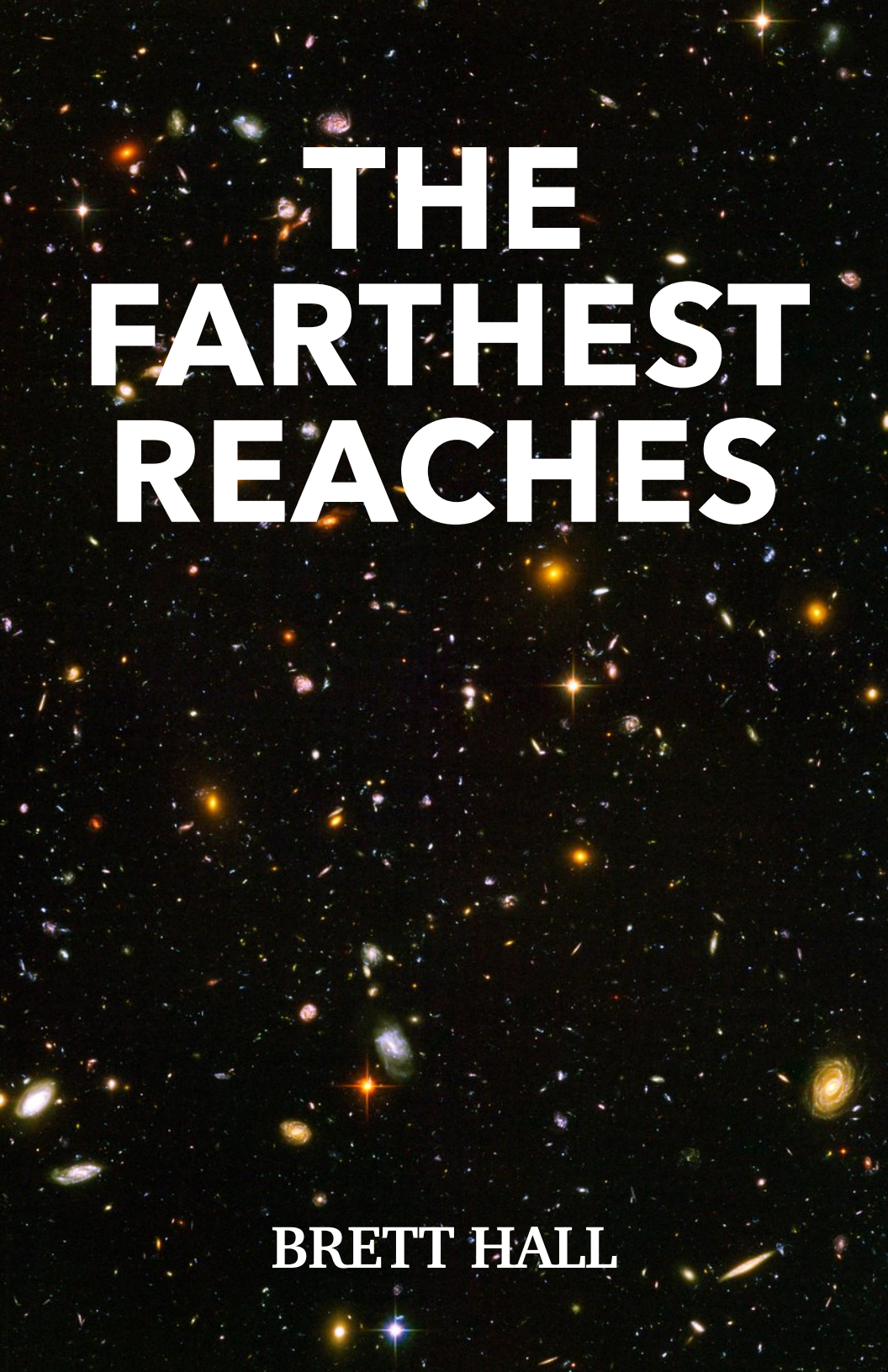

THE FARTHEST REACHES
BRETT HALL

THE FARTHEST REACHES

BRETT HALL

The cover image is the “Hubble Ultra Deep Field” showing some of the most distant galaxies yet seen. Find more information at https://esahubble.org/images/heic0611b/

Brett Hall
www.bretthall.org

For Mum, Dad and Jem.

Contents

Preface

Gazing into a clear sky at night has a profound effect on many people. In some it kindles a religious sense of wonder, in others a curiosity about what science has so far revealed about the farthest reaches of space. Some may tend towards the spiritual. Others might study astronomy. In taking the latter path, I thought that I would come to an ever deeper understanding of the vastness of everything, the place of people in this universe and therefore, just perhaps, what it all meant. Not because of some revelation of the ultimate and final truth but rather a gradual unveiling; a quest through questions.

Astronomy, in particular cosmology, is a fascinating and satisfying area of science. In large part because of the answers so far given in precision cosmology (for example the measurement of the cosmic microwave background radiation, or the Hubble constant which gives some indication of the rate of expansion in the universe, or indeed the physical structure of the universe itself in terms of how entire superclusters of galaxies are arranged as like a web on the surface of great bubbles or voids). But cosmology is also fascinating because of just how open ended it is and the serious scientific problems that have been revealed in what we have learned about the universe. What is dark matter? What is dark energy? What are the initial conditions of the universe and why? Could they have been otherwise? Why the very slight asymmetry between matter and antimatter at the Big Bang? And on and on. Many describe this as a “crisis”. It is anything but. This is what science is at its best. Answers -

often quite satisfying and exciting - serve to reveal a plethora of problems. How could it be otherwise? A settled science? What a tedious world that would be.

Cosmology was once the sole domain of religion because as a subject it considered that ultimate question: where did reality come from? That question, I guess, now has an answer in the sense that I have already expressed: any answer given will always point the way to a deeper more interesting question. We shall never settle it. And that's a good thing! For many who study cosmology they come away from contemplating the universe with a sense of powerlessness or impotence in the face of just how vast physical reality is as we know it. It seems like each time cosmology took a step forward, humanity receded into the background as an ever smaller more insignificant creature. While our ancestors could mount the argument we must have been the centre of the universe and therefore of the concerns of the gods - we now know there is nothing special about our galaxy because there are trillions upon untold trillions just like ours stretching at the very least some billions of lightyears in all directions. And that is just what the laws of physics permit us to see by detecting electromagnetic radiation.

People are pathetic, on this view of the cosmos. But of course why does size matter? As David Deutsch has remarked: it is not common for people to feel inadequate in any way when standing near a cow and yet a cow is much larger than they are. Why are people not awe inspired by the bovine?

"A cow is much bigger than you, but it is a ridiculous animal and you are a valuable person. You know it's a cow. It doesn't know anything. It just stands there eating grass (grass!) and mooing. And if it were bigger, that

would only make it more ridiculous." - David Deutsch
https://www.daviddeutsch.org.uk/2004/02/

The point here is that size does not matter when we are talking about the ***significance*** of some entity. A cow contemplates nothing. And for that matter neither does the greater part of the entire cosmos. This capacity to ***contemplate*** is however significant. Indeed one of a palette of features only people possess that makes them *the most significant* physical structures in the universe. What grants them this capacity to contemplate, to be curious, to question, find answers, explain, create, innovate and take control of it all is a unifying concept of such power and reach as to make all of one's scientific wonder about the night sky pale in comparison when it is grasped.

For grasping it allows us to appreciate the farthest reaches. Not merely "as far as the eye can see" or as far as the most powerful telescopes can detect, but down, down deep into the fundamentals. As Feynman remarked "There is plenty of room at the bottom" when describing the possibilities offered by nanotechnology. But there is more room even than that. There is an infinite amount of room "at the bottom" if by "bottom" we mean foundations. We will always be able to ask ever deeper questions and dig through what we had thought was the bedrock of our understanding. That is the nature of the reality we are in. The farthest reaches are simultaneously both within and always just out of our reach. We grasp, grab hold, appreciate and then see that there is still more.

