

Second Philosophy

Led by	Pun Couffer / Jurica Palijan
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INTRODUCTION

One of the assumptions which science is based on is that universe can be understood by reason, either completely or partially. Is that assumption correct?

First, let's ask ourselves: does reason have the capacity to understand the entire universe completely?

Some great minds - for instance the great mathematician and astronomer Pierre-Simon de Laplace - did think so. Laplace thought that a superhuman mind, if given enough information about the present state of the Universe, could completely precisely predict entire future of the Universe on the basis of knowledge of mathematics and laws of physics. Is this position correct?

The precision of measurement is, and will likely always be, a limit for science's capability to predict the future. We can't measure anything with absolute precision. For instance, if we measure the length of a stick as 45.2 cm, we can be very certain that we'd get more digits if we used a more precise measuring instrument. We can never have an instrument which can measure all the digits, because there can be an infinite amount of digits. However, let's separate this problem from the problem of science's capability to predict future precisely, and go from the assumption that we can perform perfectly precise measurements of all quantities in the universe. Would Laplace's position be correct in that case?

If science and reason aren't ultimately capable of giving complete understanding of the Universe, are they at least capable of giving partial understanding of the Universe? Modern physics seems to agree that there are limits of scientific inquiry, and it even claims to know its exact limits in some cases. In the last few decades of the 19th century, physicists mostly thought that most of the laws of nature are known, and that just some small details are left to be worked out. In the last years of 19th century, physics ran into big problems, being unable to explain some phenomena related to emission of electromagnetic radiation.

This crisis in physics is called 'ultraviolet catastrophe', because physics of that time was unable to provide any good solution to the emission of electromagnetic radiation. The only solution it could provide was an obviously absurd one, which stated that a body would radiate an infinite amount of energy in the ultraviolet part of electromagnetic spectrum. This crisis led to a revolution in physics which ended in the early 20th century by formation of the theory we call quantum physics, and which was able to give a satisfactory solution to the problem of the emission of electromagnetic radiation. It also produced many other revolutionary results.

Niels Bohr and Werner Heisenberg, very influential early quantum physicists, promoted the idea which they've thoroughly thought through: many phenomena in nature can't be precisely measured or precisely understood. For instance, Niels Bohr thought it's pointless to talk about what exactly is going on in atoms, because those events can never be seen or measured. He thought we should talk only about directly measurable things like energy, while we should abandon the notion that there are any trajectories of electrons within atoms.

Werner Heisenberg worked out formulas (Heisenberg uncertainty relations) which give us exact numerical values which tell us how well can some pairs of physical quantities be defined in nature. It's not only that we CAN'T measure, say, speed and position of a particle with infinite precision; speed and position of a particle can't even EXIST perfectly precisely defined.

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Heisenberg's uncertainty relations tell us what's the maximum precision with which one physical quantity is defined in nature if another quantity has some specific precision. If we, for instance, contain a particle in a very small container, we've defined its position pretty well (it has to be within the container, which is very small), but then the particle's speed at any moment becomes less defined. Of course, there are things science currently doesn't know, but may learn in the future.

Are there things it simply can't ever, under any conditions that are possible in this universe, learn? Which are those? Why? And where exactly is the limit? What can science hope to learn in the future? Why can it learn those things?

Still, some claim that science can't know a thing. Most of those who think that way are people who know very little about science.

The best known example of people who think so are some Christian religious groups, but they're far from being the only example. Paul Karl Feyerabend, who was well-educated in physics, and was a renowned philosopher and a professor at Berkeley, also seemed to imply in his book *Against Method* that science can't really explain anything. Can this position be defended?

Let's extend this question further from science, and ask ourselves how much our reason can tell us about anything. Can we completely understand and explain everything? Can we understand some things completely, and some partially? Can we only understand things partially? Or perhaps we can't hope to ever understand anything? If we can understand anything, where are the limits? How sharply can we define those limits, and by what logic would we define them? Let's mention something about science and scientific theories.

History of science urges us to believe that every theory gets supplanted by another sooner or later. All scientific theories and concepts eventually get refuted. According to Thomas Samuel Kuhn, a famous philosopher of science, every science goes through brief but turbulent periods which start by an important scientific problem which can't be solved with the dominant scientific theory. This problem is called 'an anomaly' by Kuhn.

Then, many new theories are offered by various scientists, and one of them manages to solve the scientific problem in question, but it also offers very different concepts about how the world works.

Emergence of this theory is called 'a scientific revolution'. This theory supplants the previous dominant theory, and a new long period of the so-called 'normal science' starts.

All famous revolutionary theories, like Copernican heliocentric theory, Einstein's theory of relativity, and Planck's quantum physics, were preceded by an anomaly in the dominant science. It was a problem which the majority of the scientific community was aware of, and which was solved by the new theory.

Of course, in some cases, the scientific community didn't accept it right away, even though the theory did offer a solution to an important, otherwise unsolvable, problem.

QUESTIONS:

- 1) What are the ultimate limits of science; or, in other words, how would science look, and what would it be capable of, if it developed as much as reality allows it?
- 2) Can science break down beyond repair? In other words, can in our reality science face refutation which it couldn't go around by the means of any conceivable scientific revolution?
- 3) What are the ultimate limits of reason? What can we know about things if we have the best possible mind?

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DISCUSSION:

- [12:20] toBe Destiny: smiles, did you forget any part of the standard theory about science? My position is that conceptualization is limited even if "reified" by a process involving social agreements
- [12:20] Sunfire Langer: I think the limits of reason are simply those that reason is used to define
- [12:20] Patrick Magnifico: This pattern of new ways of thinking taking over older ways seems very analogous to the way religion has progressed since the days of paganism or before.
- [12:20] Oswy Gothly: I would like to start with your proposition about reason. I agree that science lies within the realm of reason but reason is bigger than scientific explanation.
- [12:20] toBe Destiny: This would be a Buddhist position, if I am correct about this.
- [12:21] Patrick Magnifico: Do you think there is a similarity between science and religion?
- [12:21] Marya Blaisdale: mmm, no Patrick
- [12:21] Sunfire Langer: Science is empirical testing with reasoned observation
- [12:21] toBe Destiny: ah Oswy, and I agree.
- [12:21] Patrick Magnifico: But religion is based on alleged observation
- [12:22] Simulat Almendros: Not really Patrick - the continuous reference to reality is the main difference between science and religion
- [12:22] Oswy Gothly: This is not to denigrate science it is a valuable tool and speaks in its own language but there are things beyond science and it is hubris to deny this.
- [12:22] Sunfire Langer: but with confoundingly anecdotal evidence, Patrick
- [12:22] toBe Destiny: Perhaps the introduction to the philosophy of science to the issue of religion is problematic to the philosophy of science?
- [12:22] Marya Blaisdale: Sure Patrick, 'alleged' being the key word there - sans evidence - it is based on faith and not evidence (but I don't think this discussion needs be centred around religion)
- [12:22] Thoth Jantzen: first, in my opinion, there is a big difference being 'knowing everything' and understand how the universe works. With regards to the first, it's practically - and I mean that in the literal sense, to 'know' everything; that'd essentially require a brain within which the entire universe can be replicated AND observed/considered. Needless to say, that can't be done.
- [12:22] Simulat Almendros: Oswy - taste in literature is beyond science
- [12:23] Patrick Magnifico: No, but I think I should explain why I mentioned it.
- [12:23] Marya Blaisdale: by all means Patrick
- [12:23] Thoth Jantzen: But we don't NEED to do that. IF we can understand the principles that drive things and - through observation - collect enough data to reason out how things go together and work - is there really a need to 'know' all the details? With a good understanding, we can 'know' well enough the details of any subset we wish to and can observe. There are limits, of course, and we will never likely fully understand some things, at least not with total certainty, but well enough, I think, to be satisfied.
- [12:23] toBe Destiny: it is not for science to judge religious thought, because all of mathematics does not tell us much at all about the causes of human nature, and about life itself.
- [12:23] Ticklish Questi: well - on the accuracy issue - we don't need to see every leaf to know that we are looking at a tree
- [12:23] Patrick Magnifico: I think that atheism is becoming a bigger deal nowadays and the bible of atheism, if you follow that expression, has come to be science, and so I wonder if the bible of an atheist - science - is as fallible as the bible of a theist - a literal bible
- [12:24] Amelie Emor: how many leaves do you need to see ticklish?
- [12:24] toBe Destiny: listens
- [12:24] Mitch Zemenis: Simulat: Taste in science is beyond science (wasn't this roughly part of Kuhn's insight?)
- [12:24] Torrent Afterthought: Isn't discussion of religion a bit of a digression?
- [12:24] Simulat Almendros: science is science - it has its area of study and it doesn't study everything - I don't know where this straw man that science studies everything comes from

