

Transcript: Philosophy VIDEO 2.8 – Conclusions: Wrapping Up

Once again, that Sylvain Bromberger quote I like:

We find ourselves, as individuals and as communities willy-nilly cast in a world not of our making, in which we want to survive, if possible to thrive, and whose features we want to understand. We start out with little prior information about that world, but we are endowed with the ability to come to know that there are things about it that we don't know, that is, with the ability to formulate and to entertain questions whose answers we know we do not know. It is an enormously complex ability derived from many auxiliary abilities. And it induces the wish to know the answer to some of these questions. Scientific research represents our most reasonable and responsible way of trying to satisfy that wish. That is its most tenable defining goal. However, in seeking its goal science repeatedly runs into difficulties. Many of these difficulties are physical in nature and call for the design of new and more powerful instruments. Others are psychological and call for the invention of devices that supplement our memory and our computational powers. Still others, and those are the ones that are relevant here, are intellectual and pertain to our ability to conceive, formulate, consider, connect, and assess questions, and to our ability to conceive, formulate, consider, connect and assess answers. These sorts of difficulties often call for inspiration and creative intelligence. Careful observation and description are not enough.

I like this passage not because it's the most influential statement ever. Bromberger is well-known but not like famous-famous. I don't agree with the statement because I think it puts too much emphasis on science. What about babies? Babies are thrust into the world willy-nilly. Won't someone think about the children? But it puts Questions front-and-center. And "What We Know We Don't Know" is right there on the cover. Very Socratic. I like that. So let's talk about what we don't know.

Bromberger begins one essay by noticing that not all ignorance is created equal.

As he puts it "my ignorance is not one big undifferentiated glop, one huge unstructured nothingness."

That is so true. Ignorance is like a glop with bits in it. Let's look at the bits.

First, Bromberger gives the set of all these bits the tentative—and may I say humorous—name: *nescience*.

No-knowledge. Nescience he contrasts with *yescience*: Yes-knowledge. Bromberger basically thinks science consists of cancelling items of *nescience* with items of *yescience*. Weird-sounding, I know. To get a sense for what he's getting at, let's start by dividing up the class of things we don't know. And please notice: this will amount to constructing, by implication, a typology of questions. Because everything you don't know suggests a question.

The following divisions were inspired by me reading Bromberger, but I'm not actually following him.

I/You/We Don't Know

There's stuff I don't know, stuff no one knows, and points in between.

The sum total of scientific knowledge is bigger than any one head. So science knows what no one knows, in an aggregate sense. The same goes for not-knowing. I'm just going to start using *nescience* from here on out. There's personal nescience, i.e. stuff I don't know. And there's nescience in a more global, impersonal sense: the obverse of science, you might say. Dark yin of ignorance to bright scientific yang. And points between. Things some people know but not others.

Obviously if I don't know but somebody does, asking is a good strategy. So this continuum has important implications for problem-solving. Next:

Don't Know, But Know How To Know

There are things I don't know—and no one knows—but that I—or we—know how to know. Think about adding two really huge numbers no human being, or any human-build computer, has ever actually summed. There must be tons of cases like that. A literally infinite number. There are also empirical things no one knows but that are easy to know. How many books are under my bed? I don't know, but I know how to know, if it starts to matter to me.

Don't Know, Know How To Know, But Can't Know

A large and sometimes annoying class. I don't know whether Julius Ceasar had an even or odd number of hairs on his head when he died. I doubt we can know that. Fortunately, I don't care. But in other cases I care. There's lots of stuff I want to know about Socrates. I doubt I will ever be able. Historical record is too scant. I really wish I knew a lot of facts about human evolution. But the fossil record is too thin. It's kind of like looking under my bed. Only it is, for accidental reasons, impossible.

Don't Know, Don't Know How To Know

There are questions that seem sensible—i.e. they seem like they should be answerable. But, not only do we not know the answers, we don't even know how to get them, not even in principle. That sounds pretty cosmic, but it can be pretty humble. Bromberger gives this example: Why do tea kettles emit a humming noise just before the water begins to boil? This sounds like a totally solvable problem. But even how to solve it is not so obvious. It's not totally clear what phenomena are relevant. I mean: yeah, something about molecules and something about acoustics. But more specifically? Like Bromberger, I have no idea.

Other questions in this class are more cosmic than tea kettle hums.

What is consciousness?
 Could the universe be a big simulation?
 Why is the universe mathematical?
 What goes on in my brain when I interpret a poem?

A lot of these questions seem to need conceptual clarification, at a minimum.

Of course, sometimes conceptual clarification doesn't pan out. Which brings us to the next category:

Don't Know/ Nothing To Be Known

'Which is more identical, the beautiful or the good?'
 'If 6 turns out to be 9, how many donuts are in a box of a dozen donuts?'
 'How many angels can dance on the head of a pin?'
 'How tall is the King of France?'
 'Who would win in a fight between Batman and Harry Potter?'
 'How might history have been changed had W.W. II been fought before W.W. I?'

When I was in high school my history teacher set that last one as an essay question.

The test was whether we would, rightly, refuse the terms of the question as nonsensical. Any positive answer to the question would be not just wrong but, in the famous words of the physicist Wolfgang Pauli: 'not even wrong.'

It's pretty clear some questions invite only answers that are ... not even wrong.

By the way, in case you don't know, there is no King of France. France has no king. In the history of science, there are a lot of things like that. A lot of serious people have wasted time presupposing things that turn out not to exist. Happens to the best of us.

