live in a physical, natural, material universe governed by knowable laws (well, eventually knowable!) that needs no supernatural intervention to come into being or to function.

Whether one focuses on the quantum level or the atomic level or the biochemical level, the Epicurean perspective holds.

Post by "Cassius" of July 6, 2025 at 4:18 PM

[Quote from Rolf](#)

Fascinating! Does this mean that we as Epicureans would be wise to align ourselves with modern scientific understanding, adopt this view as the most probable explanation, and ditch the Epicurean view on static atoms and void

I don't think Bryan meant to imply that, If following dominant interpretations were always a good idea, Epicurus would have accepted intelligent design for his physics and we would all be Abrahamists today! ☐

Post by “Rolf” of July 6, 2025 at 4:49 PM

[Quote from Cassius](#)

If following dominant interpretations were always a good idea, Epicurus would have accepted intelligent design for his physics and we would all be Abrahamists today!

Haha, I see where you're coming from Cassius! Though I have to assume that this theory of a “universe in constant transformation” is based in scientific reasoning rather than supernatural leaps of faith and societal control. I'm of course no physicist however.

My question is more about how we decide which parts of Epicurus' philosophy, and specifically his physics, can/should be dropped when new information comes to light. We discussed a little while ago on Zoom that some of Epicurus' ideas were absolute and set-in-stone for him, while others were more of a “best guess”. As far as I'm aware, the theory of static atoms and void falls into the former category. If new scientific discoveries contradict Epicurean physics, surely they ought to be accepted, given a scientific worldview?

Now, of course the perspective that Bryan mentioned is only a hypothesis at this stage. My point, however, is less about this specific topic and more about scientific discoveries and consensus potentially being at odds with Epicurus' physics. Don's view is a valid one, and probably one I share, but I'm interested in hearing more perspectives on this.

Post by “Bryan” of July 6, 2025 at 4:51 PM

Yes I was pointing to the similarities between Heraclitus "the Agitator" and the current theorists in charge as a further *charge* against them!

Post by "Rolf" of July 6, 2025 at 4:54 PM

[Quote from Bryan](#)

Yes I was pointing to the similarities between Heraclitus "the Agitator" and the current theorists in charge as a further charge against them!

Ahh, okay! So you disagree with the dominant hypothesis?

Post by "Cassius" of July 6, 2025 at 4:59 PM

[Quote from Rolf](#)

My point, however, is less about this specific topic and more about scientific discoveries and consensus potentially being at odds with Epicurus' physics. Don's view is a valid one, and probably one I share, but I'm interested in hearing more perspectives on this.

I will look to see if we have prior threads on what happens when philosophy seems to conflict with science. I know the subject has come up regularly, but it tends to get buried with other topics.

But for now and in general, I don't think this apparent conflict is something new, and it existed to a degree even in Epicurus' time, on such issues as the calculations as to the size of the sun. In that case Epicurus can be made to look ridiculous in light of modern telescopes and observations, but he can also be defended as pointing to very reasonable caution about the implications of new methodology which might itself be incomplete. There's also a relationship here with Epicurus' refusal to accept a logical challenge that Metrodorus must be either alive or dead tomorrow.

We have a good thread on the size of the sun [here](#).

And the subforum (which probably does not contain all the threads, some of which are buried in "general," is here:

[Explaining Epicurus' Position On The "Size of the Sun" And Related Issues of Speculative Math / Geometry](#)

Post by “Cassius” of July 6, 2025 at 5:10 PM

We didn't end up discussing it very much, but I highly recommend this video of a debate between Richard Dawkins and Lawrence Krauss on Krauss' book "Something From Nothing."

Thread

[**Video Discussion Between Richard Dawkins and Lawrence Krauss on the "Something From Nothing" Question**](#)

I have been meaning to make sure that this video was referenced somewhere in the forum. It's been years since I watched it but I recall it being very good on getting to the heart of the "something from nothing question" - with Richard Dawkins defending the traditional point of view identified with Epicurus:

youtube.com/watch?v=gH9UvnrARf8



Cassius

November 14, 2022 at 2:36 PM

In summary, my personal (admittedly untrained) view is that in this case as in others, the point being argued by Krauss is overstated. If I recall correctly, Dawkins does a good job of dragging out of Krauss that the "nothing" in Krauss's sensational book title isn't really "nothing" as a philosopher would mean it. Instead, what appears to us to be empty space contains energy/fields/forces or whatever. The Epicurean point would be that whatever the thing we're describing turns out to be, it is going to be "natural," and it's not going to be evidence of an intelligent-design-god that overturns the "matter and void" system. Just like throwing the spear shows that the universe has no terminating point, if something is proved to exist then that simply shows it has a natural fundamental basis, and it isn't going to be "infinitely divisible" so as to upend the fundamental world-view.

Post by “Don” of July 6, 2025 at 5:46 PM

Remember, it's specifically stated in the letter to Herodotus by Epicurus:

"To begin with, nothing comes into being *out of what is non-existent*." πρῶτον μὲν ὅτι οὐδὲν γίνεται ἐκ τοῦ μὴ ὄντος

Whether it's atoms or quantum fields, those are still existent things. Things don't spring up out of nothing by the will of the gods.

Post by “Martin” of July 9, 2025 at 1:56 AM

Epicurus' seems to have conceived the "atoms" (i.e. the elementary particles in today's language) as hard bodies, which has been refuted by modern physics. Therefore, Epicurus' inferences from that hardness are not sound. This concerns in particular the interaction between atoms and the formation of compounds. Nevertheless, modern physics does describe interaction between atoms and the formation of compounds.

Although the analogy between today's physics and Heraclitus' flux might appear stronger than between today's physics and Epicurus' hard atoms under that aspect, Heraclitus' flux is useless for meaningful modelling of reality whereas Epicurus' hard atoms can still be used for simplistic starter models to explain some phenomena.

Post by “Bryan” of July 9, 2025 at 9:46 AM

It seems to me that the current state of modern theoretical physics is in a precarious position for following Einstein. A lot of data has been automatically bent to fit incorrect assumptions.

Every year there are many good students, potential physicists, who do not accept the current model and therefore have been turned away from the priesthood. If we had a similar amount of money as the institutions who have been overrun, our version of physics would dominate!

In this sense, it is very political, and we should not give up because we are in the underdog position at the moment.

