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NULLSPACE

The Space of Formal Logic, Humor, and Nothing

Reviews Of This Book

"Incisive points, a wide scope of topics and resources (in time and place), a super-ambitious goal, and a self-consciously snarky presentation."
– Dr. Peter Ross, *department of philosophy, Cal Poly Pomona*

"The book has a very compelling structure… The claims in the book have a very peculiar vibe. They make me think, 'This seems wrong, but why?' And then I think about it and I end up gaining insights. It's as though the book *wants* you to disagree with it in order to trick you into learning."
– Dr. Max Kölbl, *mathematician, Osaka University*

"You corner old ideas, tear them apart, and then assert your own in a way that can't be disputed since it's all so consistent. It's funny."
– Derek Edgington, *author*

Unwitting Contributors To This Book

– W.V.D. Busby
– Dennis LaRue
– Max Kölbl
– Ming-han Liu
– Albert Castro

:: Introduction ::

"A serious and good philosophical work could be written consisting entirely of jokes."
Ludwig Wittgenstein

Nullspace covers a broad set of technical topics in philosophy following the narrative that the world has comedic telos. Despite this being largely a work on comedy, it isn't very funny. If people read things like the *Critique of Pure Reason* in an attempt to have their questions answered, then appositionally people should read *Nullspace* in an attempt to have their answers questioned. The book was originally named *I'm Not Joking*, a counter to the above quote since this is neither a serious nor good work. The name I ended with instead comes from linear algebra – the null space of a matrix contains all the vectors that are mapped to zero by that matrix; this allows you to trivially solve equations derived from it.[1] I named the book after this because I believe that the reduction of frameworks into nothingness allows us to trivially solve all problems in philosophy.

Nullspace will be opaque to casual readers. This book started as notes to myself and still mostly is. Many of the sections in this book are transcripts of lectures I've given, and while I've done some editing to make the book more readable, it was written in the conversational style of the transcripts with lots of nested clauses that are easy to follow in speech, but hard to follow in text. There is also a lot of terminology that gets used in a technical sense throughout this book and with a Flesch reading-ease score of around 35, or a 16th-grade reading level, this book is considered very difficult to read.[2]

Philosophy tracks other fields of academic study, all of which have become more technical in recent history, making work in philosophy more technically entrenched in turn.[3] There's an expectation that readers are already familiar with most of the references made throughout this book, but if you're not used to academic philosophy, don't worry, it gets significantly more obfuscated from here. Nuance doesn't survive contact with the center of the bell curve and while I did try to write to people as broadly as possible in this book, I didn't try that hard.[4] You'll notice an unsatisfying lack of details or counter-considerations in many sections of this book – I have always been a miner of ore, I have never managed to refine it.[5] While I'd like to think that any clumsy wording in *Nullspace* is done on purpose to punish those who bother reading it, it's moreso that I'm just a bad writer.

I wrote most of this book a decade ago and have taken a long time to edit and publish it, but this slow approach ended up being the best one since the only ideas left in this book are the ones that have remained after a decade of thought and debate on them. Lots of other philosophers write great volumes of work, easily dwarfing this book's content in terms of quantity, but often their views will change drastically over their careers, whereas what is presented in *Nullspace* is the exact opposite – views that have withstood a small test of time – and so we may yet dwarf the others in terms of quality.

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This introduction is an introduction to a philosophy book that covers many metas in philosophy, so I figure this introduction should be an introduction to philosophy itself.

Philosophy is the first, oldest, and largest discipline, leading to the founding of the first university by Plato and the formalization of logic and science by Aristotle, as well as spawning many other fields of study with recent major additions being psychology, sociology, the philosophy of mind frameworks used in AI research, and so on.

Philosophy primarily concerns itself with the broadest and most general of questions. Philosophers do not study how rocks be or how living organisms be, as those are what geologists and

[1] Mathematicians use 'kernel' far more often than 'null space' but null is a more useful term for the topics in this book so I went with that instead.
[2] The Flesch-Kinkaid scale doesn't account for intertextuality, so the reading difficulty is probably much worse to be honest.
[3] James Ladyman suggests this in his article *In Praise of Specialisation*, but even if it wasn't true, it's not very valuable to be delinguinated by the incompetence of others, so I write how I write.
[4] There is a way to present things that retains their power even when said plainly but I take it as a warning from Zero HP Lovecraft that, "No matter your ideology, remember that if it becomes the ascendant center of the culture, it will be believed and practiced and enforced by morons. So you should choose and express your beliefs in a way that you could still live with their degraded version."
[5] A quote I have stolen from Nishida Kitarō's preface to *Intelligibility and the Philosophy of Nothingness*.

biologists study, respectively. Instead the philosopher studies the nature of being itself, without specificity. Where all other disciplines are narrow in their scope and application, philosophy is broad and universal.

It is easy to argue that philosophy is the most practical of all studies, since an application of philosophy is 'the good' and knowing what the good is means you will know what is good to do in any particular situation. Just the same, studying philosophy is the most important thing you can do, since asking the question of what importance is, deliberating its answer, and analyzing its accuracy, are all part of the philosophical practice such that we could not define importance or grant anything as being important without philosophy, making philosophy the mother of important things.

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As an initial exercise I want to demonstrate that none of the perennial issues in philosophy are unanswerable or beyond our understanding. There are robust frameworks that already exist that let us work these issues out. We'll start by defining truth. If you say, "Truth is subjective," you will not pass the class. Too many pseuds state, "*My* truth is different than *your* truth." Intended or not, this is contrarian, dishonest, and harmful.

The statement that truth is subjective asserts that it is true that truth is subjective. What directly follows is that it's subjective that truth is subjective, so it's subjective that truth *isn't* subjective, which means that it's true that truth isn't subjective. So we know truth isn't subjective, but we still don't have the definition. The not-too-narrow and not-too-broad definition of truth is, "what is," as in what is the case. A common objection to this is, "That is not what truth is." The self-defeating nature of this objection is in its use of the initial definition, "That is not **what** truth **is**."[6] This is a 'recursive' or 'self-righting' definition and lets us know the prior statement, "*My* truth is different than *your* truth," cannot be true thanks to the definition we just actuated.[7]

"Meaningless word games!" you say, not realizing any definition you give would be playing the same game. But maybe I'm wrong. Maybe everything is subjective. We can only know things through sensory data that is indirect and inaccurate, and perception is all we experience – all we can know – so it would seem that there is nothing truly objective we could ever know about the world. Ignoring the universal objective we create by saying perception is all we could ever know, all we have to do to salvage this is ask where our subjectivity comes from – how can subjectivity exist without some object by which to relay the subject? Imagining an opposite to something does not make the opposite exist, you don't typically prove existence by negation alone, rather it is that subjectivity could not come to exist without an objective basis for the subject to derive its relations.

More directly, your awareness is of objects, not of yourself having experiences of objects,[8] which means the experience necessarily has more to do with objects than subjects. A way to prove this for perspectivists – how can perception be all that exists if there was nothing external to perceive in the first place?[9] Worse still for them, scientific explanations invoke things nobody will ever perceive. For example, nobody has ever seen a dinosaur, only dinosaur skeletons. So perception cannot be the basis of truth. Truth must exist independent of the perceiver, else there would only be the perceiver with nothing to perceive. This is evidence that most subjectivists are just solipsists in disguise since they ultimately deny there is an 'out there' or external kind of truth.[10]

But the objective world really is out there, the way things really are, and so it follows then that the subjective world is the way things really *aren't*. Crucially here, subjectivity is just the capacity to be wrong. Saying truth, or art, or math, or whatever is subjective just means you could be wrong about it, not that those things are themselves without objectivity. Being subjects ourselves, beings with the capacity to be wrong about the world, is quite useful since it allows us to suppose things that are not the case – imagination and creativity hinge around this capacity and we would be worse off without it.

[6] Mather, Lucas J.; lecture in the month of September, 2014.
[7] I'm ducking any explanation of correspondence theory or any other theories of big-T truth here; I don't think those views or their problems apply to a world where truth is defined this simply. But if you disagree, the metaepistemology chapter addresses this directly.
[8] This is a sentiment I have stolen from Husserl.
[9] David Banach gives a good account of the perspectivist fallacy here — http://www.anselm.edu/homepage/dbanach/berk.htm.
[10] "So then, have I become your enemy by telling you the truth?" — Galatians 4:16

However, while we have the capacity to be wrong, the capacity to be subjective, this does not mean we lack the capacity for objectivity, which is the capacity to know things in a formal and absolute way, the way things are 'out there' in the world.

This book is a discussion of the objective. Just as we did here with the definition of truth, I believe we can exhaust everything else in the universe and leave ourselves with a complete and totalizing description. With no lack of detail, no missing context, we can know the thing in itself and eat it too.

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As a final introductory note, I claim this book does real work for our discipline. I repudiate the idea that everyone stands on the shoulders of giants. The saying that there is no longer such a thing as an original thought is fantastical and the amount of misplaced ego it takes to claim you know this – as if you personally have exhausted thought – is staggering. With open disregard for anodyne ideas we cut through the perennial Gordian knots of philosophy, the transcendental horizons, the Chomsky and Žižek memetics. We touch the sun and keep our wings. This book is long overdue and no one is prepared.

Metaphilosophy

Most contemporary philosophers believe philosophy will never come to an end.[11] People outside of academic philosophy look on this as a reason to avoid it – that it will just go on forever asking ultimately meaningless questions like, "How many angels can dance on the head of a pin?" And worse, that it will arrive at even more meaningless answers like, "42."

While I am personally inclined to believe philosophy is a project that will eventually come to an end, I also don't really care. It's far more interesting to point out that these people have solved their own problem and are complaining about a great accomplishment as if it were a grave defeat. Philosophy goes on forever? We'll never run out of ideas to explore and we'll have infinitely inexhaustible amusement? Let me light a candle for your loss.

This chapter is about the place of philosophy, what to do with it, how to do it right, and why it will eventually come to an end.

:: What Philosophy Is ::

"Too much or too little philosophy too early or too late in life makes monsters and mavericks out of men."

Dennis LaRue[12]

Philosophy is not about being open minded. It's far too easy to open your mind to something and it's much more difficult to correctly parse the information you open up to. This makes philosophy a practice of learning what to *close* your mind to instead. Almost everything everyone says is noise in the system. You have to learn how to shut out all the noise in order to find the signal, and if you don't learn to do this then you forfeit your mind and die like a dog in the street.

Philosophy is not about asking questions. This would imply a sort of otiose uselessness and triviality to philosophy that unsubstantially debases all the participants of, and commentators on, the field – an *incuria sui* for those reading. The cliché definition of philosophy says that philosophy is about trying to find fundamental truths of reality/existence; this means the answers are more important than the questions. Many people object to this without realizing that if the answers weren't more important, there wouldn't be a need to ask the questions to begin with. People don't study Descartes' *Meditations* because he asked what he could ultimately know about reality – plenty of people have asked that – instead people study his *Meditations* because of how he answered. This book itself answers a few questions, including why you started reading it in the first place.

Philosophy is not the love of knowledge. Philosophy translates from Greek to 'the love of wisdom', and wisdom means applying knowledge in the right way, a form of *knowing better*. This is not a minor detail, it is the main distinction which sets the study of philosophy aside from all others. Listing facts about the world is something anyone could do, but determining what the nature of facthood is, and who ought to do what with them, is the exclusive privilege of the philosophers.

[11] The short article *Will Philosophy Ever Come to an End?* by Eric Schwitzgebel does a good job of laying out some standard views on this topic.
[12] I originally heard this quote from my friend Dennis LaRue a dozen years ago but I cannot recall who he said it was from and the internet returns nothing for it. I believe he may have been giving me an augmented version of the Epicurus quote, "Let no one be slow to seek wisdom when he is young nor weary in the search thereof when he is grown old. For no age is too early or too late for the health of the soul."

Philosophy is not the practice of concerning yourself with delineating the set of facts for particular beings or to which conceptual categories those particular facts should be grouped. That's the boring task of taxonomists. But philosophy *is* about *this*, the thing we've been doing in the last few paragraphs, the meta. And while we are looking for fundamental truths about reality, it is more accurate to say we look for why they are true.[13] In this we find the best definition of philosophy to be: the practice of discovering why there are fundamental truths to reality, if there are any at all, and what the nature of reality is such that anything else could be true past that.[14]

From that definition it should be clear to you that repurposing definitions against themselves,[15] or saying that people are just arguing semantics,[16] or other things like these, are a kind of anti-philosophy. Instead ask what the status of being is such that we can or can't say anything about its being; by what modes, mediums, or relations can it be, and what are the properties or states of affairs whereby any of those things can be granted or given? These are the kinds of questions which philosophy most meaningfully operates over.

As an irony, metaphilosophy would not fall under our definition of philosophy since metaphilosophy, the study of the study of philosophy, is a study of a specific nature of being, namely the nature of philosophy's being. Philosophy as the study of being without specificity makes metaphilosophy useful only in directing the philosopher on what is worth cathexis.

While I use this chapter to open questions about the placement or purpose of philosophy, the other chapters of this book work to close them. What is the absolute and totalizing first point in thought, or time, or being, or whatever, and whereby does anything derive itself past that point? Every other chapter in this book is about the end to this meta in philosophy. I will be writing on this *as if no one had written on these matters before*.[17]

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:: The Methodological Direction Of Philosophy ::

> *"Philosophy would do well to desist from issuing any further injunctions about the need to re-establish the meaningfulness of existence, the purposefulness of life, or mend the shattered concord between man and nature. It should strive to be more than a sop to the pathetic twinge of human self-esteem."*
>
> *Ray Brassier*

lassically, many philosophical systems have had clear development through three primary fields – metaphysics, epistemology, and ethics, often in that order. You try to figure out what exists and the basis for that existence (metaphysics), how you can know things or how anything can pass information to another thing (epistemology), and how any of this or anything else ought to be practically applied to the world (ethics). In this order most philosophers of the pre-modern world, meaning antiquity

[13] Manly Hall defined philosophy as, "the science of estimating values. The superiority of any state or substance over another is determined by philosophy. By assigning a position of primary importance to what remains when all that is secondary has been removed, philosophy thus becomes the true index of priority or emphases in the realm of speculative thought. The mission of philosophy *a priori* is to establish the relation of manifesting things to their invisible ultimate cause or nature."

[14] Sir William Hamilton summarizes a history of definitions for philosophy in his *Lectures on Metaphysics and Logic*, that philosophy is, "The science of things divine and human, and of the causes in which they are contained [Cicero]; The science of effects by their causes [Hobbes]; The science of sufficient reasons [Leibnitz]; The science of things possible, inasmuch as they are possible [Wolf]; The science of things evidently deduced from first principles [Descartes]; The science of truths, sensible and abstract [de Condillac]; The application of reason to its legitimate objects [Tennemann]; The science of the relations of all knowledge to the necessary ends of human reason [Kant]; The science of the original form of the ego or mental self [Krug]; The science of sciences [Fichte]; The science of the absolute [von Schelling]; The science of the absolute indifference of the ideal and real [Schelling]–or, The identity of identity and non-identity [Hegel]." In almost every case it is defined as a 'science' and not some other thing.

[15] After all, Descartes said, "One who aspires to wisdom above that of the common man disgraces himself by deriving doubt from common ways of speaking."

[16] You should hope that you're arguing semantics since semantics means meaning; a semantic-less argument would be a meaningless one.

[17] Yes this is another Descartes quote, yes it's a really clever joke, no I won't marry your daughter.

and the medieval eras, developed systematic frameworks for probing and explaining reality.[18]

Others, like the existentialists of the modern era, tried the reverse order for creating a rigorous systematic worldview, starting with what is supposed to be actionable in the world given your own particular position in it (ethics), what they could find to be actionable beyond that (epistemology), and then discovering what systems or laws governed the world they act in (metaphysics).[19] I've heard the former classical method called a 'top-down' approach with the latter method being a 'bottom-up' approach. There are pros and cons to both approaches, but most people reading this have likely already decided which one they prefer, so I'll move on.

Philosophers of post-modernity, specifically people like Nishida Kitarō, focused a lot on 'middle-out' systems. Nishida starts with epistemology, unifying subject-object distinctions between differing methods of logic and solving problems with its formalizations by Aristotle, Kant, & Hegel, and then derives ethics and metaphysics outwards from that central position. It was also Nishida that was the first to successfully formalize the unity between eastern and western modes of thought into an internally consistent, rigorous, systematic framework, far more robustly than Heidegger or Husserl achieved, and by the admission of his contemporaries was the first 'real' philosopher of Japan.[20] I find it important to note Nishida and his methods here because his work was very singular and it happened at roughly the same period of time that the scientific method became the most popular explanatory method for phenomena in the world (in the sense that lay people started switching their worldviews from teleological and mechanistic ones to a modern scientific one), which is itself a middle-out, or epistemology-first, view of the world. With irony, the scientific method does not directly explain anything but verifies or falsifies explanations instead.

All of these approaches that philosophers have come up with for explaining the world are interesting in their own right, and I personally believe Nishida's approach was the most revealing, but no matter how useful or interesting, I take contention with all of them.[21] By having separate and distinct fields whereby metaphysics only at some distance informs epistemology and epistemology only at some distance frames ethics, or any other arrangement of those studies, all of them fail to be completionist frameworks – all of them fail to explain the unity and cohesion of reality.

There has been discipline-wide semantic satiation. Thinking about hyper-focused over-specialized subjects for too long has dissolved any meaning they had, ruining our capacity to understand them in any kind of systemic or holistic way. And specialization is for insects.[22] While much of the history of philosophy has been spent on discovering the distinctions between categories of things in the world, I think it's far more valuable now to demonstrate what distinctions are *not* valid and to do the work of *collapsing* categories instead. Just as Maxwell collapsed the distinction between electricity and magnetism into electro-magnetism, or as Einstein and Minkowski collapsed distinctions between space and time into spacetime, we should continue this trend and collapse more of the world until there is nothing left.

The chapters of this book are divided into individuated fields within philosophy, and while these traditional divisions are fine for normal studies, the divisions are not absolute. My aim is to give an ultimately unified explanation for everything, blurring distinctions between all fields. This is important because if we find there really is a complete, unifying explanation for everything, then wherever we give an explanation for something we will be indistinctively giving the thing in itself. This is not like Noam Chomsky's sophistic ideas of the world existing as language (yes this is his real ontology, I know it's

[18] While antiquity gave us reasons to live, the medieval gave us benefits to dying.

[19] I know this is an awkward way to frame existentialism, I just wish to note there are different directions established for dissecting the world.

[20] Many sources consistently report Nishida as being Japan's first 'real' philosopher. While I believe Tanabe Hajime was the first to make the claim, the claim is so ubiquitous that there's no proper singular source for it; you can read almost any formal history of Japanese philosophy and will consistently find this claim being made.

[21] Here I am reminded of Nietzsche's preface to *Beyond Good and Evil*, "Supposing truth is a woman – what then? Are there not grounds for the suspicion that all philosophers, insofar as they were dogmatists, have been very inexpert about women? That the gruesome seriousness, the clumsy obtrusiveness with which they have usually approached truth so far have been awkward and very improper methods for winning a woman's heart? What is certain is that she has not allowed herself to be won – and today every kind of dogmatism is left standing dispirited and discouraged."

[22] This is a Robert Heinlein quote and to follow it I think being a generalist makes you uniquely advantaged, for *among the cooks I am the best engineer, and among the engineers I am the best cook*.

disappointing).[23] Language is not the only mode or medium by which we explain things, therefore explanations exist outside language and allow for an ontology different from Chomsky's. If you disagree with me, I want you to consider that not even Chomsky believes Chomsky. In the infamous Stony Brook interviews with Peter Ludlow, Chomsky says that 'real' is an honorific term (at 17:18) and that calling something real truth is no different than calling it truth; exactly one minute later Ludlow asks Chomsky about moral claims, to which Chomsky non-sarcastically says, "morality is real" (at 18:20).[24]

There is also no point in confusing a thing itself for the symbolic representation of the thing, rather what I believe we should find is that an explanation is predicated by its being and therein being is not totally distinct from its explanation. This provides us a powerful tool for explaining the *why* of the world, concomitant to the *what* and the *how*.

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:: What It Means To Be A Philosopher ::

"Think lightly of yourself and deeply of the world."
Miyamoto Musashi

Nietzsche said whatever doesn't kill you makes you stronger, however I've found it's often the case that what doesn't kill you significantly weakens you instead. Syphilis, for example. Of course Nietzsche was talking about mental strength, not physical, but I would argue the syphilis weakened him mentally too. And then it also killed him.

It is precisely what does kill that makes something stronger. The philosopher's whole world will die a dozen times a day before a real thought produces itself. It is in the death of many ideas that real thinking does its job. You must remove noise to find signal.

As philosophy is the love of wisdom, the love of applying knowledge in the right way, it's not enough to know – you must also do. Philosophy is work, it gets something accomplished in the world, so if you study philosophy but are not getting anything done with it, you're a poser.