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- [12:24] Pun Couffer: I agree with you, Thoth.
- [12:24] Marya Blaisdale: Well, I think psychology falls under 'science' ToBe, and as such, psychology can help us understand human nature, as well as, of course, biology :]
- [12:24] Lokifluff Clarity: I agree Sim
- [12:24] Oswy Gothly: Sim I agree that much of aesthetics and morality is beyond a full scientific explanation . So is consciousness, human agency causation, and personal identity over time. This is not to say that science has nothing to offer on these issues but there is more that reason can offer.
- [12:25] toBe Destiny: I agree with Patrick regarding the religion of science, funded science, and the religion of our economic model
- [12:25] Patrick Magnifico: I don't mean to derail the focus of your presentation.
- [12:25] Torrent Afterthought: One question was: is it possible that science can not explain anything. I submit our current mode of communication refutes this.
- [12:25] Thoth Jantzen: science deals with that which can be observed and reasoned about, basically, no?
- [12:25] Sunfire Langer: is reason with science or science within reason?
- [12:25] Ticklish Questi: that's where common sense comes in Amelie
- [12:26] Marya Blaisdale: (it's not a derailment Patrick - if you feel it is relevant) :)
- [12:26] Pun Couffer: I'd say both, Sunfire. Reason is a part of science, and science is a part of reason.
- [12:26] Oswy Gothly: Sunfire Science must be within reason. But reason is a bigger concept.
- [12:26] herman Bergson: what is everything ???
- [12:26] Lokifluff Clarity: in my opinion, science is locked in language, like all things that are described, and for as long as there is language, there are limits
- [12:26] Amelie Emor: heh, ok. You look at 20 leaves on a tree and reasonably conclude it is a tree. I look at 20 leaves and am not so sure it is a tree. Is your opinion to be trusted when I say I am not sure? My point is that it is all relative to a personal perspective, even science.
- [12:26] toBe Destiny: ... If feel that the current trend in anti-intellectualism, a reaction against the claims of "science". is part of what we are dealing with now in our educational system...
- [12:26] Simulat Almendros: Oswy - we have argued about consciousness until you're blue in the face :-)
- [12:26] Sunfire Langer: I'd say reason includes science, but science is not all of reason, Pun
- [12:27] Pun Couffer: Everything in the introductory essay, Herman?
- [12:27] Lokifluff Clarity: I agree Sunfire... nicely said
- [12:27] Ticklish Questi: we should not underestimate common sense - it's been in development for 3.7 Billion years
- [12:27] Torrent Afterthought: Ticklish: And that is the problem :)
- [12:27] Oswy Gothly: Sim, we have argued about the status of science until we are red in the face at least twice to my recollection. The problem always is the hubris of those who subscribe to naturalistic science as a description of all there is.
- [12:28] Patrick Magnifico: I agree that science and religion are not immediately comparable. I guess my last question is whether they can coexist.
- [12:28] toBe Destiny: Life Itself, is not explained by science, nor is there a mathematical model that is "living"; as in having all properties of what the model models.
- [12:28] toBe Destiny: This is the failure of science.
- [12:28] Lokifluff Clarity: maths has its limits as well
- [12:28] Thoth Jantzen: hmm
- [12:28] Ticklish Questi: no that's totally the solution to the problem. Logic works because it's part of the world and has been tested against the world at every step of its coming
- [12:28] Thoth Jantzen: I think I disagree there toBe...
- [12:28] Vladimir Apparatchik: In what way is life not explained by science - vitalism is dead because of science
- [12:29] toBe Destiny: We may now move to something that is not so fundamentalist as the current form of "funded" science. Yes?

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- [12:29] Sunfire Langer: logic is simply fitted to what's observable, it is not natural, it imitates or resembles nature, Tick
- [12:29] Lokifluff Clarity: how do you describe the works of Tolkien then Ticklish?
- [12:29] Thoth Jantzen: it may not 'explain' it as some would like, but the principles involved that lead to 'life' are becoming well understood....
- [12:29] Mitch Zemenis: Oswy, could it be that science explains all there to be explained?
- [12:29] Thoth Jantzen: life is really not some 'magic' condition of living beings vs. dead things... but the product how emergent complexity works in the world.
- [12:30] Vladimir Apparatchik: I agree Thoth
- [12:30] Oswy Gothly: Vladimir the issue is that science can give a scientific explanation of anything it likes but whether that explanation is the last reasonable word on these issues is another matter.
- [12:30] toBe Destiny: Thoth, you and I may have the essence of the argument; for example the argument I make and others make about the mythology that is AI.
- [12:30] Patrick Magnifico: I agree with Thoth, I feel that science is immediately applicable to the way we live our lives - for example we wash our hands arguably as a result of science
- [12:30] Thoth Jantzen: it's also up to people to accept or not accept the explanations science offers.
- [12:30] Simulat Almendros: Tobe - science says a lot about life - and yet some people act as if we have not learned anything, which I think is weird
- [12:30] Vladimir Apparatchik: Depends how narrowly you frame the question Oswy
- [12:30] Thoth Jantzen: there is not ONE thing in this universe that is not expressed or based in some physical substrate.
- [12:31] toBe Destiny: Too many issues to follow.
- [12:31] Oswy Gothly: Mitch, no there is much to be explained beyond science and it can be explained reasonably ie intelligibility.
- [12:31] Thoth Jantzen: not even the most fanciful idea one can have.
- [12:31] Simulat Almendros: the fact that there are unanswered questions is no criticism of science
- [12:31] Ticklish Questi: our complex brains allow conjecture and hypothesis and these require imagination - which can go to where we know it does not apply to the real world. This is called fiction.
- [12:31] Patrick Magnifico: Thoth, what is the one thing, then?
- [12:31] toBe Destiny: Thoth, free will is not.
- [12:31] Mitch Zemenis: Examples, Oswy?
- [12:31] Oswy Gothly: Sim I agree but there are things that science will never be able to answer fully.
- [12:32] Thoth Jantzen: you are assuming free will exists, and if it does, then it is due to some non-physical thing then, toBe.... two very huge assumptions, imo.
- [12:32] Sunfire Langer: are our physical substrates that advanced? The only other alternative is that we deny the existence of some things claimed to exist which are not generally observable, Thoth
- [12:32] toBe Destiny: Oswy, that is not the point.
- [12:32] Vladimir Apparatchik: Like what Oswy?
- [12:32] toBe Destiny: Listens.
- [12:32] Simulat Almendros: hard to say at this point Oswy - I don't agree with the things that you say are in principle unaddressable by science
- [12:32] Thoth Jantzen: such as, Sunfire?
- [12:33] Ticklish Questi: many people have difficulty discerning fact from fiction because their mental hardware is deficient
- [12:33] Thoth Jantzen: sub-quantum entities? or non-physical things?
- [12:33] Oswy Gothly: Mitch. Take morality. You can give a very good evolutionary explanation of morality from a scientific point of view. I don't reject this. I just don't feel it touches on many of the central philosophical issue of moral judgement.
- [12:33] Thoth Jantzen: give me an example of the latter...?
- [12:33] Sunfire Langer: the experience of seeing a ghost, Thoth

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- [12:33] Patrick Magnifico: How can we debate the existence of free will in a lecture regarding secular science? Isn't free will a given in this context, Thoth or Oswy?
- [12:33] Sunfire Langer: for example
- [12:33] Thoth Jantzen: that is entirely physical, Sunfire.
- [12:33] toBe Destiny: Yes, I agree with Oswy.
- [12:33] Thoth Jantzen: IF...ghosts 'exist'.
- [12:33] Simulat Almendros: science is for instance always turning up new ways of thinking and knowing - consider how the Darwin's idea of Natural Selection has transformed our understanding of biology
- [12:34] Mitch Zemenis: Good example. I too would tend to agree with that Oswy...
- [12:34] Thoth Jantzen: but the idea of ghosts exists ONLY in a physical substrate...
- [12:34] toBe Destiny: Sim. Science is sold, like ice cream.
- [12:34] Simulat Almendros: Or consider the impact of new tools like say the microscope
- [12:34] toBe Destiny: Why is this?
- [12:34] Pun Couffer: I guess free will can legitimately be understood as something that can't coexist with omnipotence of science. So, perhaps the question isn't that off topic.
- [12:34] Patrick Magnifico: I mean, I bring up religion and that was too off topic and now we're talking about ghosts. Thanks Pun.
- [12:34] toBe Destiny: I agree Pun
- [12:34] Thoth Jantzen: thank Sun, for the ghost bit.
- [12:35] Marya Blaisdale: lol Patrick
- [12:35] Patrick Magnifico: Thank you, Sun
- [12:35] Simulat Almendros: so I think its pretty presumptuous to say that what science is now is all it can be
- [12:35] Vladimir Apparatchik: I agree Oswy, but the areas that science has something to say - I'm not sure what the limits are - if any
- [12:35] toBe Destiny: the concept of Intelligence Design, is not necessarily a right wing American religious concept.
- [12:35] Mitch Zemenis: But I wonder...to conceive science as something limited is to think of what it cannot explain. Right there you may as well say that science is not allowed to say certain things, and that isn't reasonable...
- [12:35] Oswy Gothly: All Nobody is denying that science cant have a voice on any issue it likes. That is not the point . the point is can science fully reasonably address all issues. i have given examples of morality aesthetics, mind , human agency etc .
- [12:35] toBe Destiny: Intelligence Design is everywhere obvious
- [12:35] Thoth Jantzen: how is ID different from religion, toBe? Obvious??
- [12:35] Lokifluff Clarity: language is a limit of science
- [12:35] toBe Destiny: but not in terms expressible as mathematics, at least not as currently understood
- [12:36] Patrick Magnifico: ID as in the Freudian term?
- [12:36] toBe Destiny: Science is a language and has all of the faults of a language
- [12:36] Mitch Zemenis: "Science is sold, like ice cream" (That is wonderfully said, toBe)
- [12:36] Thoth Jantzen: as in "Intelligent Design" - religion in a lab coat.
- [12:36] Vladimir Apparatchik: Mind may be solved by science in future - just has "life" has been
- [12:36] toBe Destiny: dependence on coherence for example
- [12:36] Lokifluff Clarity: agreed toBe
- [12:36] Thoth Jantzen: how is that 'obviously' design?
- [12:36] toBe Destiny: the natural world is just not coherent, in many ways, Thoth
- [12:37] Ticklish Questi: language well used has no faults at all
- [12:37] Sunfire Langer: ID? No, more spontaneous than that
- [12:37] Thoth Jantzen thinks we're heading waaaay off topic... we can debate ID another time, i think.
- [12:37] Lokifluff Clarity: not true ticklish... there are some limits of language no matter how well used... the concept of pain is one such example