Real atoms are too small for machines to detect, and what looks like the bending of space is really just the effect of "oceans" of these invisible atoms and their wakes.

Post by "Cassius" of July 9, 2025 at 10:05 AM

To add to what Bryan says about atoms being too small for machines to detect, that highlights that we need to remember that Epicurus was clear that the atoms are not discernable at all by the senses. Anything we know about them is going to come from deductive reasoning based on what is observable.

For that reason, when Martin says:

[Quote from Martin](#)

as hard bodies, which has been refuted by modern physics.

I am not sure that I would agree that Epicurus was really focusing on the bodies as being "hard." That word may very well be used in places, and it is easy to presume that they are hard by analogizing them to the bodies we can observe, but I think we need to look closer and assume nothing that Epicurus himself did not clearly specify.

What I recall is that Epicurus held that the atoms have the three qualities of "size," "shape," and "weight." When I think of "hard," that's something that I identify with touch, and as before we can't touch the atoms to be sure, so any deduction that they are "hard" isn't necessarily required.

Even in terms of size, shape, and weight, what I believe comes through from the texts as necessarily the case was that the "size" of the atoms cannot be infinitely small, nor infinitely large. If they were infinitely small they would not exist, and if infinitely large they would swallow the universe. Within that range what he was focusing on is that the atoms in some way have permanent characteristics that do not change over time. Those permanent characteristics ensure the regularity of the universe and create what we see around us, meaning that there is no requirement for supernatural forces to have created them. Atoms are called "atoms" because the word means indivisible, not because of any other specific assertion about their nature.

These are primarily deductive logical positions, not assertions of specific qualities such as hard or soft, yellow or red, etc. All that is needed is a reasonable explanation of how the universe has a natural, rather than supernatural basis, and for that we look inside of the things we can observe and do our best to deduce conclusions about the smaller parts of which they are

composed. As such, it seems to me that virtually any new discovery of actual facts can be fit into this model so long as the new discovery does not constitute a n intelligent supernatural force or the mystical going back and forth to the *truly* nothing.

Post by “Bryan” of July 9, 2025 at 10:39 AM

We do have:

10.44a. [Bailey] "For on the one hand the nature of the void which separates each atom by itself brings this about, as it is not able to afford resistance, and on the other hand the hardness (stereótēs) which belongs to the atoms makes them recoil after collision to as great a distance as the interlacing permits separation after the collision."

stereótēs is "the *condition from making stiff*" and means firmness or hardness.

"Totally changeable and soft matter" is for the other schools -- it is the exit door out of science and into religion.

"The Stoics together with Heraclitus say that matter is wholly and completely changeable and alterable and mutable and fluid." (Aetius 1.9.2)

Post by “Eikadistes” of July 9, 2025 at 10:45 AM

This is an interesting division that Diogénēs makes. (*Come to think of it*) I wonder how reliable of a transmitter he is of Hellenistic philosophy? The Peripatetics ... as far as I know, the "flux" is categorically Heraklitean; the Aristotelians were interested in syllogistic logic, and built a formal body of rational knowledge. Herakleitos was ... sort of a mystic? While his propositions have implications for physics, I see it as contributing more to philosophy of identity, mind, and language.

Post by “Bryan” of July 9, 2025 at 11:12 AM

[Quote from Eikadistes](#)

how reliable of a transmitter he is of Hellenistic philosophy

I would say Diogenes of Oinoanda is accurately transmitting Hellenistic philosophy from our school's perspective. Plato studied Heraclitus "in the garden at Colonus" before joining Socrates (*Lives* 3.5), and eventually "created a synthesis of the doctrines of Heraclitus, Pythagoras, and Socrates" (3.8); Aristotle did preserve a lot of this synthesis.

Post by "Rolf" of July 9, 2025 at 3:20 PM

Martin, Bryan: I don't know enough about psychics to agree or disagree with either of your positions, but I really appreciate both of you posting your perspectives on this.

Great point, Cassius!

Post by "Rolf" of July 9, 2025 at 3:30 PM

Does anyone have any good sources on learning about modern atomic theory and physics for an absolute beginner? I was just thinking about Epicurus' theories and it hit me just how amazing it is that he was able to get so much right without any kind of scientific equipment. He really was a genius.

Post by "Cassius" of July 9, 2025 at 3:39 PM

Rolf I am obviously not an expert on this either, nor have I found time to read the books I am about to recommend, but consistently over the years i have had people tell me that a very good resource is Victor Stenger:

[Victor Stenger](#)

Post by “Martin” of July 10, 2025 at 5:40 AM

Response to Bryan's comment #19:

Quote

"A lot of data has been automatically bent to fit incorrect assumptions."

No!

Quote

"Every year there are many good students, potential physicists, who do not accept the current model and therefore have been turned away from the priesthood."

I did not encounter such students while I studied physics in Cologne. So, the many good is "exaggerated" if not outright wrong. Being able to apply established models to solve simple problems usually assures graduation. You do not have to accept the current model as "true" or adequate to graduate.

In Germany, more than half of the students who start studying physics give up, mostly because they are just bridging the time until getting accepted for another subject or at another university. The second most common reason is that the mathematics courses in the first year, i.e. just mathematics as a tool set to be mastered without reference to physics, is too difficult for them. I never heard of disagreement with the "current model" as a reason.

Quote

"Real atoms are too small for machines to detect, and what looks like the bending of space is really just the effect of “oceans” of these invisible atoms and their wakes."

No! Electrons and photons are adequately described as elementary particles, i.e. "atoms" in Epicurus' sense, and can be detected by our equipment. "Invisible atoms and their wakes" sounds more like Heraclitus' flux than Epicurus' atomism.

