

Inductive and Deductive Reasoning

The Rorschach test of logic



IMPERCEPTIBLE RELICS

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Earlier this year, I watched the Tencent [version](#) of [The Three Body Problem](#), and thought the 30 episode series was thought provoking, not unlike Robert Zemeckis's 1997 [Contact](#). As far as sci-fi goes, realism in theory is really up to a physicist to determine. An interesting scene early on, was when a university professor introduces a new graduate student to his home and they ask him about his studies. At 22:00, the student says "I feel theoretical research tends to mess with people's minds." The wife replies, "Ye [*to husband*] You've got yourself a good student" (Ye facepalms).

【ENG SUB】《三体》第13集：叶文洁回忆红岸基地往事 Three-body EP1...



Most theoretical physics is in the weeds, therefore it would not be surprising to hear such a candid response. Yet, this kind of talk is increasingly rare, and is exactly what all

science needs.

PROLOGUE

BY ALBERT EINSTEIN

MANY kinds of men devote themselves to Science, and not all for the sake of Science herself. There are some who come into her temple because it offers them the opportunity to display their particular talents. To this class of men science is a kind of sport in the practice of which they exult, just as an athlete exults in the exercise of his muscular prowess. There is another class of men who come into the temple to make an offering of their brain pulp in the hope of securing a profitable return. These men are scientists only by the chance of some circumstance which offered itself when making a choice of career. If the attending circumstance had been different they might have become politicians or captains of business. Should an angel of God descend and drive from the Temple of Science all those who belong to the categories I have mentioned, I fear the temple would be nearly emptied. But a few worshipers would still remain—some from former times and some from ours. To these latter belongs our Planck. And that is why we love him.

Max Planck's classic book, "[Where Is Science Going](#)" (Wohin geht die Wissenschaft) (1932)

Recently, Adam Mastroianni had a thoughtful post on this. To quote,

“[Karl Popper](#) said: science happens by proposing hypotheses and then falsifying them.

[Thomas Kuhn](#) said: science happens by people trying to solve puzzles in the prevailing paradigm and then shifting the paradigm entirely when things don't add up.

And [Paul Feyerabend](#) said”

...I won't spoil it, so I've included the link to that [here](#).

There is certainly a lot of testable hypotheses that simply haven't been given the time of day, and that is more in tune with Kuhn (it rhymes). I tend to lean into Kuhn, because you can make a career of new discoveries simply by trying to “solve puzzles,” as House M.D. sees it:

Humans Are Puzzles To House | House M.D..



Scientific puzzles are different from technological or constructivist “puzzles.” Science in itself, less intrinsically commercial (referring to the last remaining worshippers in the temple). Science, [math](#), engineering, and technology all involve [subjectivity](#), but in public perception, it has seen a [rightward march](#)/retreat.

I kind of think one needs to graduate from learning the basics of the scientific method before suggesting everything is either unprovable or valid.

In the arts/humanities, I have a similar philosophy. Before a scholar can espouse an expert view of third wave feminism, they ought to take a class in first wave feminism, like *Feminism 101: Introduction to [Simone de Beauvoir](#)*, and then *Feminism 201: Intro to [Betty Friedman](#)*, and then *Feminism 301: [Luce Irigaray](#)*, or something like that.

The polarization typically divides camps into beliefs such as degrowth/decelerationism, and accelerationism, but it's fallacious logic. That trend has been analyzed by philosophers such as [Émile Torres](#), who has been able to discern some of accelerationists' most virulent theories, while also creating improbably large and obtuse catchall [acronyms](#). Phrases like [TESCREAL](#) elicit ridicule, similar to [vast, right wing conspiracies](#), which sidelines the independent-minded to mere spectators. If there was ever a time that the U.S. needed a third political party, it is now.

Rather than framing ideological views between technological materialism and progress, I think it is far more intuitive for society to adopt a heuristic model of learning using a classic philosophy of science.

Positioned on two sides of this dichotomy are deductionists (or sometimes exclusively, fundamental [reductionism](#)), and [inductionists](#) (sometimes considered [holism](#)). While distinct from constructivism and critical thinking, both operate in both domains, and perhaps to a lesser extent, in one. Empirical reductionism isn't domiciled in deduction- it is a tool in a toolbox. Whether epistemology of knowledge or original inquiry is involved in advanced science, it can never become so stratifying so as to evade outsiders' curiosity forever. A generation ago, millenials wouldn't think to create a flash mob around [Area 51](#). But as a sign of how alienated the less informed are from the informed, in part due to the [declining quality](#) of information, this [naïveté](#) has led to emboldened ideas towards the declassifying the nation's most coveted secrets since Roswell (even though I think it's mainly just advanced military planes that they are trying to keep classified). (Although, I think that could be a cover/distraction for allowing other groups to leak classified data to other countries) It perhaps is also a sign that this decade is not unlike the time when hippies tried to [levitate](#) and "[exorcise](#)" the Pentagon.