The "unifying concept" allowing people to understand everything is a basic idea: it is explanatory universality. But as I have learned "basic" does not mean "simple". I have spent many years now making use of this idea - that people

are “universal explainers” to pick apart a variety of problems. Rather often my interlocutors seem a mixture of puzzled and frustrated about my focus on that basic idea. It has therefore at times puzzled and frustrated me that others do not see the significance of explanatory universality. This book is my attempt to remedy some of the confusion.

I have found, like many before me, that speaking about a topic often reveals to yourself what you *actually* think about it, having perhaps not thought about it much before. Writing about that same topic may clarify to yourself how to better express your own ideas and what more fundamental explanations your own thoughts rest upon. Finally, engaging in a discussion where there is a ***clash of ideas*** where one is required to make an argument in real time while someone with an opposing view does the same, may expose what one thought they knew but did not: in other words gaps in one’s understanding and flaws and weaknesses in one’s own side of the case. As the great hero of the British Enlightenment John Stuart Mill wrote “He who knows only his own side of the case knows little of that. His reasons may be good, and no one may have been able to refute them. But if he is equally unable to refute the reasons on the opposite side, if he does not so much as know what they are, he has no ground for preferring either opinion... Nor is it enough that he should hear the opinions of adversaries from his own teachers, presented as they state them, and accompanied by what they offer as refutations. He must be able to hear them from persons who actually believe them...he must know them in their most plausible and persuasive form.”

For almost three decades now I have been speaking and writing about and recently defending the worldview encapsulated in the books of David Deutsch and Karl Popper.

Recently I have engaged in “debates” (although I prefer the descriptor of *discussions*) where that worldview has been pitted against either the mainstream dogma or some new, peculiar rising ideologies. In doing all of this I recognised not merely the deep coherence of the different “strands” of the worldview but how commonly certain misconceptions about it from my interlocutors were shared by people when talking about completely different topics. People obsessed by “Woke” takes on race, sexuality and gender were making the same errors as people consumed by the idea AI in short order will become “super” and take over the world. And both of those groups of people agreed fundamentally with celebrated academics and other intellectuals who talked down people as just a kind of “slightly smarter ape” whose behaviours are largely dictated by their genetic composition - like any other animal - and (therefore) there would soon come an end to intellectual endeavours by people because we would reach the limits of our “cognitive capacity”. The world would soon be revealed to be too complicated for our puny evolved brains to ever comprehend.

The book you are about to read is the culmination of the many hundreds of thousands of words I have already written (See http://www.bretthall.org), spoken about (https://www.youtube.com/@bretthall9080) and recently defended in public discussions with those who disagree with substantive parts of it (a list of those encounters is provided as a playlist on YouTube here: https://youtube.com/playlist?list=PLsE51P_yPQCT6rueSgzeFPYam4NNgYs8p&si=JxX81Pm9Ly_Okrdz).

Only recently have I begun to feel I can, myself, meet Mill’s challenge. But, so far, rarely do my interlocutors. This book therefore is as much for them as it is for me - to clarify once

more to each of us my own thoughts on the topics herein. Secondarily I hope fans of the work of David Deutsch who want a little "more of the same" to chew upon as we all await whatever it is he next puts out to the world.

The depth of insight found in "The Beginning of Infinity" by David Deutsch has sometimes been captured by the description of it that: sentences could have been paragraphs, paragraphs could have been chapters and chapters could be entire books. This is one such book, but it is not "based upon" any particular chapter in "The Beginning of Infinity".

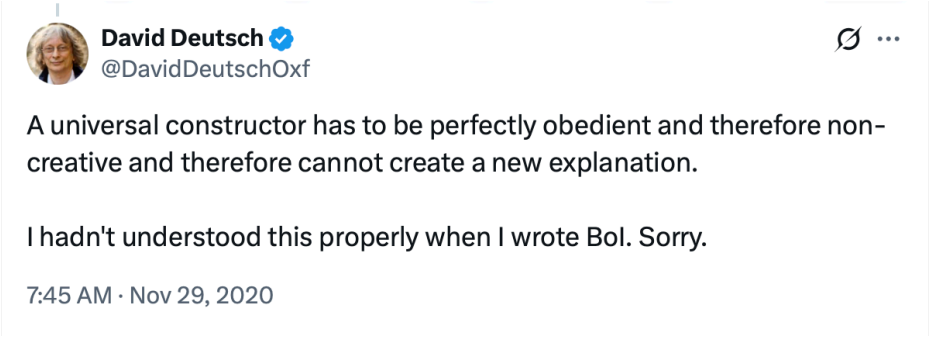
Having produced so much material about David's work in particular, if I am asked - as I have been - "what is the deepest original insight from David's worldview which has had the most profound effect on your thinking?" it would be the following sentences from "The Beginning of Infinity" commencing on p 146 with:

"But, of all the different forms of universality, the most significant physically is the characteristic universality of people, namely that they are universal explainers…"

and later on page 203:

"…there can be only one type of person: universal explainers and constructors. The idea that there could be beings that are to us as we are to animals is a belief in the supernatural."

Now putting aside that Deutsch himself has corrected some of that material (writing on 29/11/2020 on what was then "Twitter" that



"A universal constructor has to be perfectly obedient and therefore non-creative and therefore cannot create a new explanation." I hadn't understood this properly when I wrote BoI. Sorry."

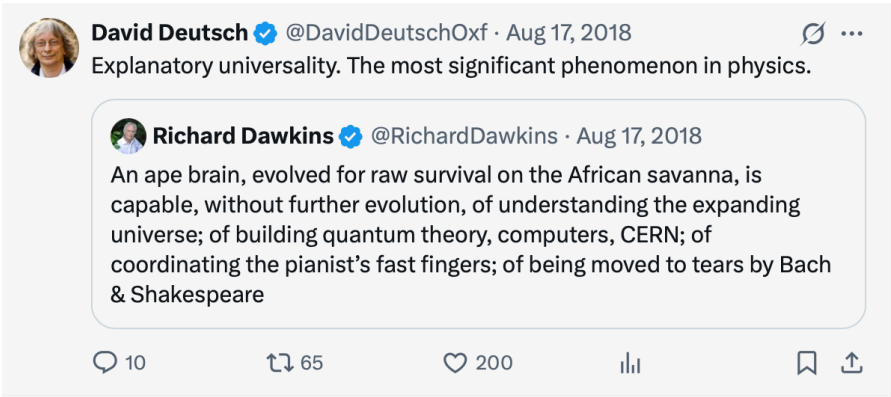
See: https://x.com/DavidDeutschOxf/status/1332787646138101762

We shall come back to this distinction between person/ universal explainer and a universal constructor presently. But an important historical note considering the text in "The Beginning of Infinity" (BoI) quoted above. Those are the first occasions where anyone has used the term "universal explainer" in print, to my knowledge, and therefore are where, publicly at least, we can trace the point to where the solution to the problem of "what is a person?" was solved, *to the extent it has been solved* by that insight.

What Deutsch is further saying there in his tweet, as he was saying before and has been consistently after, is that a **person** - a universal explainer - must be able to **disobey**. But a universal ***constructor*** is basically the **opposite** to that. It must be able to be programmed to complete a task almost perfectly obediently (of constructing whatever the thing is

the programmer can write code for). It cannot “disobey”. A universal constructor is a mindless machine, like a 3D printer. It simply follows instructions. This is not like a person.