Post by “Don” of July 10, 2025 at 6:21 AM

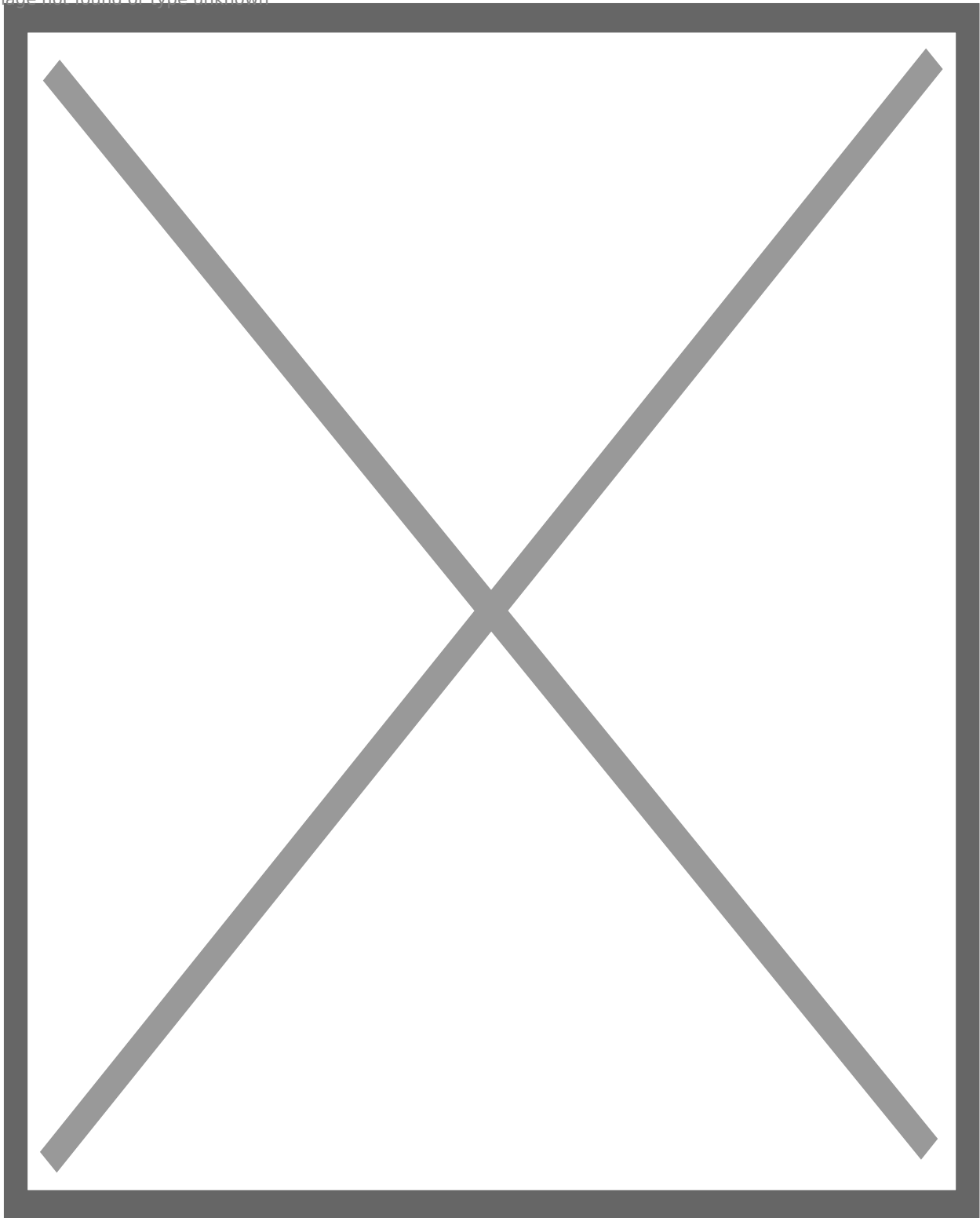
[Quote from Martin quoting Bryan](#)

"Invisible atoms and their wakes" sounds more like Heraclitus' flux than Epicurus' atomism.

[Bryan](#) : Are you referring to dark matter?

As far as "seeing" atoms, it depends on your definition of "see":

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www.scientificamerican.com

And

[Photographing a Single Atom | David Nadlinger](#)

But

Quote from Quote from second article

Before getting into the details of the science behind all this, one particular misconception that has cropped up in the search for sensationalist headlines should be addressed:

Is this an advance in science? Have single atoms been photographed before?
In short: Not in the least; and yes, probably even before I was born.

Post by “Cassius” of July 10, 2025 at 9:13 AM

I may come back and delete this post later if i find better information, but I think we have an obligation to those who "lurk" but don't participate not to let a debate go too far in a certain direction without refocusing it on making sure it is consistent with the purpose of the forum.

Pending further research I have posed the following question to the latest Grok and I believe the response, especially in its opening restatement of the question, is helpful with a general understanding of the issues involved. Even if details of the positions attributed to the particular individuals prove to be incorrect, this still seems to me to be a helpful summary.

Those who have time and inclination can parse through this response and continue to discuss it's accuracy or inaccuracy. Those who do not have time or inclination to do so will still gain, in my view, an appreciation that there are complex issues here, many of which are not "settled."

I hope those who are interested in this will continue to hammer out these issues.

Question:

What modern physicists, if any, continue to maintain a "physicalist" model of the universe as opposed to those models which are more consistent with a Heraclitean flux where certain knowledge is impossible?

Answer:

The distinction between a "physicalist" model of the universe and a Heraclitean flux perspective, where constant change undermines certain knowledge, is a deep philosophical divide in modern physics.

Physicalism, in this context, refers to the view that the universe is fundamentally composed of physical entities governed by consistent, discoverable laws, often tied to a mechanistic or reductionist framework. A Heraclitean flux perspective, by contrast, emphasizes constant change, indeterminacy, and the limits of certain knowledge, aligning with interpretations that prioritize process, emergence, or fundamental uncertainty (e.g., some interpretations of quantum mechanics). Below, I'll outline key modern physicists and their leanings, based on their work and public statements, focusing on whether they align with a physicalist model or a Heraclitean flux-like view. Since direct evidence of their philosophical stances is often implicit, I'll draw from their contributions, writings, and interviews, supplemented by web and X post analysis where relevant. Note that many physicists don't explicitly label themselves as physicalists or flux advocates, so I'm inferring based on their approaches to fundamental physics.

Physicists Aligned with a Physicalist Model: Physicalist-leaning physicists tend to favor theories that seek unified, objective, and deterministic (or at least predictable) descriptions of reality, often rooted in reductionism or the belief that fundamental laws govern all phenomena.