Those who are really serious about pursuing philosophy will end up alienating many people in their lives. Family is always the first casualty, friends follow shortly after that. This is not only because philosophers are highly annoying,[25] but also because anyone obsessively involved in studying methods towards truth will find that no one in the world other than philosophers have any that actually work. All the religious peoples, all the scientists, all the sophists the world over will become unimpressive to you and worthy of comprehensive derision when you discover how their confidence is ultimately unearned and backed by a kind of pathological ignorance (see the metaepistemology chapter). Conversely, the schizophrenic man will believe something is real when it is in fact not, but the philosopher will believe something is not real when it in fact is, and so even the philosopher's methods often fail us.

To avoid the pathology, long periods of isolation are necessary; this is a universal trait among great thinkers in history, probably because you need a lot of uninterrupted time to figure difficult things out.[26] Unfortunately, this makes philosophy a discipline that requires an exorbitant amount of free time. However, there is a sea change about to happen that might reduce the time required to become an adept philosopher.

If you look at fields of study augmented by computers, specifically by AI engines, you also find significant improvements in the human performances in those fields as the humans train against them. Take chess as an example – Magnus Carlsen is better than any human player to ever live in almost every metric, and the top players below him also consistently outplay world champions from just one generation prior. The rules of the game haven't changed, but the tools available for learning and challenging yourself have improved by many orders of magnitude in an incredibly short period of time.

[23] Wilfred Sellars and Richard Rorty also seem to believe in a similar Chomsky-esque linguistic ontology.
[24] Which you can watch here – https://www.youtube.com/watch?v=CHS1NraVsAc&t=1038s
[25] Which we could counter with Diogenes', "Of what use is a philosopher who doesn't hurt anybody's feelings?"
[26] Even womanizer and socialite Richard Feynman did most of his work in complete isolation.

Modern chess engines like Stockfish outplay 100% of humans 100% of the time, but instead of this computer dominance destroying the chess world, it rejuvenated it, producing players far more tactically creative, and with better intuitions, than ever before.[27]

This will happen with academic philosophy. You can feed any argument or book to a large language model and it will tell you in plain English exactly what is logically valid or invalid about it. LLMs can tell you which premises are likely to be true given general sentiment and what can be internally granted (or not granted) past that point. In fact, expert systems capable of sentential logic and truth tables have existed since the 1980's, they just never got mainstream use. Given how fast AI has evolved (significantly faster than Moore's law[28]), it would be absurd to not use AI engines to train our thinking and argumentation skills the same way chess players do with chess engines. Our generation has no excuse to not greatly outperform every generation before us.

Now I'm no better than anybody else, but no one is better than me. As for an introductory exegesis on the only valid mode of the contemporary pursuit of philosophy, W.V.D. Busby has said that there is no reason to do philosophy anymore, or think at all, unless you honestly believe you have the biggest dick of all human history and for all time to come. This is a very serious notion, as he says, "Unless you really believe you're better than Hegel, then shut up and stick to reading your betters." More sharply, unless you really believe you bring to the game something fundamentally devastating that no one else has ever considered or even had the capacity to consider, then you bring absolutely nothing.

To fight this would be an admission of ineptitude, and we're short on time. The field of philosophy is so absurdly over-saturated, contains so much noise, that any sign of a signal has been lost. Claims at pretention aside, arrogance can be earned, and to dismiss me for saying this is to deny the necessity of thinking this way if anyone is to say anything at all on the topic of philosophy in the current climate.

Together we can solve all perennial problems in philosophy, obviating entire fields of study yet to even be invented. The rest of this book meets these Icarusian claims. We will touch the sun and keep our wings, and it is in no thin sense of 'forever' that we will remain champion.

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:: Eschatology ::

"Extreme boredom provides its own antidote."
François de La Rochefoucauld

In the opening remarks to this chapter I said I believed that philosophy is a project that will eventually end. I want to describe why I think this is true and why it will eventually become untrue.

Philosophy has most generally tried to answer the questions, "Why is there stuff? What kind of stuff is it? How do we learn about the stuff? What should we do with the stuff?" This is a pretty finite set of questions that almost self-evidently would have a finite set of answers. In fact, one might surmise that the whole of the world then is exhaustively explained in four sentences.[29] I truly believe this is the case. Those four questions have definitive answers and the answers are ineluctable. However, people also make games. Sometimes we make games that contain entire worlds which operate under fundamentally different laws than our own. A game is like a problem we invent just to see if we can solve it. So after we have gone to the ends of the

[27] As an interesting side note, I say computers play chess better than humans, but I'm not really convinced computers play chess at all. They certainly perform functions we designed to be interpreted as chess play, but it becomes hard to justify it as chess play under other equally valid descriptions, e.g. a series of bit-flips is hardly chess-like. When we ask what constitutes humans playing chess, one of the necessary constituents is our psychology. Computers have no psychology to exercise, so it becomes difficult to prove that they are playing the psychological game of chess. I believe the overlap between the two games being played is sufficient for tricking us into believing we are playing the same game as the computer, but we really aren't.

[28] Gwern Branwen gives a comprehensive overview explaining this here — https://gwern.net/scaling-hypothesis.

[29] There is stuff because of comedy. It is the joke kind of stuff. We learn about stuff through humor. We should do funny things with the stuff.

universe with our minds, we can simply use those same minds to extend the universe in whatever ways we see fit.

It is clear to me philosophy has an end, and just the same it is clear to me that the end of philosophy is but the beginning of the real game.[30]

[30] I think of a quote from my friend Edda Stenzel, "Existence is fundamentally playful."

Metametaphysics

This chapter gives arguments for the impossibility of any dualism, to drive a wedge between the idea that reality is explainable as some set of kinds or as lists of entities and properties. This is used as conditioning for why we need an ontology that is not predicated on object-hood and property lists. *Why* something is ends up being more important than *what* something is, and while positivists will say things like, "The 'why' question is just a silly question,"[31] positivism can't validate its own methodology.[32]

A view called formal absolutism is advanced, describing how reality can exist and give being to entities like physical objects and abstractions like math before those things themselves exist. Formal absolutism is intended to be a complete and consistent description of reality, but I argue that even a complete and consistent framework isn't enough to sufficiently describe reality, resulting in the conclusion that reality could not in principle exist. This contradiction is resolved by positing existence as a function of comedy and leads to the ontology section giving all extant things as instantiates of jokes. I know that sounds dumb, but keep reading and I promise it will make sense.

:: A Fast Proof for Relational Objects as a Distinct Ontological Category ::

An empiricist walks into a bar, substance abuse follows.

ualists typically divide the world between the abstract and the concrete, or between form and matter, or essence and particular, or noumenal and phenomenal, or type and token, or mind and body, or subject and object, or schema and content, and so on. This section exploits a perennial issue with many different dualistic frameworks that have a binary divide upon where *concreta* and *abstracta* both operate by means of some *relata*. By incorporating some math (which is itself a discipline that has historically built on the relational aspects between abstract and concrete entities) analogies, I give argumentation that *relata* is a distinct ontological category necessitated by any dualism, muddying the traditional dualistic frameworks and forcing either a pluralistic or monistic case for reality.

The transitive property in math, which is that if A=B, and B=C, then A also equals C, demonstrates that multiple abstract objects can be equivalent or made the same as concomitants (you can also represent this in formal logic as a continuous predicate). I question what the status of this object of equivalence itself is. If we take the identity property in math, which is semantically the same as tautology in logic, where simply A = A, and ask if either A or A are also equivalent to their equivalency, to the relation that coordinates their shared properties, which is to say equal to the equal sign itself, then we return strange answers.

Starting from the assumption that yes, A and A are not only qualitatively indistinct from each other but also from their relational capacities (necessitated by their equivalence), then it is the case that A = = = A. This can be verbalized as, "A is equal to the equivalency of being equal to A." We can then raise the question of whether A or A is also equivalent to this new relation (= = =), and the initial assumption says that the answer would be yes again, resulting in the new statement that A = = = = = A. This is infinite regress; we can always create a relational equivalency to the relational equivalencies between A and A if we start with the 'yes' assumption.

[31] Famous sophist Richard Dawkins says this — https://www.youtube.com/watch?v=p6tIee8FwX8&t=1938
[32] *Critique of Positivism* by Charles Peirce — https://peirce.sitehost.iu.edu/writings/v2/w2/w2_11/v2_11x.htm

As we also know from mathematics, as a value asymptotically approaches zero, that infinitely small value is equivalent to zero (barring debate on infinitesimals). Another way to say this is that the number $0.\overline{00}1$ is equal to 0. I posit that by adding relational equivalencies between A and A we are increasing the literal conceptual distance between A and A, which means the normally close and strong conceptual relation is getting weakened. Since the distance between these objects is infinitely expanding, their relation is also infinitely thinned, thereby made indirect and infinitely weaker. Analogous to the asymptotic example, we know that an infinitely weak relation is the same as having no relation at all. We find here that A ≠ A.

From 'A equals A' we derive that 'A does not equal A' at the same time and in the same regard, breaking the law of non-contradiction in logic and the law of identity in math. So the initial assumption that A was not qualitatively distinct from its relational capacities was wrong. This demonstrates that *abstracta* and *concreta* are qualitatively distinct from *relata* such that *relata* is its own category of being since the relations between abstract or concrete objects are distinct in kind from the objects they relate.

In anticipation of an objection, the same problem does indeed occur whenever you have more than one concrete object, e.g. two tables – by what means do we relate these concrete objects as being the same kind of object? In traditional dualism we say the ideal form, or the type of these tokens is what coordinates them, but of course abstract types are objects unto themselves and the *relating action* between the type and its token was just shown to be problematic.

So we have a third category of being called *relata*, or relational objects, but by turning dualism into a pluralism I think we just make the problem worse instead. The same argument used to tease out the existence of relational objects can be applied back onto itself. Formal proof itself is a relational organization between entities, making formal proof *relata*. Is one relational object equivalent to any other relational object? If we say yes, we get the same derivation as three paragraphs ago, so we find that we must say no. E.g., if a table holds some relation to the chairs seated around it, this is a different *kind* of relation than the table's relation to its maker, or its relation to the purpose of the room, and so on, making all relations individuated as unique in kind.

Ultimately this should apply to all entities in the world, no matter how we formalize their categorical multiplicity of kinds. My intuition says pluralism explodes the same way dualism does, and infinitely so, until we have nothing but one single amoebas category of all individuated things, landing us at a monistic architecture for reality. But we don't have to play the game of saving intuitions.

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:: The Nature Of Nature ::

You trust the chemicals to tell you they are chemicals. You trust the facts to tell you they are facts. You trust nature to give you something natural – where then does anything unnatural arise?

believe it follows that all concreta and abstracta are necessarily predicated as *logos*-specific relata; this I call formal absolutism. I'll try to convince you. For every abstract object and concrete object that are strictly paired, there is no distinction that would make either function differently than if they were unpaired, only that they would cease to function altogether, therefore there is no valid distinction between the abstract and concrete components of strict object pairings. I hope this phrasing makes it clear, but it probably didn't. Let me try a different way.

For any good counter-argument against logic being fundamental to reality, tell me again what an argument is. Something that follows, obeys, and is beholden to logic? And in virtue of what would your argument map onto a reality fundamentally devoid of logic? In arguing against the fundamentality of logic to reality you must first assert the fundamentality of logic to your argument.

This is apodictic and trappy since arguing against it defeats your capacity to argue in the first place. I call arguments of this form Gömböc arguments because they are self-righting.[33] For the formalization:

> Premise 1: Arguments follow, obey, and are beholden to logic.
> Premise 2: In arguing against the fundamentality of logic to reality, one must first assert the fundamentality of logic to their argument.
> Conclusion: Any argument against the fundamentality of logic to reality must assume the fundamentality of logic, therefore you cannot argue against the fundamentality of logic.

The above can be symbolized as:

> P1: $\forall\lambda\ (Ar(\lambda) \rightarrow (Fo(\lambda, L) \wedge O(\lambda, L) \wedge B(\lambda, L)))$
> P2: $\forall\lambda\ (Ag(\lambda, Fu(L, R)) \rightarrow As(\lambda, Fu(L, \lambda)))$
> C: $\forall\lambda\ (Ag(\lambda, Fu(L, R)) \rightarrow (Fu(L, \lambda) \wedge \neg Ar(Ag(\lambda, Fu(L, R)))))$
>
> *Where "Ar(λ)" means "λ is an argument", "Fo(λ, L)" means "λ follows logic", "O(λ, L)" means "λ obeys logic", "B(λ, L)" means "λ is beholden to logic", "Ag(λ, Fu(L, R))" means "λ is against the fundamentality of logic to reality", "As(λ, Fu(L, λ))" means "λ asserts the fundamentality of logic to itself", "Fu(L, λ)" means "Logic is fundamentally present in λ", and "¬Ar(Ag(λ, Fu(L, R)))" means "λ against the fundamentality of logic to reality is not arguable".*

Another way to say this is that if reality itself wasn't a formal system then it wouldn't be meaningful to say that formal proof of anything corresponded to reality. This means we know that either reality itself has to be a formal system capable of the correspondence or reality is simply not proof-oriented so there is no formal proof of anything ever, *not even of that*, which self-defeats. This is an indirect proof showing reality has to be a formal system.

An objection I've received to premise 2 is that it requires live people to make statements and therefore it only applies to people's statements and not to reality itself. I think this is a silly objection. Any entity holding any kind of relation with any other entity does so in a consistent form (or otherwise ceases to exist), formalizing the relation between those entities, which is an arrangement between entities we call a premise. Should any action or further relations directly follow from those initial premises, it would take the form of what we call a conclusion. So it is not just people that make 'statements' and draw conclusions, but reality itself that does this. I can demonstrate this with another indirect proof – if formal logic was not fundamental to reality, then any entity holding any kind of relation to any other entity does *not* do so in a consistent form, which means nothing would follow by necessity, not even that, which self-defeats. What we have here inches us towards a framework in which reality is pure formal logic, in an absolute and totalizing sense.

Another objection I've received multiple times is the outright denial of the validity of formal logic itself and the assertion that formal logic is broken in some systematic way. The problem with this objection is that it is not an argument because it does not follow, obey, or is beholden to, formal logic. In this case, the original argument's conclusion that you cannot argue against the fundamentality of logic would still hold because the objection would not meet the criteria for an argument as defined in the original premises. In anticipation of yet another objection to this counter-objection, this argument is self-referential but not circular – recursive arguments evade closed circularity by being unbounded in scope so you can self-reference without creating a locally bound loop. The analogy for this would be something like an infinitely large circle in which no finite set of points you pick from it will themselves be sufficient for recreating the circle; just the same, no arguments derived from infinitely open premises will be sufficiently circular.

Other counters – what happens if we say or think something that isn't logical? If logic is fundamental, how is it that we can we have inconsistent or illogical ideas in our heads? Is it the case that something isn't the case, or a non-existent thing exists as the non-existent thing, or that it is true that something is false? How do we square this circle? To avoid dialetheia I'll say there are many impossible things that we speak on regularly but we only ever speak about them as indirect syntheses of two possible things, like married bachelors. It seems that logical contradictions, things that cannot exist in

[33] A Gömböc is a special kind of shape that only has one stable point of equilibrium, making it so that it rolls itself into the same orientation no matter what other orientation it started with.

any possible space, are literal gaps in our minds where we try to cognize them. If you want more detail, I characterize this gap rigorously in the next section of this chapter.

If some system or set of ideas is externally invalid by way of logic, meaning it allows contradictions, then that system or set of ideas will also have some internal problem that by its own rules allows some inconsistency which results in the total collapse of the system.[34] This is proof that formal logic is not just a mere arbiter of some other consistent thing but that any framework which correctly adjudicates consistency will arrive at and be fully equivalent to the framework of formal logic we already have (reason to believe Aristotle made the most important discovery in history). So whatever is posited against formal absolutism will probably have to self-correct until it looks dangerously similar to formal absolutism again.

Given the above, when you make an assertion in formal logic, the assertion isn't just a reference to a purely abstract proposition that exists solely in your mind, but rather you are asserting something as being the case 'out there' in the world. And since all existent things, concrete or abstract, are the case ('out there' in the world), they require the logical predication of casing (i.e., they require logic to be 'out there' first). If you say anything is the case, that anything exists, has some cause, observes some property, or whatever, all you have done is given predicate values of an entity. Logical predication is involved at all steps of the process.

I say this because if there is no valid distinction between abstracta and concreta (which is what I claimed earlier), and the only things that exist are things that are the case, then there is also no real distinction between objects and their logical instantiates. Hypostatic abstraction allows us to formally convert any predicate into a relation ($P(o) \rightarrow R(p,o)$), giving us what we observe after the fact as object properties and relations, which means object properties and relations are fundamentally just logical predicates. Another way of saying this is that if there is no valid distinction between objects and their logical predications, between object-hood and its casing, then logical predications are what objects are, and they are the only kind of object. Therefore, the world is entirely logical predication. This collapses the distinction between relata and all other categories of objects into one single amoebas *logos*-specific category, landing us at a monistic architecture for reality. Looks like I played the game of saving intuitions anyways.

This is not exactly like logical positivism, as I don't argue that everything is *reducible* to formal logic but rather that everything is *predicated* by it.[35] If Aristotle had equated logic to ontology *tout court*, we could have all stopped there, but he didn't, so what I have been calling formal absolutism is logical realism, monism, and atomism all rolled together, where operations in formal logic are the absolute units of being.

Several friends have pointed out that what I am arguing for here is similar to ideas from Wittgenstein's *Tractatus Logico-Philosophicus*, but it is important to note that I am demonstrating the character of the world, of logic, and of 'things', to be fundamentally different than Wittgenstein did.[36] For example, Wittgenstein explicitly states in 4.441 that "There are no 'logical objects'," whereas I am saying they are the only objects, if there are objects at all (i.e., I believe relata/relationals are objects/things unto themselves and Wittgenstein doesn't).

Moreover, Wittgenstein commits overt mistakes in the opening of the *Tractatus* that are unsalvageable. In the first line he says the world is everything that is the case (1), also that the world is the totality of facts (1.1), and the totality of facts accounts for what is the case and what is *not* the case (1.12 & 1.21), so then 1 should have read that the world is everything that is the case *and not the case*. This is a problem because his literal words are (1), "The world is everything that is the case." Note, every *thing* that is the case, which would be the totality of things (again 1.12 & 1.21). And (1.1), "The world is the totality of facts, not things." So the world is things but it is not things. Very cool Wittgenstein.

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[34] A famous example is the student who challenged Bertrand Russell's statement that permitting a false proposition to be true allows you to prove anything else, "Given that 1 = 0, prove that you are the Pope." Russell added 1 to each side so 2 = 1, and then stated that the set containing him and the Pope has 2 members but 2 = 1, so it had only 1 member and therefore he was the Pope. This is called the principle of explosion but I like characterizing instances of these arguments as implosions instead because they collapse in on themselves.

[35] "It helps no one to be reductive." – Xavier, Renegade Angel

[36] And notably, I didn't read the *Tractatus* until years after I initially wrote this section of the book, so my thinking wasn't influenced by it.

I am aware plenty of philosophers have written interpretations of the *Tractatus* that do lots of hand-waving to try to save Wittgenstein from such mistakes but nonetheless the first line of his book is wrong by his own formulation.

In the second opening mistake Wittgenstein says the world consists of facts and not things (1.1 & 1.2), that facts are just atomic facts (2), and that atomic facts are combinations of things (2.01). But what does Wittgenstein say combinations are? He doesn't. Nowhere in the *Tractatus* does he give a definition of combinations; he never tells us what the ontological status of combination is. We can assume an implied status based on the behavior he describes combinations performing with respect to objects/entities/things, and the implied ontological status appears to be a purely relational one, which is the same status given to facts. It is hard then to see facts and combinations as meaningfully distinct given the semantic usage of them in the *Tractatus* being the same. So Wittgenstein is saying the world consists of facts (again 1.1), and that facts are *relational* things he is calling 'combinations' (again 2.01), which are tautologically facts. So he tells us nothing.

Don't get me wrong, I like Wittgenstein, I opened this book with a quote from him and you'll see me quote him again later in the book, but the *Tractatus* is an incomplete work with egregious errors.[37] I do think aspects of his general sentiment are correct – like that facts in logical space are the world (1.13), but I only agree with this because their existence, and the world broadly, has to be predicated by logical spaces for us to apply logic to it, which is a tautological statement that does nothing to salvage his mistakes. So despite what my friends said, I think associations with Husserl's or Nishida's logical realism are more appropriate to what I am calling formal absolutism, if an association needs to be made at all (it doesn't).

By way of the arguments I gave earlier in this section, formal logic is fundamental to reality and is the only thing that can recursively assert itself as being fundamental in this capacity, meaning reality is pure *logos*.[38] Here the ontology of logic supersedes everything else, including space, time, math, or whatever. To be clear, logic isn't everything, logic is the *only* thing.

Theoretical physics has started shifting towards the idea that logic is what constitutes base reality as well, with things like John Wheeler's *'it from bit'*[39] and quantized inertial theories requiring information to act on itself by the rules of formal logic with no spatial or temporal components involved. For example, theoretical physicist Mike McCulloch has written that, "the waves of Unruh radiation cause inertia as follows: the waves have to fit exactly between the rightwards-accelerating object and the Rindler horizon that forms on the left. This is similar in form to the Casimir effect, but I use logic instead: a non-fitting partial wave would allow us to infer what lies beyond the horizon, so it wouldn't be a horizon anymore. This logic disallows Unruh waves that don't fit on the left: they disappear."[40] This is evidence for the idea that information in QM exists fundamentally as logical instantiates since logical operations are being done to information by information itself in his theory. Even if he's wrong, or my interpretation is wrong, this is just one example of many like it in contemporary theoretical physics working around information theory.