But that is a vicarious nostalgia, called [anemoia](#), one that I never knew, but occasionally infer and imagine from writing that existed from that era. If vicarious nostalgia can exist, so can vicarious [trauma](#). In contrast to the past, it is possible to be nostalgic to [ephemera](#) of the present (*Mono no aware*). The more I study, the more I believe the mechanisms behind memory-formations. When a major UCLA paper in 2010 announced a new discovery about [mirror neurons](#), my belief of the sense of self, and its ability to define/isolate itself from the environment (kind of like mind/body [dualism](#), but with body/environment), was further marginalized. I had to realize that there were limits to creating a so-called unlimited positive (or negative) barrier around one's ego. Eventually enough external stimuli will influence the mind beyond autonomy (which is why AI is so dangerous).

A decade later, would I read a concept by Sartre that described a very similar reaction when describing the cognition of a mannequin: "[the look](#)." While Sartre wasn't describing the neuronal mechanisms at the biophysical level, he could very well have been describing its [emergent](#) manifestations: Monkey See: Monkey Think. Who says philosophers can't be modern scientists? They were the original ones. One can thank Einstein, who can thank Newton, who can thank Descartes, who can thank Plotinus, who can thank Euclid, who can thank Plato.

Inductionism is ultimately a greater cause than reductionism and deductionism. Deductionism leads to atomization, and atomization can lead to alienation from culture, norms and hyperglobalization, which, in a certain [gear](#), might make the best of a car spinning out of control, or fail catastrophically. I'm the kind of person that would rather learn how gluons and muons are related to leptons and quarks late than never. Not in a "[gotta catch them all](#)" way, but in trying to explain to someone 50 years from now why Super Mario is/was a fun game back in the day. Perhaps 2 generations from now, youth might learn string theory in high school using many-dimensional computer interfaces, and won't need a periodic table, comparing it to something outdated like an imprecise and early atomic clock (since there might be [quantum](#) clocks by then).

An example where I think worldviews clash is when different theories of reality are assumed based on observations, which, because they are not a complete view of the universe (if there ever is such a thing), only represent one vantage (or dis-advantage) point.

In the Three Body Problem, it is the farmer hypothesis, and the shooter hypothesis. In the shooter hypothesis, a 2D species sees repeating bullet holes spaced 10cm apart from a marksman. The scientist(s), among them, proclaim a great law, that, if they travel 10cm, they will always see another bullethole. This idiosyncrasy, of a marksman's accuracy, cannot be understood by the "simpler," 2D species, and for all is known, cannot or have not travelled beyond the range of all of the marksmen's equidistant bullet holes, thus assuming the laws apply to all of the universe. Consider or analogize that hypothesis to inductionism- extrapolating a law to its infinite "ends." In the farmer hypothesis, another regularity is observed- the turkeys are fed every day at a certain time (without understanding why). The turkey scientists declare a law that every day they are fed, but do not realize that on one day, they become the food. One could say that is where Kuhn's breakthrough begins:

"Science happens by people trying to solve puzzles in the prevailing paradigm and then shifting the paradigm entirely when things don't add up."

There is a fascinating paradigm in the show, worth watching, because it is questioned. That is the simplest and most concise purpose of science. Not to dogmatically depend on paradigms, but neither to dogmatically debunk them either (one can try, but not having all the theoretical framework can limit that- such as suggesting carbon could have 5 valence electrons if one looks hard enough).

The problem is when regularity and paradigms are always accepted as the only truth. Science stops existing when reductionism and inductionism cannot interchange during an experimental hypothesis. Nothing new would be discovered if the same laws are tested, except by accident or curiosity. Thus without curiosity (of the frontier), the practice of science, or what one believes to be science, is mere ritual.

【4K超高清】 ENG SUB 【三体 Three-Body】 第02集 | 腾讯视频



In describing an inkblot test, one might describe a shape in positive or negative terms. The aim of inducing laws from testable hypotheses can be to escape the tedium of regular, existing laws. Thus to be on the frontier is to be infinitely testing the map. If one enjoys complacency, then they may enjoy the ritualistic testing of pre-existing laws (often discovered by others, whether via induction or deduction/reductionism). If one, theoretically were on the edge of the map, then they are exploring an existential dread of an apparent finitude of the universe. When others claim the universe is just the Earth, and everything has [already been](#) explored:

Truman Show (1998) - ending / Flat earth



The world as it exists for the outsiders (who are actually insiders), doesn't change fundamentally when one person discovers the same world as them. And this change happens more rapidly and more widespread in a culture during an era of [moral convulsion](#). The past decade is the first societal convulsion in my lifetime, and one that still surprises me, but is not unlike quarter-life crises or mid-life crises. Science is a way (sometimes the only way) of discovering certain truths of the universe sooner than others. Is science not life? Having a vantage is perhaps the purpose of science, but one that needn't be an exclusive one. And perhaps that's what Feynman meant in his [lectures](#), "There's Plenty of Room At The Bottom." Those 2D intelligent species, even with primitive, great laws, share a vantage on a Euclidian plane that hadn't existed before Euclid.

Discussion about this post

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Restacks



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