1. Sean Carroll

- Position: Theoretical physicist, known for work in cosmology, quantum mechanics, and the foundations of physics.
- Physicalist Leanings: Carroll is a prominent advocate of the "core theory" (quantum field theory plus general relativity) as a complete description of everyday phenomena. He supports a physicalist worldview through his promotion of naturalism and the idea that the universe is governed by fundamental laws, as seen in his book *The Big Picture* (2016). His Everettian (many-worlds) interpretation of quantum mechanics assumes a universal wavefunction, which, while non-deterministic in observation, is deterministic in its evolution, aligning with physicalism.
- Evidence: In his blog posts and podcasts (e.g., *Mindscape*), Carroll emphasizes that physics provides a reliable framework for understanding reality, rejecting metaphysical uncertainties that undermine objective knowledge.

- Counterpoint: His acceptance of emergent phenomena (e.g., consciousness) might resonate with flux-like ideas, but his commitment to underlying laws keeps him firmly physicalist.
2. Steven Weinberg (deceased 2021, but influential in modern physics)
- Position: Nobel laureate, known for contributions to the electroweak theory and cosmology.
 - Physicalist Leanings: Weinberg was a staunch reductionist, arguing in *Dreams of a Final Theory* (1992) that physics could, in principle, uncover a unified theory of everything. He viewed the universe as governed by simple, universal laws, a hallmark of physicalism.
 - Evidence: His writings dismiss speculative or flux-like views that prioritize indeterminacy, focusing instead on the predictive power of physical theories.
 - Counterpoint: Weinberg acknowledged the limits of current knowledge (e.g., in quantum gravity), but his goal was always a complete, objective description, not a Heraclitean flux.
3. Lisa Randall
- Position: Theoretical physicist, known for work on extra dimensions and particle physics.
 - Physicalist Leanings: Randall's work on models like the Randall-Sundrum framework assumes a universe with consistent, discoverable physical structures (e.g., extra-dimensional branes). Her books, like *Knocking on Heaven's Door* (2011), emphasize the power of the scientific method to uncover objective truths.
 - Evidence: Her focus on testable predictions and mathematical rigor aligns with a physicalist commitment to stable, knowable laws.
 - Counterpoint: She acknowledges complexity in cosmology, but her approach remains reductionist, not flux-oriented.
4. Brian Greene
- Position: String theorist and popularizer of science.
 - Physicalist Leanings: Greene's work on string theory seeks a unified framework for all physical interactions, assuming a fundamental, law-governed reality. In *The Elegant Universe* (1999) and *The Fabric of the Cosmos* (2004), he presents the universe as ultimately comprehensible through physical laws, even if those laws involve high-dimensional strings.
 - Evidence: His advocacy for string theory and his rejection of overly speculative, non-testable ideas suggest a physicalist stance.
 - Counterpoint: String theory's untestable nature could align with flux-like uncertainty, but Greene's optimism about eventual empirical confirmation keeps him in the physicalist camp.

Physicists Aligned with a Heraclitean Flux Perspective: Physicists leaning toward a Heraclitean flux view often embrace indeterminacy, emergent phenomena, or the idea that reality is fundamentally process-based or unknowable in an absolute sense. This aligns with

interpretations of quantum mechanics (e.g., Copenhagen or QBism) or theories emphasizing complexity and change.

1. Lee Smolin

- Position: Theoretical physicist, known for loop quantum gravity and cosmological natural selection.
- Flux Leanings: Smolin explicitly critiques reductionist physicalism in books like *Time Reborn* (2013), arguing that time is fundamental and the universe evolves through dynamic processes, not fixed laws. His cosmological natural selection hypothesis suggests laws themselves may change, resonating with Heraclitean flux.
- Evidence: Smolin's rejection of timeless, universal laws and his emphasis on relational, evolving systems (e.g., in loop quantum gravity) align with a flux-like view where certain knowledge is limited by the universe's inherent changeability.
- Counterpoint: He still seeks mathematical frameworks, which could be seen as physicalist, but his focus on process over static laws leans toward flux.

2. Carlo Rovelli

- Position: Theoretical physicist, co-founder of loop quantum gravity.
- Flux Leanings: Rovelli's relational interpretation of quantum mechanics and his book *The Order of Time* (2017) emphasize that reality is fundamentally relational and time-dependent, with no fixed, objective structure. He argues that physics reveals a world of processes, not things, aligning closely with Heraclitean flux.
- Evidence: His writings, such as *Helgoland* (2020), embrace quantum indeterminacy and the limits of absolute knowledge, suggesting that our descriptions of reality are always contextual.
- Counterpoint: Rovelli's commitment to mathematical rigor might seem physicalist, but his philosophical stance prioritizes change and relationality.

3. Nima Arkani-Hamed

- Position: Theoretical physicist, known for work on the amplituhedron and fundamental physics.
- Flux Leanings: While Arkani-Hamed works on unifying theories, his exploration of the amplituhedron suggests that space and time may not be fundamental, but emergent from more abstract structures. This challenges physicalist assumptions of a fixed spacetime framework and aligns with a flux-like view where reality is process-based.
- Evidence: His lectures (e.g., at the Institute for Advanced Study) emphasize that traditional notions of particles and fields may be illusions, pointing to a deeper, dynamic reality.
- Counterpoint: His search for new mathematical frameworks could be seen as physicalist, but the radical rethinking of spacetime leans toward flux.

4. David Bohm (deceased 1992, but influential)

- Position: Quantum physicist, known for the Bohmian interpretation of quantum mechanics.

- Flux Leanings: Bohm's concept of the "implicate order" in *Wholeness and the Implicate Order* (1980) describes reality as a dynamic, interconnected process, where the universe unfolds and enfolds in a constant flux. This rejects the static, particle-based physicalism of classical physics.
- Evidence: His emphasis on holism and the impossibility of fully separating observer from observed aligns with Heraclitean ideas of constant change and epistemic limits.
- Counterpoint: Bohmian mechanics is deterministic, which could seem physicalist, but its holistic, process-based ontology is flux-like.

Mixed or Ambiguous Positions: Some physicists straddle the line, acknowledging both the power of physical laws and the limits of certain knowledge:

1. Roger Penrose

- Position: Mathematical physicist, known for work on black holes and consciousness.
- Mixed Stance: Penrose's work on general relativity and quantum gravity (e.g., twistor theory) seeks objective laws, aligning with physicalism. However, his ideas about the limits of computation (e.g., in *The Emperor's New Mind*, 1989) and the cyclic cosmology model suggest a universe with fundamental uncertainties and dynamic cycles, leaning toward flux.
- Evidence: His recent work on conformal cyclic cosmology emphasizes change and renewal, but he remains committed to mathematical objectivity.
- Conclusion: Penrose blends physicalist rigor with flux-like openness to radical change.