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- [12:37] Simulat Almendros: sure Oswy - I agree that science doesn't say much now about aesthetics, but aesthetics is still a thing that it can study. And morality has to be informed by our best knowledge, and I personally think that science is making great strides in understanding the mind
- [12:37] Patrick Magnifico: I don't think we have strayed from the topic at all.
- [12:37] Oswy Gothly: To Be I agree Science is a language I would say its a language game. I agree with Putnam that we need conceptual pluralism ie many language games. It is the multiplicity of language games that is reason.
- [12:38] toBe Destiny: My friend, if the religious people gets to destroy the value of science, then it is because scientists act in an unscientific fashion, with astrology, indigenous cultural wisdom, and other "non-rational" viewpoints.
- [12:38] Mitch Zemenis: Oswy, let's go back to Kuhnian paradigm shifts to see the point...
- [12:38] Mitch Zemenis: Why do some scientists care so much about certain anomalies?
- [12:38] Sunfire Langer: Reason is above a language game, I think, Oswy.
- [12:38] toBe Destiny: A C tuning fork does not make a D tuning fork ring.
- [12:38] toBe Destiny: oh my Sunfire, what a statement.
- [12:38] Mitch Zemenis: Why are they even willing to abandon a comfy paradigm for a new one?
- [12:39] Oswy Gothly: Sim I am not denying that science can say anything it likes about any issue. You can have a scientific discourse on the nature of aesthetics if you like but I don't think it will capture the full reasonableness of aesthetics.
- [12:39] Pun Couffer: Psychology could probably be classified as a science in pre-science stage of development in Kuhn's theory of development of science. Psychology (that, is, science) truly can't say much about the mind. What it's doing right now is like viewing atoms through a magnifying glass - it can usually say only general things about the mind, which are true only in the majority of cases, but not in all cases. I guess that we can say that generally, science doesn't understand very complex systems in detail - human mind, human body, art, etc.
- [12:39] Ticklish Questi: logic underpins language and logic has lead us to the point where we are using computers based on quantum mechanical principles - The only reason that people doubt science is because they want to. It tells them things they don't want to hear - Death is the end for example.
- [12:39] Sunfire Langer: It is undoubtable that I think reason is above a language game, tobe
- [12:39] toBe Destiny: well, why?
- [12:39] Thoth Jantzen: there is also the issue of being aware of the context of what it is you observing or discussing, too...
- [12:40] toBe Destiny: Wittgenstein would have been interested. Both the early and the later.
- [12:40] Thoth Jantzen: ...otherwise, you lose the handle of the logic, etc. etc.
- [12:40] toBe Destiny: one needs to lose this handle ever once and a while, when dealing with complex social things. Yes? This is the foundation to quasi axiomatic logics from the former USSR
- [12:41] Simulat Almendros: Oswy - there are some questions that are not scientific questions and so science doesn't address them - but I observe that those questions are also unanswerable - the debate about them just goes on and on and on
- [12:41] toBe Destiny: Ah like human nature?
- [12:41] Sunfire Langer: Reason, to me, or rationality, has the ability to describe all events in the Universe with complete flexibility that a language game would inhibit, tobe
- [12:41] Simulat Almendros: and I honestly wonder what value questions like that have
- [12:42] toBe Destiny: oh, interesting viewpoint , Sun
- [12:42] Ticklish Questi: I think Skinner comes pretty close to making psychology an exact science Pun
- [12:42] Patrick Magnifico: Why Skinner
- [12:42] Oswy Gothly: Mitch on the Kuhnian paradigm point . Surely this is an exposition in the field of the development of science as a discourse. The anomalies are contradictions in terms of the science language game which eventually lead to new paradigms for that particular language game /discourse.
- [12:42] Marya Blaisdale: Skinner's Behaviouralism, Ticklish?

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- [12:42] Torrent Afterthought: Is there any mode of thought that has produced results even close to science? Ever? Anywhere?
- [12:43] Patrick Magnifico: Science is the result of thought, right?
- [12:43] Ticklish Questi: well implemented experiments are what makes Skinner close to science
- [12:43] toBe Destiny: I know you question the value of questions like whether science should NOT study human nature. Why, we can just build AI bots to do the right things and let the humans go away?
- [12:43] Patrick Magnifico: Right but a lot of psychologists did implemented experiments.
- [12:43] Mitch Zemenis: Oswy, language game or not, people care whether or not their world views are meaningful, whether they make sense...
- [12:43] Pun Couffer: There is also one interesting thing about scientific knowledge and scientific observation - whenever we observe something, we change it; sometimes the change is insignificant for what we're measuring (for instance, if we're using light to see or measure where an object is), and sometimes it creates very big changes (for instance, if we want to measure properties of very small things like electrons - if we determine an electron's position with great precision, we've greatly changed its properties). It seems, the more we go in detail, the more precise we want to measure things, the more we're interfering with them. Perhaps that's another limit of science.
- [12:44] Patrick Magnifico: Skinner just thought it would be cool for pigeons to guide torpedoes into German boats.
- [12:44] toBe Destiny: they were reprimanded?
- [12:44] Simulat Almendros: that's a good point Torrent - and I think its almost perverse the way that people consider unanswerable questions to be the most important ones
- [12:44] Mitch Zemenis: That (it seems to me) is why some scientists are willing to say strange and odd things about they world they purport to describe...
- [12:44] Torrent Afterthought: No, there hasn't been. Case closed :)
- [12:44] toBe Destiny: those "scientists" making experiments. They were told that this is NOT proper.
- [12:44] toBe Destiny: No NO, We do not study human behavior.
- [12:44] Mitch Zemenis: Because they want to say something true, or at least something more meaningful...
- [12:45] Ticklish Questi: People want to dismiss Skinner - they call him reductionist as if that's a bad thing.
- [12:45] Lokifluff Clarity: nice Pun
- [12:45] Mitch Zemenis: That suggests (to me) that the limits of sciences will be roughly the same as the limits of the human imagination...
- [12:45] toBe Destiny: except..
- [12:45] Patrick Magnifico: Psychology is certainly more of a science than religion, I will give anyone that on any day.
- [12:45] Pun Couffer: How so, Mitch?
- [12:45] Oswy Gothly: Sim I for one am glad the debater goes on especially in the field of morality. We now have many more models of morality that perhaps we have ever had and that's a good thing. I can see that the scientist always wants exact answers that is the nature of science. It does not mean that those questions that do not lend themselves to an exact answer are thereby worthless. That is the hubris of the scientist speaking?
- [12:46] Sunfire Langer: Can I ask if you would suggest that the Universe is intelligible, toBe?
- [12:46] toBe Destiny: yes you may, and I do, life is all things, atoms are alive and complex
- [12:46] Sunfire Langer: correct answer, yes I may
- [12:46] Lokifluff Clarity: I think you make an excellent point there Pun in that if everything is always in relation then it is not often very easy to see all the ways that things are related. I think that science makes many assumptions when considering this sometimes and I blame it at the foot of language. If language/logic is linear by nature, then not necessary every relationship will be considered, as only the most obvious relationships will 'literally' come to light.
- [12:46] Patrick Magnifico: I believe that the universe is intelligent as well.
- [12:46] Simulat Almendros: I'm not talking about exact answers Oswy - I'm talking about contradictory answers that raise tempers