So congrats, we just discovered the true nature of reality together, there's cake in the break room. While formal absolutism can explain the base nature of reality, we have yet to show the relationship between appearances and reality, or give a solution to the problem of universals. For answers to those you will need to go to the metaepistemology chapter. If you disagree with anything I've said or want to understand more of what formal logic and its workings entail, like how instances of reality come into being in the first place, skip to the metalogic chapter. If finding out reality is just logical actuation feels underwhelming, you can skip to the metaesthetics chapter instead.

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[37] Wittgenstein himself believed most people just weren't capable of understanding his work well enough to catch his mistakes. His preface to the *Tractatus* starts with the line, "This book will perhaps only be understood by those who have themselves already thought the thoughts which are expressed in it," which means that only if you've independently attained the views of logical realism/atomism before having read the *Tractatus*, then you won't understand the *Tractatus*. Additionally he says, "I am conscious that I have fallen far short of the possible. Simply because my powers are insufficient to cope with the task.—May others come and do it better." And so I have.

[38] Aquinas would have called this God.

[39] Which allows us to go from pure logic to its quantization in information theory, and then from information theory to quanta in quantum mechanics, creating a bridge from base reality all the way up to our macro-scale world — https://www.themarginalian.org/2016/09/02/it-from-bit-wheeler/

[40] https://physicsfromtheedge.blogspot.com/2014/01/mihsc-101.html

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:: Metacompletion And A More Modal Modalism ::

"The only way to discover the limits of the possible is to go beyond them into the impossible."
Arthur C. Clark

All of existence being formal logic at base would make reality consistent, but would it be complete? One way people divide up reality is by saying consistency entails all *actual* things and completion entails all *possible* things, but even if we accept this division as being real or proper or whatever, does this division capture *everything*?

There is plenty of literature on actual versus possible worlds, but not as much on impossible worlds.[41] I believe we would need to add logically and nomologically impossible worlds to account for a complete description of reality, the reasoning being that we know impossible things must exist, else nothing would be impossible. Another way to say the same: *some* thing must be impossible or *no* thing is impossible ($\exists I \oplus \neg\forall I$). And if nothing is impossible, then everything is possible instead, including nothing, which is inconsistent. So some things must be impossible, concluding that impossible things exist.

People get hung up on this because the common understanding of 'impossible' is precisely that something cannot exist, however the literal definition of impossible is 'not possible', and crucially 'possible' doesn't mean 'does exist', so impossible doesn't mean 'does not exist'. This moves the problem to the definition of possible. The common understanding of possible is 'could be the case in the future', which ironically makes it so that possible things are the things that do not presently exist. By the common understanding of possible, if something is impossible then it cannot be the case in the future, but this doesn't rule out that it could be the case presently. The obvious problem here is that this definition allows impossible things to presently exist, which is of course not what people mean by 'impossible'. The better definition for possible is 'not a logical contradiction' and thereby impossible things are logical contradictions, things that are not the case.

So why should we claim impossible/contradictory things exist? Without the existence of some impossible space there would be no place in which statements were invalid – we could not say anything was logically impossible.[42] At that point we propound paradoxes; those paradoxical entities must occupy their own separate space, an impossible space. Think of a table (likely one you are sat in front of right now), that table exists in that place, not some other place it doesn't exist at. So at every other place in the universe – an infinite amount of places – there is not that table. At every other place in the universe there is the negation of the table. Think of this as an infinite shadow cast by the positive component of the table's truth value. At every other space in the universe it is impossible for the table to presently be there, since it is presently at its singular position instead. Therefore, the negation of the table exists in an impossible space – the table's negation physically extends to the spaces its positive existence cannot. But it might be easier to think about this by going through the more typical modal distinctions first so I will come back to impossible things later.

Modalism distinguishes between possible worlds and actual worlds, often softening that distinction (as David Lewis' modal realism and Leibniz' theory of possible worlds does) to argue that all possible worlds are actual worlds in some physicalist or idealist space.[43] No matter what the ontological status of modality ends up being, I think there is an interesting consequence of looking at meta-modals. Are possible worlds themselves actual or possible? If we say they are actual, then they aren't merely possible, and if they're not actual, then the possibility doesn't exist. It seems we get a contradiction of

[41] Of the millions of papers catalogued on Philpapers.org, and of the 4,000+ papers in the modal metaphysics category, only 170 are tagged (as of the time of writing this) in the 'impossible worlds' sub-category, meaning impossible worlds get a fairly small amount of the attention placed on modal discussions – https://philpapers.org/browse/impossible-worlds.
[42] Space is being used in the mathematical sense here.
[43] It's hard for me to see David Lewis' version of modal realism as totally distinct from Platonic dualism. I'm partially convinced it fooled people into thinking it was something new just because it used a different name.

terms. So are there actual possibilities? What about possible actualities? To attain meta-modals we can divide the traditional 'actuals' versus 'possibles' into *actual actuals* versus *possible actuals* and some new meta-modal distinctions into *actual possibles* versus *possible possibles*, shown below.

	Actual (old)	Possible (new)
Actual	Actual Actuals	Actual Possibles
Possible	Possible Actuals	Possible Possibles

Just as an acorn is a possible tree and not an actual tree, there are possible states themselves that are possible and not actual. An acorn is possibly an actual tree – as the world is currently configured, an acorn could really become an oak tree. This is an actual possibility. But an acorn does not have the possibility to become a dog. It does however have the possibility of entering into a world configured such that acorns do become dogs – a possible possible. What it would take for that to happen would probably look something like significant genetic augmentation and a lot of environmental change to suggest the acorn become something other than an oak tree, at which point we may not even consider it valid to still call it an acorn, but nonetheless it is possible that the world could augment itself to allow this possibility. So not an actual possibility, but a possible possibility.

Similarly, it is not an actual possibility that you can jump to the Moon from Earth, but it is possibly possible given the world augmentation of millions of years passing where the Moon's orbit degrades and it falls towards Earth until eventually it is so close to Earth that you could jump up a few feet and touch it. In reality, as the Moon got closer to the Earth it would start pulling tides in at such force that the space between the Earth and the Moon would be fully occupied by water (so you could swim to the Moon, not jump to it) and a few moments after that would probably be a cataclysmic impact, but the point is that this would still make it possible to 'jump' to the Moon.[44] A possible possible.

Defining the categories; actual actuals are things as they presently are, actuated and given as fact – our current state of affairs. Possible actuals are what we traditionally call possible things – things that could be the case but are not yet and may never be. Actual possibles are things that are presently possible – things possible given our current state of affairs. Possible possibles are things that could be possible in the future but are not presently possible. With the acorn and moon examples it should be clear that possible possibles either never happen or they degenerate into actual possibles, actual possibles are possible actuals, and actual actuals are what both of those eventually degenerate into.

Crucially, despite my use of temporal terms, actuals and possibles can be fully represented in modal logic without the invocation of time (modal operators are not temporal operators); this offers a description of the world in which we can have 'change' without traditional views of time. How long is the present? If we say the present has duration then there is a before and an after, meaning a past and a future, which defeats the purpose of calling it the present. If the present has no duration then it also doesn't exist through time, so there is no present time.[45] Just as possible things can be made actual in modal logic (and vice versa), I claim this is what a state's change in the world really is, i.e., movement from A to B is just the modal state difference of actually at A and possibly at B to possibly at A and actually at B. Moreover, it makes this change precisely and only because the modal logic necessitated it. So it is the state-differences of logic that comprise the things we call localities of space and the passage of time,[46] further that the logical necessitation of state-change is what people often call causation. Here we have accounted for space, time, and causation as concomitants to logic in one single package. As a weak example, a single point of light evinces a one-to-many existence as many bits of extra information

[44] Unrelated, why should gravity be so weak that you can easily overcome the force of the entire planet by simply standing up, yet so strong that your locomotive ceiling is the same height as your head? No one has ever jumped over 6 feet high from a standing position.

[45] This is essentially the riddle Aristotle gives in the beginning of the *Physics*. The present, even in a time-positive framework, usually does not have extension into time, so there really is no time like the present. I use these to leapfrog John McTaggert.

[46] It seems there is a difference between *instantaneous* change and *infinitely fast* changes. If every change that has ever happened and will ever happen did so instantaneously, then there is only one instance of change because they were all instantaneous. But if every change that has ever happened and will ever happen merely did so infinitely fast, then there are infinitely many instances of separate and distinct changes. If we are to believe space is infinite, then it would take infinite time to actuate change across that infinite space – you would need an infinitely fast change mechanism to accomplish this. This may provide an explanation for infinitely many instances of change in the world without a difference in cardinality of infinites between space and time.

come concomitant to it – spatial info, temporal info, energy info, and others are all wrapped together in the initial point of light.

Simple, easy, elegant, the Formal Absolute model Q is the next generation of metaphysical framework, and for a limited time only, buying a model Q comes with a free set of objections.[47] I could write a lot more about these big, mostly unjustified claims, but the claims are self-evident to me so I'm just going to move on instead.

Using meta-modals, I think there are legitimate grounds to attack whether modal realism itself is actual, possible, or some other thing. The modal realists have not determined whether they are also meta-modal realists, and so they haven't determined if their possible worlds are possible actuals, actual possibles, or possible possibles, only that they aren't actual actuals. But if a possible world is a real, existent, actual world, as modal realists argue, then that seems like an actual actual world. If possible worlds are really just actual worlds, then at the most benign it defeats the purpose to call them possible and at the most malignant it completely eliminates the distinction between possible and actual.[48]

Tangentially, this seems to share a lot with fictional realism – the idea that fictional worlds are real given their seating inside the actual world. For example, Harry Potter is male and attended Hogwarts. You would be wrong to say otherwise, but Harry Potter is also not a 'real' person and so none of the facts about him are facts about a 'real' person, yet they are still facts. The fictional realists believe that you can be objectively right or wrong about descriptions of fictional things since fictional things are actual objects in our world. The ontological status of fictional things is such that we are really saying that Harry Potter attended Hogwarts, but only given what was written in a book series by J. K. Rowling.

So it is a fiction to categorize specific works as a canon and to then derive statements that follow from those works as being factual given the canonical descriptions. This is the only way I see fictional realism and modal realism (they are the same thing to me) as being ontologically salvageable since it reduces all fictional/possible things to actual things instead, not totally unlike Landian hyperstition. I shoot myself in the foot here, since the modal realists reduce possible worlds to actual ones as well, but I do it more flatly – I reduce fiction to a series of nested conditionals in formal logic: if this other world existed, and if it had such and such characters, and if they did so and so activities, then we could conclude some set of statements about Voldemort being evil or whatever.

To clarify, actual/possible spaces are where we track valid things and the impossible spaces I'll discuss shortly are where we track invalid things. Both spaces are real in the sense that they exist on top of each other, and in fact it is only when they come together that we have any means of distinguishing them, for if they occupied two separate worlds we would have to explain how it was possible to go from one to the other. Of course that would be a possible space bridging into the impossible space, collapsing the divide between them.

It can always get worse. Looking back at the previous table, are the categories themselves actual or possible? A way out of infinite regress comes from the path of degeneration I had described the meta-modals following earlier.[49] Either something eventually degenerates into an actual actual or it stays in one of the possibles forever, so we can collapse the four meta-modal distinctions into the two traditional modals. But if something stays in one of the possibles forever, meaning it is guaranteed to be forever not-actual, this is usually what we call an *impossible* thing. It seems unintuitive since I'm saying that the things that are possible in perpetuity are actually impossible, but we do have an intuition that this is valid since we often say something is not a 'real possibility', distinguishing between a difference in kinds of possibles such that some are never actually possible. So the negation of the modal actual-possible is what a modal impossible is ($\neg(\Box\Diamond)$).

If modalities are collapsed to something like fictional realism, collapsing all distinctions in subjunctive possibility with them (which obviates problems with any nomological and temporal possibilities that would have been otherwise unaccounted for), not to be confused with things like the reductions done in hyperrealism, then what we call a possible world is a logic-object we instantiate purely for use in modal discussions (a kind of fictional canon), to which we can make objective, factual

[47] But the trunk has infinite space, the engine runs on infinite time, and it will never break down on you. It's a good deal as far as metaphysical purchases go.

[48] People dumb enough to be convinced by David Lewis become bewildered when presented with this.

[49] Incidentally, belief in modal realism is itself a path to degeneracy.

claims about, but to which have no ontological status outside pure logic. This saves the distinction between 'possible' and 'actual' to keep them alive in modal logic. Of course, we use 'contingent' and 'necessary' in modal logic, but the terms are arbitrary so long as the same operations are performed by them. Saved or not, this still doesn't explain impossible worlds, and that presents a much bigger problem.

	Actual	Possible	Impossible
Actual	Actual Actual World	Actual Possible World	Actual Impossible World
Possible	Possible Actual World	Possible Possible World	Possible Impossible World
Impossible	Impossible Actual World	Impossible Possible World	Impossible Impossible World

I have placed consistent worlds in green and inconsistent worlds in red. The four consistent world types we've already examined – the AAW, PAW, APW, and PPW – were all in the prior table so we know they're the same in this table as well. It is fair to collapse them into one single world (the actual world) in my view given that possibles are just a fictional canon in modal logic.

The AIW, PIW, IAW, and IPW are all inconsistent both in name and description, and therefore not the kinds of worlds that anyone could exist in, at least not consistently. For example, an impossible actual world would be one in which it was never actual and actual at the same time, a contradiction.

When we look at impossible-impossible worlds we find something very strange. For an impossibility to be impossible, it truly is.[50] The terms are consistent in IIWs, and with consistency comes validity. They are valid worlds but by definition have invalid things existing in them. There is a contradiction, but there is only this one contradiction and so it only inhabits one layer of impossibility; we already knew there was a contradiction at that layer because we labeled it impossible *ab initio*. There is yet another impossible layer wrapped around that first impossible layer, and since double negations eliminate each other, the two contradictions from the two layers cancel each other out and we're left with a non-contradictory IIW.[51] This also lets us collapse all the inconsistent worlds into an IIW since an AIW, PIW, IAW, or IPW are each themselves only a single-layer contradiction. So impossible-impossible worlds are consistent worlds, and we can collapse the IIWs into the actual world since the actual world contains all the consistent worlds. This unifies all the worlds into one contiguous space. A quick rhetorical puzzle to illustrate why the collapse of world types is valid:

> There are two categories of things – things that can be categorized and things that can't. That which can't be categorized is called uncategorizable. Yet these uncategorizable things are things we have categorized as uncategorizable; they are further categorized as 'things' and so have category yet again. Are not all things of the same category, then? Are there really two categories of things or just one?

A valid world is a consistent world, meaning one that could be inhabited. I want you to seriously consider that we could be inhabiting the kind of impossible world described above. As evidence, our thoughts visit impossible worlds frequently, and while this may instead be evidence that the system is simply not well-defined, being able to think contradictions like the liar's paradox, married bachelors, unbounded infinity, or any other impossible thing, all of which are distortions of the real, means the world itself is distorted in just such a manner as to allow the distortions to be thought. More directly again, how could we identify something as impossible if there was no impossible space for the impossible thing to be identified in? Reality is a self-torturer.[52] Impossible spaces would give us a full account of all contradictions, and where we see a contradiction – a null logical value – we have the null space of its modal matrix (bringing new meaning to 'kernel of truth'). This is highly convenient since just as the null space of a matrix in math allows us to trivially solve the mathematical system, so too does the null space of a modal system in logic, as indirect proofs (proofs by contradiction) allow us to trivially solve the logical system.

[50] This sentence short-circuits logicians.
[51] Unintuitively, it is only the intuitionists that don't believe double negatives eliminate each other.
[52] Imagine a serial killer whose only victim is himself. Rape, torture, all the hallmarks of a twisted kidnapping, but all done to himself and himself alone. Do we have any reason at all to believe this isn't how reality works?

It is hard for me to articulate this in a concise way but I want to be absolutely clear that by splitting the world into possible and impossible spaces, we would be creating a dualism like the kind I argued against in the opening section of this chapter, so this distinction is a purely fictional one, the spaces themselves are ultimately indistinct and all part of the 'actual'.

For a quantitative analysis of metacompletionism, or whatever you want to call this thing we've been looking at, it should be found that for any proposed entity $\mathcal{O}$, its list of possible relations is infinite, as are its list of impossible relations, but also that the lists are strictly paired 1:1 for every state, so the relation of possible states and impossibles states for $\mathcal{O}$ cancels each other out (creating a null space). What we call the real world is then any states derived from the lists that are strictly paired in which the law of non-contradiction does *not* invalidate (resulting in vectors that are not zero); a set of strictly paired states which we would instead call actuals and impossible-impossibles – a pairing that would exist 1:1 with $\forall\mathcal{O}$. This means that not only is the actual world a strictly lower ordinal than the im/possible world and that any conception of an unboundedly infinite universe must be false, but also that the modal relation of a paired state is what an 'object' is (since all other properties or descriptions can follow from the paired modal relation alone). This is in line with the prior section stating that objects are just logical instantiates. The modal state changes of $\Diamond\mathcal{O} \vDash \Box\mathcal{O}$ and $\Box\mathcal{O} \vdash \Diamond\mathcal{O}$ are then trans-finite operations that account for the list of all actual states against the strictly larger lists of im/possible states that $\mathcal{O}$ traverses.[53]

If we want a complete description of reality we must include impossibility. At least now we know exactly which kind of impossibility it is – an impossible impossibility. This inclusion makes reality both consistent and complete.

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:: Nothing Exists ::

"There is only one way to avoid criticism: say nothing, do nothing, and be nothing."
Aristotle

his is a criticism of nothing. Generally people ask if some particular thing exists, and some philosophers ask about existence itself, but I decided to ask the dumbest possible question: *what predicates existence?* We have two options – something or nothing. If something predicates existence, then that something has to exist before existence itself does. Ruh roh. If nothing predicates existence, then we don't have any prerequisites for existence, so nothing exists.[54]

To muddy this further, defining 'nothing' as, "the lack of something," or to give any definition to it at all, is to give it a somethingness, so nothing would be something that exists. What's more is that something, *some* thing, is not any *particular* thing, and to be not any particular thing is to be not-a-thing, which is nothing. So we also find that something is nothing that exists. Hopefully this was an adequate demonstration that these are simply not meaningful terms and that we should move on to ones that are, but if you weren't convinced and thought I was just being sophistic, then you can continue reading and be mad about it instead.

The table below is a basic breakdown of the way philosophers typically try to argue for the existence of the universe: either we have something or we have nothing. The top row has received the most attention by far, but a quick walk through the other categories makes it apparent that the views that have received less attention are fundamentally more important and with them we can turn the question of something versus nothing on its head.

[53] In the terms following from this kind of description, since all of these states, actual, possible, and impossible, are all true states of an object, this would imply truth is strictly larger than the prior kinds of entities; this implies truth is an unbounded infinite.
[54] You may recall that in the last chapter I said, "unless you really believe you bring to the game something fundamentally devastating that no one else has ever considered or even had the capacity to consider, then you bring absolutely nothing." I thought this was funny because I am now arguing for the existence of absolutely nothing.

	Something	Nothing
Something	Something from Something	Something from Nothing
Nothing	Nothing from Something	Nothing from Nothing

Something from something (SFS) gets you infinite regress. If our universe is a SFS, then it always existed, there was never a time it didn't, since before our something there was something else, and before that something else there was yet another something, and something again, forever. There is no start to a SFS universe. An infinite amount of time must have passed before now in order for that to be true, and an infinite amount of time must have passed before five minutes ago, and before five trillion years ago. Infinite means infinite after all, and since an infinite amount of time is required before now, it also hasn't finished coming to pass yet, which means this present moment in time hasn't come to pass yet, nor any of the moments in time for any finite measure before us, and so billions of years ago hasn't happened yet, meaning we don't exist yet to have this conversation. Paradox, the universe implodes. For this reason we can't have a SFS universe.

Something from nothing (SFN) is what Aristotle's first-mover aligns with. This is also the intuitive view most people have by default – that the universe was created – either by some physicalist means like the Big Bang or some religious means like God. But nothing comes from nothing. Nothings don't spawn somethings. Paradox again. This is a serious problem that needs a lot of rigorous and technically-driven hand-waving to circumvent, nonetheless most philosophers have settled on SFN because to them it is clear the universe is a something and they don't want the infinite regress we got with SFS. However, since SFN is impossible, it is just as plausible that we exist as a nothing instead.[55] I don't believe we end up sacrificing very much to make this happen, as nothing about the world stops getting explained if the world didn't exist in the first place (and for additional evidence, I recommend Markus Gabriel's book, *Why The World Does Not Exist*).