Disobedience is among many ways of coming at what “creativity” is and therefore what fundamental qualities a person must possess. That aside, those sentences I have quoted from “The Beginning of Infinity” deserve not to be expanded out to just paragraphs, or even chapters. I think they are that deep as to warrant an entire book. To me they encapsulate the deepest of all philosophical insights gifted to us by Deutsch: the most physically significant form of universality is explanatory universality and there is only one kind of person - the universal explainer and thus nothing can stand in relation to us as we do to other animals. Indeed Deutsch has said not only is explanatory universality the most significant form of universality - but it is the most significant phenomenon in physics. Period. And I agree!



So, why have books not already been written about this ***most significant phenomenon in physics***? The reach of it is unsurpassed. One might even call it the phenomenon with

the farthest reach. Not merely the farthest reach known but the farthest reach possible.

This concept of explanatory universality deserves a book for two reasons (1) the depth of the idea means it touches a vast number of topics just some of which I explore in the chapters of this book (2) in my experience of discussing and explaining the worldview of David Deutsch over these decades it is ***the*** idea that is the most poorly understood. While it is true the concept of ***conjectural knowledge*** - what it is and how it grows - may be just as poorly understood and just as deep, that idea was Karl Poppers' first and it has indeed already had many books devoted to it, with many "devotees" of it so to speak. But even among, shall we say more "classically minded" Popperians there has been resistance to embracing the deep significance of "explanatory universality". Which is strange because it really is upon Popper's shoulders that David Deutsch himself stands having built up this explanation of personhood in part around the conjectural nature of knowledge (but Deutsch adds important content from the world of quantum physics and computation which he himself united).

In any case, David's answer to the-age old question "What is a person?" requires one to understand and accept Popper's concept of "conjectural knowledge" first and for many that is already a barrier. But if they can manage to do that, they must then also appreciate the concept of universality and then, lastly "explanatory universality". I will not make it my task here to defend Popper's epistemology at any great length (as I say this has been done before at length in many places - including by myself - for example here: https://youtu.be/q0C31UOLQC0?si=7B8uc1RNWkJMUvwO),

nor explain the basics of universality at length (I have already done that here: https://youtu.be/bnkPl3IYlv4?si=pAB1mCM7mWDC-2VG)

I am going to take those as read - assumed, or background knowledge so to speak. What might be called in formal education the "prerequisite subjects" of Conjectural Knowledge 101 and Universality 101. For anyone new to this, therefore, I am in essence assuming familiarity with David Deutsch's work and in particular "The Beginning of Infinity". Without a reasonable understanding of the majority of that book I expect what follows in my exploration and application of the ideas there, will seem not merely to make basic errors according to you in "common sense" epistemology and philosophy, but will appear utterly absurd.

However, as I see it, all I am doing is simply exploring the consequences of taking seriously the idea that a person is a universal explainer and there is nothing "more" universal or powerful or name your comparative or even superlative adjective, than "the universal explainer". Having taken the idea seriously and explored the consequences of it, I will apply the concept to a spectrum of misconceptions both modern and ancient in an attempt to resolve philosophical and scientific problems that plague many contemporary intellectual movements.

How can we improve our culture's approach to learning?

What is intelligence and what can it mean to measure it?

What is culture? What effect does "ethnicity" have on a person? What is mental illness?

What is Woke?

Will artificial intelligence become so powerful as to threaten civilisation?

What are the limits to free speech?

What effect does genetics play in the differences between people psychologically?

If I was to suggest that an understanding of "explanatory universality" resolves many, if not all, of the deep ***philosophical*** problems that plague these fields some might dismiss this as hubris. But it is the thesis I will unpack across the following chapters. Although this content has been published in part on my podcast "ToKCast" - that was a first draft as compared to this more refined version which includes not merely this preface and an afterward - but entirely new chapters as well as revisions - some major - to all other chapters as well.

My hope is that this work kindles in the reader a renewed sense of wonder about other people. Not merely that they are, as the computer scientist Jaron Lanier has remarked, "infinite wells of mystery" - which captures something of their inherent interestingness - but also the fact that it is the person that is the most significant entity in physical reality. On large enough timescales, it will be explanatory knowledge that alters the physical structures in the universe. But that can only be if people have first created the knowledge of how to change the universe by figuring out why things are the way they are. In particular by learning about the fundamental laws of physics. Because it is by comprehending the deepest laws that dictate what it is physically impossible

to do that we figure out what is possible and thereby go about creating the environment around us to suit us and protect an ever growing community of universal explainers each with their own idiosyncratic interests that will lead to greater wealth, health, beauty and understanding.

Appreciating people, becoming more “pro” rather than “anti” human should be what drives policy across all nations of the world. Because it is people that make progress and ultimately it can only be progress that will enable us to solve our problems in time, without which we are surely doomed. Therefore understanding what people are, coming to value them ever more as what they are: the most significant entities in the universe - is the one bulwark we have against the rest of the cosmos - an uncaring, unthinking and ultimately uninhabitable void without universal explainers in it.

The farthest reaches.

How the depth of explanatory universality provides the greatest reach of all.

Chapter 1
Explanatory Universality and Reach

In 1907 when working at the University of Bern Einstein realised that a person in free fall would feel weightless. That is they would not have an experience of gravity. This connection between acceleration (in that case "free fall") and gravity led to his more precise formulation of The Equivalence Principle which can in part be summarised as: being at rest in a gravitational field is locally indistinguishable from being accelerated in empty space. If you're in a box and unable to look outside the box and "experience the pull of Earth's gravity" in fact no experiment, no experience and no observation from within your box could tell you that you were in fact stationary on the surface of the Earth or far from the Earth accelerating through empty space at around $9.8ms^{-2}$.

Now this equivalence principle led Einstein's mind down many streets, avenues and sometimes cul-de-sacs but the journey would culminate in his General Theory of Relativity which explained gravity as the curvature of spacetime. In a time before word processors and laptop computers, Einstein worked with pen and paper at a desk in his apartment near central Berlin throughout 1914 and 1915 (when the paper was ultimately published). But consider the reach of that idea. Once he understood the laws of gravity as they are expressed through general relativity, he realised, just as anyone else who comes to understand them would, that they applied always and everywhere throughout the cosmos and at all times.

The theory reached out from his mind, through his pen and paper out of his apartment across planet Earth to all apples falling from trees or anything else falling anywhere else to the tides going in and out at beaches sunlit on Earth or planets with liquid surfaces anywhere. His theory reached the moon, Sun and planets in orbit to govern their motions. To stars and clusters of them in the Milky Way and to the Milky Way as a whole and clusters of galaxies and ultimately to the very evolution of the entire universe itself. That is some reach! No matter, no energy, no space or time anywhere ever was ***not*** described by his theory. This is true universality and universality with enormous reach. It has since allowed for the prediction of black holes and gravitational waves and the movement of satellites allowing for a GPS system of such precision one's location anywhere on Earth can be found to the nearest meter (with general use) or millimetre (for some professional geophysical purposes). The reach of General Relativity has gone beyond even what Einstein himself imagined and it will continue to reach beyond the imaginations of researchers alive today (not in principle, for as we will see anyone can in principle imagine anything but in practise because any one person will only imagine a finite number of things in their lives). Einstein had quite specific problems in mind when he created the explanation that is called General Relativity and those problems were solved by that theory. But its reach meant that the spectrum of problems solved by the theory stretches far beyond the problems Einstein had into problems other people had, have had since and are still yet to have.

"Reach" is an epistemological concept that captures the range of problems for which an explanation can be deployed to solve. It can also capture, in a more poetic sense, the way in which an explanation - like Einstein's Theory of Gravity - how

such an explanation applies not merely locally to things going on around Einstein and what he could see or imagine in his mind and what he considered problems - but also to things unseen and which he would never imagine (because his life was finite). The explanation solved a vast repertoire of problems all of which Newton's already had, but it solved them better (by the degree of "more precise predictions" like tides, the motion of projectiles near the Earth and planetary orbits in the solar system) and many Newton's theory was unable to (the unusual motion of Mercury around the Sun, the bending of starlight during eclipses and - later - the formation and behaviour of black holes, quasars, gravitational waves and the GPS system as just mentioned). Moreover not only does General Relativity make many predictions more precisely than Newtonian Gravity does but it explains what exists and why better than Newton's does (for example the formation of stars and the evolution of the various stages stars go through).