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- [12:47] toBe Destiny: what is not alive and complex is human thought
- [12:47] Torrent Afterthought: So are the hills.
- [12:47] Mitch Zemenis: I mean it in a pragmatic sense, Pun; the willingness to take risks...
- [12:47] Pun Couffer nods to Lokifluff.
- [12:47] Pun Couffer nods to Mitch.
- [12:47] Mitch Zemenis: E.g., what would it be like to ride on a wave of light?
- [12:47] Sunfire Langer: thought is energy interpreted
- [12:47] Mitch Zemenis: Silly question?
- [12:47] toBe Destiny: Science does not believe that the universe is alive. This is why science is like a religion.
- [12:47] Pun Couffer: Well, yes, you can't seem to be able to do that.
- [12:47] Mitch Zemenis: Unresolvable?
- [12:48] toBe Destiny: Current science, I mean.
- [12:48] Pun Couffer nods.
- [12:48] Torrent Afterthought: Science does not believe. People believe.
- [12:48] Mitch Zemenis: Sim: A contradiction implies that something is wrong, somewhere...
- [12:48] Patrick Magnifico: Some people believe, some people know, some people faith.
- [12:48] Oswy Gothly: Sim Scientists want neat and tidy answers it in their nature they are irritated by continual debate and loose ends and the unanswerable. Its ironic that at the frontiers of physics there are so many loose ends. Must be really irritating.
- [12:49] toBe Destiny: Science is a belief system, is it not? Everyone?
- [12:49] Ticklish Questi: science is never complete but that doesn't mean it isn't already a mighty construction.
- [12:49] Vladimir Apparatchik: Oswy - I don't know how you can say that - consider the history of the development of quantum physics
- [12:50] Deoridhe Quandry: Some scientists, Oswy. Other scientists realize that inherent to a way of studying the world in which nothing can ever be proven is loose ends.
- [12:50] Milos Foggarty: I think that Reason is a weapon and tool that gave the Evolution as Survivance Strategy
- [12:50] toBe Destiny: Nothing, is the wrong word, Deo.
- [12:50] Milos Foggarty: to control and give us the illusion of reality
- [12:50] Patrick Magnifico: I'm afraid I've lost touch with what we're debating.
- [12:50] toBe Destiny: me too
- [12:50] Oswy Gothly: Vlad That is what I am referring to. At the heart of science is the same eternal debate about the reality of science that Sim condemns in other discourses areas . Ironic don't you think?
- [12:50] Pun Couffer: Anyway, I'd like to add to what I said. Scientists always interfere with the measurement. Scientists and the object on which the measurements are done are the part of the same physical system, and they're interdependent. It's always so. Sometimes, the relation seems to influence the measurement more, and sometimes less. There is no way to observe without influencing. Perhaps, when we measure really small things, perhaps we produce the measurement sometimes, in the sense that we see what isn't really there.
- [12:50] Simulat Almendros: yes Mitch - but sometimes we can recognize that if we are asking questions where people have strongly held but contradictory answers and where there is no way to show which answer is right that we might take a hint that there is a problem with the question
- [12:50] Pun Couffer: Just a thought.
- [12:51] Deoridhe Quandry: It's axiomic, toBe. Science is set up to disprove things, not prove them.
- [12:51] toBe Destiny: I agree with Oswy.
- [12:51] Lokifluff Clarity: I agree with Pun
- [12:51] Sunfire Langer: I thought it was its business to account for things, Deo
- [12:51] toBe Destiny: agrees with both; "Business" did someone say business? The issue is whether science we have is distorted by business and capitalism? Yes?
- [12:52] Oswy Gothly: All We may just have to live with uncertainty as the physicists have?..?

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[12:52] Simulat Almendros: I don't understand Pun's point - sure science changes things when it studies them - but does that mean that we don't learn when we study?

[12:53] Lokifluff Clarity: well it does if the thing we have studied has changed Sim... it is studying a moving feast... that changes a lot of things

[12:53] Patrick Magnifico: What do you think is the point or points of disagreement that are spawning this degree of antagonistic viewpoints, pun?

[12:53] toBe Destiny: while also being a great benefit to all human kind, science that is. As well as capitalism. No intent to criticize the "church" here. <smiles>

[12:53] Milos Foggarty: that thing show us an evident fact, reality is only an illusion

[12:53] Oswy Gothly: Sim I agree science has a formidable body of knowledge progressively built up over time. Why would anyone want to disagree with that?

[12:53] Amelie Emor: Pun's point is that it is all still relative to personal perspective sim, even when measuring/observing scientifically

[12:53] toBe Destiny: Sim, of course we do learn.

[12:53] Patrick Magnifico: You are the authority, after all.

[12:54] Ticklish Questi: I disagree - science does not change things necessarily. The problem of observation becomes smaller as our instruments get ever sharper.

[12:54] Simulat Almendros: Loki - if I look at a leaf with a microscope - slice it up and put it on slides - I mess up that leaf - but I gain knowledge that allows me to understand all leaves

[12:54] Deoridhe Quandry likes uncertainty. >.> "Sunfire, the scientific method is set up, for the purpose of correcting for the tendency Pun elucidates so clearly, is set up to disprove narrow hypotheses only (if we're talking empirical instead of natural sciences). Natural sciences, in comparison, are set up to describe observed phenomena from which some conclusions may be drawn but must always be held as open for disproving or reviewing.

[12:54] Sunfire Langer: Science made the world spherical, as soon as we understood it was so

[12:55] Lokifluff Clarity: Sim, I would not argue that we do not learn, but only if we are looking, and if we are looking to learn something else, then we may not notice the availability to learn something unexpected... science is often guilty of this.

[12:55] Milos Foggarty: Science can be irrational

[12:55] Pun Couffer: I think we do, Simulat. What I said was mind storming. Just a thought that would need further scrutiny. What I vaguely meant was that science does learn useful and testable things, which we can base our lives and our technology on, and even base our opinions on, but perhaps, sometimes, when we measure really fine details, perhaps all we measure is the interaction between what we use for measurement and the object of measurement, and learn nothing.

[12:55] Simulat Almendros: nothing is perfect Loki

[12:56] Patrick Magnifico: That's profound

[12:56] toBe Destiny: We may learn, improperly; or we may learn in a way that is not in alignment with the natural world. When we think about human nature, we may have almost nothing very approximately correct. This seems to indicate that a shift in the paradigm is needed, in order that human condition, and life itself be more fully understood - than is now the case. Yes

[12:56] Lokifluff Clarity: agreed Pun & Sim

[12:56] Lokifluff Clarity: lol

[12:56] Ticklish Questi: that's nonsense Sunfire - the moon was always round and so was the sun. We can infer that the world has not changed shape from that

[12:56] Patrick Magnifico: This is probably the first time I've called something profound in a serious manner.

[12:56] Pun Couffer: And learn nothing about the nature of the object we're studying, I mean.

[12:56] Patrick Magnifico: My mind is blown. "When we measure really fine details, perhaps all we measure is the interaction between what we use for measurement and the object of measurement"

[12:56] toBe Destiny: Yes, this happens all the time in biology.

[12:57] Simulat Almendros: I agree pun - but that's why we need to keep checking

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- [12:57] Sunfire Langer: It makes utter sense, or no sense, depending on how we phrase the question
- [12:57] Simulat Almendros: and its also why science evolves
- [12:57] Patrick Magnifico: the subjectivity is suffocating
- [12:57] Marya Blaisdale: right, Sim :)
- [12:57] toBe Destiny: We freeze it, cut it and dry it out. And then we ask, funded by the taxpayer btw, what are the properties of lifting systems. And we learn nothing of essence
- [12:57] Pun Couffer nods.
- [12:57] Mitch Zemenis: Sim, I see your point. But how do we know we are really dealing with a question that has no correct answer? Until we investigate further, how can we be sure we know the difference between meaningful and unmeaningful questions?
- [12:58] toBe Destiny: living
- [12:58] Marya Blaisdale: I think we need to put things into context Mitch - that is the only way to apply 'meaning' to anything
- [12:58] Patrick Magnifico: matter of personal taste/bigotry
- [12:58] toBe Destiny: systems do not behave like our science predicts; unlike a falling rock (As evidenced by this discussion. Smiles)
- [12:59] Oswy Gothly: All What is this obsession with the correct answer? Some questions by their very nature will only have provisional answers?
- [12:59] Eolas Darwin: I'm rather late to all this, but toBe, systems tend to be limited by complexity
- [12:59] Pun Couffer: Let's try to address directly the questions from the introductory essay. Does anyone have any thoughts on the question of whether science can somehow be ultimately refuted on its own terms - can it face an 'anomaly' which it could never go around?
- [12:59] Eolas Darwin: predictions of behavior in large systems are limited by the complexity of the system
- [12:59] toBe Destiny: Yes Eolas
- [12:59] Patrick Magnifico: I suppose things are as legitimate as we make them, as rigorous study only serves as a means to that end.
- [12:59] toBe Destiny: you and I think alike.
- [12:59] Simulat Almendros: Mitch - one way to proceed is linked to Kuhn's idea of paradigms - he doesn't think that any paradigm is absolutely correct, but that a good paradigm is one that produces testable questions that lead to increased understanding
- [12:59] Eolas Darwin: I know I'm late late late, but I have a question
- [13:00] toBe Destiny: and not in small systems? Eolas?
- [13:00] Deoridhe Quandy: Easily, Pun. Something that is non-falsifiable is outside of science's purview.
- [13:00] Marya Blaisdale: I don't think so Pun - I think the 'nature' of science, what it 'is', is something that adapts to new knowledge
- [13:00] Eolas Darwin: has anyone covered the difference between knowledge that can be acquired deductively vs. inductively?
- [13:00] toBe Destiny: nice nice yes yes
- [13:00] Pun Couffer nods.
- [13:00] Ticklish Questi: I think is science faces an anomaly that it can never get around then it will never stop trying anyway
- [13:00] toBe Destiny: this is critical to understanding the issue of knowledge many believe..
- [13:00] Eolas Darwin: because one of the problems I have with a lot of the softer sciences, is that they try to take a positivistic view of acquiring knowledge - that is to say, "testing", when that doesn't always apply
- [13:01] Eolas Darwin: biology vs. physics for example
- [13:01] Oswy Gothly: All If you want to build an airliner there are correct answers as to its ability to fly. There are no correct answers as to its aesthetic properties or the morality of flying only provisional ones.
- [13:01] toBe Destiny: yes; of Eolas
- [13:01] Mitch Zemenis: Oswy, & Sim, Yes, I agree. I just don't like feeling as though words like "truth" and "correct theory" have become dirty words...