Nothing from something (NFS) works in the way SFN doesn't. SFN entails that you can magically bring into existence something from no source whatsoever, but NFS means that if you have a something then that something can result in nothing. 'Nothing' is a positive ontological phenomenon in this view. In fact it's happening all around us for most 'somethings' most of the time. Take for example that your atoms are mostly empty space (even when including the waves and particles of the quantum vacuum state); your body is at least 99% nothingness. We could confidently say you are made more of nothing than something. Swiss cheese has holes, places that are distinctly not Swiss cheese, places of cheese nothingness.[56] Moreover, a something can simply *do nothing* for a great period of time. Getting something to do something instead of nothing takes quite a bit of work, like some causal force or energy (whatever that is). So if we start with a nothing then we can't have a something, but if we start with a something we can have a nothing (nothing is beside itself in terms of existence, so nothing doesn't require terms of existence, meaning no terms are required to prove the existence of nothing). Distinctly, if we have something, then we also have nothing, so while there's no guarantee of a somethingness, there is always a guarantee of a nothingness.[57]

This brings us to nothing from nothing (NFN), which has the same tautological consistency of SFS but without the infinite regress of infinite time requirements. How was the universe created? It wasn't. How do we exist? We don't. They are unintuitive and unsatisfying answers, but there is no overt inconsistency in a NFN world like we had with SFS or SFN. There are a growing handful of philosophers that side with this view, people like Kitarō Nishida, Martin Heidegger, etc. The seemingly paradoxical question we must attenuate is that if we don't exist, if we aren't something, then how are we here to talk about it? Following NFN reasoning, we do exist, but we exist as nothing, a functioning nothing. Little nothing functions. If the universe doesn't exist, if the universe isn't something, then what space are we

[55] Socrates was mistaken; it is I who knows nothing.

[56] From section 9 of the SEP article on nothingness, "Can a materialist believe that there are holes in his Swiss cheese? The holes are where the matter is not. So to admit the existence of holes is to admit the existence of immaterial objects!"

[57] It's interesting that the people that believe we have something instead of nothing tend to believe that there will continue to be something once they die – that something begets something – and that's perfectly consistent but for the people that believe nothing happens when they die, they don't similarly believe we have nothing instead of something. They should say we have nothing and that's how we can infer that nothing happens when we die. Conversely, if we exist as nothing, then death is the negation of nothing, which is something.

occupying to talk about it? Well the universe does exist, it just does so as a functioning nothing. Big nothing function.[58] The space we occupy is null space.

A quantitative description we have not looked at yet: 'everything' would be equivalent to the 3x3 modal worlds table from the last section, since an everything category would contain everything in it, and therefore correspond to a complete world containing all actuals, possibles, and impossibles. Shuffling somethings into actuals/possibles and nothings into impossibles, the something versus nothing categories are encapsulated entirely by the 'everything' category. Since there is a one-to-one correspondence between something versus nothing and actual/possible versus impossible, and a one-to-one correspondence between everything and completeness, it would seem that this quantitative categorization of the world is equivalent to the qualitative one from the prior section, collapsing the distinction between the two modes of description. Corresponding to the non-distinction between actual and impossible from the last section, we now also have a non-distinction between something and nothing, and can just as easily describe the existence of an entity as a function of something the same as we can describe it as a function of nothing. If we want to really flip the something versus nothing distinction on its head then we do so here by simply articulating that the terms are not distinct. Consequently, everything is nothing.[59] Danger close, gunny.

The take-away from this should be that the question of existence is not answered by assigning the property of 'something' or 'nothing' to it; these concepts simply don't do meaningful work for us.

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:: Ontology Is A Joke ::

"Metaphysics is the finding of bad reason for what one believes by instinct; but to find these reasons is no less an instinct."

F. H. Bradley

We just went from proving reality is pure logic, consistent and complete, to proving it's impossible and nothing exists. I'd like to propose that our torturer has a sense of humor. If you add a positive number to another positive number, you get yet another positive number, and if you breed one dog with another dog, you get yet another dog, but when you combine one possible concept with another possible concept, you often get an impossible concept, like sideways green. Something about reality seems to have broken. Why wasn't there a distinct category for this kind of possible-possible conceptual inconsistency in the meta-modal table? It would appear that even a consistent and complete framework isn't sufficient for explaining reality.

Here are some definitions: humor is when we draw attention to inconsistency, some failure of logic or some incongruence in the world, actual or perceived, and a sense of humor is when you are able to recognize this incongruence.[60] We see people exploit this all the time; expected logical failure in a system results in perceived future inconsistency and is the platform by which we make jokes, with a joke being the explicated or reified instantiation of the incongruence in that system (specifically, jokes are contrasts between extreme opposites). E.g., incongruence with how rational agents live their lives, like Žižekian pathology, or the inversions of definitions and principles that the Greek cynics were so good at

[58] Here I think of Kierkegaard, "One sticks one's finger into the soil to tell by the smell in what land one is: I stick my finger in existence — it smells of nothing. Where am I? Who am I? How came I here? What is this thing called the world? What does this world mean? Who is it that has lured me into the world? Why was I not consulted, why not made acquainted with its manners and customs instead of throwing me into the ranks, as if I had been bought by a kidnapper, a dealer in souls? How did I obtain an interest in this big enterprise they call reality? Why should I have an interest in it? Is it not a voluntary concern? And if I am to be compelled to take part in it, where is the director? I should like to make a remark to him. Is there no director?"

[59] Or everything is impossible, or nothing is possible, or nothing is everything, or any other arrangement of those categories. It doesn't matter since the terms have become so arbitrary.

[60] Kant, Schopenhauer, and Kierkegaard all believed humor was based on incongruity with the latter-most stating that the person with a religious view of life is likely to cultivate humor, making Christianity the most humorous view of life in history. – Section 4, *The Incongruity Theory,* of the SEP article on *Humor*.

evincing.[61] Ontology is a contrast between what exists and what doesn't exist, making ontology a discipline of jokes (like the failure in metaphysics that we can never explain impossibility or nothingness except by allowing them the same ontological status as possibles and somethingness – anything that exists seems to do so in some incongruent possible-impossible space, as a nothing-something), cosmic humor. Ironically, people have tried arguing against my view by making fun of it. I may be a clown but they're the ones with pie on their face.

In the first section of this chapter I argued against all forms of dualism, but it seems that one dualism asserts itself in all frameworks for metaphysics no matter what – there are things that exist and things that don't. I submit that this is the only real dualism in metaphysics since it is the only one concerned with the real and its dual – reality and its negation. All other dualisms are invented, but this one is discovered. All other dualisms assert their distinguished categories exist, but when it comes to the question of existence itself, those dualisms fall silent. So I wish to obliterate this dualism too, and annihilate the rest of metaphysics with it.

It doesn't matter what definitions you start with, they all break in the same way. Here are some arbitrary definitions I typically use for 'exist' and 'real': existence (or 'being') is the category of real entities, something is real if it is the case,[62] and the case is whatever is adjudicated by formal logic, whose realness itself is justified in the metalogic chapter. Given these definitions, existence is the logic-objects that make up what the case is. This means there is no extra-logical stuff, no things that are real outside of reality, since reality includes all things that are the case (reality is all instantiates of cases; the set of all sets). With the definitions set up in this way we can say it is the case that reality exists.

This may sound circular or tautological, but the inclusion of impossible spaces and nothingness allows the definitions to be recursive instead. All other standard frameworks of metaphysics don't permit impossible things, meaning they could not permit their own impossibility, which makes them unfalsifiable in their own view (which is circular). So we must permit impossible things, including my definition for existence as non-circular. All other standard frameworks of metaphysics don't permit nothingness and say there is a somethingness instead, making them unable to describe a world without their somethingness since a description is something and not nothing – a tautological view that begs the question. So we must permit nothingness, and nothingness by definition excludes everything else, even its tautologies.[63]

If you don't believe me then we can look at ontological tautologies and see if they maintain themselves. E.g., the good itself must be good, for all goodness comes from it and it is tautologically good to have the good. Similarly, interest itself is interesting, and reality itself is real. But does itself-ness itself, itself?[64] Here a verb is being described, not a noun; we are not merely saying a thing in itself is the thing, but that a thing in itself does itself *be* the thing. So either we permit the tautology and all entities make themselves exist recursively, or we reject the tautology that itselfness itself itselfs and we are left with nothing as the predicate of being (i.e., nothing can be itself).

The common saying is that if you have to explain a joke then it isn't very funny, but nothing says reality can't be constructed entirely of unfunny jokes. Maybe we should explain it after all. Ontology being a joke means simply that existence is a function of some joke. I believe there is a kind of self-explanatory nature to this, but everyone I've explained it to disagrees with the explanation on the premise that it isn't funny. I rest my case.

This paragraph is dedicated to explaining the joke about explaining the joke. If the nature of existence is a joke, that would mean describing the nature of existence would itself be a joke. *You chose to read this*. Ontology is the study of being and so the study of this study, of the modes of being itself, is self-referential, as being itself is what the ontological does. This is to say being itself must be self-relational, and so out of its own volition, it is. Given that ontological things exist and the base item of the category of existent things now exists recursively, that it self-actuates, we can say that same self-actuation would validate the existence of any reified instantiate of itself. Here a form of the joke was

[61] "Behold, a man!" – Diogenes

[62] This is a dual definition (in the mathematical sense) to the one assigned to 'truth' in the introduction to this book, making 'real' and 'true' the same thing.

[63] My abuse of language deserves accolades.

[64] What a sentence.

invoked to prove that the joke exists, making existence as a joke its own joke about existence. This is justification for the base item of ontology being a joke. Look at you, still reading this garbage.

The more convoluted this all sounds, and the more you want to fight its legitimacy on that grounds, the more likely it is to be true. This is the point – at every junction in any description of reality where we would find some short circuit of logic, we locate in the same place a joke. I contend that this convolution and short circuiting occurs no matter what framework of metaphysics you believe in. This makes jokes fundamental to the nature of our descriptions of reality (or existence, or being, or whatever term you want to use), and since all descriptions are predicated by formal logic, our capacity to explain reality is then determined by the workings of logic, the specific instantiations of which I am calling jokes. E.g., I said a few paragraphs ago that with the way our definitions were set up, we could say it was the case that reality exists. But with the same terms and definitions we could prove that reality doesn't exist instead. This is where the real dualism asserts itself again and subsequently implodes.

Either it's the case that reality exists (it is real that something exists) or it's the case that reality doesn't exist (it is real that nothing exists). I have argued for both cases being true, that nothing is a real thing that exists, and also that things exist, which is not nothing. A real dualism, and a real contradiction. Gorgias, an ancient Greek philosopher, said, "the nonexistent does not exist; for if the nonexistent exists, it will both exist and not exist at the same time, for insofar as it is understood as nonexistent, it will not exist, but insofar as it is nonexistent it will, on the other hand, exist. It would, however, be entirely absurd for something to exist and at the same time not to exist. The nonexistent, therefore, does not exist."[65] I take this here as a proof that the nonexistent doesn't exist, so there is nothing that doesn't exist, i.e., *everything exists*. So nothing is something that exists. And if nothing exists, then we can describe the nature of existence as an aspect of nonexistence. Just like that, it is the case that reality doesn't exist.

What I am attempting to articulate here is not some artifact of speech or some sophistic language game, but that it is reality/existence/being itself that is the problem. If we permit the dualism of existence and its negation, then we have an entirely absurd ontology in which ontology itself can be negated. But in the same fashion that it is malformed to ask how much time passed before time existed, it would be malformed to ask if things exist at all in an ontology that has not pre-supposed its own existence. So if we simply don't beg the question and don't pre-suppose existence itself, then we don't have this problem, but also no longer have ontology. At least not one that's substantive and tractable.

There is a kind of comedy at play – you 'exist', you are a 'real' thing, so we say you exist in reality, but this 'existence' is at the cost of an infinite list of negated relations to other things, an infinite list of things that must not be the case in order for you to be the case. Your finite being stands in opposition to an infinite set of cases in which you do not exist, like that you do not exist as the king of France, you do not exist as the first person to step foot on Mars, *ad infinitum*; therefore there are infinitely more pieces of your non-existence, and yet you still believe you exist. Your existence is a joke.[66] However, crucially, your existence is a joke about the nature of existence itself: everything that exists does so as a joke, and since 'everything' is something that exists, *omnia est iocum*.

The words 'exist', 'real', 'being', whatever, are always related in such convoluted and ultimately circular and unjustifiable ways that the entire study of ontology is reducible to this absurd character and nothing can escape it. And nothing does escape it.[67] Nothingness allows us to posit things as true or false with no further requisite, as nothingness is the null space of the logical structure to ontology. More accurately, nothingness is the negation of something's positive existence – the entire universe that is not the table before you is distinctly the negation of the table in all other places, like a photo negative of

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[65] Jowett, Benjamin. Gorgias: line 67. Champaign, Ill.: Project Gutenberg, 2008.

[66] As more evidence, Thomas Nagel's work *The Absurd* relates our sense of time back onto itself saying, "It is often remarked that nothing we do now will matter in a million years. But if that is true, then by the same token, nothing that will be the case in a million years matters now. In particular, it does not matter now that in a million years nothing we do now will matter." Nothing mattering wouldn't matter, so it would never be relevant to bring up that nothing matters. In Nagel's view, the recognition of our existence as being contingent means we cannot justify our commitments past the contingency without being circular, which is absurd.

[67] Slavoj Žižek gives a similar statement in Love is evil, "There is nothing, basically. I mean it quite literally. But then how do things emerge? Here I feel a kind of spontaneous affinity with quantum physics where, you know, the idea there is that [the] universe is a void, but a kind of a positively charged void. And then particular things appear when the balance of the void is disturbed. And I like this idea of spontaneously [appearing] very much. The fact that it's not just nothing, things are out there. It means something went terribly wrong – that what we call creation is a kind of cosmic imbalance, cosmic catastrophe – that things exist by mistake."

reality. *Omni determantio est negation*. So I conclude that the invocation of terms like existence, or reality, or being, are always and only meaningfully done in relation to the truth values of terms in logic. Whenever you hear someone say something is real, or that it exists, what they really mean is that it is true inside some premise. The world as mere proposition – that's where you exist, or don't. Want to hear a joke with no punch line?

⁂

:: Meta-Etiology: World Without A Cause ::

The assumption that free will has mechanisms implies that it is the effect in a causal chain. If you don't assume it is mechanistic then the search for a cause of free will disappears.

oncluding this chapter with the last section would have neatly wrapped up the points I've been making, however a lot of people aren't convinced by what's been laid out, so this final section demonstrates how standard and intuitive views in metaphysics break without requiring you to prescribe to anything else I've said.

In particular, frameworks for causation are tired and confused. I argue that we can fully explain the world without any standard framework for causation whatsoever and that we lose no ability to accurately explain anything if this is true. This should also throw a wrench in all the incredibly long and boring debates on determinism, free will, and other topics in that constellation.[68]

Causation is a force to which we say there is some before that makes some after, that for any particular entity there is a cause that precedes it and necessitates its closest continuer as its effect, like antecedents and consequents in logic, such that all effects have causes and all causes have effects. Every cause was at first an effect of some prior cause (modulo a first cause) and every effect is itself some cause in the world, but since every effect is also a cause and every cause an effect, there appears to be no meaningful distinction that determines which one a state of affairs in the world would be – it is always both. Yes, we're getting rid of this dualism too. It's a blow-out sale and everything must go.

And of course it's always both, think about what it would mean to have causes and effects be totally independent of each other: an effect without a cause is what we call magic – that you can create something from nothing or that you can conjure something via a medium unrelated to the effect (like the evocation of a flame without any chemical interactions). Conversely, a cause without an effect is what we call impotence – that forces which normally do create effects would spontaneously fail to do so (like adding catalyzed reagents together but getting no chemical interactions). Neither of the cases of unpaired causal components seems possible so cause and effect must not be separate and distinct entities.[69] But if we do end up finding unpaired causal components then we have found a universe without traditional causation and what we observe as causal components must be a part of something fundamentally different instead. Here are all the possible kinds of causal systems:

	Cause	No Cause
Effect	Determinate	Magic
No Effect	Impotent	Indeterminate

[68] As an initial impulse for believing this, free will has often been given an absurd character. Hume, for example, said 'will' was what you are free to define it as. Suggesting another definition would mean that you were free to choose another definition, meaning the definition is what you were free to define it as, proving Hume right.

[69] This implies antecedents and consequents in logic are indistinct too since an argument is always given as a whole with the antecedent and consequent together as one logical actuation. It is only meaningful to call them antecedents and consequents if there is a single through-line of actuation, what we call premises necessitating a conclusion. Actuation is here an indivisible property of argument-hood which allows us to then describe actuation as retroactively imbuing arguments with antecedents and consequents.

A 'first cause' would be an uncaused cause – both religious creation and certain interpretations of the big bang are magic by the given table. What is 'determined' is an action or event that occurs specifically because of some preceding action or event, making it contingent on the prior. This is somewhat contrary to the belief that an action is always done at the expense of another, that another state of affairs was really possible. Free will is usually discussed as the ability to make a conscious choice between two or more actions but determinists resist this definition since they don't believe alternative states of affairs really exist, they say that all supposed options are imagined and only one thing was ever really going to happen. Anybody familiar with the debates around determinism will probably find further discussion on these old and infinitely rehashed talking points boring, so I will move on to newer, hotter takes.

Notably, contemporary physics does not return evidence that the universe is fundamentally deterministic, where a cause necessitates an effect (the physicalist likes to ignore physics when it comes to this topic). Instead contemporary physics describes the world as probabilistic at base, where things *sometimes* happen and effects can come without paired causes (a magic system). 'Probabilistic' is sometimes a debated term by physicists since probability implies a strict ontological order in which a number of outcomes all exist concurrently. I'm somewhat indifferent on this since I think the problem is really with the linkage of the mechanism, not its plurality. Physicists also call these systems indeterminate because the system is not a determinate one, but keep in mind that given the table above, the system is really magic.

Specifically, quantum mechanics explicates magic qualities innate within material events – not just as statistical outliers because we don't have accurate measurements or whatever, but that some events are strictly beyond determination. E.g., *when* a particle decay happens is truly magic. There is no cause for when a pion decays to a muon, it is an event that is fundamentally without cause, so all we have to go on is an ad hoc statistical ontology that gives the occurrence as a probability, and it's this probability that gives us the observed phenomenon of randomness. Some people even build devices that measure this true randomness to work as RNGs,[70] which means, despite what even many physicists believe, it's trivial for quantum 'indeterminacy' to bubble up to macro-scale events, annihilating classical determination at the level of tables. The reverse works as well — that if quantum mechanics was deterministic instead of stochastic, we would have a universe that was fully locally deterministic but in which it could be made remotely non-deterministic by way of entanglement's non-local causation.

What makes this muddier is that the literal definition of indeterminate does not mean random, it just means not determinate, and determinate doesn't mean not-random. Random things are determined, they're just randomly determined. There are also things that are deterministically random (like CSPRNGs). So counter to our intuitions, an indeterminate thing would be something that is neither determined nor random.[71] This does not rely on randomness being epistemic, where we simply don't *know* the outcome beforehand and so it is random to *us*. Instead, there is ontological randomness, like the mentioned muon decay, which does not rely on epistemic conditions.

This is so weird to me is because there is a kind of spontaneity to event-hood in fundamental physics that leads us to saying things like, "The pion might decay to a muon because sometimes they just do that." If you ask why the pion-to-muon decay doesn't result in some other kind of particle, physicists will tell you it's because the energy emissions of the pion are a discrete amount that only leaves you with a muon as a possible product, but since this is true and the pion contains within it the necessary components of the creation of a muon, you can ask why the pion doesn't produce the muon on command after meeting the energy criteria and the physicists will say that there is no sufficient condition for such an event, only necessary conditions. So we have sufficiently uncaused events in the world, meaning what physicists call 'indeterminate' events are truly magic.

Even stranger, it seems all the other kinds of causal systems exist too. Determinate events clearly happen in applied physics, where we can reliably cause an effect, and magic events clearly happen in quantum physics, where effects happen without causes, but impotent and truly

[70] AlphaPhoenix does this here – https://youtu.be/gwIGnATzBTg.

[71] This is also important if we want consciousness to inherit the ontological indeterminacy of quantum mechanics but not the ontological randomness of quantum mechanics, as John Searle states several times throughout his talk *Reflections on Free Will, Language, and Political Power*. The next couple sentences are cribbed from the same talk.

indeterminate systems also seem to exist. To give an example of impotent causation I think we can point to conscious will, where physical mental intention can spontaneously fail to produce the desired effect in the body despite no failure in the physical linkage of the nervous system, and indeterminate causation exists within things like recursive loops (halting problem?), where the external world is cut off from the system and there is neither sufficient cause nor effect present to end the loop (a kind of anti-event). But I started this section by saying causation implodes into nothingness, not that it explodes into lots of interesting categories, so we must further invert our intuitions.

The standard line goes: if we were all predetermined to do what we do and had no real choice in the matter, then it is the case that we are not responsible for what we do. What commonly follows from this is the belief that criminals are not responsible for their actions and should therefore not be punished, but of course the people that lock away the criminals are also not responsible for their actions and are therefore not worthy of being relieved from their jobs of locking up criminals. The old insight here is that no behavior changes given the knowledge that everything is predetermined, but the new insight is that since the universe does not look any different when we switch it back and forth between a deterministic one and a non-deterministic one, it is therefore absurd to believe in a distinction between the two. A Venn diagram that fully overlaps is just a circle. Determinism and indeterminism are descriptions of the same thing.