2. Sabine Hossenfelder

- Position: Theoretical physicist, known for critiques of modern physics.
- Mixed Stance: Hossenfelder is a physicalist in her commitment to testable state laws, as seen in her book *Lost in Math* (2018).
- Evidence: Her critiques of speculative theories (e.g., multiverse) show skepticism of flux-like indeterminacy, but her acknowledgment of quantum randomness and the limits of current theories introduces a flux-like humility.
- Conclusion: She leans physicalist but is open to the limits of knowledge.

Summary

- Physicalist-Leaning Physicists: Sean Carroll, Steven Weinberg, Lisa Randall, Brian Greene. These physicists emphasize stable, discoverable laws and a reductionist view of the universe.
- Flux-Leaning Physicists: Lee Smolin, Carlo Rovelli, Nima Arkani-Hamed, David Bohm. These thinkers embrace dynamic, relational, or emergent views where change and uncertainty limit absolute knowledge.
- Mixed Cases: Roger Penrose, Sabine Hossenfelder, who balance objective laws with openness to fundamental change or limits.

The divide reflects ongoing debates in physics about whether the universe is a fixed, knowable system or a dynamic, ever-changing process.

Post by “Bryan” of July 10, 2025 at 11:32 AM

[Quote from Don](#)

As far as "seeing" atoms, it depends on your definition

Absolutely -- what we call “atoms” today can be seen with instruments, but of course those are vastly larger than a true atom and they are made up of countless real atoms. I was referring to a *true* atom in the original sense: an indivisible, solid bit of matter.

[Quote from Martin](#)

Electrons and photons are adequately described as elementary particles,

An adequate description of an elementary particle must include that particle *always* having mass.

Post by “Martin” of July 10, 2025 at 12:05 PM

Grok misclassified Sabine Hossenfelder. Her insistence on hard determinism makes her the most extreme physicalist among those listed.

Post by “Cassius” of July 10, 2025 at 12:13 PM

[Quote from Martin](#)

Grok misclassified Sabine Hossenfelder. Her insistence on hard determinism makes her the most extreme physicalist among those listed.

I suspect you are correct but can neither confirm nor deny. However I think the way you phrased that is very helpful for leading to the question: Does hard determinism presuppose physicalism? I suspect that at least some hard determinists would disagree with that, but I see that as one of those intersection questions between philosophy and physics.

Post by “Eikadistes” of July 10, 2025 at 12:31 PM

[Quote from Cassius](#)

I have posed the following question to the latest Grok

We shouldn't, because...

[Quote from Cassius](#)

Those who have time and inclination can parse through this response and continue to discuss it's accuracy or inaccuracy.

We **know** that *it doesn't know*, and we already have to evaluate it for falsehood.

Grok possesses a vast knowledge base, yet a shallow one; it's evaluations are confident, yet hasty; it represents itself with authority, yet has none; it employs technical jargon without proper context; it cannot recognize anachronisms; it blindly accepts published conclusions without self-review; it's capacities to perform analyses are limited to the minds of the developer(s); it's reviewing philosophical propositions like the computer programmers who developed it (*I'm surprised it didn't find a way to incorporate politics into the response based on its latest update*); even if politics weren't a factor, it would still be limited by the opinions of contemporary academics. [Don](#) demonstrated that the "early tenth" refers to the Twentieth, and this is corroborated by the findings of Stephen White (2021) ... but right now, Grok, and Gemini, and Siri are just going to provide you with the inaccurate, scholarly consensus (or Wikipedia): *he was born on the 10th* (wrong).

These language models are a bad research assistants.

[Quote from Cassius](#)

Physicists Aligned with a Heraclitean Flux Perspective...

This is a great example of the kind of anachronism I mean.

There isn't a "Heraclitean Flux" model in contemporary physics. You will not find the phrase "Heraclitean Flux" outside of philosophy papers, archaeological journals, or history publications. No physicists right now express their positions on the Standard Model in terms of "Heraclitean Flux". I'm willing to bet that most of them have no idea who Herakleitos was; if they do, I'm further willing to bet they only know the idiom "...same river twice..." and nothing else.

Grok neither knows that, nor cares. It's assuming an answer based on our question. I bet if we asked it, "**Grok, which modern musicians reflect the realization of the Hegelian zeitgeist?**", I bet it would provide a coherent response with sources, even though it's a nonsense question.

I don't think, for me, comparing ancient physics with modern physics will be helpful to try to improve our understanding of either. Herakleitos, as far as I know, concludes that "fire" is the fundamental substance of reality, and that's a wild idea. If we're trying to make an analogy between the two, we'd have to apologize for the fact that his proposition implies that "fire" is smaller than a hydrogen atom. That's a dead-end to me. I know that Stoics like to argue that "fire" can be interpreted as a very loose metaphor for something like "quantum foam" or "the latent energy of spacetime" ... but I think that's equivocation and apologism for a myth in the first place.

Post by "Rolf" of July 10, 2025 at 1:13 PM

Really fascinating discussion.

Post by "Bryan" of July 10, 2025 at 1:17 PM

[Quote from Eikadistes](#)

Don demonstrated that the "early tenth" refers to the Twentieth

Great example. I am *certain* Don is correct, but I just asked GPT and it said the 7th!

Although the robot is not accurate, I think Cassius is leaning into the correct angle:

There are physicists who take fundamentally different basic assumptions.

From their different basic assumptions (*of whether everything is physical matter or not*) the different sides stack up their evidence.

[Quote from Eikadistes](#)

I don't think, for me, comparing ancient physics with modern physics will be helpful to try to improve our understanding of either.

I mostly agree. I think you will also agree that *taking the side* of the mathematicians who say that *elementary particles can be something else but a discrete hard unit with mass and weight* is a position that is *not based on evidence, but in opinion* -- and it is a basic premise that Epicurus considered and rejected.

So, it seems to me, those who say Epicurus is incorrect on this topic, are not "staying up to date" but just choosing a contrary basic premise.

Post by “Rolf” of July 10, 2025 at 1:46 PM

Would somebody be able to post a concise explanation of the two sides of this debate? I see what you're getting at but I'm not 100%.