Now all of these theoretical, scientific and technological breakthroughs precipitated by Einstein's creation of the Theory of General Relativity are crucially important in astronomy, geology, planetary science and the associated physics - astrophysics, geophysics and cosmology and the hand-in-hand progress in technology that goes alongside all scientific progress. And in terms of civilisation the theoretical and technological progress in our understanding of gravity has had an astonishing impact in propelling human productivity forward. Mobile phones and delivery services, self driving cars and safer aircraft travel are just some of the day to day and at this point taken for granted consequences of the reach of general relativity.

But all the knowledge of general relativity in the world is unlikely to cure mental illness, quell bigotry between people nor inform present day debates around immigration and gender or something like: how important IQ is. It won't tell us the difference between AI and AGI nor inform us about the moral and ethical questions that surround so-called animal rights.

And this despite the fact General Relativity is the deepest theory of physics we have (aside from Quantum Theory), and it is a universal theory and a universal theory with astonishing reach. But in terms of social and personal psychological impact, although it is thrilling to learn and may even shift one's "mental model" of physical reality substantially, and improve the quality of human life through the accompanying technologies that rest upon the exquisite predictions its explanation of the world makes - it is unlikely to be personally transformative of the typical individual human that learns about it. Indeed the typical person not interested in physics and told "gravity is the curvature of spacetime and is not a force" may raise their eyebrows and shrug and get on with their day. Some may be curious and ask more questions but few are going to look at their fellow Earthlings on this planet and think some deeply radical shift has occurred in what they think about other humans as a result of some new insight about gravity. I doubt even a physicist who specialises in General Relativity ever has such an experience upon realising they now better understand General Relativity even if it had shifted their view of the cosmos in some fundamental way, it did not make them anymore anymore deeply enlightened about their fellow man.

Chapter 2
The Reach of Explanatory Universality

But there does exist an idea that can radically transform one's vision of their fellow humans. There is an idea that could, were it better understood not merely be ***informative*** but in large part solve some of what many call "our most pressing problems". How education can better work, what a person is and the relevance of "IQ" and "intelligence", why bigotry of all kinds: racism, sexism and homophobia are all truly irrational, what an objective standard for immigration policy should be, what is to be valued in a culture and how to distinguish between better and worse cultures and traditions, mental illness and psychological distress and why one should feel optimistic about the future - why AI is not the existential threat many seem to think it must become and why AGI has the same moral status as a person and why so called ASI or superintelligence is actually magical thinking - an appeal to the supernatural.

People are in our present society afflicted with a malaise in many places. They feel things are worse even though objectively things are better than they ever have been by almost every reasonable metric one might wish to point to in order to demonstrate: we're better off now than ever before in terms of health, wealth, wisdom and happiness.

We are told that mental illness is an "epidemic" and people are turning more frequently to psychoactive medications (in the negative sense - to cure some mental malady) and so-called "nootropics" in the more positive sense (to enhance the existing "natural" function of a healthy brain).

But what sort of idea could help fix that panoply of problems I have just listed? It is the idea that I argue has more reach and even more depth than anything presently regarded as a part of even fundamental physics. It is the idea of explanatory universality. It is the idea that there exist systems that can explain literally anything that can be explained.

And those systems are us.

Now I wish to distinguish two things here. Firstly people in and of themselves. People may well have infinite reach. A single person could have the idea that in principle transforms the otherwise inert and lifeless matter in a galaxy into a thriving civilisation. If that happens because that person has the actual wealth in some distant future to do this that person in the form of their ideas is the catalyst for that transformation. That is some reach. Assume for argument's sake it is a homo sapien who has the idea then the reductionist picture of this very much looks like some neurones firing away inside their brain, which, following a long and complex causal chain, leads to a galaxy wide construction project.

The better level of analysis is, of course, that ideas in that person's mind give rise to explanations which must ultimately be invoked if we ourselves wish to explain why the evolution of some galaxy is not in accord with purely cosmic influences (like gravity, nuclear forces and electromagnetism). So a person can have unbounded reach. We all know we ourselves can change our homes or our gardens. Groups of people, often under the direction of a single designer, build skyscrapers and highways that stretch for hundreds of kilometres. If Elon Musk succeeds then it may well be the case that some decades from now a not insignificant patch of

that planet will be transformed because of ideas that formed in his mind first. The logic here is inescapable. Unless a law of physics stands in the way, there is nothing that otherwise in principle could prevent a single person from transforming regions of the cosmos the size of a galaxy and greater. Of course, we are pathetically incapable at this stage of actually doing so because the knowledge and wealth most especially has not yet been created that would enable us to do so. But here I am just asking you to imagine what is possible in principle not what is feasible now. Ok, so that is people. People themselves have reach. But we need to distinguish that from the reach of the idea about what people are for that too has reach. And here I am not talking about a distant future where whole planets, galaxies and the universe is transformed by people through the explanatory knowledge they create but rather the very real problems we face now that could be solved by understanding what a person is. That is the idea I want to explore the reach of.

To labour this point one more time: people themselves have infinite reach but also ***the idea of what people are*** has reach into the solutions to problems both known and as yet unknown.

Knowing what people are solves important problems now and constrains the solutions that are possible. This helps people to focus their research and attempts at problem solving.

Explanatory knowledge as we say has infinite reach. Like General Relativity does. As a consequence people have infinite reach.

That people are the ***creators of*** explanatory knowledge is itself an idea - with reach - and an idea whose reach right now is either under appreciated or not appreciated at all when it comes to all manner of both minor and major and even civilizationally consequential social issues.

The idea that we are universal explainers - that our minds are **not** in fact "evolved only to comprehend middle world" is something I have written and spoken about at length in many places before and been challenged on over and again especially in the past couple of years. And something I find myself coming back to over and again in order to push back against what continues to be a creeping anti-human pessimism.

In this present piece I do not wish to defend that thesis again at great length but will rather just summarise the idea and use most of my time to do something different and go beyond merely defending the thesis "humans can comprehend far far more than middle world".

I want to explain the reach of "people are universal explainers" and apply this unifying concept or "organising principle" to some very specific but quite diverse problems many are mightily confused by.

On some extremely important issues intellectuals, scientists, commentators, philosophers, politicians and yes the person-on-the-street get tangled up in knots by ***not*** understanding this idea of explanatory universality.

We can solve those issues in education and psychology and immigration and bigotry and personal distress and technology if more of us understood more deeply what could

be ***the*** most important lesson to learn. And that lesson? That we can learn anything. Truly anything. If it exists, we can learn about it. Which is to say: if it is a problem we can find the solution. Emphasis on ***we***. We, human beings, can find the solution. Whether the problem is one to do with fundamental physics and forces and distant galaxies or the evolving multiverse, or whether it is something in politics to do with: who should be permitted to move where under a rational immigration policy? Through to the individual level: can I really learn to play that musical instrument? Am I doomed to depression? Am I just not as smart as most people? We can learn anything because we can explain anything. And that is because we can in principle solve any problem and that is because we can correct errors and there are always errors to correct in the ideas we have. So long as we have not destroyed the means by which we correct errors, then we shall correct errors if we choose to do so. And if we do that we make progress and all of that means learning more or understanding more or explaining more.

Again, that we can learn anything via this process of error correction because we are people and people are universal explainers may be the most important lesson for everyone everywhere to learn. Not that I am arguing for ***forcing*** any particular lesson on anyone ever. Rather, I am suggesting that if you are interested in solving a vast number of problems that confuse most people and hence be ten steps ahead in many regards on many issues then learn that lesson well. Not only is it genuinely fascinating to understand, and understand where it applies and how, but it changes you.