If you think the world *does* look different when you switch it between the two, you would have to describe the mechanism that determines this difference, which would itself be subject to the mechanism; the mechanism would have to determine things you claim are non-determinate. A more technical way of saying this is that it defeats your capacity to adjudicate the difference since the alternative world would be fully paired to its antipode.

Since I am claiming determinism and indeterminism are descriptions of the same thing, despite seeming mutually exclusive and contradictory to our intuitive views of the world, then it may seem like discussions around free will are inconsequential to reality and should be abandoned.[72] However, I think instead that this is evidence that we have an 'overdetermined' world. As Aristotle put it, the same thing can be said in many senses. For example, you can talk about your friend exhibiting the behavior of biomusicological entrainment or you can say he bobbed his head to a song. Both sets of terms describe the exact same phenomena despite the two sets operating over distinct domains of reality. John Searle gives my favorite example:

> *When your car doesn't start, what do you say to the mechanic? Do you say, "Look, the passage of electrons between the electrodes is insufficient to sustain the oxidization of the hydrocarbon molecules?" I don't say that. I say things like, "I think the plugs are no good. The damn thing won't start." Now it's true, in Berkeley we've got a lot of unemployed physicists, and you might say that bit about the hydrocarbons, but what I'm trying to say is those are not independent descriptions of two different events, but they're descriptions of one event at different levels.*[73]

And while overdetermination means we would have multiple confusing but ultimately sufficient ways to describe causal components of the world, I believe this is still not enough since people seem to be incredibly confused by what they really mean by the term 'causation', more confused yet by 'free will' and 'determinism'. Some philosophers are even greatly confused by these terms which leads them into giving sad arguments for things like retro-causation – that future planning requires you do something for an event yet to happen and therefore it is the knowledge of the event in the future that causes you to do the thing in its past. But of course by future knowledge they mean the present knowledge of their present contingency. God help these people.

I've heard a handful of people recite the anti-free will argument that it doesn't matter whether determinism is true because *in*determinism is just as incompatible with free will. The argument goes

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[72] We can and do still point to freedom and will in the world, and in both cases I believe that what we are pointing to is the temporal suspension of effect (causes without temporally contiguous effects), adjudicated by *logos, tout court*, which is analogous to the 'impotent' category. We can point to that adjudication and say, "Yes, there is our free will." If you disagree, then enjoy not having the freedom to think about it. Take that as you willed.

[73] He says this at 50:15 in his talk – Reflections on Free Will, Language, and Political Power

that if our decisions aren't determined then they aren't caused by anything, which means that they occur randomly. And if our decisions occur randomly, then they 'just happen to us', so they're not the product of our free will. I am supposed to like this argument because it agrees with my view that it makes no difference if our universe is deterministic or not, but it happens to be wrong.[74] The kind of 'indeterminate' things they are referring to here are the random probabilistic events (magic) discussed earlier, which are things without cause, but of course will does cause things sometimes, so will falls into impotent causation instead.[75] The question needs to shift to whether determinate systems have ultimate interference with impotent systems such that will would have no freedom. If that were true then it would be a purely determinate system which could never spontaneously fail to produce effects like we often observe will doing. This implies a hard divide between the kinds of causal systems at play.

There are other ways to show this too. If reality was determinate then at some point we would have predictive models that aren't just probabilistically accurate, but completely predicatively accurate. Strangely, it would be trivial to make such a determinate universe indeterminate from within it. This is a modified version of Laplace's Demon; rather than past predictions proving determinism true, future predictions prove it false:

THE FOREKNOWLEDGE EXPERIMENT

> With powerful predictive models ran on computers, it's implied that we could simulate chunks of our universe in perfect accuracy and use it to look into the future as a kind of foreknowledge device (we'll ignore the fact that the render would be slower than its target area). The foreknowledge device could even be a part of the target area, closing the system. We could test it by checking the world before and after the knowledge of some determined outcome is given by the device, and the device should show the *same* outcome as what we end up observing in the world. If the reading from the device before and after the knowledge of the outcome is given show *different* outcomes, then knowledge of predetermined events can change their determination, making the events epistemically contingent in a way not captured by physics.
>
> From there all we have to do is say, "Look at this grouping of particles we call a college student. We know with absolute certainty, because of the deterministic powers of nature and our models, that they will become a philosophy major." Once the prediction is made you would show it to the person affected who could then choose to not to do the thing that was predetermined, or wait and see if the student is cosmically forced to follow through with the predicted outcome regardless of their knowledge of it. It seems obvious that having knowledge of things predetermined to happen allows us to un-determine them – show the student that they are predetermined to become a philosophy major and then have them not become a philosophy major. Making them read this book might have the same effect.
>
> Either the device I am describing is an epistemic impossibility, or 'predetermined' acts are weak in the face of foreknowledge; I claim both. The problem with foreknowledge devices is that you're lead through infinite regress as you try to determine what it is you're destined to do and at which juncture you were forced to be aware that you were forced to be aware to do it.

My point in using the thought experiment above is to show that from a fully determinate world we can arrive at an indeterminate one, and of course if we had a fully indeterminate world, determinations would be arbitrary to make, so it seems we necessarily have a mix of causal systems at play in the world. But again, I'm not convinced we need causation to describe events. After all, indeterminate events happen with neither cause nor effect. So at the expense of making this section even longer, I will try to show how the common causal descriptions we have fail to be performant.

Non-classical 'probabilistic' (magic) causation creates many headaches for our understanding of the world. For one, there is no common understanding of the metaphysics of probability, no lay

[74] With a non-distinction between cause and effect, there is also a non-distinction between will and freedom. Note how closely the terms parallel each other; to will something is to cause a determination, and to be free is to be the effect of an undetermined state. Put this way, cause, determination, and will are all the same kind of thing, as are effect, indetermination, and freedom. Since cause and will are the same thing here, effect and freedom are the same thing too, and as cause and effect are indistinct, so too would will and freedom be indistinct.

[75] When will succeeds in causing something it is not impotent, but determinate, so we could argue your will is only free when it fails. There is something poetic and ultimately intuitive about this I think because it is only when your will exceeds your physical capacity that it is free from its physics. Pushing your body beyond its limits, mind over matter, and so on; this is what's required for people to say you have a strong will.

statistical ontology to explain how this works.[76] The technical explanations that do exist are usually quantitative instead of qualitative and this means that the overwhelming majority of people, even the majority of physicists, still have a fundamentally deterministic worldview in their heads in spite of this worldview being provably incongruent to reality. And of course they do, probability is not the intuitive way most people think of or discuss causal events, which the *Monty Hall problem* famously illustrates. For another, probability has lots of formal interpretive issues, which the *Sleeping Beauty problem* famously illustrates. If you are unfamiliar with the two problems I named, here are some simpler, more direct ones:

> Example 1: *3 is a positive integer, and positive integers have a ½ chance of being even, therefore 3 has a ½ chance of being even.*

This is clearly absurd, yet the conclusion is valid given the premises.

> Example 2: *Two coins are flipped. If at least one of the coins landed heads, what is the probability that both coins landed heads?*

Some people say ¼ because ½ odds of one coin times ½ odds of the other coin gives you a ¼ outcome of both coins being heads. But of course the question contained a conditional statement – we already know one of the coins is heads, so some people say the probability is ½ because whether a single coin lands heads or tails is 50:50. But we don't know which coin was heads, only that the outcome wasn't tails-tails, so our possible outcomes are heads-tails, tails-heads, and heads-heads, which means the correct answer for the odds of a coin-toss is in this case is unintuitively ⅓. Try it if you don't believe me.

> Example 3: *If you choose an answer to this question at random, what is the chance that you will be correct?*
> *A: 0%* *B: 25%* *C: 25%* *D: 50%*

In general, when choosing a single answer from a multiple-choice question with four options you have a ¼ chance of getting the right answer, but there are two options for ¼, both B and C, which means your odds of selecting the right option is ½ – the answer offered by D. The chances of randomly selecting D are again ¼, making both B and C valid, which is half odds, and it goes on and on. These kinds of self-referential statistical problems create indeterminate systems; there is no correct answer to the question because the question is not itself well-formulated.

The three examples above have more to do with hermeneutics than math; Joseph Bertrand formally proved that the principle of indifference doesn't reliably return well-defined answers to questions of probability.[77] Since physics relies on probability at base, this stops us from being able to reliably track causation across contiguous time, making it impossible to ultimately justify what the cause of any effect is supposed to be in any system. E.g., if we had a slice of paused time where we saw a ball two feet above the ground, it would not be immediately obvious if the ball was falling towards the ground or bouncing up from it, only that it is two feet above the ground. Without time/change there is no distinction between the two states, it is just a floating ball. The lack of possible determination on our part would mean there was no effectual mode for causal description in the world without pre-imposing a causal chain, which is circular. Similar to the problem of induction, probabilistic causation itself is never directly observed, just the sometimes-effects of circularly pre-supposed causes, making it so there is no observable cause for cause.[78] Essentially I am saying magic is not a real causal system, so quantum physics gives us a world without real causation.

We could try to appeal to other kinds of causation to solve this problem, like the classical kinds of causation identified by Aristotle (material, formal, efficient, and final) since some of these allow you to infer cause and effect immaterially, but there is still a circular pre-supposition of actions or reactions through time with these. While inference, meaning the use of logic and not sense perception, may suggest that what we call causation in a still frame of time could somehow be accounted for by logic

[76] But Alastair Wilson gives a good technical dive into probabilities in his book, *The Nature of Contingency: Quantum Physics as Modal Realism*.
[77] He used a more interesting but more technical example to prove this – https://en.wikipedia.org/wiki/Bertrand_paradox_(probability)
[78] Nelson Goodman's "new riddle of induction" from his book *Fact, Fiction, and Forecast* provides more interesting points on this.

alone, inference-based causation still implies change, which means a temporal order to event-hood (the presupposition of time). So we can account for change without material causation, but it still requires time to be unfrozen – that there be a *history* to the object in question by which we infer its Aristotelian causes. This does not explain how we attain an effectual mode for causal description in the world without the circular pre-supposition of un-paused time (meaning we are pre-supposing changes before we know how to properly track changes).

In response to this, I claim that time is always 'paused', as was discussed in the *Metacompletion And A More Modal Modalism* section (mostly in the footnotes). The 'history' of an object is already encoded in the paused slice of time we started with whereby the instantiated logic-object is carrying all the relevant relations to other possibly instantiated logic-objects for use in the actuation, which is what I believe we are actually referring to when we use the term 'causation'.

Information theory in physics asserts something similar – that information is never created or destroyed and so the entire history of an object is always present in the holographic projections of the information ('holographic' just means no information is lost when moving it to lower dimensions or states, like in black-body radiation). Another way of saying the same is that what we typically think of as the 'past' is the set of relations between some logic objects in which we can infer what the formally necessitated states of those relations made them as in the given arrangement. N.b., this is always given as a single instance of 'time', so no un-pausing is needed for us to infer 'prior' relations between the logical instantiates. This is an account of causation without traditional views of time – logical actuation alone is what we end up meaning by the 'progression of time' in this view.

However, the modern era stopped believing in any kind of immaterial causal framework. Descartes famously axed three of Aristotle's four causes and left us only with the efficient cause, what we ironically now call material causation instead. But it is interesting that contemporary physics still distinguishes the same number of fundamental forces in the world that Aristotle did, and further that these four fundamental forces in physics roughly correspond to the descriptions Aristotle gave for his four causes – the weak nuclear force letting quarks change their flavor (what something is made out of, its material cause), the strong nuclear force binding particles into atoms (what its structure is, its formal cause), the electromagnetic force attracting and repelling particles (where it's motion comes from, its efficient cause), and gravity[79] which pulls all matter together into galaxies and ultimately black holes (what its direction or aim is, its final cause).[80]

Aristotle gives his causes as concomitants in which all four act on an object concurrently,[81] which is not totally unlike the four fundamental forces in physics acting concurrently on matter. Further, the ultimate goal of contemporary physics is in unifying the four categories into one primordial force (in GUT for quantum mechanics or ToE for M-theory), formally exhausting the standard model. This is vaguely similar to Aristotle's idea that knowledge was contingent on causation and that we wouldn't have a complete understanding of something without the unification of its causes in the description of the thing.[82] Even though metaphysics typically looks at the qualities of entities, and physics at the quantities, I believe that we can cleanly bridge this divide.

While many philosophers have moved away from Aristotle's views on causation, his sentiment towards inference is still needed. Physics is fully accounted for at the fundamental level by formal logic since, as was demonstrated three paragraphs ago, what we point to as causation can be actuated ontologically by formal logic alone. From this I hope that people find causation to be a making of things in the world as relations between entities, as pure logical predication, where formal absolutism fully encapsulates the thing we call causation.

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[79] They will of course tell you that gravity is not really a fundamental force at all but rather an observed effect of the compression of space in the direction of mass, however this still accounts for change such that the movement of space causes and attains effects in the world, so there is a force accounted for by gravity nonetheless.

[80] It is interesting too that Aristotle's five posited elements correspond to the five states of matter we traditionally describe — earth is solid (including amorphous solids and super-solids), water is liquid (including liquid crystals and superfluids), air is gas, fire is plasma (including quark-gluon plasma), and aether can be loosely assigned to the rest of the physically extreme states that occur in the universe, like Bose-Einstein condensate, Fermionic condensates, Rydberg matter, time crystals, and anti-matter. In contemporary physics it is more accurate to describe matter in terms of phases instead of states so this correlation with Aristotle ultimately fails to hold up, but I thought it was neat.

[81] *Physics*. II 3, 195 a 6-8.

[82] *Physics*. II 3, 194 b 17-20. I also claim that knowledge itself causes things.

In fact, formal absolutism is so powerful it not only solves problems but creates them too. If the world is pure logic, we might assume it is perfectly deterministic as well – conclusions follow from premises by way of necessity and so do valid consequents follow antecedents just as we would traditionally think effects follow causes. This implies a predetermined universe, contrary to everything I have been saying about a non-distinction between systems and the non-determinate nature of physics.

A possible fix would be to use a non-bivalent logic (a system in which truth values are not just 'true' or 'false') allowing for a spectrum of truth value such that the exact same ratios of occurrence for particle decay are given by the ratio of truth value for the premise of particle decay itself (the truth of the ratio of some particle decay is given by the truth spectra of its logical instantiate). Here truth is a ratio or frequency of a premise or argument. This lets us account for causal frameworks in which things *sometimes* happen, solving the problem of probability for an event determined by formal logic. But honestly it would take a lot of work to prove this and formal logic probably can't be used to self-justify non-bivalence anyways so this is likely a dead-end.

So how does the non-determinate nature of physics get explained by a determinate system like logic? We cannot predict when a pion will decay to a muon (it is not a part of a causal chain), but it is not completely aleatory either. We know the decay will happen given infinite time and can determine that the pion will decay to a muon and not something else, so there is a large degree of logical determination at play. Beyond this, I'm not sure that not knowing precisely when the decay will occur is really a problem. An effect without a cause is magic, but we knew the effect was going to happen in virtue of its non-deterministic nature, so non-determination itself is the 'cause'. The effect happens in the way it does precisely because it is not determinate. Unintuitively, we can say non-determinate things are what determine other things here. This is a logically-determinate physical indeterminacy that gives us a probabilistic framework for causation.[83] The pion disappears, as does the magic, as does the distinction between 'determinate' and 'indeterminate'.

For closing remarks I want to state again that is easy to break things in metaphysics. I have argued that cause and effect are indistinct, that free will, determinism, and indeterminism all perplexingly occur at the same level of reality and are themselves ultimately indistinct.[84] I have showed that we can logically determine that a system is non-determinate, and its non-determinacy determines the outcomes. These statements would be openly contradictory if the phenomenological sources were separate and distinct entities, but since a single predicate that accounts for every phenomenon was given, we can dialectically collapse the distinctions between them. Causes necessitate effects after all, effects are contingent on causes, and both necessity and contingency exist as components of formal logic.

But you may be asking so what? So what if these concepts are all indistinct? Does that really solve any problems? What even are problems? I share your concerns, which is why the next chapter is about them.

[83] Aristotle also argued that chance and spontaneity cause things, which means he loosely captured the kind of causation physicists describe in quantum mechanics – *Physics*. II 6.

[84] Many contingencies exist as agent-dependent phenomena, meaning some things in the world are suspended in epistemic contingency and actuated only when the logic is thought or some discursive agent piecemeals (and thereby reifies) the argument form. This actuation is also an observed effect in the world, caused directly by an agent. We could debate whether agents are freely discursive or meaningfully constrained in such a way that the discursive activity itself is forced, but again I don't see a real distinction between the two because if we define 'you' as the thing that causes your actions, then 'you' is the thing that caused your conscious determination of the actions, providing a fallback we still identify as your will in an otherwise predetermined world.

Metaepistemology

I know some people who think it's their sacred duty to ask why we exist – why it is that we're here instead of not here. But the real problem is more pervasive, as no one even knows where here is. If you ask someone where we are they will say Earth. Okay and where is that? The Sol solar system. And where is that? The Milky Way galaxy. And where is that? Most people run out of answers at this point but if you ask a cosmologist where our galaxy is they'll tell you it's part of a super-cluster of galaxies and that super-cluster is in a gravitationally bound region of space called a cosmic filament, but ask one last time where that is and even the cosmologists run out of answers. No one knows where the fuck we are. Everything is in free fall and there is no bottom.

But I want to know. I want to know how the world works at every level, in every scope, across every domain. I want it all, but how do I get there? Where can I turn for knowledge? Who or what has it? Do I turn to religion? Do I turn to science? How do we know philosophers have found any units of knowledge without circularly presupposing the knowledge that such a thing was possible? Why is it that the problem of knowledge should exist in the first place? I want to believe we exist within the domain in which problems have solutions, and how fortunate we would be if all of our problems were salient, but if there is anything to be learned from Deleuze it's that real problems are problems precisely because they have no solution.[85]

This chapter opens with a discussion on the nature of knowledge, argues against both religion and science as methods towards knowledge, goes over an experiment in applied metaepistemology, and closes with an analysis of the nature of problems.

:: Knowing How To Know ::

"I don't know the meaning of the word willful ignorance and I don't intend to find out."
Xavier, Renegade Angel

Often repeated in philosophy, it is better to know than to not know. But know what? And what is it to know? Contemporary epistemology is largely characterized by the debate around the definition of knowledge as justified true belief, where it is required that you have a justified belief in something and that the something also be true. But I don't care much about the debates around the Gettier description of knowledge and subsequent arguments, partly because Plato already anticipated that some classes of justification were weaker than others, and partly because the real problem seems to be with the other criterion instead.

You believe something and you have justification for it, but the thing must also be true out there in the world. Okay cool, how do you *know* it's true out there in the world? Because you believed it and had justification for it? Well then justified belief was all that was required for knowledge, since truth would be entirely contingent on that alone. And what of your initial belief? How do you know you believe the thing in the first place?[86] Oh, you 'just know'?[87]

[85] It'd be more accurate to say Deleuze thought that solutions re-inscribe their problems back into the world, that what it means to be a solution is precisely that there is some problem, making it so that the problems never really go away.
[86] There are some interesting examples around this in *Knowing That P Without Believing That P* by Myers-Schulz and Schwitzgebel.
[87] This is basically the same criticism many postmodernists have made about correspondence theories of truth.

It is always problematic when you apply criteria for knowledge back onto itself. In order to know something it must be true, but how do we know that it is true? We must believe it, but how do you know the belief in the thing is true belief? We must have justification then for the belief, but how do we know the justification itself is justified? In essence, how do we know that we know? Whenever anyone gives something as a criterion for knowledge, it seems to rest on that criterion necessitating knowledge as a criterion for itself.[88] So it would appear that in order to know something we must also know an infinite regress of things related to our knowing of it.

The criticism I find most interesting is simply that there are cases in which knowledge does not entail truth. False things are knowable; we know things that are false just as often as we know things that are true. In many instances they are even concomitants. If you know that you are not the king of France, then you also know that either someone else is the king or that France simply has no king. From negative knowledge we derive positive knowledge all the time, and the same happens in the reverse direction – if you know all the species of snake that are venomous, then you also know which ones aren't. You have the same amount of information from something's negation as you do from its positive assertion; a negation of possible properties means you know which properties an entity has in virtue that they were not negated in the property list.[89] Here we have falsehoods satisfying claims to knowledge. We could say that we know false things only because it is true that they are false, but just the same there is an equivalence class of true things that are false because it is false that they are true.[90]

Anyone who seriously considers JTB (or any other framework) as the criterion of knowledge quickly finds problems with it, yet it seems almost every philosopher still uses JTB as the standard formula anyways, as if to shrug and say there is no real alternative. I propose that we don't need an application-level theory of knowledge at all, and that when dealing in *capacities* for knowledge we evince a meta-epistemic theory of knowledge whose criteria are jointly sufficient for avoiding the standard criticisms of all prior frameworks.