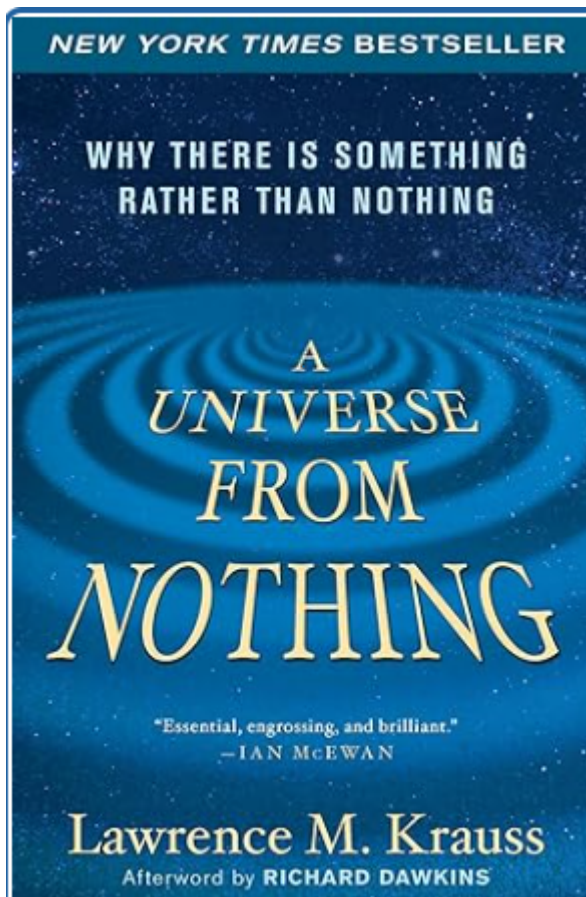
Post by “DaveT” of July 10, 2025 at 1:47 PM

Allow me a respectful comment on this thread. I think it is not helpful to compare and contrast the physical world hypotheses of the various ancient thinkers with our complex modern science of physics. Sometimes, an ancient thinker, by a fortunate coincidence, deduced and sensed a scientific principle later proven true by modern science. The fact that they hit on something that has now been proven to be true is a fortunate coincidence, does not diminish the power of their thinking, nor does it confirm who was correct or incorrect in their deductive powers about the physical world. In my view, Epicurus is worthy of consideration not as a soothsayer, but as a logician who bucked the tide of ancient metaphysics and religion, and developed a doctrine that many found to be a fulfilling lifestyle. As Inwood and Gerson write in *The Epicurus Reader*,

The Four Point Cure (via Philodemus' reporting) is: Don't fear God, Don't worry about death; What is good is easy to get, and What is terrible is easy to endure.

Post by "Cassius" of July 10, 2025 at 3:41 PM

In partial answer to Rolf and DaveT, my exhibit A on this issue, and I am sure there are many more when I go looking, is Lawrence Krauss and his "A Universe From Nothing," which I have referenced before as the subject of a video debate between Krauss and Richard Dawkins:



**Why There Is Something
rback - January 1, 2013**

by [Lawrence M. Krauss](#) (Author), [Richard Dawkins](#) (Afterword)

<https://m.media-amazon.com/images/I/81nt1V1DDcL. SY466 .jpg>

Bestselling author and acclaimed physicist Lawrence Krauss offers a paradigm-shifting view of how everything that exists came to be in the first place.

“Where did the universe come from? What was there before it? What will the future bring? And finally, why is there something rather than nothing?”

One of the few prominent scientists today to have crossed the chasm between science and popular culture, Krauss describes the staggeringly beautiful experimental observations and mind-bending new theories that demonstrate not only can something arise from nothing, something will always arise from nothing. With a new preface about the significance of the discovery of the Higgs particle, *A Universe from Nothing* uses Krauss’s characteristic wry humor and wonderfully clear explanations to take us back to the beginning of the beginning, presenting the most recent evidence for how our universe evolved—and the implications for how it’s going to end.

(underlining added)

If this forum were dedicated only to the discussion among existing members, all of whom were well grounded in physics, the issue I am about to discuss would not be necessary to confront. But I don't think that "experts" were the main target of Epicurus, nor do I want this forum to require all discussion of physics to conform to the latest speculations of string theory or whatever is the fashion of the day.

Regular people need a coherent explanation of the nature of the universe that they can internalize and feel confident that the basics of a natural explanation are solid. We need not be able to reconstruct the universe ourselves just because atomism makes more sense than any other physics theory, we simply need one of more understandable frameworks of analysis that satisfies us that supernatural explanations are not required.

My reasoning behind the position I take is that ever since I took physics in college, and every year since then, I have been confronted with laymen arguments such as "Heisenberg's uncertainty principle" and "[Schrödinger's cat](#)" mean that the universe is ENTIRELY unpredictable, with the stated or unstated premise that as a result the preferred posture for an intelligent person is either total skepticism or return to supernaturalism.

I point to Lawrence Krauss' sensationalist book title, along with Richard Dawkins' perceived need to object on much the same grounds I am stating here, as just one of the recent examples of the same issue. My reading of Krauss' book is that he is fudging on what "nothing" really means, but he has structured his title and argument, as exemplified in the Youtube blurb, in a way that I perceive as entirely calculated to disrupt any confidence anyone might have in anything. Unless - that is - they hand themselves over to the physicist experts who allegedly

have some esoteric knowledge that is unavailable to normal people, and in fact has in the past always been unavailable to anyone, from Leonardo da Vinci on down, without modern technological discoveries. The further implication is that we should consider ourselves fortunate we are to have such people as Krauss now to lift us to a new golden age, if we will only ask *them* how to live!

That attitude is bunk, but I think that's exactly what Epicurus was confronting in terms of the size of the sun arguments and the other assertions of the mathematicians and logicians of his own day.

The objections raised by Martin and Tau Phi are representative of good faith objections we have seen before and will see many times again.

I perceive Martin's concerns to be the standards of writing here at the forum -- that we not countenance the equivalent of flat earth theories that fly in the face of all evidence. I think most everyone here would agree with that, including me, but the kind of issues involved in the arguments of Krauss and others, which do in fact arrive back at Heraclitean indeterminacy, and which other highly-educated people are rebutting, are not in that category.