Chapter 3
Explaining Explanatory Universality

There are many types of universality and I have explained them in my video “understanding universality”. I won’t rehash all that here. The two kinds of universality most relevant here are of the hardware kind and separately the software kind. Firstly the hardware kind. A universal Turing machine (or a universal computer or just “a computer” as we most understand the term today of the kind that sits on your desk) can perform the task any other computer can perform. And it is demonstrably the case - mathematically proven to be the case as it happens - that all physical processes that occur anywhere in the universe or have ever occurred or will ever occur can be computed (which is to say simulated by a computer, or their motions in principle predicted given enough time and memory resources). And the reason for that is that the laws of physics govern what happens in the universe and the laws of physics are computable (we can write algorithms in principle representing them).

Now the thing about computers is that fundamentally they are all doing the same kind of thing: they can be reduced to what is known as a “Turing machine”. No matter how complicated the program it can be reduced to symbols recorded somewhere that can be read by a “read head” and deleted and written over again. This capacity to read, write, delete and move across something like a piece of tape that stores the symbols on it, is the hardware if you’re new to this. And the string of symbols can be as long as can be stored in the memory of the computer. The most important basic parts of a Turing machine’s hardware are just the tape - serving as its memory - and the read/write head serving as the

processor. This moving head that detects symbols and reads them and sometimes deletes and rewrites over them is something a human can emulate to arbitrary accuracy. In other words among all the things a person can learn to do is emulate a Turing machine. Now to do this, it must mean that the mind of a person can therefore do whatever the hardware of a Turing machine can do. Of course in practise a person would almost never be interested in doing what a Turing machine does because that is terribly laborious and the whole reason a Turing machine (or computer) was invented in the first place was to take over the laborious work a person did not want to do.

But at university, for example, because I was interested in exactly this stuff I took subjects where they taught us about Turing machines and we would literally pretend to ***be*** a Turing machine. Why? To understand how they worked. How exactly does writing a sequence of 1s (and only 1s) on a strip of paper consisting of boxes containing either 1s or nothing at all allow a machine to perform arithmetic? Well that is why such courses exist at university and books on the subject are written about it and why someone like Alan Turing who was among the first to formalise how this worked is considered not merely the father of classical computing but a genius. The fact is Alan Turing could emulate a Turing machine, as I and my fellow students in those classes would. Which meant our minds could simulate a Turing machine which itself could simulate any physical process.

Now of all the important physical processes that can be found in nature are those that the human brain engages in. Namely comprehending the world around it. It often fails at this but sometimes it succeeds. Comprehending means understanding and understanding means “can explain” and that means

“provide an account of”. What the brain is doing is physical - it is governed by laws of physics. Those laws of physics are computable. Comprehension is something the brain does and the mind experiences. It may be more precise to say that when comprehending a thing, the mind literally ***is*** comprehension. The mind is the software running on the hardware that is the brain. The software - the mind - can emulate the action of a Universal Turing Machine. This means that the hardware (the brain) must also be universal (or approximately universal. No physical computer is truly universal because true universality would require an **infinite** amount of memory because for example some computations would readily consume all the matter in the universe in order to perform them. But never mind those - they might for example be things like storing numbers so large they could never possibly represent anything in the physical universe - that kind of thing. It’s not important). But what is important is we can say “for all practical purposes” a typical desktop computer is universal and “able to simulate any physical process to arbitrary accuracy” (rather than say “perfect” accuracy). And so too is the human brain for all practical purposes.

Now, as with “comprehension”, ***understanding*** is a kind of computation. Again: it is that experience of “having an explanation”. An explanation is an account of something out there that is physical (or in some cases abstract like say mathematics, or the beauty of art or the love of a friend and so on). Now if we can write the program for the universal computer to simulate the thing (which as I have already explained has been mathematically proven to be ***possible***) then this means we must have already understood the thing. Ergo: we can understand anything in principle.

Just incase that escaped anyone - one more time. For anything that can happen in the physical universe a program can in principle be written to simulate it. Written by what? A creative person. And if a person has written the program then they must have also understood the physical process they have just written that program for. So a person can understand any physical process - anything that can happen in the physical universe.

The only alternative is that there exist some things for which we cannot write programs to simulate the thing. No matter the time we are given or resources or anything else. Normally when someone says things like this - namely you cannot possibly understand this thing - they are wearing robes and standing at a pulpit. Instead today it is more common for some of these people to host podcasts and put Dr. before their name or PhD after. There is always someone who claims: we puny humans cannot understand X. As I say, in the past X was God. These days it's aliens. Or the laws of physics. Or consciousness. Lots of people have their pet ***appeal to the supernatural***. Of course they do not say that they are appealing to the supernatural. Most would likely be horrified by that exact accusation. But they are. They are saying after all: there exists a thing puny human minds can never and will never understand. Ok, how is that any different to the oldest of all supernatural appeals: magic and the gods? It is no different. And besides it gets us nowhere. It stops progress. Well fine, so long as those people step aside and allow those who think there can be solutions found and good explanations discovered and knowledge created - not too much harm is done. For every ten people who say it cannot be done we just need the one who thinks it ***can be*** and simply does it. So it is always better, indeed it is the only rational stance to take - that we just assume a solution can be

found and whatever it is can be understood because our minds are universal and nothing supernatural actually exists (or if it does it can have no possible effect on us because if it did then that intrusion into the physical world would be a physical event and so could be understood as such by a universal explainer - a person).

OK, so meandering as that was that was actually the short version of the argument: we are universal explainers. We can understand anything that can be understood and all physical processes everywhere can be understood. Now taking that as read how far can we go with this into applying it to practical and important problems? Let's begin.

Chapter 4
Explanatory Universality and Education

A deep contradiction is at the heart of contemporary thinking about education, learning and intelligence. On the one hand it is assumed "every child should be able to achieve these minimum educational outcomes" to put it in the modern corporate sounding parlance that has captured Western schooling. That everyone should achieve a minimum set of outcomes means they are ***all alike*** in certain ways, it is assumed. Or ideally they should be as close to identical as possible because meeting the minimum standards alone, few would argue, is the ideal.

Ideally, in some world, if teachers were better and students more attentive and so on then every child could learn everything that is taught in school and thus all acquire the knowledge that the system is designed to pass on to each new cohort and generation of students. So that is the education system as it exists in practise (not in theory) argument for: we are all the same, or should aim to be as close to the same as possible. We should all want to get As in all our subjects. Wouldn't that be wonderful?

Now that raises an interesting opposing issue because on the other hand students are indeed graded and do not all get As or High Distinction grades or whatever the highest grades are. And why?

Because the opposing notion is an acceptance that although we'd like everyone to be the same by educating them to some ideal proficiency - actually children and people more broadly are very different. And this difference is typically called

“intelligence” or “talent” and so we have assessments (examinations, assignments and other school projects to complete) so that we can rank order students according what subset of the knowledge the school curriculum ostensibly is there to pass on, has actually ***been*** passed on.

The curriculum is designed, therefore, not so that almost everyone acquires almost all of the knowledge the learned designers of the curriculum have judged necessary for citizens to learn, but rather so **almost no one** ever acquires all or even almost all of that knowledge.

In other words it is rare to the point of “never” that a school child at the conclusion of 11 or 13 years of schooling scores perfectly on all examinations and other assessments tasks and therefore has demonstrated to the satisfaction of the assessors that they have indeed done what it takes to show they have acquired all the knowledge the curriculum is supposed to be there to impart to citizens.