Do you, or does anything, have the capacity for knowledge or not? We can play both sides of this game and see where they lead. If you can be conscious of the truth value of any state of affairs, regardless the method or formula for attaining the truth value, then units of knowledge exist and you have a capacity for them. If you cannot be conscious of the truth value of any state of affairs, then either units of knowledge themselves don't exist or you don't have a capacity for them. Generalizing from you to any possible 'knower', i.e. any possible entity conscious of the truth value of any state of affairs, either 'knowers' are themselves possible or not. Let's start by saying they are not possible – no one can be conscious of the truth value of any state of affairs, not even this one, which you would be conscious of. This self-defeats, so the inverse must be true instead – anyone can be conscious of the truth value of any state of affairs. So knowledge exists and knowers are that which have a capacity for it.

I'll place more discriminate bounds on what constitutes a knower, so as to not over-broaden the term; this can be a real problem since other frameworks for knowledge ironically do not limit knowledge to knowers. For example, in JTB any entity capable of qualia can have justified belief of true states of affairs since the qualia itself is justification and concomitant to belief (where experienced belief itself can come as experiential qualia). By that description a bee has knowledge since bees have qualia, or some kind of phenomenological sense-perception, yet bees do not poses a semantic of that unit of 'knowledge' nor perform any discernable rational inference on it, and thus are not themselves anything like what we would expect of a traditional knower. So here what we would typically call knowledge I am instead now calling the subject-dependent adjudication of logical consistency or inconsistency between concepts or objects in the world, or more simply 'a sense of humor' where your humor would be what determines how you know things. This explicitly confines knowledge to entities with the capacity of internally adjudicating logical consistency, so knowers are entities conscious of truth values such that they can adjudicate the truth values themselves. It literally humors them to do so.

It follows naturally that 'units' of knowledge are evinced by statements with truth values where segmentation by logical operators divides the primitives, meaning the statement, "knowledge exists **and** knowers have a capacity for it," evinces two units of knowledge, firstly that knowledge exists and

[88] This is not totally unlike some of the points made by Wilfred Sellars' famous myth of the given.
[89] "Everything that matters is pregnant with its opposite." – Yanis Varoufakis' Dad
[90] This reminds me of a loosely similar point made about the 'unknown knowns' described by *Slavoj Žižek on Donald Rumsfeld*.

secondly that knowers have a capacity for it. This is natural in the sense that nature is formal absolutism and formal absolutism predicates the ontological order of state-hood, thereby adjudicating the relation between the statement and the state of affairs, showing that they were actually the same thing *ab initio*. This is my solution to the problem of universals that I referred to in the prior chapter – any entities that share the same formal identity are the same entity and when two people think of the same thing, their minds quite literally visited the same place and touched the same relata, serendipitous to the saying, "We're of the same mind on this."

To clarify, I am not saying false statements like, "All dogs have one leg," forces reality to conform dog-hood to one-legged-ness or anything like that; I am saying that the adjudication of the truth value of statements is really you reaching out and touching reality directly with your senses (of humor). In this particular case of all dogs having only one leg, you have identified the entire space of existence in which the statement is false – which is all of reality since it is never true – giving you the negative space you readily traversed with your thoughts, making your thoughts and the otherwise external space indistinct.[91] This implodes correspondence theory by reducing the two sides of the correspondence to the same logical instantiate. Here I would also say that 'justification' is just reification – that justification is when you provision formal proof for something giving you contact with the real. In line with the main goal stated in the metaphilosophy chapter, this is an epistemic architecture that is, in my estimation, indistinct from its metaphysics.

But what of the opening statement that it is better to know than to not know? There seems to be a great wealth of useless knowledge, bits of information that have no meaningful or practical purpose. Is the number of oxygen atoms in the room even or odd?[92] There is seemingly no possible application this information could ever have. But we also have no way of finding out. It's not currently possible for us to find out how many oxygen atoms there are in a room. This is important to note because the knowledge that would be required to determine this piece of information justifies its pursuit many times over, and *that* knowledge has near-endless practical and meaningful uses, making it at least better in *capacity* to know than to not know. Denying this is to deny your capacity to know you deny it, which self-defeats.

If we had the understanding necessary to invent a device that could reliably and accurately determine exactly how many atoms of a certain type were occupying an arbitrarily-sized space at any given time, then we would also know how to gain atomically precise measurements for just about anything else we would ever want to measure. This would be the greatest instrument of measurement humans ever create; would that not justify its pursuit?

Another example: it seems meaningless to know precisely how many hairs are on the head of a random person, but I contend that, given a full head of hair, this too is outside our current ability to find out. By the time you finished combing through an estimated average head of a hundred thousand hairs, the number will have changed.[93] You would not know how many old hairs had fallen out and how many new ones had sprouted, changing the total count by an amount you could not know the quantity of. However, if you had access to a device that could accurately track all the hairs on a head at the same time, then you could know what the total was, whether it was even or odd, and so on. But we don't have this technology, and the knowledge required to attain it would again justify its pursuit many times over.

In fact, were such measurement devices to be invented, we could arbitrarily expand their usefulness by turning them into game shows or anything else with stakes. How many hairs are on this contestant's head? Is the number of atoms in their hair even or odd? The right answer wins you a billion dollars, or whatever. You can set the stakes to be however arbitrarily high you desire if this knowledge was actually attainable, making this kind of knowledge useless only so long as you don't value your own life. A man holds you at gunpoint in a grocery store, he wants to know the exact number of fish in the Atlantic. Stranger things have happened.

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[91] It would directly follow that thoughts literally leave your head and travel at infinite speed across all existence, but no one would believe this so I'll pretend I don't believe it either.

[92] Dr. Alexander Madva gave this example to me.

[93] Murphrey, et al. *Anatomy, Hair* — https://www.ncbi.nlm.nih.gov/books/NBK513312/.

All knowledge that people generally agree on as completely useless or impractical rests fundamentally on states of affairs we don't currently have access to. Just the same, every example I have seen people give of knowledge they claim to know is totally useless have always been something trivial to find a use for. This even includes the long list of 'useless information' in pure mathematics, as what was for two thousand years considered totally unimportant and meaningless number theory is now the basis of all of computing, encryption, banking, and so on.

Where you fall on this issue is a litmus test (yet another thing that would have been considered useless before its modern application) of whether you are a sophist or a philosopher.[94] To the sophist, knowledge is a means to some ends, but to the philosopher, knowledge is an ends in itself. The distinction here is in whether you think knowledge *needs* an application in order for it to be worth pursuing versus whether you pursue it for its own sake. The philosopher doesn't need knowledge to be practical and the sophist doesn't understand why you would bother with it if it wasn't. This is a meta-epistemic break; the sophist, by self-preclusion, is not *capable* of learning how the world works for its own sake, which means they are missing a critical tool for learning how the world fundamentally works in the first place. If only *that* piece of knowledge was practical, right?

Some have argued that there are clear examples where it is *worse* to know something, what are called information hazards (and more recently, 'malinformation') – units of knowledge that are dangerous to share. The premise of information hazards relies on the spread of knowledge being *risky* – that sharing certain facts about the world could directly cause harm. Frequent examples I've seen include facts about what common house supplies can be used to make explosives, or differences in IQ between demographics. If you shared the nuclear launch codes with everyone on the planet, some people will end up using that knowledge to harm millions of others. Therefore, it is argued, that some knowledge is evil to share.

However, information hazards don't appear to be real normative indicators. Knowledge is only ever hazardous if you don't know what ought to be done with it – a problem solved by gaining even more knowledge. I see the real hazard as acting without thinking,[95] so I've devised two cases, a weak and a strong case, for why the concept of info hazards seems to fail normatively.

In the weak case, if telling people about testing done to animals (pigs, mice, monkeys, etc.) evokes the strong psychological suffering of many humans, then instead of ending the animal testing, you could just stop telling people that you're doing it and you'd reduce the same amount of psychological suffering done to the humans without stopping the actual harm done to the conscious beings being experimented on. In this case the information just *feels* bad to know, and the actual harm being done to the animals is in no way reduced. But somehow it is supposed to be better that you've reduced psychological suffering despite no real improvement to the source.

In the strong case, we can point to information hazards relying on statistical assumptions of risk – that there is some 'likelihood' that some person in a large enough sample size will immediately use the information for harm. This relies on probabilities and excludes other relevant epistemic dependencies like knowledge of what harm even is, for knowledge of the good would preclude one from abusing knowledge of evil. If teaching high schoolers how to effectively use firearms results in more high schoolers shooting each other, then the hazard was in failing to also transfer the knowledge relevant to motivating good behavior around the use of firearms.[96] W.V.D. Busby pointed out that totalitarian states can motivate good behavior at the cost of much harm, opening space to disagree with the assumption that we can motivate good behavior without incurring even more harm, but this doesn't do any work towards proving that knowledge itself is evil, only that certain forced behaviors could be harmful, which is a trivial point. So the conclusion I draw from this stronger case is that info hazards are really just the

[94] On sophistry; people usually misunderstand what the word means or why it was distinguished from philosophy by the Greeks. The sophists were people who got paid to educate students; the word refers literally to teaching for pay. The philosophers were distinguished by the fact that they taught students for free – the idea being that knowledge is an inherent good and so limiting its access was evil. It's knowledge as a means versus knowledge as an ends in itself. The problem with sophistic thinking is that language gets turned into a mere means as well. The interactions with sophists, and the practice of sophistry, is such that they reduce all states of affairs to language alone and thereby claim that you are only ever attacking their phrasing and not what they actually believe. So in practice they think they are never wrong and you are just 'arguing semantics' when you disagree with them. This is why sophists often use subjectivist and linguistic reductionist arguments.

[95] Žižek's *Don't Act. Just Think.* makes good points on this.

[96] "Why not whip the teacher when the pupil misbehaves?" – Diogenes

probability spaces of ignorant behavior, which is ironically equivalent to the space of how much information an agent *doesn't* have regarding the same behaviors – a null epistemic space.

But what if some pieces of knowledge are evil to know in themselves? How many people can one really fit into a death oven? We could easily argue that the answer would be unethical to attain. More specifically, the qualia of what dozens of people burnt alive smells like seems like something we *shouldn't* know. We say that's not a qualia we ought to have access to, since attaining that qualia requires you to burn dozens of people alive. This argument rests on the notion that qualia of ostensibly evil outcomes are dependent on the production of evil acts. But knowledge is usually generalized, e.g., someone working for a county's building permit division has to calculate how many people can safely fit inside a given building and this information is listed as the 'maximum capacity' for that space, which is the same formula used for determining how many people can be packed into a gas chamber. In the case already given, many people that work at crematoriums have experienced the smell of burning humans – lots of people have learned what burning humans smell like without having to do anything harmful to any living human. So knowledge being generalized means the production of evil acts is not required for the production of qualia assumed to be related to evil acts.

But you argue that burning a dead human and burning a living one may result in different qualia and knowing whether it does or not requires that you burn a living human to be sure. So, surely, *that* knowledge is evil, right? While *accessing* that knowledge seems to require you to commit some evil act, this is not proof that a particular unit of knowledge is in itself evil. You can prove that *accessibility* to certain classes of knowledge is evil all day without ever getting a step closer to proving that the knowledge itself is evil. In reverse, if you disable a knower's *capacity* for certain classes of knowledge, then you also disable the capacity for knowledge that the classes' *access* would be evil, creating a hazard since the lack of information greatly increases someone's chances of unwittingly doing the hazardous thing. This is an ignorance hazard.

Additionally, given the passage of time, things which take some value may end up acquiring a different value where the two values are exclusionary. Another way to say this: if some piece of knowledge is evil now, in our current use, how do we know it will not someday be good in some modified use? Or vice versa. This has been used to argue for the neutrality of knowledge, that it is neither good nor evil, but rather that its use is the good or evil thing. This weakens the moral import of knowledge. As stated earlier, knowledge is only ever problematic if you don't know what ought to be done with it – a problem solved by gaining even more knowledge. Applying knowledge in the right way is what we call wisdom, but the 'right' way implies ethical consideration, and how would we know what ethical considerations to make? This would seem to make any moral import of knowledge totally circular since we only know what units of knowledge are good or evil to know once we have knowledge of good and evil, which we couldn't have known was good or evil to attain before we attained it.[97] Therefore, it is never worse to know than to not know *in capacity*, making the capacity for all classes of knowledge better than its negation, i.e., it is always better to know than to not know in capacity.[98]

As a side note, this seems to evince the notion that knowledge is literally power. I don't mean this as Foucault did, where knowledge was always a class of social power (or at the very least operated as a structure which bound social relations), I mean it more fundamentally as an identity statement giving indistinction between the epistemic and the ontological notions of power. Whenever we see an exercise of power, the latent semantic content in the relevant knowledge and the symbolic relation of power to its exercise seem to be indistinct. What we call power is, in every case anyone seems capable of presenting, an exercise of some privileged access to knowledge – privileged in that the knowledge was scarcely rationed, that the exercise has no known counter, or that the exercise happens faster than the other party could have known it would. Exercises of power are always predicated by the knowledge of how and when to enact the exercise. Superior power seems to rest fundamentally on who figured out the most things the fastest, modulo that what was figured out is relevant to the task at hand. This also gives credence to the notion that there are race conditions in epistemological ethics just like what occurs in computing – every second we waste not learning how the universe works is power we are

[97] "Where everything is bad it must be good to know the worst." – F. H. Bradley

[98] "That the purpose of life was not the maintenance of well-being, but some intensification and refining of consciousness, some enlargement of knowledge." – Aldous Huxley

giving to some other group of people instead. A lot more can be said on this, specifically around the place of knowledge with sayings like, "information wants to be free," versus contrasting sayings like, "information freely given is worth little." Or similarly, if knowledge is power, and knowledge is good, then by transitive property power is good. But the nature of knowledge's relation to power, or ontological equivalence to power, seems to be a topic more suitable to anthropologists, sociologists, and political theorists, so I'll leave it to them.

I have argued for what knowledge is, that there exist discrete objective units of it, that it is not useless or impractical, and that it is good, all qua capacities. I will conclude by making one final point – that there are no epistemic limits in principle, i.e. no knower bound in finite knowledge except by purely practical arrangements. By this I mean the notion that there are questions whose answers we will never have, either because more questions will arise, or because the answers are beyond our comprehension, seems weak.[99] To paraphrase Wittgenstein, to place a limit on thought is to think both sides of the limit.[100] I believe it to be self-evident that once you are a knower, meaning once you have the capacity to be conscious of the truth value of premises or states of affairs in the world, you have passed the last significant cognitive threshold whereby you are just capable enough to formalize your thoughts and tap into universal reason (formal logic) and you necessarily then find there is nothing beyond that which you can think of and know.[101] If you disagree with this, then you are claiming that you don't have the capacity to formalize the thoughts or tap into the universal reason that would make your disagreement possible, which retards the function of the disagreement.

In Frank Jackson's qualia arguments, his famous *Mary's Room* thought experiment, it is demonstrated that knowing things like the frequency of red will never give you the qualia of red. This seems not a principle limitation but a practical one, since Mary's environment is what limits her. Imagine for a moment that we were presented with the reverse task instead. Marry is now *not* a scientist, she doesn't know how any of that stuff works, and she exists in a room comprised of nothing but shades of red. Nothing about her experience gives her the frequency. Since all empirical knowledge is supposed to be given (verified or falsified) by qualia, and it now seems that qualia gives you no facts about empirical objects themselves, there is, for principal reasons, nothing strictly knowledge-like about the outcomes of empirical observations.

The inference from a quality of the world (the qualia) to some quantity of it (the frequency) is only possible given that we can in fact *infer*, which is a purely deductive act. Paired with the fact that people regularly make discoveries of things they cannot directly observe, I believe that what we call inductive reasoning ends up being deductive reasoning in disguise – this is effectively Karl Popper's insight, however Popper's *critical rationalism* still relies on sense perceptions to justify empirical falsifications and so my problem with qualia persists. Deduction in disguise would reduce the whole of science to a purely logical space for us to explore. The Vienna Circle tried and failed to add sense observations to logic, or verifiability to philosophy, but I am stating the opposite – merely that logic can be added to sense observations because sense observations are fundamentally logical operations themselves.

Another thought experiment for proving that knowers have no principle limitations to knowledge is what I call the opaque box. Proposing that there are things in themselves by which knowledge is principally impossible makes it so that there could be an epistemologically opaque box somewhere in the universe that cannot be probed in any way by any means, a box that is *principally* cut off from the rest of reality. We would have no idea what was inside this opaque box, it could be anything, and anything means anything, so it could contain information that proves knowledge itself is impossible. This means that if there is no way in principle to have knowledge of certain things, for any possible knowers, then we have total epistemological annihilation for all knowers. But we could formally prove this, so we would *know* it, which self-defeats.

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[99] "Eventually I concluded that language was bigger than the universe, that it was possible to talk about things in the same sentence which could not both be found in the real world." – From Mike Alder's *Newton's Flaming Laser Sword*.

[100] This is of course from the opening to the *Tractatus Logico-Philosophicus*. It parallels the idea from the last chapter that we can know everything since our thoughts regularly visit notions of 'everything' including both possible and impossible objects.

[101] I refer to Wittgenstein's private language arguments.

The problem compounds on itself: if we are to say there are objects that exist that are in principle unknowable, then how could it be the case that the objects exist in the first place? Unknowable things that are unknowable in principle are not simply things that are unknown, but things that cannot be knowledge, which means that there are no informationally reducible facts or truths about those things and therefore no effect those things have on reality. This is proof that things that are 'unknowable' in principle are things that are simply not real. They couldn't have any knowable second-hand properties since we would then know the object by the observation of its secondary properties.[102] There would even be no knowable interaction between the principally unknowable object and knowable ones, else we could infer the interaction and then know something interacted with it (e.g., dark matter). Generalizing this to reality itself, it must be the case that all aspects of reality are in fact knowable, else we have the opaque box. Disagreeing means you are claiming that you can demonstrate the existence of something that you also claim is in principle impossible to demonstrate the existence of. That would be very silly.

I conclude that all knowledge is superficial – that knowledge is trivially accessed so long as you have the right tool to access it. Anything unknown can be easily discovered if you have the right microscope, telescope, mathematical understanding, submarine, lock picks, or whatever it is that gains you entry to wherever it is that you want to be in order to learn whatever it is you want to learn. If we want to know everything, from the fundamental nature of reality to the most irrelevant aesthetic notions, where do we need to be to learn this? What tool gains us entry to that space? Well, we would need a limitless tool for exploring the infinite, unending space of reality. Fortunately, we are already at the right place, and already have the right tool – our minds. This is to say that no resource is ultimately scarce, warp drives are real, aliens have already visited, the universe has no edge and neither does your mind, for to place a limit on thought is to think both sides of the limit. This world is abundantly expansive and inexhaustible; you will never run out of ways to amuse yourself or worthy ideas to explore so long as you task yourself with finding them.

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:: The Impossible Simulation Theory ::

"People who are ignorant of their religion (the non-religion religion of the West), and of the nature of society, laugh at the Indian for having slaves in a caste system, unawares that modern day vegans are walking Chandalas. The vegan doesn't sacrifice the cow because the cow is their Totem Animal, but Westerners, unable to think anything besides utility, understand as 'they worship the cow because it gives them useful milk'."

W.V.D. Busby

This short piece is included to showcase a common metaepistemic fallacy and is a build-up to the science and religion sections since simulation theory is itself only pseudo-scientific and mostly blind faith.

Simulation theory as created and popularized by Nick Bostrom says roughly that just as it is becoming easier for us to simulate small universes inside computers, it is also becoming increasingly possible for us to simulate large universes, ultimately culminating in the ability to simulate many galaxies with complete detail. Further, that since this is possible, it is similarly possible that the simulated people who evolve out of our simulated universes would themselves acquire enough intelligence to simulate universes on their simulated computers, ad infinitum. They also somehow have substrate independence; don't think too hard about it. The thesis of Bostrom's paper is that since there is not just possibly, but probably, an infinitely-growing series of

[102] I am not reducing object-hood to something like Alexius Meinong's view where existence is a *mere* property of an object, I am making the claim that if an object exists then so do its properties, therefore knowing of a property of an object means we also know of the object.

simulated universes, the likelihood that we occupy the original one is vanishingly small, making it so that we essentially have a one-out-of-infinity chance of not being simulated ourselves.[103]

To quickly obliterate this creation myth that has gripped so many otherwise intelligent people, our universe, by almost ubiquitous contemporary consensus of astrophysicists, is infinite, and to simulate a truly infinite space you would need infinite processing power, a feature that would itself require infinite space. So for simulation theory to be true, the universe doing the simulating would have to dedicate the entirety of its existence to the singular task of simulating. This is not possible, so simulation theory can't be about an infinite universe – *our* universe. Even if there was an infinite universe simulating another infinite universe, it would then be a 1:1 correspondent to its simulation, collapsing their distinction and leaving you with just a single universe.

Of course, Bostrom says that these other civilizations, "would have enough computing power to run hugely many ancestor-simulations even while using only a tiny fraction of their resources for that purpose."[104] His point being that you don't need to simulate an infinite universe, you would only have to simulate the minds of a group of people to make it appear as if their universe was much bigger than it actually was. However, we have no reason to believe, "these simulated people are conscious,"[105] because simulation is not duplication. E.g., simulating a particle doesn't mean you have created a real particle; simulations are just symbolic systems we design to be interpreted as representations of something else, not to be interpreted as the thing in itself. If you don't believe me, then use your computer to simulate lava flow over your area and tell me if you burn when you walk outside. Consequently, simulating consciousness doesn't mean you have created a real conscious being.