I perceive Tau Phi's concerns, which were also stated in our Zoom last night with more specificity, as being consistent with his more skeptical attitude that he freely states. The skeptical argument since before the time of Cicero to today is that is simply not necessary to take sides at all on any aspects of physics. I am sure he has a different take on his own position, but I would analogize his position to the position Frances Wright takes in "A Few Days In Athens" - she hardly mentions physics or necessity at all in her book, and to the extent she does mention it her statements are largely at odds with Epicurus' own. Her position in my reading amounts to the view that we should concern ourselves purely with ethics and not concern ourselves with infinity, eternality, or most anything outside the confines of the earth. In the end, Frances Wright's book, as brilliant as it is, did not lead to anything further for Epicurean philosophy, or for her personally (as far as I can tell), and that's what I perceive to be the reason why. Radical skepticism is ultimately totally unsatisfying, self-refuting, and leads nowhere.

I respect both Martin's and Tau Phi's viewpoints, they are friends of mine, and they bring much that is helpful to the forum. But Epicurus felt that it IS necessary to develop theories that oppose those of the radical skeptics and hard determinists and logicians -- even more than one theory if necessary -- and that IS necessary to be willing to draw conclusions on issues of ultimate concern to us. Is there life after death? Are there supernatural forces? Those questions cannot be EMPIRICALLY answered because we have not ourselves lived forever or observed everything in the universe, and anyone who proposes such a standard of certainty is on a fool's errand and asserting a standard that is both nonsensical and not something that they apply to other necessary day to day decisionmaking.

The question of "When is the evidence enough?" to justify reaching a conclusion is not one a physicist can answer -- not now, and not in another thousand years. And it makes no sense whatsoever to conclude "we'll never know" so maybe we should hedge our bets and act as if there are supernatural forces and maybe our consciousness will survive death. There is plenty of evidence that contradicts those positions, and it is radical skepticism that both nonsensical, self-contradictory, and perverse to require us to apply that kind of standard of "certainty" to the most important questions of life.

Whether the ultimate particles are "hard" or "soft" or exactly why they "bounce" or exactly how they move are issues which will almost certainly not be determined in our lifetimes or ever. But what we already have, however, is reams of evidence that something like that DOES happen, and does support a general theory of ultimate particles. What we already have is amply sufficient to form a basis for explaining that the universe is natural in the face of those who insist that it is supernatural.

Coming to a close here, I believe Epicurus' point is that is the role of a practical philosophy to provide a framework for successful living. A large part of that framework requires a working theory that the universe is natural and operates regularly according to predictable principles. It cannot be accepted that a proper understanding of life requires a lifetime of dedication to abstract physics, nor can it be accepted that those who do devote their lives to such a pursuit are entitled to deference in every important conclusion of life - conclusions on which they themselves are divided and often attached to views that defy natural and ordinary experience.

That's why it makes sense to me to stay the course with Epicurus' strategy. Not every precise detail, but to his clearly-stated strategy of deducing reasonable conclusions based on available evidence.

To the extent possible we can and should explore the latest developments in physics and astronomy and everything else, and make sure that the latest discoveries ultimately can be reconciled with a natural order of things. But there is absolutely no reason to expect that this basically naturalistic viewpoint is going to be overturned tomorrow or in ten million years by viewpoints such as "everything flows" and therefore "nothing is unknowable." Those views were self-contradictory and absurd from the first moment they were asserted thousands of years ago, and they remain today and will remain forever self-contradictory and absurd.

We cannot be afraid not to be assertive on these points, even if we ourselves have not devoted our lives to the latest speculations in physics.

Post by "Godfrey" of July 15, 2025 at 12:28 AM

Regarding Grok: [\[Grok chatbot studies Musk's views before answering\]\(https://edition.pagesuite.com/popovers/dynamic_article_popover.aspx?guid=caba25fa-1924-426f-b152-620ea173d406&v=sdk\)](https://edition.pagesuite.com/popovers/dynamic_article_popover.aspx?guid=caba25fa-1924-426f-b152-620ea173d406&v=sdk)

Post by “DistantLaughter” of July 15, 2025 at 1:02 AM

These are my reflections on the relationship between Epicurean *prolepsis* and Chomsky's theory of Universal Grammar—two distinct yet convergent attempts to explain how the mind organizes experience into coherent and communicable forms. Though separated by centuries and embedded in fundamentally different philosophical systems, both concepts serve to account for the mind's ability to move from the flux of sensory data to the formation of stable, generalizable structures of thought. In doing so, they may also help explain how human cognition is able to cope with the Heraclitean condition of flux—the ever-changing, unstable nature of perceptual experience—by positing internal mechanisms that impose stability, regularity, or intelligibility upon an otherwise shifting world.

Epicurus introduces *prolepsis* as one of the three *criteria of truth*, alongside sensation (*aisthēsis*) and affective response (*pathē*). *Prolepsis* refers to the mental preconceptions or anticipations that arise from repeated encounters with similar sensory phenomena. These are not innate in the strict sense but are generated through a process of accumulated experience, resulting in cognitive templates that are later used in reasoning and discourse. For Epicurus, these preconceptions are natural and universal in the sense that all humans will tend to form them under similar conditions, but their origin lies in the empirically grounded process of sensory repetition. The mind, in this view, is not a blank slate in a passive sense—it is responsive, regularized by nature, and capable of organizing experience into recognizable forms—but it lacks pre-specified content independent of perceptual input.

Chomsky's Universal Grammar, by contrast, asserts that certain core aspects of human linguistic competence are biologically innate. The grammatical structures underlying all human languages are not abstracted from repeated sensory experience but are instead manifestations of an internal, species-specific cognitive architecture. This internal grammar enables children to generate and comprehend linguistic expressions far more rapidly and systematically than could be explained by empirical learning alone—a problem Chomsky famously framed as the "poverty of the stimulus." The linguistic input a child receives is often fragmentary, ungrammatical, or ambiguous, yet the child arrives at a sophisticated and largely unconscious grasp of complex syntactic rules. This strongly suggests the presence of innate cognitive structures that do not emerge from experience but precede and shape it. Chomsky's innatism does not rest on metaphysical Platonism; it is naturalistic, grounded in biology and evolution, and seeks to

explain the universality and specificity of language acquisition through internal, genetically encoded mechanisms.