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- [13:01] Eolas Darwin: where your test intrinsically changes the subject or cannot possibly account for the level of complexity
- [13:01] Mitch Zemenis: I see no problem in using them...even in Kuhn's context...
- [13:01] Patrick Magnifico: I think Pun would welcome anyone to use voice if they feel they are being outtyped?
- [13:01] Deoridhe Quandry: That's an interesting perspective, Eolas. Could you expand?
- [13:02] toBe Destiny: is there some way to give the floor to Eolas
- [13:02] Pun Couffer: Well, Patrick, I think it'd be better to type everything, as we can't log voice.
- [13:02] Patrick Magnifico: Agreed
- [13:02] Eolas Darwin: Yes... for example, one of the great problems with the "mainstream" economists, for example, is their tendency to view their field as studied through "models", when there is actually no way to create those in any legitimate sense
- [13:02] toBe Destiny: are to be managed
- [13:02] Eolas Darwin: which is why they are consistently wrong
- [13:03] toBe Destiny: yes they are consistently wrong
- [13:03] Deoridhe Quandry: Eolas, in other words, the constructed does not reflect the actual?
- [13:03] toBe Destiny: even about economic forecast
- [13:03] Mitch Zemenis: Does the light in the fridge stay on when I close the door? (Let me open it and see...no, wait, ...)
- [13:03] toBe Destiny: of course the construction does not match the reality
- [13:03] Mitch Zemenis: Now how would I answer THAT question...?
- [13:03] Sunfire Langer: can't we cut a hole in the fridge door?
- [13:03] Deoridhe Quandry: Slice the fridge in half, Mitch. You can't use it to keep things cool anymore, but you have knowledge!
- [13:03] Mitch Zemenis: :)
- [13:03] toBe Destiny: we are talking about economic systems as they are, not as they are modelled.
- [13:03] Ticklish Questi: mathematical models in computers are very like theories in brains. They get better with time and closer approximate the world
- [13:03] Mitch Zemenis: (I hate it when people do that) :)
- [13:03] Oswy Gothly: Eolas, are you just saying that there is a fundamental element of unpredictability in the social sciences . I think we would all agree with that. It doesn't make them less valuable as forms of reason?
- [13:03] MetaLogicalMind Landfall: Mitch - put a camera inside the fridge
- [13:04] Eolas Darwin: the problem lies in what FA Hayek discussed as the limitations of human knowledge and they are studying a field that is fundamentally a philosophical subject based around axioms, as if it is physics.
- [13:04] Sunfire Langer: or we could look in the manual, Mitch
- [13:04] Pun Couffer: That specific question could be answered by logic. If you know how your fridge works, you can figure out whether light is on when you close the door.
- [13:04] toBe Destiny: No he is not saying that Oswy.
- [13:04] Mitch Zemenis: Some of these empirical questions have real, correct answers, ...
- [13:04] Eolas Darwin: No, of course it isn't less valuable as forms of reason
- [13:04] Deoridhe Quandry: Eolas, but arguably, everything, including math, is based on axioms.
- [13:04] Eolas Darwin: it's just not the same *type* of reasoning that needs to be applied
- [13:04] toBe Destiny: is right on this point.
- [13:04] Mitch Zemenis: Some are so theoretical, it isn't so clear they have answers...
- [13:05] Eolas Darwin: Math is *exactly* the kind of thing that is a corollary to Economics - NOT, however, chemistry
- [13:05] Pun Couffer: But I guess we have similar problems in physics where there are no such solutions. We don't know, for instance, what electrons are doing while we're not looking. Some questions regarding atoms were left unanswered because of that, as was hinted in the introductory essay.
- [13:05] Eolas Darwin: for example or physics

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- [13:05] Ticklish Questi: it is likely that the limits of human knowledge will be overcome when we overcome the limits of being human
- [13:05] Mitch Zemenis: Some require us to rethink the whole theory, rather than how we plan to answer the question...
- [13:05] Deoridhe Quandry: True, chemistry doesn't have axioms the way math does.
- [13:05] Eolas Darwin: Math is based on axioms that follow logically from various premises. Chemistry and physics are tested in a laboratory
- [13:06] Oswy Gothly: ToBe What was Eolas saying then?
- [13:06] Eolas Darwin: highly complex systems, like economics cannot properly be understood by using laboratory experiments
- [13:06] Pun Couffer: As far as I know, it's other way around. I think logic is based on axioms.
- [13:06] toBe Destiny: Oswy, she is saying the new philosophy of science
- [13:06] Deoridhe Quandry: But chemistry and physics are also heavily based on mathematics. It's math which allows a lot of scientific conclusions to be taken. They're married in an intimate manner.
- [13:06] Eolas Darwin: because each actor in an economic (or biological, or social) system is an individual with its own set of values, which change constantly
- [13:06] Pun Couffer: There are axioms, and you work the rest with them and logic.
- [13:06] toBe Destiny: to replace what Pun presented
- [13:07] Deoridhe Quandry: $E = mc^2$ is both physics AND math.
- [13:07] Eolas Darwin nods.
- [13:07] Eolas Darwin: physics and other sciences rely on math naturally of course, but there is still no experimental way to prove that $2+2 = 4$
- [13:08] Deoridhe Quandry: Exactly.
- [13:08] Oswy Gothly: ToBe, I am not seeing the relevance of your remark about the New Philosophy of Science Sorry?
- [13:08] Eolas Darwin: but there is an experimental way to prove that CO₂ is produced through photosynthesis
- [13:08] Sunfire Langer: because 2ness is arbitrary
- [13:08] toBe Destiny: sorry
- [13:08] Simulat Almendros: I'd say that the only way to demonstrate that $2+2=4$ is by experiment
- [13:08] Deoridhe Quandry: There's no experimental way to prove that $e=mc^2$ either, if you remove the math. That's what I mean by married.
- [13:08] Pun Couffer: Axioms by definition don't follow from any kind of reasoning. It's what we accept without proof, and the axioms are what proof of other things is based on.
- [13:08] toBe Destiny: After all you are not someone trained to understand such things. <grins> Induction – Deduction - and not the same
- [13:09] Simulat Almendros: and all experiments are not proofs - they give inductive inferences - they are the best we can do - get over it
- [13:09] toBe Destiny: Deduction
- [13:09] Patrick Magnifico: It says in the note that "every science goes through brief but turbulent periods" until very different theories arise to explain how the world works. I am afraid that we are currently, as a group, in the turbulent period, and I can only hope that by the end of this conversation we develop a groundbreaking theory.
- [13:09] Eolas Darwin: some things cannot be proven by experiments though Sim
- [13:09] Deoridhe Quandry: In other words, uncertainty is at the root of just about everything, if you look closely enough. It's only by glossing over details that certainty can be maintained.
- [13:10] Simulat Almendros: sure
- [13:10] toBe Destiny: May I suggest why some things cannot be subject to an experiment.
- [13:10] Deoridhe Quandry snickers at Patrick.
- [13:10] Eolas Darwin: it's, in my opinion, a terribly huge problem with the way economics and social sciences are viewed right now by the mainstream researchers