Here we have an interesting example of Bostrom performing a classic metaepistemic fallacy – thinking that representation is a *copy* of the real (i.e., mistaking appearances for reality, Baudrillard's map-for-terrain analogy). Nagel's mind-body problem, Chalmers' hard problem of consciousness, and Searle's Chinese room all make it clear that Bostrom's particular conception of a purely physicalist mind is not tenable in this application (unless you really bite the bullet and say we are all p-zombies and never had consciousness to begin with) and so the notion that we could simulate minds falls apart. But the people that believe in simulation theory refuse to address this obvious problem, so I'll just move on instead.

Another critical failure Bostrom makes is that simulation theory is ultimately no different than Descartes' evil demon that systematically deceives all your senses and mental faculties. Just the same it is semantically equivalent to Putnam's brain-in-a-vat experiment. Both of these thought experiments have large bodies of literature that have piled up around them demonstrating how these worlds would be structurally incapable of justifying themselves. As consequence, simulation theory is structurally incapable of justifying itself too.

Notably, Descartes' evil demon was disproven by Descartes himself – his *Meditations* is explicitly about how you could discover all the truths of the real world despite being completely deceived about them initially. The literature around brain-in-a-vat arguments is muddier since it is syntactically more nuanced and therefore has misled many people into believing it is possible, but Putnam formally disproved the existence of brains-in-vats (by way of semantic destruction no less), and its analogue to the all-deceiving demon means it can be similarly dismissed.[106] I should also say that that our minds being simulated starts to get dangerously similar to a form of solipsism (since nothing you knew would exist external to the simulation), which is itself provably impossible through myriad techniques.[107]

Tangentially, I've seen a handful of people worry about this in relation to AI because with AI tools they won't be able to tell, "What's real or not," within the information they consume. This is funny because it's like reading *Baby's First Cave Revelation*. You're just now discovering the shadows on the

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[103] Nick Bostrom's essay — https://www.simulation-argument.com/simulation. And in an infinite continuum of simulated universes, not only do we have infinitely small chances of being in the original universe, but also infinitely small chances of being in our particular one, meaning we have no chance of being in either. Of course Bostrom doesn't believe it is a truly infinite continuum but rather finite, let's say 100, and that we then have only a 1% chance of being in the original universe.

[104] Also from Nick's simulation essay.

[105] Ibid.

[106] Specifically, here is a diagram of the problem Putnam describes (I couldn't find the source) — https://snerx.com/img/BrainsInVats.png.

[107] Solipsism fails any kind of internal consistency test as Schwitzgebel & Moore demonstrate in *Experimental Evidence for the Existence of an External World*.

wall are an illusion? I remember my first beer too but damn kid, it's kind of late in the day to be waking up. Keep sleeping in like this and the boss is going to fire you.

As a worse problem, if somehow I'm wrong and Bostrom is right, not only do we live in *The Truman Show*, we also have a new and improved form of Aristotle's prime mover to contend with. Forget trying to determine the first cause of our universe, our prime mover was *simulated*, so now we have to determine our prime mover's prime mover! It's simulated turtles all the way down. Slapping the label of 'simulation' on the world doesn't advance our description of how the world actually works. In turn, simulation theory doesn't have any shells left to stand on and I'd press any contemporary philosopher on this if they still believed in it since past these critiques the belief becomes dogmatic.

And speaking of dogmas…

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:: Neither Religion nor Science Entail Knowledge ::

"God is a comedian playing to an audience afraid to laugh."
Voltaire

I'd like you to consider that the laws of physics are just tautologies. Worse for people who think scientific laws explain things, how do you empirically prove the pure abstraction that the universe is governed by laws?

The central posit of this section is that modern religion has existed a lot longer than modern science and so there have been more and greater critiques of religion, given that people have had more time to critique it; but I believe science holds no special status epistemically and so given enough time it too will amass its share of death blows and end up as bad as religion is at explaining how the world works. There is a pathology here that I believe is demonstrated when the most vocal scientists who do lots of public debates against religious apologists also all clearly believe in some kind of abstract immaterial orchestration to the world. E.g., Richard Dawkins is one of the self-proclaimed 'four horsemen' of atheism and yet he has written books about 'memes' (which is where the word comes from) in which abstract concepts are shared through abstract communication channels, interpreted qua abstraction, and then made a part of your abstract identity, which he says exists somewhere physical but no one knows where exactly. His worldview is a comedy but he's not in on it.

Of the critiques of modern science, a lot of the current discourse is about the quasi-religious nature of the culture around it, what is called 'scientism'.[108] Occasionally there is a Nelson Goodman, Karl Popper, or Thomas Kuhn who come along and give a fundamental critique, but this is rare and I think the problem is more basic anyways – that the scientific method doesn't explain anything *tout court*. This is because the scientific method, in all its revisions, has only ever been a tool for validating or invalidating explanations, it is not itself a source of explanatory power. Explanatory power lies in purely deductive methods, which is what Popper believed the practice of science had to be ultimately grounded by (deduction works in absolutes and induction works with 'sometimes', but a 'sometimes' is the set in which a series of absolute successes or failures are members, so you could argue it's purely deductive). It seems that, in a sense, we've been left with an induction-shaped hole where science was supposed to be.

This section will talk about the historical problems with religious thought and then switch focus to an example in science that I believe makes the same mistakes – the widely-held belief in multiverse theory – and show that we can purely deductively disprove the theory, leaving us with a valid explanation of the universe that is also entirely unscientific, which shouldn't be the case if empirically-

[108] As a good bit of irony here, atheists often repeat Occam's razor – that the simplest explanation is often the correct one – forgetting that the razor's namesake, William of Ockham, was a 12th to 13th century friar who used the razor to argue for the existence of God, as God was the simplest explanation (constructed with the smallest possible set of elements) for an otherwise complex universe.

based explanations were themselves deductively valid.[109] So either science is epistemically irrelevant, or inductive reasoning is actually so different in character from how people like Hume and Popper believed it to be that their critiques of empirical methods simply failed to capture it.

From down the halls in your university buildings you can hear, sometimes loudly, "You can't prove or disprove the existence of a god." Just as intransigent, "We can't know if there's ultimately a creator or not." But you can't prove or disprove that the universe was created fifteen seconds ago.[110] How do you know that we weren't created fifteen seconds ago simply with memories of existing longer than fifteen seconds ago?[111] These statements are so common for what I imagine to be the stranglehold on reason society has given to induction in place of deduction. Inductive reasoning cannot answer questions like the above and the reliance on inductive reasoning for both scientific and religious debates is suicidally boring for this.[112] Really, here's another – you can't prove or disprove that you can't prove or disprove the existence of something that you can't prove or disprove. And before you swallow that revolver, play the obvious and I'll tell you problem is based on bad reasoning.

I believe all the major existentialist and meta-religious texts in recent history, *Fear and Trembling* as the biggest example, are overly emotional, too 'dark like my soul' yet ironically end up being brightly optimistic in their conclusions, as if it was because of these hyper-emotional responses to experience, because of these extremely dark and hyper-individualized packages of ennui that they know, "It was all worth it." Life is suffering and that's supposed to make it worth living or whatever they say. I believe these are anodyne views and wholly unoriginal, so for the rest of this section I'll be pushing the exact opposite – that life is actually great and full of worth, but you should kill yourself anyways. Take this as, "It's good enough to die for." Albert Camus thought there was only one serious philosophical question – the question of suicide – and so I think it is an apt metaphor: induction is when critical thinking kills itself.

The half-in positions, their agnostic *"can't-prove-or-disprove"* arguments only serve as a weak try at skepticism, saying that there are things that are the case that we cannot know to be the case. Thankfully you can dismiss them quickly and return with better arguments. Suffering is life for those who assert the agnostic position regarding square circles and married bachelors – external creation is no different. The belief that we can't know if there was a creator makes it so that the one asserting is okay with making claims to existence without justification but denies it is okay to dismiss the same claims without justification. As the popular saying goes, "That which can be asserted without evidence can be dismissed without evidence,"[113] but a much better saying is, "It is undesirable to believe a proposition when there is no ground whatsoever for supposing it is true."[114] All the atheists that say something like they don't believe in a creator but that it's possible one exists, you're really just boring agnostics. This fake middle used to abate the problems of holding a real position is cowardly and intellectually defeatist. If you think it is possible a creator exists, then that possibility is enough for a creator to actually exist. It pains me to mention the ontological argument in my approach because it has been beaten so strongly by so many notable philosophers in history that if I included a citation for it I might follow through with *actual suicide*. It's not roulette if every chamber is loaded, but it is pretty Russian.

An historical point: Pascal's Wager famously posits that humans all bet with their lives either that God exists or not. Given the mere possibility that a god actually does exist, and assuming an infinite gain or loss associated with belief or disbelief in said god (represented by an eternity in heaven or hell), a rational person should live as though a god exists and seek to believe in said god. If a god does not actually exist, said person will have only a finite loss (some pleasures). If you claim that there is no creator and simultaneously claim that you can't know, that leaves Pascal's Wager *a fortiori*. To anticipate a counter-point on the infinite gain/loss being under different contexts for different religions (or not

[109] Inductive reasoning is usually described as the generalization of laws from particular examples, but if we define it as the observed result of plurivalent logic on a general set of particulars, we get the same results. This gives you room to argue that observation is deductive, not inductive. Given that this fails, there is no plurivalent logic that applies to observation.

[110] This is the same as 'Last Thursdayism'.

[111] This is also similar to the premise of 'Boltzmann Brains' and if you want a good counter-argument to them, then check Sean Carroll's *Why Boltzmann Brains Are Bad*.

[112] *Ad suicidum*?

[113] Commonly known as Hitchen's Razor.

[114] Uncommonly known as Russell's Razor.

infinite at all), the problem would be in assuming that there needs to be spiritual reward in order for this issue to still exist. You can remove religious framework entirely from Pascal's Wager and the infinite gain/loss becomes satisfied or dissatisfied by known truths, which means that a kind of epistemic meta-wager remains irrespective of religious or spiritual implications.

Human existence most broadly is about trying to discover truth and death puts finality to your discoveries. When you are dead you are dead eternally, so under my stripped version of the wager there is eternal (infinite) gain or loss if you died right or wrong about the world, respectively.[115] It doesn't matter what kind of creator god you posit or what consequences follow from that god's rules, the matter of truth remains. If you die correct, then you will have died being correct for an infinite amount of time, and if you die incorrect, then you will have died being incorrect for an infinite amount of time. Like the line from *A Scanner Darkly*, "We'll wind up dead this way, knowing very little and getting that little fragment wrong too." In this sense, Pascal's meta-wager is still a valid concern for the atheist that asserts s/he cannot know if there was a creator, regardless of what religious framework does or does not back it.[116]

But it's not just the atheists that make these kinds of mistakes. I wish to end the generation of questions, "Why does the universe exist to begin with?" and "Where does my spirit go after I die?" as these questions are no different than asking, "When snow melts, where does the white go?"

There are real answers, but we don't attain them through religious or scientific means. I want to drive in that there is little meaningful distinction between the scientist and the theist: physicists often mention that there may have never been a point in time that the universe didn't exist (dangerously similar to *'an eternal God'*), and similarly between the two worldviews, this still does not satisfy the question of existence, as with limited concepts of time they still desire to know *when* there became something instead of nothing.[117] Isn't it strange to think there would be a point in time when time didn't exist? If treating science and religion as if they are the same thing is confusing then you aren't removed enough from your ideology to see that this is correct (when in doubt, zoom out). Don't believe me? Some atheists even argue for everlasting life via 'quantum immortality' which is honestly more magical and mislead than even the standard religious conceptions of afterlives.

There are two standard definitions of an external creation force for the universe and neither work. In religious framing these two options are non-deistic and deistic, which means perfect and imperfect gods, respectively. If we start with the idea of a perfect god, the standing objection is with the conflicts of how perfection is defined.[118] Perfection defined as having all three characteristics – omnipotence, omniscience, and omnipresence – leads to saying that you cannot be both omniscient and omnipotent at the same time due to the fact that either you are all-knowing and thus know the future, making the future predetermined and you powerless to change it, *or* you are all-powerful and have the power to change the future, meaning the future is not predetermined and so you cannot know what will happen. This is an old argument; it means you cannot be both omnipotent and omniscient at the same time.

The standard recourse to this is in limiting your definition of gods to that of imperfect (deistic) ones. This limited version is one who is capable of 'all possible' knowledge, 'all possible' power, and so on, but you still get predetermined futures that can be undetermined so you're still exposed to standard attacks like Laplace's demon here. Most people reading this book have heard all these arguments before, so I'll offer a new, more subtle attack having to do with the problem of an in-practice omnipresence: the definition of omnipresence as being all-present is too broad, and as theists retract into modal 'possibilities', they redefine omnipresence to mean being in *all possible* places at once. But wouldn't all possible places have to exist in order to exist in all possible places? Their modal definition mates omnipresence with the idea of parallel universes where alternate possible actions occur. Infinitely

[115] Counters like Pascal's Mugging are sidestepped by this since there is no longer 'magic' involved — https://www.lesswrong.com/tag/pascal-s-mugging.

[116] A more perspicacious reader might have noticed that this meta-wager extends to the whole of epistemology and puts infinite value in all units of knowledge, making knowledge for its own sake an infinitely good pursuit.

[117] To paraphrase Terence McKenna, science requires one miracle – the Big Bang.

[118] See: *Perfect Island Argument*.

many modal worlds or parallel spaces (a multiverse) would have to exist in order for omnipresence to be possible.

The problem now is that any logically possible place you can describe would have to be an actual, existent place, and so if there are two places which are both logically possible individually, but impossible together, we get a contradiction and reality implodes. Recall the section on metacompletion and note how possible worlds often readily render themselves impossible. An example of this is a universe where you kept reading this book versus a universe where you stopped reading it; you cannot both be reading it and not reading it at the same time in the same regard, so only one of those universes can be real and yet both must be real for omnipresence to exist. This is a problem for both the cleric and the physicist since they both believe in some version of it.

The demonstration that perfect gods don't exist leads to theists retreating to imperfect gods, and by then you know they were hurting pretty bad anyways. So we have no god to posit as the external creation force, no external creation to be posited at all for that matter. "What if god is the universe, or the universe is god?" You ask like an annoying nu-age hippie. Well, if the universe was god, then god creating the universe means the universe created itself, which is not an *external* creation force but rather an *internal*, self-actuating one. Things are not outside themselves with relation to their being, so the universe is not beside itself in terms of existence.

So long as we posit creation qua externality we seem to offer no definitive, ultimate, totalizing, or significant answers to the question of how things come into being. Let's say, given anything, that you accept the universe has no creator but you believe that the universe created itself, i.e., you believe in something like the big bang as the ultimate progenitor – this still leaves us asking why. Knowing *how* it can exist still tells us nothing about *why* it does. People invoke the anthropic principle – that the universe exists because we wouldn't be here to ask if it didn't – but the anthropic principle is circular and tired. Just like suicide, neither religion nor science is worth doing, as none of the three deliver you answers to the fundamental question.

This may seem tangential but I think I can demonstrate the cause of the fundamental issue here. There is a real problem with the nature of grounding and self-reference in epistemology in general (which the first section of this chapter showcased as problems with recursive justification) and with formal logic in particular (which comes in the form of things like the liar's paradox, Russell's paradox, the halting problem, and other self-referencing systems like these). The liar's paradox is the simplest example: "This sentence is false." The statement is self-contradictory, the reason why pertains to the fact that it assigns a truth value internally by self-reference. Bertrand Russell was one of the people to formalize this same problem with naïve set theory by using the famous example of sets that don't contain themselves; this led to stricter bounds being placed on set theory, namely with ZFC. If you have no idea what I'm talking about, don't worry, the point I'm making is that logic works by being *external* to the thing it adjudicates. Truth values occur as relations between premises, not internally by single premises themselves. So whenever you have a system that self-actuates, meaning its validity is derived by internal measure alone, it cannot be valid.

While this gets very technical and most people (even logicians) don't really care about this, if you pay close attention to how this works you will discover something deeply weird and useful. In order for the universe to exist, i.e. in order for the premise of the universe to be true, there needs to first exist something external to it, namely logic. This explicates an external adjudication for the universe premise – proof of an 'external creator'. In the *Metametaphysics* chapter I said that logic is self-actuatory, but here I've said that systems that self-actuate cannot be valid, so what gives? I address this in greater detail in the *Metalogic* chapter but for now I just want to illustrate that this problem only exists if we perpetuate a structural ambiguity between logic as an *epistemic* framework and logic as an *ontological* one. People typically believe logic is a tool inside of epistemology, and as a tool of analysis it is the case that systems are only valid given an external logos, but since I argued for formal logic as the predicate of existence in the *Metametaphysics* chapter, this means that some extent thing and its logos are the same thing, collapsing any internal-external division at the ontological level.

This is important because it means that existence is not external to itself (so there is no externality to creation) and also because it means that when using logic as an epistemic tool to analyze the validity of a system, you cannot pre-suppose the truth value of any premise inside itself without

invalidating the system (again, the liar's paradox, Russell's paradox, the halting problem, incompleteness, and so on). Therefore, the premise of a multiplicity of worlds in which you populate true or false iterations of yourself inside those worlds is not a valid premise. Let's talk about multiverse theory.

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:: Epistemic Limits of Agents in Multiverse Theory ::

"Atheist accepts multiverse theory of every possible universe except biblical one."
Headline from The Babylon Bee

multiverse capable of infinite multiplicity with respect to fully paralleled universes or spaces (what I call the 'infinite parallel' for the rest of this section) is *a priori* impossible. There are three arguments we will go through for why this is: the argument of contrafinity, the causal collapse argument, and the impossibility of identity distinction. From these I argue that an infinite multiplicity of universes is in principle impossible, which in turn makes multiverse theory, and any other theory of an unboundedly infinite universe, impossible.

We'll use a simpler example to demonstrate a basic error in reasoning first. Behaviorism was a framework in psychology for trying to explain human and animal behavior that has mostly been abandoned in favor of cognitive psychology. Behaviorism looked at the output behavior of an animal and then retroactively inferred a stimulus from the environment that was supposed to explain the behavior. There are two big problems with this: the same stimuli can produce a multitude of wildly different behaviors, and the same behavior can be created by a multitude of wildly different stimuli. So behaviorism was an incredibly unreliable way of predicting what the cause of some effect was. Another way of saying the same exact thing is: you cannot go *directly* from an empirically observed effect to an accurate description of an otherwise unknown cause; there is simply too much noise in reality to make this probable.

This has wide-reaching implications, for example the observation of extra gravitational effects on our galaxy that are not from the mass we can observe has led physicists to infer that the gravity must be coming from unobservable mass which they termed *dark matter*. But the physicists here committed the same epistemic sin as the behaviorists. When an unknown multitude of causes can result in the same observed effect, it will always be an invalid jump to place the cause on a single source. Even if you end up being right, the way you got there was wrong. In order to find the signal you must remove the noise, and so after removing the thousands of papers about dark matter as literal matter that perpetuate the same epistemic fallacy over and over, it becomes clear that it is incredibly unlikely dark matter is literal matter, and yet most university physicists believe there really is an exorbitant amount of mass that cannot be directly observed that causes the effect of the extra gravitational forces we see in our galaxy. This is a mistake, both logically and statistically, that happened because of the behaviorist-like inductive inference they employed. This problem occurs over and over in science, and multiverse theory is yet another instance of it.

For some background, multiverse theory gained traction as an aftereffect of specific views of quantum theory, particularly after Werner Heisenberg and Erwin Schrödinger both independently discovered models for quantum interpretation. This is important because the discoveries from quantum theory, which deals with the smallest scale in physics, were then applied to the largest scale – entire universes.

Heisenberg's formulation of quantum theory was such that physical variables used in equations for particles never have static values but instead deviate within a given range. Schrödinger's formulation of quantum theory was such that particles' paths were described by a function detailing dynamically shifting waves. In both cases quantum theory is principally founded on a multiplicity of data that exist

per object-event because the objects' variables or wave functions (respectively) contain values for multiple instances at all times.[119]

Similarly, modal realism is the view popularized by David Lewis that all possible worlds are actual worlds, and therefore anything that is nomologically possible is something that is actual and currently existent.[120] Since both the variable ranges and wave functions of the respective QM theories suppose a real multiplicity of states, or modes of being, it is fair to call this a kind of modalism. There are lots of possible things that could be said about this view, but the actual thing to be said is that Neil Sinhababu wrote the greatest unintentional *reductio* concerning it in a paper titled *Possible Girls* wherein he argues that if modal realism is true, then you can enter into meaningful romantic relationships with specific people in other worlds and maintain trans-world relations.[121]

Sinhababu believes in modal realism, but his paper serves as an example of the absurdities that modal realism generates, so the reductio wasn't intentional, but it's there. Physicists did the exact same thing that Sinhababu did, except the trans-world lovers of the physicists are entire other universes.