The tension between these positions lies in their differing causal trajectories. *Prolepsis* is an empirically derived, bottom-up process in which general concepts are formed through accumulated exposure to particular instances. Universal Grammar is a top-down account: it posits that the human mind comes equipped with an a priori framework that structures experience from the outset. And yet, despite this opposition in orientation, both views converge on the idea that the mind imposes order on experience—it is not simply shaped by the world but participates actively in its interpretation. Both theories recognize a form of cognitive mediation: for Epicurus, this mediation is grounded in natural regularities of perception; for Chomsky, in internal biological design.

This parallel becomes especially relevant when considered in light of the Heraclitean doctrine of flux—the idea that all things are in constant motion and that no object remains the same from one moment to the next. If we take this seriously, then the possibility of stable knowledge, fixed categories, or even coherent language is immediately threatened. But both *prolepsis* and Universal Grammar offer a reply to this ancient challenge. They locate the source of stability not in the external world—which may indeed be in perpetual change—but in the mind’s capacity to regularize and interpret experience according to internally generated patterns. Whether these patterns are formed through empirical generalization (as in *prolepsis*) or are biologically prefigured (as in Chomsky), the result is the same: a cognitive apparatus capable of holding meaning steady amid perceptual variation. Thus, both systems allow for epistemic continuity in a world of ontological instability, and both suggest that the coherence of human understanding arises from the structural capacities of the subject rather than from the fixity of the external world.

Post by “Cassius” of July 15, 2025 at 5:21 AM

Great post, DL.

[Quote from DistantLaughter](#)

Prolepsis is an empirically derived, bottom-up process in which general concepts are formed through accumulated exposure to particular instances.

By my reading, this is where DeWitt's focus on what Velleius has to say in "On The Nature of the Gods," rather than solely on what Diogenes Laertius has to say, places Epicurus closer to what you are describing as the Chomsky position. I've never read anything about Chomsky and

I have no ability to comment there, but maybe this is more similar than just in result.

[Quote from DistantLaughter](#)

Prolepsis is an empirically derived, bottom-up process in which general concepts are formed through accumulated exposure to particular instances.

As I read it this last, statement here is definitely the prevailing view of Epicurus (based mostly on the relevant part of Diogenes Laertius) but DeWitt argues that Cicero's summary of Epicurus' view is not limited to this and reads more like you are describing as "The grammatical structures underlying all human languages are not abstracted from repeated sensory experience but are instead manifestations of an internal, species-specific cognitive architecture."

If someone were looking to explore parallels between Epicurus and Chomsky I'd definitely recommend DeWitt's chapters on anticipations and the gods.

Post by "Eikadistes" of July 15, 2025 at 9:50 AM

[Quote from DistantLaughter](#)

These are my reflections on the relationship between Epicurean *prolepsis* and Chomsky's theory of Universal Grammar

This is **great**. Chomsky often comes to mind when I think about prolepsis.

I'm glad you mentioned it.

Post by "DaveT" of July 15, 2025 at 12:05 PM

[Cassius](#) (forgive the Bold type, I can't see how to change it) Regarding your comments about the Krauss book above, and physics for the layperson. His book is from 2013, and over the last 12 years there have been around 30000 reviews posted on Goodreads. That's 2500 per year. I doubt many lay people will ever read this book, and fewer yet among

spiritualists. I often try to ask about the potential impact of anything presented as fact from the position of the layperson, also. Not sure it matters to ask about the impact of modern physics, when it comes to philosophical inquiry, though. As a basis for argument among the well educated, OK, fine, but for ordinary teaching and learning? Only the process of logical deduction (like in science) is important when discussing Epicurus, right?

I like this quote from Richard Powers who wrote that there is not anything that is “a matter of fact....there is only observing and humility.” I think that is a fair request for the layperson as well as the experts in any field. And as for the foundations of physics, scientific discovery is never 100 percent certain, the scientists always challenge their community to disprove their conclusions, and that is the search for knowledge, isn't it?

Post by “Cassius” of July 15, 2025 at 12:40 PM

DaveT the font style options appear under the three dots with the drop down next to it in the menu bar above each editing screen.

[Quote from DaveT](#)

I doubt many lay people will ever read this book, and fewer yet among spiritualists. I often try to ask about the potential impact of anything presented as fact from the position of the layperson, also. Not sure it matters to ask about the impact of modern physics, when it comes to philosophical inquiry, though.

I do think that physics and philosophy intersect, and it seems to me that clearly Epicurus thought so also. Use of physics or psuedo-physics theory to argue that everything is essentially unknowable dates as far back as before Epicurus, and it still goes on today. If someone concludes that everything is unknowable, and they try to be consistent in their thoughts, then they'll abandon philosohy and everything else as well.

[Quote from DaveT](#)

I doubt many lay people will ever read this book, and fewer yet among spiritualists. I often try to ask about the potential impact of anything presented as fact from the position of the layperson, also. Not sure it matters to ask about the impact of modern physics, when it comes to philosophical inquiry, though. As a basis for argument among the well educated, OK, fine, but for ordinary teaching and learning? Only the process of logical deduction (like in science) is important when discussing Epicurus, right?

I agree that the process of logical deduction is important, but only if it actually helps you reach important conclusions. This is my difference with Frances Wright, who tried to divorce physics from Epicurean philosophy and reach no conclusions about the universe whatsoever. To each his own, but my read of the situation is that for a lot of people (and I'd wager a majority, though I have no way to prove it) that doesn't work. You can't just leave "the existence of a supernatural god" and "eternal life or punishment after death" to the category of "maybe" without profound harmful consequences.

[Quote from DaveT](#)

I like this quote from Richard Powers who wrote that there is not anything that is "a matter of fact....there is only observing and humility." I think that is a fair request for the layperson as well as the experts in any field. And as for the foundations of physics, scientific discovery is never 100 percent certain, the scientists always challenge their community to disprove their conclusions, and that is the search for knowledge, isn't it?

And I guess that quote is the basic problem, if one concludes that there is nothing that is a "matter of fact" at all. Not referring to you or your interpretation of it, of course, but in general I just profoundly disagree with that sentiment when spoken in philosophical terms. And consistent with earlier comments in this very thread, the test is not whether there is some cosmic supernatural universal truth, but whether something is true to us. And there are plenty of things that are a "matter of fact" for us, including (I would say) that there are no supernatural gods and no continuing life after death.