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- [13:10] Marya Blaisdale: Well, we have a very large group today and it is difficult to keep up with all lines of discussion, Patrick :)
- [13:10] Simulat Almendros: things about which we know nothing are things we know nothing about
- [13:10] Oswy Gothly: Eolas Well agree with that
- [13:10] Amelie Emor: Sim, you just blew my mind man
- [13:10] Deoridhe Quandry: I would tend to describe that as trying to find certainty in uncertain things, since as humans we emotionally seem to need a certain measure of certainty.
- [13:11] Eolas Darwin: it's a methodological problem, at the very root of why psychologists, sociologists, economists, etc. get stuff wrong so often
- [13:11] Mitch Zemenis: Sim, granted that some of our knowledge is mere the best we can do, can't make moves (creative moves) that change the entire game, so to speak?
- [13:11] toBe Destiny: Sim, it is possible that there is a structure to how "time is expressed" and that this structure is part of the causative set over how free will, and decisions are made.
- [13:11] Mitch Zemenis: Isn't that doing something a little better, by doing something else...
- [13:11] Simulat Almendros: its a bit presumptuous to say that you know something for sure when you can't test the idea, unless you are just saying tautologies
- [13:12] Eolas Darwin: Sim, you say that $2+2$ is 4 and you can't test that idea
- [13:12] Sunfire Langer: in that case knowing anything would be presumptuous
- [13:12] toBe Destiny: yes perfect; $2+2 = 4$ but can you test the idea
- [13:12] Ticklish Questi: you only need four pebbles
- [13:12] toBe Destiny: the fact is that the concept of 2 is not real
- [13:12] Sunfire Langer: what is 2ness?
- [13:12] Eolas Darwin: that's not a test
- [13:13] Deoridhe Quandry: Partly, Eolas. And partly that's problems with how they get presented in general. But I think there's a deeper problem - that how people think about the system is integral to how the system works, and so people are always able to game it in different ways - sometimes trying to "help" the researcher.
- [13:13] toBe Destiny: it is an observation
- [13:13] Simulat Almendros: Eolas - I have tested it many times - and every time I take 2 things, and add to the group two more things - when I count the group I get 4 things
- [13:13] toBe Destiny: you do not use guppies?
- [13:13] Sunfire Langer: what is the distinction between 1 and 2?
- [13:13] toBe Destiny: after all it is the biology we are talking about, not the physics
- [13:13] Eolas Darwin: again, Sim, you're merely assuming that that is always the case as from a set axiom
- [13:13] Pun Couffer: Tobe: if we take two eggs, and put them in front of us, then put two more eggs in front of us, and then we count them 'one, two, three, four', I think we'll get a proof that $2+2=4$
- [13:13] Eolas Darwin: upon which all math rests
- [13:14] toBe Destiny: for static objects yes
- [13:14] Eolas Darwin: Pun/Sim, you're confusing language with a proof
- [13:14] toBe Destiny: but not for biology - there is emergence
- [13:14] Deoridhe Quandry: In defense of math, its basic axioms do seem fairly observable.
- [13:14] Eolas Darwin: yes, they do
- [13:14] toBe Destiny: emergence of new
- [13:14] Oswy Gothly: Sim, try Wittgenstein Following a rule.
- [13:14] toBe Destiny: means $2 + 2 = 5$
- [13:14] MetaLogicalMind Landfall: Eolas - $2+2=4$ is not about experimentation - it is about definition
- [13:14] Eolas Darwin: but that's the point actually Deo
- [13:14] Sunfire Langer: what is the distinction between 1 and 2?
- [13:14] Eolas Darwin: You're right Metal
- [13:14] Deoridhe Quandry: Yeah, I think I'm on board with you right now, Eolas. I'll mutiny later. >.> ;)

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- [13:14] Simulat Almendros: no Eolas - its an inductive inference - and I accept that sort of thing until I find an instance where its wrong
- [13:14] Pun Couffer: Deoridhe, could you name one, please?
- [13:15] Mitch Zemenis: ...one person's plus is as good as another person's quus...
- [13:15] Eolas Darwin: but my point is there are certain other fields of science besides math which rely on axioms - observed but not testable
- [13:15] toBe Destiny: I sure hope that accounting does not have induction in it.
- [13:15] Deoridhe Quandry: The definitions of a point, a line, and a plane are the three that always come to mind, since we started with axioms in geometry. I don't remember the ones for algebra and basic math.
- [13:15] MetaLogicalMind Landfall: if you define what "2" is, and you define what "+" and "=" signify..... experimentation to verify your definition is trivial isn't it?
- [13:15] Eolas Darwin: the study requires paying attention to history far more than lab results
- [13:15] Eolas Darwin: EXACTLY metal
- [13:16] MetaLogicalMind Landfall: So, what does that have to do with experimentation?
- [13:16] Sunfire Langer: what is the distinction between 1 and 2?
- [13:16] Eolas Darwin: it has to do with the fact that many aspects of science aren't actually provable through experimentation in exactly that way
- [13:16] Simulat Almendros: Sunfire - I don't believe you don't know
- [13:16] Deoridhe Quandry: Arguably, every field of study rests on axioms, and many of those axioms are unconscious BECAUSE they seem so observable. That was one of hte issues with discovering atoms, I believe; people are deeply disturbed by the 'fact' that everything is more space than matter.
- [13:16] Eolas Darwin: it's a deductive process vs. an inductive one
- [13:16] toBe Destiny: So I am pleased.
- [13:16] Marya Blaisdale: it seems we are stepping outside the 'boundaries' of context here somewhat, don't you think Eolas?
- [13:17] Eolas Darwin: I don't think so... I think it's rather important to recognize that deduction vs. induction are *both* valid and most people only view induction as science
- [13:17] toBe Destiny: Is presenting the alternative presentation to that made by Pun.
- [13:17] Sunfire Langer: I recognise 2 things but at the same time can recognise those two things as 1 thing, so I must try to reason as to what the distinction is
- [13:17] MetaLogicalMind Landfall: what context, Marya?
- [13:17] Simulat Almendros: but as you know - Russell and whitehead wrote a big book dealing with that - you want me to say their long demonstration in 20 words or less - gimme a break
- [13:17] toBe Destiny: That science is evolutionary and that we do not have final science.
- [13:17] Eolas Darwin: but they do different things
- [13:18] toBe Destiny: And the result of W & W was that logical positivism was displaced, at least for a while.
- [13:18] Deoridhe Quandry: That is a very interesting point, Eolas. It would point to the loss of natural sciences as commonly recognizable sciences in the US, yes? And with the growing distain toward "soft" sciences?
- [13:18] Eolas Darwin: logical positivism absolutely has a place - just not in every discipline
- [13:19] Eolas Darwin: yes, Deo
- [13:19] toBe Destiny: Yes, Eolas. I agree completely.
- [13:19] MetaLogicalMind Landfall: perhaps there could be such a thing as "Logical Propositionalism"?
- [13:19] Eolas Darwin: the problem again goes back to the limitations of knowledge and impossibly complex systems.
- [13:19] Pun Couffer: Science definitely is evolving, and has been. I believe that fully evolved science might be possible, though. I didn't claim that science doesn't evolve, if that's what you thought I meant.
- [13:19] toBe Destiny: What this agreement is pointing out is that there is a new paradigm.
- [13:20] toBe Destiny: Rosen complexity. Yes
- [13:20] Deoridhe Quandry: The concept of "fully evolved" is meaningless in the theory of evolution.
- [13:20] toBe Destiny: Robert Rosen

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- [13:20] Thoth Jantzen: hehehe....good point, Deo.
- [13:20] Deoridhe Quandry: Everyone means something different by it.
- [13:20] toBe Destiny: nods, agreeing with Deo
- [13:20] Eolas Darwin: if you want to understand human behavior, you have to recognize that each individual is making individual decisions with differing values which are constantly shifting - and predicting group behavior through experimentation proves nothing.
- [13:20] Simulat Almendros: agree completely with that Deo :-)
- [13:20] Eolas Darwin: especially in the sense that in a laboratory, that behavior is intrinsically altered; much like observing animals behave "in the wild" vs. in captivity
- [13:21] toBe Destiny: Yes, this is almost for social theory what relativity was for physics, Eolas
- [13:21] Deoridhe Quandry: Eolas, it proves what that group would have done in that situation, but that is less useful for generalization or forward projection. XD
- [13:21] MetaLogicalMind Landfall: Eolas - isn't there a difference between "predicting" and "understanding"?
- [13:21] Oswy Gothly: Eolas It may prove something on its own terms and with a full understanding of its limitation as data.
- [13:21] Eolas Darwin: it doesn't prove anything of the sort typically... as the group isn't unified.
- [13:21] MetaLogicalMind Landfall: doesn't understanding come first, before a predictive model?
- [13:21] Eolas Darwin: nor is it an accurate representation of reality
- [13:21] Patrick Magnifico: I've been listening to all of you, but one of the questions in Limits of Science is whether it can break down, and more importantly what the limits are of both reason and science even in the best possible mind...
- [13:21] Marya Blaisdale: Right, Oswy
- [13:21] toBe Destiny: yes
- [13:21] MetaLogicalMind Landfall: I would argue that some understanding without prediction is better than no understanding
- [13:21] Sunfire Langer: what we mean by 'one' or 'two' is the number of slides, like in a projector. Where we place the boundaries of what the slide encompasses is a decision, not a natural condition. The only difference in one or two is in the number of slides, or encompassing groups which we decide upon
- [13:21] Pun Couffer: Well, I'm not fully convinced that fully evolved is impossible. It would have to be something that can't be changed by natural selection. Of course, no such being is conceivable by current science, but I'm open to the possibility that such a being might be possible.
- [13:22] Eolas Darwin: you can't understand anything properly if you're using the wrong tools to understand it
- [13:22] MetaLogicalMind Landfall: what tools do you propose?
- [13:22] Pun Couffer: By natural selection or mutation, I mean.
- [13:22] toBe Destiny: ah
- [13:22] Eolas Darwin: as I said - deduction through propositional logic and observation
- [13:22] Oswy Gothly: Eolas Its a representation of a possible reality. i think you are going too far in rubbishing experimental method.
- [13:22] Pun Couffer: That's regarding organisms.
- [13:22] Patrick Magnifico: I hate to take up space on what it already a cluttered conversation, but I was reminded of something Philip K. Dick said regarding the topic, and if you don't mind I will relay the short quote.
- [13:22] toBe Destiny: yes , the very aim of science will change
- [13:22] MetaLogicalMind Landfall: Eolas - how is that distinct from "experimentation"?
- [13:22] toBe Destiny: from prediction to understanding
- [13:22] Eolas Darwin: I'm not rubbishing the entire experimental method, I'm saying that it doesn't apply to all situations
- [13:22] Deoridhe Quandry: I would describe it as the limitation of perspective, Patrick. One way of comprehending it might be to compare the different fields of view of predator vs. prey animals and the respective advantages and disadvantages of different ways of seeing for different purposes.