After all, why should it be there or be assessed at all if it is not intended to actually be learned by almost everyone? Well the serious answer that no teacher or curriculum writer or politician will admit is: most or indeed almost all the content in the curriculum is not there primarily to “mould the minds of future citizens so they can take part in society as functional adult members of it” but rather to ***exclude*** people on the basis of having not learned this or that kernel of supposed truth. And having not learned this or that is reflected in their grades which allows them to be ranked and judged by colleges, universities, employers and their peers and families and everyone else who cares about such things. Which, tacitly at least, is almost everyone. Almost everyone thinks grades are a sign of intelligence. Which raises the question of:

what is the point of also having IQ tests if we already have school and university tests? I'll come back to that later.

What a deep understanding of explanatory universality adds to this mess of contradictions is this: ***Everyone*** is indeed capable of learning anything in any curriculum - in principle. But this idea - explanatory universality - also gives the only good account as to ***why they do not***. It is not because they lack the intelligence (everyone is equally a universal explainer after all) but rather it can only be because they are not sufficiently interested to learn everything in the curriculum to super high proficiency. Where the education system, curriculum, teachers and parents everywhere and received wisdom says: the reason Jane or Johnny did not do well in this or that test is because they lack the cognitive capability to do so, explanatory universality says they have the cognitive capability to do so but chose to use that capability to do something else they preferred. And this should be expected because universal minds can do an infinite number of things and so we should not be surprised when even minds confined under punishment to learn the same thing choose not to learn the same thing.

Only the rare child has the combination of really, truly enjoying subjects as diverse as the highest levels of mathematics, physics, chemistry, latin, English literature and modern history while simultaneously having few other interests (like say playing sport after school, socialising on weekends or never being engrossed in computer games or recreating viral TikTok dances). For that tiny handful of people who do indeed love those subjects while turning their noses up at other things: those are ideal ***school students*** as seen from the perspective of the curriculum for they are the ones who will gain the highest grades. They use their minds

to pass the exams to the exclusion of almost all other things their minds could be engrossed in. They are the Wimbledon-level tennis champions of schooling. Or the NBA-level basket ballers of doing exams and writing projects.

And beneath them are increasingly minor leagues of children who do a lot of work and study in school but actually also do things outside of school too. They rarely score high in the 90s for their exams, but perhaps low in the 90s. And below them? Perhaps those who enjoy mathematics and physics to a high level but not English and history. Or vice versa. So they get mixed marks and so are considered "talented" in one area (numeracy) but not the other (literacy) or vice versa. And so it goes down to those who enjoy sports and socialising over school. They, it is claimed, simply do not possess the cognitive capacity or intelligence to ever learn mathematics to a high degree or read French poetry. It is always couched in terms of "capabilities" and "talents" and "intelligence" rather than "***interests***".

But what a person is interested in determines everything about how they perform on such assessments. Some people interested in mathematics for example might not even perform well on a mathematics examination because that mathematics test was all about geometry and they've never liked geometry. They prefer algebra. They find it fun or they don't. And whether they find it fun is dictated by whether they have some problem or other - whether they are curious about the answer or not. And to paraphrase Popper: school considered as a place where answers are given to questions unasked, this is a domain that fosters ***boredom***. If you've not ever asked or thought or wondered what 2x x 3x is, having the explanation for why it's 6x^2 given to you is rarely a

good enough reason to consider other similar cases or more complicated ones like $3x^2y \times 4x^3y^2$.

Explanatory universality tells us that people can in principle learn anything and precisely because of this they will learn very, very diverse things about the world. If everyone is born in a similar way - neither tabula rasa/blank slate nor genetically programmed like a leopard - but rather as a human person born knowing already a little about the world and crucially with a mind that can change itself by learning and of becoming truly fascinated by literally anything then we should expect that by the time a child begins even the earliest grades of infants school, they will be amazingly unique individuals. They will have already developed quite a complicated set of interests. They will have diverged at birth (and perhaps earlier) from other people their same age who also have this capacity to learn about literally anything and as life goes on and children grow they diverge ever more and more from each other thinking in more and more diverse ways. This is what universality requires in a world of infinite complexity and rare simplicity. Only one thing reliably slows this process down in the modern Western world: formalised schooling where people who naturally diverge are told to converge and try to be more alike by learning these same lessons. In places not the modern Western world, yes, things are worse still with school, after school and home life even more stringent in such culture's attempts to curtail outbreaks of individuality and creativity.

But in an Enlightened society why not take advantage of explanatory universality and allow learning to exploit difference rather than use it to artificially generate clones? Or ***the attempt*** to generate clones ***of a kind*** at the least. It's an impossible task anyways - people develop their own interests

whether or not they are forced to engage in compulsory schooling and standard curricula at whatever level of education they are at. So given this: why not allow them to develop their own unique interests to the maximum degree possible?

Yes, sure: at this point many will say that this is some sort of recipe for mass illiteracy and innumeracy. If children are just allowed to pursue their own interests and nothing else then ***of course*** (so this tired and false argument goes) they will waste their time and never learn to read and write.

One wonders who these people have in mind that make this argument. Almost every interest that any person can possibly have requires them to learn to read, write and be numerate. There is almost no human endeavour in the modern world - certainly none mediated by technology - where the ability to read, multiply and more is not useful. And besides, under the current system, many children already are (so we are told) not reaching the minimum standards for literacy and numeracy with some being functionally illiterate. Could it be that the act of coercion - of regular schooling is the cause of the illiteracy? If these same children were allowed to do something else instead then just maybe they would, in the search for some genuine interest, stumble upon some reason to learn to read things they were actually interested in? And those already passionate about diving deep into novels or non-fiction, well they don't need schooling to learn to read either. They just need books. Or these days tablet computers or whatever the latest way of consuming literature is.

Explanatory universality teaches us that existing schooling is predicated on the idea we are all the same (when we are not) and should try to be the same by learning the same things

and should be judged (often harshly) for the different interests we have. And explanatory universality teaches us that counter to the notion that examinations tell us the ranking of the smartest children in the class, it tells us instead who are the children most interested in performing well on exams for whatever reason (perhaps because they genuinely are interested in the subject matter or perhaps because they receive little affection from their parents and other caregivers ***unless*** they perform well on some exam).

Universality tells us that everyone can in principle understand anything that can be understood - which is every physical process. And as people age we should expect they diverge ever more from each other as they become quirky unique individuals different not merely from other people but their former selves. It is almost a trope that so many males, as they age, become highly interested in ***history***. Others become fascinated by languages - or even science but only later on in life some time after leaving school. So it just is not the case that certain people lack the ability, capacity or even talent to do particular things. It is just that while they are at school they may not be able to identify any pressing problem that requires them to study hard for an exam on material they do not see they have any use for right now.

Chapter 5
Explanatory Universality, Psychological Science and IQ.

That whole critique of schooling and education applies equally to the fascination many public intellectuals and psychologists and some others have with IQ. Often held aloft as the pinnacle of psychological science in terms of replicability and predictive power, Explanatory Universality teaches us that what is tested by an IQ test can only possibly be a certain kind of knowledge. And all knowledge of whatever kinds can in principle be learned.

IQ tests cannot be testing the mechanical workings of the brain or something like that. A brain is a computer of a kind and the only constraints that are relevant to a computer are the limited memory it can access and the speed of its processor. But if a human being needs to speed up processing (for example by calculating some arithmetic puzzle) this can be outsourced to electronics which can whizz through the long division or whatever it may be. These days computers can differentiate and integrate complex functions for problems in calculus. Or translate passages from one language to another faster than anything a human could ever do without the technology. So what is the point of any timed IQ test, then?