Don't Know/Not Knowable (Scientifically) But Somehow That's OK?

What is the meaning of Hamlet's strange speech and behavior in Shakespeare's *Hamlet*?
 Is my neighbor just being a jerk?
 Why is there something rather than nothing?
 What is justice?
 Is the French Revolution the most important political event of the past 400 years?
 What's the best investment strategy?
 Which nominee for induction into the Rock and Roll Hall of Fame in 2017 is most deserving?

I say: intelligent, informed discussion of at least some of these is possible, despite probable, ultimate unanswerability. These aren't nonsense. They also aren't one kind of question.

I'm not going to say more about this category because, honestly, there's too much to be said.

I think the time has come to introduce Bromberger's concept of a P-Predicament. Sounds like it has to do with P-values, per two videos ago. But no. The P stands for 'perplexed' or 'puzzled', but that makes it sound like it maybe refers to a feeling. Nope. Mostly it's there just to indicate that the term is being used in a particular way.

A P-Predicament is a case in which you have a question that makes sense. The question has no false presuppositions, so there's no King of France in there. It isn't incoherent. But: you either can think of no answer and no way to get an answer; or you can think of no answer to which you do not have decisive objection yourself.

P-Predicaments are a type of nescience, in Bromberger's terms. He thinks science is yesience that cancels P-Predicaments. This allows him to define 'theory', for example, as an item of yesience that cancels a P-Predicament by giving you a possible answer to which you have no decisive objections, even though maybe it's not right.

I'd love to talk about it. But I think instead I'll point out that it's often hard to tell even whether you are in a P-Predicament.

Bromberger gives a good example:

With how much force does the earth attract the moon?

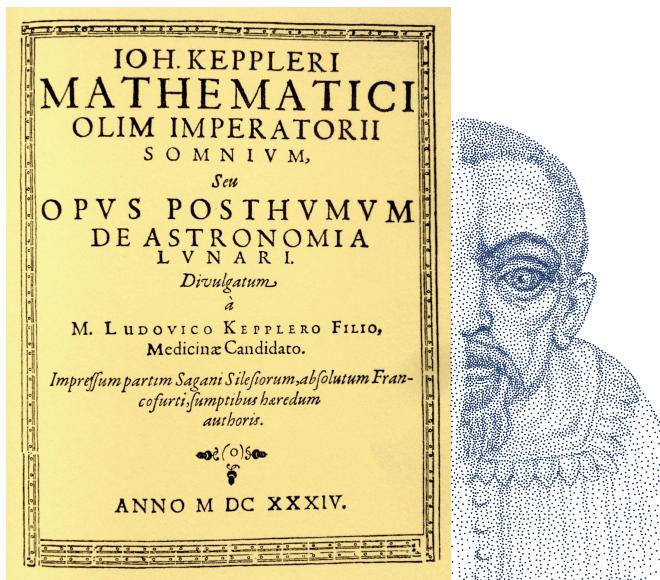
There was a time when this question would have seemed not just unanswerable but like total, complete nonsense.

And now it gets even more interesting. There must have been a time, before Sir Isaac Newton's time—but not too long before—when this question was askable, but was not obviously a sensible question.

Let me tell you about a novel. It was written in 1608 by the astronomer Johannes Kepler—I assume you've heard that name. Planetary laws of motion, anyone? The novel was entitled *Somnium*. The Dream. It's weird. There's a witch, a boy and a trip to Iceland, and demons who can fly you to the moon. And—this is the presently relevant part—Kepler tossed in Lagrangian points. That is, points at which small bodies can maintain gravitationally stable position relative to two large bodies. Like the earth and the sun. Or the earth and the moon. Kepler imagines that the demons who accelerate his protagonists towards the moon (with damp sponges over their mouths so they can breathe in space) will flip at a certain point, after which the demons' job will be slowing them down so they don't hit too hard. (No, I don't know how demon's work as retro-rockets, thanks for asking. But: point to Kepler for thinking of it.)

You see where I'm going? Kepler had an inkling that there was an answer to the question "With how much force does the earth attract the moon?" But he didn't have the Newtonian answer, so he really didn't have any answer. So he wrote a novel.

Why is this important? Well, at the time it would have been reasonable for Kepler's contemporaries to regard this as all as literary nonsense—fantasy. Kepler wouldn't have been able to prove to anyone that "With how much force does the earth attract the moon?" was better than "What is the square root of love?" But he was working on it. And, in 1609, the next year, he published his planetary laws of motion for the first time. (His novel actually remained unpublished until later. Not that it matters.)



As Bromberger says: science requires inspiration and creative intelligence. That requires that you spend a lot of time not just doing the easy stuff—adding numbers or looking under the bed—but thinking about how to answer questions that you don't know how to answer. You don't even really know whether they make sense.

This is—I hope you agree—exciting stuff. It's fun to think of science, never mind poetry, as an adventure of ideas. It could be one of those archetypal, mythic hero's journeys. The hero is dissatisfied at home, is driven to leave the realm of the known. So he—or she—ventures boldly into the unknown, overcoming obstacles, eventually returning bearing a great boon—a gift: an answer—for the ones who stayed home. And that's why it makes sense to fund basic R&D.

But it sure makes it hard to define 'science'.

And it makes it hard to get a theoretical handle on Questioning—that weird, Lagrangean tipping point between the little, glowing ball of things we know and the big black heavy mass of stuff we don't know

That feels like an ending, so I think I'll end there.