Second Philosophy

[13:22] Patrick Magnifico: He asked "can any of us fix anything? No. None of us can do that. We're specialized. Each one of us has his own line, his own work. I understand my work, you understand yours. The tendency in evolution is toward greater and greater specialization. Man's society is an ecology that forces adaptation to it. Continued complexity makes it impossible for us to know anything outside our own personal field - I can't follow the work of the man sitting at the next desk over from me. Too much knowledge has piled up in each field. And there are too many fields."

[13:23] Pun Couffer: Regarding science, by fully evolved, I meant 'as good as it's possible in this reality'. Or reaching the ultimate limit.

[13:23] Eolas Darwin: and it fails to accurately describe complex systems & human behavior (which is in and of itself a complex system)

[13:23] Ticklish Questi: People who sit at computers insisting that science can't achieve anything are funny.

[13:23] toBe Destiny: Pun, we have a great deal we can understand far better, with a new paradigm. This paradigm is not anticipated by the current funded science.

[13:23] Patrick Magnifico: As though science itself is a large machine with many components that inevitably cannot be maintained forever.

[13:24] MetaLogicalMind Landfall: Eolas - isn't it a matter of "how accurate"? Rather than whether it is accurate or not?

[13:24] Deoridhe Quandry: Since no one have claimed that, Ticklish, you must be thinking of a different conversation.

[13:24] MetaLogicalMind Landfall: it is not Boolean

[13:24] toBe Destiny: (A universe of zero, Pat) ?

[13:24] Pun Couffer: I agree with that, Tobe.

[13:24] toBe Destiny: No one is claiming this.

[13:24] Patrick Magnifico: What?

[13:24] Deoridhe Quandry: Pun, what does "as good as it can possibly be" mean in terms of science?

[13:24] toBe Destiny: It is a polemic.

[13:24] Patrick Magnifico: I don't understand.

[13:25] toBe Destiny: You just performed a polemic, Pat.

[13:25] Patrick Magnifico: Right, that's what I don't understand. What do you mean?

[13:25] toBe Destiny: Something made up out of whole cloth, as it where.

[13:25] Patrick Magnifico: What?

[13:25] Pun Couffer: By those words, I meant 'explaining as much as possible, as good as possible'.

[13:25] Oswy Gothly: All The danger is that we polarise he argument. All scientists are knaves says one side All metaphysicians are knaves says the other . Neither position is true.

[13:25] Eolas Darwin: Metal, it's going to be too difficult for me to explain scenarios which rely solely on deduction vs. induction (experimentation) in local chat

[13:26] Deoridhe Quandry: Ok, Pun, but ... how would we know? I mean, to make this amusingly recursive, what would be your operational definition for "'explaining as much as possible, as good as possible" and how would we know we had reached it?

[13:26] Pun Couffer: I think that the ultimate test of a theory would be its predictive power. How well can it say what will happen before it happens. 'What will happen if I let go off the ball', or 'what will happen with the light bulb if I turn the switch on'.

[13:26] Thoth Jantzen thinks nothing in this world is made up of a 'separate' cloth...unless u take the whole shebang as one. All the rest are little subset snippets....all interrelated and interdependent.

[13:26] Oswy Gothly: I respect science for its achievements I don't respect it when it tries to eliminate other discourses that are perfectly rational.

[13:26] Sunfire Langer: millions of decided slides of the One slide, the border of which touches its own edge

[13:27] Thoth Jantzen: there is no slide, Sunfire...

[13:27] Pun Couffer: So, I guess I'd determine the 'goodness' of science on the basis of how much can it predict, and how well can it do it.

Second Philosophy

- [13:27] Thoth Jantzen: every single particle in the universe tracks it's own path through time. the composite is just a statistical aggregate, if u will....
- [13:28] Thoth Jantzen: ...all relating/related to each other.
- [13:28] Deoridhe Quandry: So predictability is the value you get out of science, Pun? As we might also phrase it, your axiomatic reason for science. >>
- [13:28] Pun Couffer: Okay, let me write one long definition of how to determine the value of a theory, or of a science.
- [13:28] Sunfire Langer: if we decided on a slide that encompassed everything, perhaps
- [13:28] Oswy Gothly: Pun I thought your linking of rationality with predictability very off the ball. Many things are intrinsically unpredictable. That does not mean we cannot have a rational discussion of the nature of their unpredictability.
- [13:28] Thoth Jantzen: that's a misleading way of looking at it, sun. That's not how the universe works.
- [13:29] Sunfire Langer: no, its how reasoning works
- [13:29] Thoth Jantzen: it's not a movie unfolding.
- [13:29] Patrick Magnifico: Well, we have a lot of bright minds here today and we have a lot of even brighter minds from which this conversation has started.
- [13:29] Patrick Magnifico: But to quote Obi Wan Kenobi, you're going to find that a lot of the truths you cling to are simply a matter of your own perspective.
- [13:30] Marya Blaisdale: lol, nice one Patrick
- [13:30] Patrick Magnifico: I think the trick of the human condition, as the social animals we are, is to learn to accept those differing points of view.
- [13:30] Oswy Gothly: Patrick, we do that or we die as a species.
- [13:30] MetaLogicalMind Landfall: I believe that there is only one reality... perspective is only relevant when trying to communicate effectively about that one reality
- [13:30] Deoridhe Quandry: That is a fascinating perspective, Patrick.
- [13:31] Eolas Darwin: I agree Metal
- [13:31] MetaLogicalMind Landfall: it is not a matter of "multiple perspectives" being true at the same time
- [13:31] Eolas Darwin: but that is a large metaphysical question that I'm sure not everyone here agrees on
- [13:31] Sunfire Langer: isn't it?
- [13:31] Deoridhe Quandry: Yay mutiny time! I totally disagree.
- [13:31] Ticklish Questi: I totally agree with Metal there
- [13:31] MetaLogicalMind Landfall: that is what science is about - determining that one reality and communicating it effectively in a standard way
- [13:32] Seneca Quandry does not agree with Metal on this one. :-)
- [13:32] Deoridhe Quandry: I'm a major proponent of the "multiple perspectives overlap being the best we can do" perspective. ^^
- [13:32] Pun Couffer: We'd determine the value of a theory, or of a science, by these criteria (they could probably be quantified, too, for numerical comparison of different theories): How well can it predict what will happen? How well do observations fit the prediction of observations (for instance, how well do the results of an experiment fit a formula)? How well does the explanation offered by the theory fit observations and experiments? I'd try finding a theory that is in -perfect- accord with observations (or die trying).
- [13:32] Thoth Jantzen: it's more about 'sharing' perspectives, at least to some degree...
- [13:32] Deoridhe Quandry: If there is a single reality, we are the electrons hazing in probability fields around it.
- [13:32] Thoth Jantzen: 'bigger' truths are those that are shared across more perspectives/in more contexts.
- [13:32] Pun Couffer: Also, I'd expect the theory, or the science, to have perfect internal consistency.
- [13:32] Sunfire Langer: what if science finds a thing might be one way or the other but it is not yet either?
- [13:33] MetaLogicalMind Landfall: Deoridhe - what?
- [13:33] Thoth Jantzen: (in fact, perhaps context is a better to look at it than perspective, but then, perspective has it's effect on how u see things).
- [13:33] Deoridhe Quandry grins at Pun. "If you find it, let me know. I wanna see."