And as to whether or not someone has learned to solve the kind of puzzle IQ test writers are fond of asking: that can be practised, learned and one can gain proficiency in. One can improve. Do people improve in their IQ scores though if the tests are repeated? No. Why not? Because no one is truly

interested in doing better on an IQ test through practise and repetition especially if the prevailing dogma has told them: it is impossible to improve anyway. Nothing is really riding on and IQ test score. IQ tests are sometimes done as a means of gate keeping certain jobs. But in those cases if the person fails to get the job they will rarely be told it was because they only scored 110 on the IQ test. For others who voluntarily get their IQ tested they are likely already true believers and so also won't go away and spend a few solid months or more rote learning how to do IQ questions better.

But isn't an IQ test score predictive of success in the workplace? No doubt. But so too is something like "dressing according to cultural norms of formality" and "speaking confidently and smiling" and other such things. There are many ways of predicting success but thinking that only some of these are choices (like deciding to dress formally when such things are expected) while others are baked in like the electrical wiring in a brick house (being able to solve the kind of puzzles in IQ tests) is another consequence of misunderstanding what the human mind is. It's universal and it can learn how to dress differently just as it can learn how to rotate shapes mentally.

Chapter 6
Explanatory Universality and Adopting Culture.

If a human mind can learn anything like how to do certain puzzles better, or study and learn to improve performance in some academic subject and as we have already explained a mind can understand “any physical process that can be understood” - if all of that can be learned about by any person than an important category of “anything that can be learned or understood” is ***culture***. Any culture can be adopted, in principle, by anyone. Adopting a culture and following certain traditions therefore is always a choice. And a continuous choice at that (even if it is generally relegated to the subconscious - we don’t have to consciously think about fitting in to our native culture very often). And whether one chooses to adopt a culture and live according to the norms of some culture is the defining characteristic which should, in any sane world, define whether or not someone is welcome in a given society. A society is a grouping of people who ideally share a culture. A culture, in turn, is a set of ideas shared by a group of people causing them to behave alike in certain ways. Again, because the mind is universal these ideas can be learned - adopted - taken on by - in theory, anyone. Of course in practise in the modern world many choose to reject the culture in which they find themselves either by birth (though this is rare) or deliberate choice (by, say, immigrating).

There is a genre of Youtube videos of which I am fond where a very European looking person (usually some young white man) has spent some years learning an exotic foreign

language to extremely high proficiency. For example they may learn not merely Standard Chinese Mandarin but some regional dialect of Chinese. The game they play on their channels then is that they go to some far flung place in China and then shock the locals by speaking in perfect (or near perfect) dialect. Not only do they get the broader Chinese grammar correct, they get the regional accent and quirky phrases correct.

Of course everyone has always known that people can be multilingual. This is hardly a revelation. But it seems the lesson from universality there was never fully appreciated. Although it was clear that of course anyone can learn Chinese or English (after all every Chinese child and every English child learns their native tongue to high proficiency) this was never extended beyond language into literally everything else people do with their minds (like mathematics, or chemistry or playing the violin and so on). Even though people throughout the world have for time immemorial been multilingual. The lesson there is obvious, or should be obvious: anyone can learn any language anyone else can learn…and so anyone can learn anything anyone else can learn.

We must have all seen in our own countries at some point or other the equivalent of the child who, born to Chinese parents whose ancestors can be traced back in China for 1000 years or more - is born in or emigrates to a place like Australia. Such a child grows up and, while obviously looking all the world like a person from China nonetheless speaks and acts *exactly like* an Aussie from the Western suburbs of Sydney. Anyone in a big city has experienced this and the first time they do, it can cause one to be taken aback. I recall being in Edinburgh ordering a coffee and hearing, from the barista - an Asian person I at first assumed to be Chinese,

perfect English yet with a strong Scottish brogue. It surprised me. Such surprises, as time goes on, will only decrease in frequency as people become more and more mobile across the Earth and technology facilitates the more rapid spreading of memes (like English speaking and English speaking with particular accents).

If anyone can pick up English (or Mandarin Chinese or name your language) and adopt the behaviours of the people in that society (any culture) then universality teaches us that person is of that culture. They belong to it and the culture belongs to them. It is theirs. It is their culture because they are their mind and their mind is not "Asian" or "White" or "Black". Their mind is infinitely flexible software: infinitely flexible because that, again, is just another synonym for universal. Language, accents and culture itself is not inborn.

It is this capacity to adopt literally any idea at all that makes all forms of bigotry not merely immoral (because it causes suffering to the person experiencing it) but irrational (because in our explanatory universality we are all the same in the most fundamental way: we can change our minds and continue to change our minds anytime we learn something new).

Racism is the misconception that there is something inherent and important *cognitively* about certain "races" that separates them from other people who are superior. But universality says that if skin colour is different - or even if brain structure is different - if the genome is different - none of that matters to what a person is because all that matters in moral terms or in any truly deep sense about a person is their mind and the mind is universal in its capacity to learn anything, adopt any idea and become a member of any culture. It is why we have

a phrase like “changed my mind”. We can always change our minds. And we do.

It has sometimes been said even by those who are ostensibly against racism that: we concede there are obvious external differences between people (like skin colour or shape of nose or average body mass and so on) so it should be no surprise that the DNA - the genome - codes for different brains as well. But on that basis “we should not judge people anyways because individuals are not averages”. That is an argument against racism that is sometimes deployed. Namely: people are indeed genetically different but we cannot judge an individual based on their group identity or their belonging to some race.

While all that is true it ***completely*** misses the point. It tries to argue racism is wrong on the basis that the person before you may well be an outlier genetically - or not typical of their race or others who share some particular set of genes with them.

Chapter 7
Explanatory Universality and IQ
Part 2

To be clear people say silly things like: it may be politically incorrect to admit this but studies show African Americans score worse on IQ tests than White people do and both of those score worse than Asian people do. But this is no reason to be racist because the bell curve means you can never tell if a given black person is not an outlier scoring very high on the IQ test and the Asian person before you an outlier at the opposite end and is a dunce.

But that is a terrible argument against racism. Firstly it is "race realist" - it admits race is a meaningful category - at the very least a meaningful category when it comes to the mind as if a mind has a race. Secondly it admits that IQ is measuring something inherent to race even if only an average and that the IQ is in some sense encoded in the genes. And thus when we do population studies we notice racial differences and so therefore the genes (for being African American, White or Asian respectively) in general, or on average, code for differences in intelligence.

But as we know those average differences don't matter: it's individuals that matter - so we are told by people who deep dive into these subjects around race and IQ.

Well yes individuals are what matters, but that argument is false.

First, there can be no such genes for IQ differences on average between races precisely because the genes for a human mind code for a ***universal*** mind. Second, IQ tests can only possibly test knowledge of some kind. Things that can be learned.

And third, the only reason there might be group differences is because there are group ***preferences.*** And there are group preferences because there are differences in ***culture*** between groups that still exist because of historic reasons.

Our memes long ago allowed us to fly free of our genes.

But again, even if a person was to perform poorly on some IQ test that tells one nothing about their capacity to learn some new piece of knowledge or some skill. After all, again, their mind is universal if they are a human being. Genes code for proteins - but ideas are not made of proteins. Those are encoded later as people learn more.

Arguments from universality against racism similarly apply to sexism, homophobia and bigotry of all kinds. Males and females may have different brain structures. They may even have something like "systematic" preferences that can be studied caused in part by things like differences in hormone or neurotransmitter make up. But, again, this is not to say this affects their *universality* - namely their capacity to learn anything or take an interest in anything or explain anything. That more men are engineers and more women are hairdressers does not mean women are worse engineers and men are worse hairdressers and nor does it mean we should encourage more women to be engineers and more men to be hairdressers. What we should do is encourage people to pursue their own interests without regard to ***why*** they have

those interests. Who are any of us to socially engineer the world around us because we think there should be a balance of genders or any other superficial physical characteristic in some given profession or sport or academic subject area? Unless there is existing legal discrimination which always and only occurs because some leaders somewhere created laws based on bigoted ideas, the solution to bigoted ideas cannot be more bigoted ideas. It is to remove bigotry. It is to remove reasons for judging people based on sex, gender, sexuality, race, skin colour or whatever else is not actually a product of their mind. Which is what a person is.