Physicist Niels Bohr's interpretation of QM excluded an explicit modal realism but asserted that quantum theory was a complete description of reality even though the two quantum frameworks used, Heisenberg's and Schrödinger's frameworks, are not consistent with each other. This view was widely adopted and is now more popularly referred to as the *Copenhagen interpretation of quantum mechanics*. The reason this particular interpretation of quantum mechanics was so popular was due to a rapid retreat of the theoretical-physics community into instrumentalism, which was the philosophical disposition of the time (and remains fairly popular), that posits that it doesn't matter *why* something works, only that it does, and so there is no real reason to pursue the *why*, only use what works (as an instrument, hence the name) and participate in the, "shut-up-and-calculate interpretation of quantum theory."[122]

But there were structural failings with the Copenhagen interpretation, namely that it created what is known as *the paradox of Wigner's friend*. The paradox is generated when you apply quantum theory to quantum-level observations on another observer, for example: if Schrödinger's cat experiment is carried out, and you have a friend that knows the results and is happy or sad depending on if the cat is alive or dead, then is the resultant state of the system, that the cat is alive and your friend is happy, or that the cat is dead and your friend is sad, determined only after your friend tells you the outcome or was it determined prior to you being told? The question is meant to show contradictory views about whether another observer can fall into the same quantum duality that non-observers in the experiment can fall into. Because of open questions like this and the retreat into instrumentalism, Niels Bohr had cast a dangerous veil over the study, which David Deutsch characterizes explicitly as 'bad philosophy', not merely because it was outright false, but because it, "actively prevents the growth of other knowledge."[123]

This is where the last relevant historical point, Hugh Everett III, comes in. Juxtaposed to the problems created by the largely adopted Copenhagen interpretation of quantum mechanics, Everett had an alternative interpretation for QM that avoided Bohr's problems. The Everett interpretation of quantum mechanics holds that all possible states, or all histories of a wave-particle, are all *actual* and never 'collapsed', which means that for every possible particle state or history, there is a universe in which that state or history was carried out, now more popularly called the *Many Worlds Interpretation*.[124] This is just modal realism with extra steps. Everett was dealing with quantum theory and not the multiverse, but the adoption and popularization of modal realism in physics is largely due to his work.

To be clear on why exactly this is a problem, Everett maintains the explicit inclusion of uncountable infinites. He explicated this feature of his view by responding to Boris Podolsky's remark at a conference on the foundations of quantum mechanics held at the Xavier University of Cincinnati in

[119] Deutsch, David. "The Beginning of Infinity: Explanations That Transform the World." p 333-334.
[120] Lewis, David. "Convention." 1968, p 208.
[121] Sinhababu, Neil. "Possible Girls." *Pacific Philosophical Quarterly* (2008), 89: 254–260. doi:10.1111/j.1468-0114.2008.00319.x
[122] Deutsch, David. "The Beginning of Infinity: Explanations That Transform the World." p 333-336.
[123] Deutsch, David. "The Beginning of Infinity: Explanations That Transform the World." p 334-335.
[124] Everett, Hugh; Jeffrey A. Barrett (Ed.), and Peter Byrne (Ed.). "The Everett Interpretation of Quantum Mechanics: Collected Works 1955-1980 with Commentary." 2012, p 57-60.

1962.[125] After Everett had stated that, "It is tenable to assert that all the elements [of superposition of states] simultaneously coexist," Podolsky returned with, "It looks like we would have a non-denumerable infinity of worlds," to which Everett answered, "Yes."[126] That statement right there *ab initio* includes an infinite modal realism in quantum theory and is the source of the problem.

What is the multiverse? The most commonly discussed and accepted multiverse theory states that the universe does not end at its observable edge about 42 billion light-years out (the observable radius), and therefore there is no reason to think matter doesn't extend indefinitely out just like space does.[127] There are other versions of multiverse theory but all versions explicate an infinite multiplicity of universes and run into the same problems, so the arguments in this section are general arguments that are applicable to all versions of multiverse theory. I will not be arguing that an anthropic universe must be the only kind, or that we can only *know* of one universe (as Ross and Turner demonstrate that the multiverse could in fact be empirically detectable[128]), but that of the multiverse, the other universes must be significantly different in order to claim those universes are distinct from our own. This means I am critiquing the components of multiverse theories that suppose unboundedly infinite numbers of universes, as those would contain repeats or exact copies of universes.

To reiterate, each version of multiverse theory does indeed make explicit that there is an infinite series of universes either already instantiated or continuously being instantiated. George Ellis notes that the universe was found to be a flat plane and flat planes don't have ends,[129] which gives credence to the theory that says the universe does not end at the observable edge about 42 billion light-years out, and further that infinite matter means infinite combinations of matter, even infinite repeated combinations.[130] This falls under what I call the infinite parallel, as it supposes an infinite number of 'parallel' universes and infinite combinations of matter and spatial relations.

What does it really mean to have infinitely many of something? Aristotle's classical definition of infinity is as 'a series of becoming', or as a process whereby one thing always follows after another.[131] He also draws a distinction between *actual* and *potential* infinity. For our purposes, you can think of actual infinity as akin to the modal realism described earlier, where all possible things, an enumerable set of things, is all-at-once instantiated, and potential infinity as being a continuous stream of states through time rather than all at once.

For Aristotle, infinity was only potential, never actual, and Aristotle's conception of infinity as *potential*, meaning as a *process*, was the conception of infinity used for roughly two thousand years until Georg Cantor proved that there are infinites *strictly larger* than others, meaning infinites could be treated as actual rather than merely potential.[132] While this only proves the existence of actual infinity in mathematics, it still means there can be distinct kinds of infinites, and this gives some people hope for the existence of physical instantiates of actual infinity.

However, there are famous historical arguments that actual infinity is not applicable to the concrete world due to resultant contradictions like *Zeno's dichotomy paradox* and *Torricelli's Trumpet*.[133] Despite this, actual infinites are still valid in math, so there is a divide between the abstract mathematical world and the concrete physical world. This is not a new take, but it highlights the question regarding what the ontological status of infinites are, for to say that mathematical Platonism is true is to say infinite sets are not properly applicable to the concrete domain, the same domain where an infinite number of states and universes are supposed to exist, and the same domain which is known

[125] Podolsky is notable because his work with Einstein and Rosen (the EPR paradox) refuted the Copenhagen interpretation.
[126] Osnaghi, S., et al. "The Origin of the Everettian Heresy." *Studies in History and Philosophy of Modern Physics* (2009), doi: 10.1016/j.shpsb.2008.10.002, footnote 280 of p 24.
[127] Tegmark, Max. "Parallel Universes." *Scientific American* (2003), doi: 10.1038/scientificamerican0503-40, p 3-7.
[128] Ross, Peter W., and Dale Turner. "Existence Problems in Philosophy and Science." *Synthese* 190, no. 18 (2013), p 4254-4256.
[129] Ellis, George F. R. "Does the Multiverse Really Exist?" *Scientific American* 305, no. 2 (August 2011), p 43.
[130] Graphically illustrated by Tegmark here: Tegmark, Max. "Parallel Universes." *Scientific American* (2003), doi: 10.1038/scientificamerican0503-40, p 4.
[131] Aristotle. "Physics." Book 3, chapter 6.
[132] Pantsar, Markus. "In Search of Aleph Null: How Infinity Can Be Created." *Synthese* 192, no. 8 (2015), doi: 10.1007/s11229-015-0775-4, p 2489-2490.
[133] Côté, Gilbert B. "Mathematical Platonism and the Nature of Infinity." *Open Journal of Philosophy* Vol. 3, Issue 3 (August 2013), doi:10.4236/ojpp.2013.33056, p 373-374.

to us almost exclusively by mathematical principles. This should be prompting you, the reader, to ask an obvious question: is this really possible?

Where classical physics truncates infinites and imaginary numbers are used merely as mathematical tricks to solve complex problems, quantum physics necessarily includes infinites and imaginary values as inescapable essential components for the theory's comprehension and ontology.[134] Maybe this is a bridge between the abstract and the concrete, but it doesn't explain the jump from the smallest scale, quantum theory, to the largest scale, multiverse theory.

With all that overview out of the way, we can finally start to apply pressure on what infinity means for a concrete world. I begin with what I call the *argument of contrafinity*: that potential infinity presumes actual infinity.

Recall potential infinity is a process of continuation where one thing can always follow another, which can be symbolized as the standard Dedekind-Peano axiom "n + 1" where n is a natural number and its successor "+ 1" is also a number (meant to imply that there will always be *one more number*, an infinite series).[135] However, two of these terms compete for devastation, namely 'continuation' and 'always'. A process of continuation means an uninterrupted process, a process of *forever*. 'Always' also requires a *forever*. In fact, there is no well-formulated definition of potential infinity that doesn't require the use of at least one of these words (continuation, always, or forever). All formulations require an actual infinity such that they have an object referent by which they meaningfully relate. This means that for any potential infinity, there is a presupposed actual infinity of time required to allow for an event-series or a process to take place by which the potential infinity can chug along. Given this, there are no longer such things as potential infinities, only implied actual infinities.

If you try to salvage this problem by splitting time between two frameworks, infinite and finite, you do not escape the problem. Infinite time is what gives us these other infinites, these indefinite sequences. If you say that time is finite, the *forever*'s and *always*' refer to finite time, so you couldn't keep adding one past a certain point in time, for the thing by which events have the capacity to occur, time itself, has ceased, and therefore no more numbers in any sequence, series, or process have any chance of furthering their increase. With finite time there can't even be potential infinites, as the Dedekind-Peano axiom no longer applies, and with infinite time there can *only* be actual infinites. Therefore, either there are no ontologically relevant infinites at all of any kind, or there are only ever actual infinites.

Actual infinites applied to our concrete domain leave us with the traditional problems like Zeno's and Torricelli's paradoxes, and it gets worse. We can grant either form of infinity (pretending as if we had not just committed ourselves to disbelieving in one) and demonstrate particular oddities that arise if there is a multiplicity of worlds anyways.

For the multiverse, and when dealing with possible worlds, to avoid problems between worlds that are *logically* possible versus *practically* possible, we will only consider worlds that are *both* logically and practically possible to eliminate potential nomological errors in multiverse theory drawn from notions like spaces that you could logically travel to but couldn't practically travel to. This seems like a minor point, but if you ever try to do real math about this, the preclusion saves you a sizeable headache.

The multiverse is like a quilt of separately observable universes strung together, all next to each other, all being different combinations of matter, until all possible combinations of said limited matter (and space) run out and a repeat set of *all possible combinatory local spaces* is then also laid out on a grid universes strung together (the sample space is closed and bounded). Think of this as a procedurally generated video game environment, where there are n number of different map-layouts that can possibly be generated, and so the game feels new and different every time you play until you play for the n+1 time, where you finally come across a map you have already seen before.

This is how multiverse theory is supposed to pan out – if you were to travel in a straight line indefinitely through space you would eventually come across a local space that was exactly the same as your original observable universe, and further that you would come across an infinite number of these

[134] Côté, Gilbert B. "Mathematical Platonism and the Nature of Infinity." *Open Journal of Philosophy* Vol. 3, Issue 3 (August 2013), doi:10.4236/ojpp.2013.33056, p 374-375.
[135] Pantsar, Markus. "In Search of Aleph Null: How Infinity Can Be Created." *Synthese* 192, no. 8 (2015), doi: 10.1007/s11229-015-0775-4, p 2489.

exactly similar spaces given enough time.[136] This happens in every version of multiverse theory; there is an infinite set of *token* universes similar to our local universe's *type*. This means there are an infinite number of me's writing this book to an infinite number of you's, in the exact same manner as I am now, right down to... *that* pause.[137] And infinite means infinite, whatever infinite means, so there's an infinite number of token copies of you sitting in an infinite number of token copies of this room reading infinitely many exact copies of this book.[138]

How does causation work in a multiverse? We can say causation, or causal power, is the relation by which one event necessitates the occurrence of another in a temporally contiguous manner. Many people accept this definition when it is limited to a material cause, meaning it's only between matter or material instantiates, and usually only regarding two direct events in which no events occurred between. But why listen to those people? If we use the materialist definition it would disallow knowledge to be a causal power, which is a problem as there are *indirect* events in a multiverse that could be considered causally linked qua epistemic conditions.[139] For example, I can do some simple calculation and decide beforehand that I would extend the digits of my hand with relation to the number I calculated. I hold out four fingers. Even if my intent was directly materially caused, it is a contingent causal chain predicated on an indirect happenstance of knowledge, *concreta relata abstracta*. This implies knowledge, an otherwise immaterial substance, is a causal force.

If you don't believe that, we can take it further. In the multiverse, when I raise my hand, so do an infinite number of token me's in other similar token universes, because all the copy universes do the exact same things as ours. This means I can knowingly choose to make the other token me's raise their hand by raising mine, which means I can causally affect other people in other universes. But, they would also be thinking to causally make my hand raise, as they have the same token thoughts of my specific type, so they would all be thinking the same thing that I am. Here it is no longer clear if my particular token is doing the causal work or if their particular tokens are doing the causal work. The only way this works is if my general type is orchestrating us all, like a Platonic system.[140]

The problem with this is that either there becomes no meaningful distinction between type and token because tokens are no longer individuated and are only meaningfully referred to by their type, or personhood is located across multiple unconnected spaces, which would also mean there's a material causal chain that is materially unrelated. In either case direct causation is lost. In the first case, causation is lost because there is no longer meaningful *relata* between the tokens, and in the second case we lose causation because we have caused matter from an immaterial source, which isn't materially valid. All we're doing past this conclusion is a desperate attempt to save intuitions, which is a tired game.

An objection to my argument is that this is clearly not how causation works. I agree. Several others have argued for causation to be purely within the domain of material forces and have said that my argument is clearly just a confused misunderstanding of causation. I disagree.

If the conscious me, the mental me, the me that is me, decides to raise my hand that is right in front of me, we attribute the raising of my hand to the *me that willed it*, not some material-amalgam-that's-not-actually-an-amalgam-because-amalgams-aren't-individuated-material-parts-*me*. Even if we ascribe physicalist views of the mind, there is still a meta-object that is the sum of a material system we are calling my mind, and it has causal powers over my hand, not the reduced particular neural chain (which is still only at best an abstract amalgam) responsible for hand movement.

Further, if I want to slap myself, I can. I can knowingly cause myself harm and humiliation (both of which are more examples of immaterial entities) by making my hand slap my face. This is also true of things that aren't my hand or face, as I can reach out and knock over the bottle before me. At no point here would any standard framework say causation was inappropriately invoked, not even material

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[136] We will say you're going infinitely fast too, so you don't have to worry about heat death or whatever.

[137] It is also possible that this group of infinite persons doesn't need to be located closely in time since exact copies may exist infinitely before our existence as well as after, demonstrated by Eric Schwitzgebel here — https://schwitzsplinters.blogspot.com/2022/05/our-infinite-predecessors-flipping.html.

[138] Eric Schwitzgebel has interesting musings going further into this if you care — https://schwitzsplinters.blogspot.com/2020/05/your-infinite-counterparts.html.

[139] *Multiverse-wide Cooperation via Correlated Decision Making* by Caspar Oesterheld is a concrete example of how this would be possible with purely abstract decision making.

[140] Another footnote to Eric Schwitzgebel, this piece shows there is good reason to take identity across multiple spaces just as seriously as we take identity across multiple times — https://schwitzsplinters.blogspot.com/2022/02/identity-across-multiverse.html.

causation. I argue now that there is no meaningful difference between the me that is slapped in this universe versus the infinite me's that are slapped in the other universes, as the me's in the other universes are still known objects that I can intentionally incur action towards, the relation of which is entirely predicated and reliant on me intending the action here in this universe, just like it was for the bottle. Clearly if there is a misunderstanding of causation, it must be a systematic one that extends to all standard causal frameworks. Again, this is a tired game.

If the conclusion of lost causation is right, then either it is because the causal link simply doesn't exist, or there isn't a multiplicity of tokens in multiverse theory. This doesn't annihilate all causation, it only gets rid of it for this specific case. You may be asking, "So what if you can't cause some other dude in another universe to do something? Why does that matter?"

If I can't cause other exactly similar copies of myself to commit the same action, then how could we know they are exactly similar? If I knew there was another exactly similar object as myself, then I would also know that everything I do, it does, and could therefore share in a causal relation with it (by knowingly making it do things like slap itself). There is a dilemma here. Either the epistemic side gets sacrificed – if there is no causal relation to exactly similar objects then we couldn't know them to be exactly similar (we couldn't know that exactly similar universes exist), **or** the metaphysical side is sacrificed – if there is causal relation then the objects are exactly similar and so we can't distinguish their identities (the type-token distinction is lost).

What I am describing is the *impossibility of identity distinction* of multiple exact copies of the same universes existing. An infinite number of universes supposes an infinite number of *exactly similar* universes, without distinction whatsoever. Leibniz's Law (the indiscernibility of identicals) says that any two objects that have exactly the same properties are the same object, or that there are no two objects that have exactly the same properties without being the same object.[141]

In obviation, I am aware that Max Black gives a strong critique of Leibniz's Law using a thought experiment involving two black spheres in an otherwise empty universe. The spheres share all properties in common: size, color, shape, etcetera, with the exception that they are in separate spatial locations.[142] The concern that Black tries to raise is that we would have no way of distinguishing the spheres from each other without adding a new thing to the proposed universe, namely an observer which would create an external reference point by which to relate the spheres. Without a third party, the spheres exist alone and one sphere could not be referred to in a meaningful way that wasn't equally descriptive of the other sphere (as 'left' and 'right' require a third party and spatial measurements are equivalent between the two), yet they remain as separate individuated spheres. Black uses this to argue that there are objects that have exactly the same properties without being the same object, counter to Leibniz.

To counter-counter, the spheres in Max Black's example are not identical – they required two distinct spatial properties. In my view, this immediately obliterates Black's argument, but if you are really obstinate then here is another counter-counter: Charles Cross illustrates problems with creating thought experiments, namely that Max Black exploits the notion of characters in the framing of stories. By removing external relations as properties, like 'being Caesar' or 'not being in London', the principle of identity distinction becomes weakened.[143] What this means is that the two black spheres example is not a counter-example to Leibniz's principle, but rather a counter-example to the actual world. What an oddity it would be to say that no observer sees, visits, or even thinks about the two spheres, and yet Max Black clearly thought about them many times, as did the characters in his thought-experiment.[144] Black exploits the notion that worlds inside of thought experiments can lack properties that our actual world has in order to retro-actively argue that our actual world also lacks those properties. This is just bad reasoning but what if you still believe Leibniz's Law can be perversed anyways? What if Max Black is right despite our protests?

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[141] Forrest, Peter. "The Identity of Indiscernibles." *Stanford University*, (1996). Accessed March 15, 2016. http://plato.stanford.edu/entries/identity-indiscernible/

[142] Black, Max. "The Identity of Indiscernibles." 156-158. Accessed March 15, 2016. http://home.sandiego.edu/~baber/analytic/blacksballs.pdf

[143] Cross, Charles B. "Max Black on the Identity of Indiscernibles." *The Philosophical Quarterly*, Vol. 45, No. 180 (Jul. 1995), p 350-351.

[144] Cross, Charles B. "Max Black on the Identity of Indiscernibles." *The Philosophical Quarterly*, Vol. 45, No. 180 (Jul. 1995), p 354-355.

Fundamental particles in physics supposedly share all the same properties after all, one quark can have no distinction from another quark save their place in space; this is the same as Black's thought experiment. If you are convinced by Max Black's arguments, then he shows that *external* relations are not required to prove that objects are distinct. But a particle without distinction is no distinct particle at all. If there is more than one object, meaning objects distinct in number, then numerical distinction allows individuation as there is distinction in something like *being the second object*. Black's spheres are plural. He doesn't believe his universe without observers only has one object, so the thing which individuates them isn't an external relation but instead an *internal* one, like numerical distinction. But they share all properties, so they must somehow share the same numerical property of being the first object! They are so indistinct that we can't even assert that there are two spheres that aren't both the first sphere. I congratulate Max Black for proving that there is only one sphere.

I am belaboring this point because I want it to be completely clear that to make impossible the distinction between objects is to make possible the distinction that they are the same object. With this example in mind, there is no way to internally or externally distinguish between our universe and another exactly similar universe.

You might say there is some external observation of spatio-temporal relations whereby we can distinguish the universes, that there may be dissimilar 'bubble universes' or localities between our universe and the exactly similar one or whatever – but how do we know which universe is the distinguishing party given this relationship? Sure there may be dissimilar universes in-between, but that doesn't mean we haven't just looped back to our same universe again. As we just showed two paragraphs ago, without internal distinction of universes, there is also no external distinction that justifies the universes as being relevantly distinct. So the impossibility of making significantly relevant identity distinctions between these similar universes (an infinite number of them, mind you) makes it seem much more likely that there is simply one universe exactly similar to ours, which is the one we inhabit, and there are in fact no exact copies.

Given the above, the multiverse is impossible. So the most widely-held contemporary theory in science for describing the upper bounds of reality doesn't have a valid basis and this should make you highly skeptical of science giving you any ultimately meaningful insights about reality. It's time to move on.