Second Philosophy

- [13:33] Eolas Darwin: then Science is yet wrong Sun
- [13:33] Oswy Gothly: I am happy with a multi perspective reality even one that includes dragons?
- [13:33] Pun Couffer: There's no perfect consistency in many parts of physics, neither mutual, nor internal.
- [13:33] Pun Couffer: Right.
- [13:33] Sunfire Langer: or needs a revamp
- [13:33] Eolas Darwin: it's not that there are multiple realities, just that we haven't figured out the right explanation yet
- [13:33] Ticklish Questi: science bruises egos- it isn't a fug of love like religion claims to be. Someone wins and everyone else becomes obsolete. Good minds accept their mistakes and move on.
- [13:33] MetaLogicalMind Landfall: Sunfire - not knowing is not the same as something not existing, or existing in two states at once
- [13:33] Marya Blaisdale: what about the 'reality' that we share, Eolas?
- [13:33] Deoridhe Quandry: Metal, electrons exist in a probability field around nucleuses, never touching them. It's an image, based on physical chemistry.
- [13:34] Marya Blaisdale: Surely that's what it is about
- [13:34] MetaLogicalMind Landfall: Deoridhe - so?
- [13:34] Eolas Darwin: like someone said earlier - before people knew the earth revolved around the sun, it wasn't true that the sun revolved around the earth; it was never true.
- [13:34] Thoth Jantzen: it just was.
- [13:34] Oswy Gothly: There we go again with the need for the RIGHT explanation. Give it up and just go on with the search.
- [13:34] Deoridhe Quandry: Metal, I was telling you my perspective on how reality works. If you can't comprehend it, well.... that rather proves my point, in some ways.
- [13:34] Pun Couffer: Allegedly, electrons can sometimes get inside the nucleus, and get blasted out of the atom with great speed.
- [13:34] Eolas Darwin: we just were incorrect
- [13:34] Deoridhe Quandry: I call dibs on being that electron!
- [13:34] MetaLogicalMind Landfall: Deoridhe - I comprehend what you're saying, I just lost how it connects with the discussion
- [13:34] Marya Blaisdale: Right Eolas, so science evolved :)
- [13:35] Eolas Darwin: Oswy - what's the point of the search without looking for the right thing?
- [13:35] Eolas Darwin: I mean why bother at all if we're not seeking truth
- [13:35] Pun Couffer: The atom gets ionized. I don't know how often it happens, and I don't know in what kind of accord is this with conservation of energy, but a professor of mine told me of that phenomenon.
- [13:35] Eolas Darwin: and by truth, I mean "the right" correct explanation of the world
- [13:35] Sunfire Langer: I'm afraid you and I will continue to disagree, as for me the tree does not make a sound, Metal
- [13:35] Thoth Jantzen: Deo - careful with QM - there are many interpretations. the 'probability field' is largely a mathematical device to account for a fact that we cannot 'know' things....
- [13:35] Deoridhe Quandry: [13:32] Deoridhe Quandry (expanded): If there is a single reality (as Metal and others state they believe there must be an is the only important thing to communicate about), we are the electrons hazing in probability fields around it.
- [13:35] MetaLogicalMind Landfall: Thoth - well put
- [13:35] Seneca Quandry: There may be one reality there to be described, but multiple fully adequate ways to describe it (or aspects of it). If so, then multiple perspectives on reality may express true propositions, even though they seem to be asserting different things.
- [13:36] Eolas Darwin: I hate talking about quantum mechanics
- [13:36] Thoth Jantzen: ...it doesn't necessarily imply that things are in some undetermined state until observed...only that WE cannot determine the states.

Second Philosophy

- [13:36] Oswy Gothly: Eolas We can be content with partial truths. Or even a range of alternative truths we can choose from. If I analyse a poem do I expect to get to the truth?? Its an illusion?
- [13:36] Thoth Jantzen: and there are MANY interpretations as to what it means or implies...
- [13:36] Eolas Darwin: it so often gets used as "proof" whatever woo-woo nonsense some one wants to believe
- [13:36] Deoridhe Quandry: Thoth, this theory predates QM. Mom was doing her Ph.D. thesis before QM was posited.
- [13:36] Thoth Jantzen: ...it's not settled or agreed...or even well understood.
- [13:36] Sunfire Langer: there is One reality, of which each of our own realities are a tiny fractal
- [13:36] Thoth Jantzen: even by experts.
- [13:36] Eolas Darwin: I got told once by a christian evangelist that QM proves that god exists
- [13:36] Seneca Quandry: lol Eolas.
- [13:37] Marya Blaisdale: :/
- [13:37] Oswy Gothly: Eolas You emphasis on the RIGHT sits oddly with what you said about social science.
- [13:37] Eolas Darwin: no... no it doesn't....
- [13:37] MetaLogicalMind Landfall: Eolas - QM can often be like a religion... it has certain truths... that are often misinterpreted ;-)
- [13:37] Thoth Jantzen: hehe, yes.
- [13:37] Eolas Darwin: some things are unknowable - or at least only temporarily knowable, which *is* the right answer
- [13:37] Pun Couffer: The most important fundaments of Quantum Mechanics have been worked out in 1925 and 1926.
- [13:38] MetaLogicalMind Landfall: Eolas - or propositionally knowable
- [13:38] Pun Couffer: QM itself was founded in 1900.
- [13:38] Eolas Darwin: the "right" answer, and the search for truth isn't always a search for something static; it can be a search for the right, or most often right set of axioms
- [13:38] Oswy Gothly: Well I look forward to the next work on the truths absolute of economics.
- [13:38] Deoridhe Quandry: Well, then let me say she wasn't doing QM, she was doing electron movement in sulphur oxide.
- [13:38] Pun Couffer nods.
- [13:38] MetaLogicalMind Landfall: Eolas - I am not sure of your use of the word "axiom"
- [13:38] Deoridhe Quandry: Or something which smelled like rotten eggs. In short, not QM.
- [13:38] MetaLogicalMind Landfall: Eolas - from what I understand, an axiom is a definition that is conventional
- [13:39] Eolas Darwin: axiom is a premise which we take to be true, which is used in propositional logic
- [13:39] Thoth Jantzen: the key thing - unknowable by whom? I would bet if you could ask an electron - without disturbing it - it'd be able to tell you more or less anything about itself you want to know. But they are notoriously cranky about being disturbed by even the slightest glance, let alone an actually inquiry. :o)
- [13:39] MetaLogicalMind Landfall: it doesn't have much to do with reality until you apply it to a referent
- [13:39] Eolas Darwin: but sometimes the axioms we rest our logic on are wrong
- [13:39] MetaLogicalMind Landfall: right
- [13:39] Deoridhe Quandry grins at Thoth.
- [13:39] Eolas Darwin: so searching for the right ones is important
- [13:39] MetaLogicalMind Landfall: ok
- [13:40] Patrick Magnifico: Is there a relationship between what is right and what is consistent?
- [13:40] Eolas Darwin: I would think so.
- [13:40] Thoth Jantzen: in what sense, Patrick?
- [13:40] Seneca Quandry: Oswy, I think people often over estimate the differences between social sciences (like econ) and other sciences. Economists, like physicists, construct mathematical models that attempt to capture the structure of the phenomena they hope to understand. Even the models are similar, using similar mathematical techniques.

Second Philosophy

- [13:40] Eolas Darwin: though yes
- [13:40] MetaLogicalMind Landfall: it isn't so much of a "search" though, is it? Forming "axioms" is about describing reality.... not understanding reality....?
- [13:40] Sunfire Langer has been watching Waiting for Godot in tandem with this discussion, that's been fascinating
- [13:40] Oswy Gothly: Thanks folks less certainty from the scientists than previous debates. Is this progress?
- [13:40] Seneca Quandry: I agree though, Oswy, that we're not likely to get eternal laws of economics in the way people hope to get them in physics.
- [13:40] Thoth Jantzen: and Seneca, most of those models are 'probabilistic', too...
- [13:40] Thoth Jantzen: statistical.
- [13:40] Seneca Quandry: Indeed, Thoth.
- [13:41] Thoth Jantzen: much like QM models...
- [13:41] Eolas Darwin: but Sen, that's sort of my point, but ...
- [13:41] Seneca Quandry: OK Eolas.
- [13:41] Eolas Darwin: economists have long been trying hard to be empiricists
- [13:41] Sunfire Langer: nice exit by the dragon, there
- [13:41] Thoth Jantzen: the people involved ARE in some state at some given time - but it's the prediction for individuals and specifics that are a problem. The more specific the prediction u want to make, the more uncertain it becomes.
- [13:42] Eolas Darwin: and the ones who do that are consistently wrong - as their models are never going to be as complex as the individual actions of billions of people
- [13:42] MetaLogicalMind Landfall: I think the increase in the number of statistic, probabilistic, and "stochastic" models is a sign that the "Modern" way of thinking is moving toward something new (ie "Postmodern")
- [13:42] Patrick Magnifico: To answer your question, Thoth...there was an unpublished article entitled "The Day the Gods Stopped Laughing" which mentioned something I feel to be relevant.
- [13:42] Amelie Emor: is the person still here who made a statement along the lines of 'don't mistake language as proof'?
- [13:42] Pun Couffer: How would we define understanding, anyway? Would 'to understand' be to be able to always determine how will something behave if affected in a way? Or something else?
- [13:42] Patrick Magnifico: The article stated that "in one of the most brilliant papers in the English language [David] Hume made it clear that what we speak of as 'causality' is nothing more than the phenomenon of repetition. When we mix sulphur with saltpetre and charcoal we always get gunpowder. This is true of every event subsumed by a causal law - in other words, everything which can be called scientific knowledge. "It is custom which rules," Hume said, and in that one sentence undermined both science and philosophy."
- [13:42] Thoth Jantzen: which question?
- [13:43] Seneca Quandry: [13:39] Eolas Darwin: *but sometimes the axioms we rest our logic on are wrong.* "Eolas, I think we have a different view about the status of axioms in logic. I think logical systems are just models.
- [13:43] Ticklish Questi: the behaviour of a society is like the behaviour of an organism - you can tell that a cat likes cream without knowing what every cell in its body is up to simultaneously
- [13:43] Patrick Magnifico: Which may answer your question of why I mentioned a relationship between truth and reliability.
- [13:43] Seneca Quandry: Different systems, like different geometries, rest on different axioms.
- [13:43] MetaLogicalMind Landfall: Patrick - It doesn't undermine it though
- [13:43] Sunfire Langer: no, the proof of his existence was mistaken for language, so somebody said 'you do not exist', and then he didn't anymore, Amelie
- [13:43] MetaLogicalMind Landfall: it is just a different perspective ;-)
- [13:43] Pun Couffer: Okay, I guess I could rephrase what I said. Is 'to understand' to know all causalities related to a thing?
- [13:43] MetaLogicalMind Landfall: it is still the same reality - Science is still as useful as it ever was