So unless there already exists actual bigotry (a law preventing women from learning a certain thing (such as in Afghanistan where girls are prevented from learning to read) or a cultural norm where women are bullied in the workplace) we should be as liberal as possible in allowing people to pursue their own interests - their own lives of the mind without regard to their gender or race.

Chapter 8
Explanatory Universality and the Trans Issue

Does universality mean a man can become a woman? Is "trans" a real thing. Let's put aside the logical difficulties with this (If, for example, John is a man who identifies as a woman then he is not trans, he is a woman, is he not? Some will say "he is a trans woman" or "she is a trans woman" and so on with all the tedious linguistic gymnastics that tends to accompany this entire sink of intellectual effort consumed by this issue). Let's sidestep all that.

While the human body clearly has a sex, and each individual cell has either XX or XY chromosomes, and so human beings, being an evolved species of a kind can indeed be put into one of two kinds as any other sexually reproducing species can - this is among the least interesting things about a person. It may be interesting when it comes to other animals but that is just to say: most other animals aren't all that interesting. Sorry zoologists.

People are interesting and they are interesting because of their minds. As we have said: the mind is universal and so it cannot possibly be male or female anymore than it can be white or black or tall or short. A person may express themselves in any of an infinite number of ways. Biologically speaking this would be to say that despite their genotype their phenotype is almost infinitely flexible. Normally we say that a phenotype in biology is the genotype as expressed in nature. So for example the genome - the full set of genes - for a lion may code for a lion of a particular weight and tail length. Of course if the lion finds itself in a drought it may never reach the weight encoded in its genome. Its phenotype

may be skinny. And if some predator bites its tail off, well it doesn't matter what the genome says, its expression in the wild is: big cat without a tail. But with people it isn't just the mindless environment and the mindless genome coming together to determine how we people express ourselves. Our phenotype - our physical manifestation in the world is due in very large part to our choices. Our choice to go to a hairdresser, or to the gym, to eat this much food or engage in this or that activity that changes our bodies. Piercing, lipstick, hair dye and so on - those are not in the genes but will change our physical appearance.

So we may or may not agree to call a male who wears lipstick and dresses and undergoes surgery to have breasts and presents as a woman "a woman". That is a cultural and in some places legal distinction to make that some people regard as highly important. What universality adds to this debate is that any person can indeed ***feel as if*** they are like any other person whatever it means to "feel" like another person (I doubt there is a way a typical male feels or a typical female feels. But I imagine many want to be treated as if they are male when they are male and rarely as female when they are male - that really seems to be what is going on here among other things). But yes, if there is such a thing as "feeling like a female" then in principle a male can feel as if they are a female. And vice versa.

But here is another catch: in a world where culture exists and people in general prefer to move through life in a convenient way, should they feel like they are female or demand others treat them as female (which is the more controversial side of this) despite the fact they are 130kg of ripped muscle with a beard and speak with a voice as deep as Darth Vader's? One thing they can expect for the remainder of this decade and

likely next and for some time to come is that they will, and should expect, to get some cultural pushback against any action in society where they expect to be treated as a lady despite for all the world ticking every box in the male column. This is simply social realism as applied to gender. Society operates according to norms and whether one likes them or not makes no difference at the point where one would prefer them to be otherwise. Sure, they're not laws of physics and can in principle change, but social change of that sort (treating men as women and vice versa) can be profoundly difficult not least because almost all people tend to be quite comfortable with the present arrangement and uncomfortable with drastic revolutionary changes on that front.

A culture is a set of ideas that cause people to behave in similar ways. That includes ways of treating boys and girls and men and women. Memes evolve over time and often for good reasons ***traditions*** develop. We recognise that men are typically bigger, stronger and more dangerous and so traditions of protecting young girls from men have arisen. So universality teaches us both: we can expect some men who think they are women to genuinely have these feelings. Because anyone can feel the way anyone else can. But a typical culture in the 2020s will also tend to resist highly masculine men trying to pass themselves off as women. And so a man caught in this bind has a choice: to live a difficult life where they continue to insist they simply are born that way and cannot change (in violation of explanatory universality) or to think: maybe I prefer not to get the sideways glances and the pushback about using the women's rest room or competing in the women's weightlifting by using this wonderful universal mind of mine and actually go about changing my mind about who I am?

Now I should say here that for a person genuinely caught in this bind of thinking they are a woman when they are a man or vice versa or anything in between and want to do something to make life a bit easier - I do not argue this is going to be straightforward: it may be very difficult. But that is the rational choice to make. One may well think it worth the bother to change the world around you while you remain motionless like Archimedes' fulcrum - but that is a choice. You're not destined to be committed to having a life of social awkwardness precisely because you've a universal mind and can change it to work to solve other more interesting problems.

And people do far more difficult things all the time. They overcome their survival instinct and go to war. Or at age 40 they decide to learn Mandarin having never spoken a word of it in their life. Some ideas may be very hard to change but in a world where minds exist that do have the capacity to change, why not use that capacity to enjoy life to the full rather than be obsessed narcissistic like by your own self-identity? Sometimes, yes it can be highly important to challenge the culture by rejecting norms. And we should all be able to - but we should also be clear eyed and realistic about it. By definition if you challenge culture and reject norms you are up against an overwhelming majority. An individual can always make the choice: fight the battle which may well be worth it or fit in a little better? We humans can in general guess pretty accurately how we will be treated by others in a given culture. So it is no help pretending to be constantly surprised when you are rejected by members of a culture for rejecting the norms of that culture.

Chapter 9
Explanatory Universality and Immigration

This is likewise the reason why immigration can be informed by an understanding of the universality of human minds. If I travel to Korea, as I have on many occasions now, I know to bow as a thankyou and as a greeting or farewell. I know to try as well as I might to fit in to the culture in the places where it differs from my own. The metric for immigrating to Korea should be whether or not one is willing to adopt the culture of Korea. Not necessarily wholesale and not on the condition that one gives up ones own culture utterly. No, but at a bare minimum there are standards and norms one simply must be willing to support if one wants to be welcome in Korea, or at least there should be. And who should determine what those are? Any reasonable government should want an immigration policy subject as always to change over time - policies should evolve and never be set in stone - a policy that can assess a person's suitability for being able to adapt to and adopt their chosen nation's culture. This is not a problem, of course, for newborns, babies and infants because they are largely unencumbered by culture. They adapt far more readily to the culture in which they find themselves. And yes: of course in principle anyone can adopt any culture - I have been arguing that consistently all the way through this. But that "in principle" notion runs up against very real practicalities. And this is because an individual human being is not merely a person - not merely an engine for generating ideas but is also a conscious being who behaves according to what they know, the decisions they make and the memes in their mind. In short a person does not only create ideas they act according to those ideas. And ideas can be good, bad or indifferent and can cause a person to be more or less suited

to a particular society. Even some people born into a society learn the wrong lessons early on and make error after error in adopting their native culture and when those errors are severe enough they can present a real danger to the people around them. Those people often become criminals and we imprison them primarily for the safety of everyone around them. Those violent criminals have in the technical sense not been civilised. They have failed to adopt the civilised culture to which they belong in the West. We also imprison them because a mature justice system also realises that not only should a society wish to protect itself from criminals but that criminals because they are people and people are able to learn anything, can learn better. The word for this in the criminal justice system is rehabilitation. Without using those words as such it is the recognition that people can change and that is possible because they have creative minds.

In any case a person whether born into some culture or immigrating into it can become dogmatically committed to certain ideas they hold precisely because that is what they have learned over time and sometimes what they have learned and become dogmatically committed to are antagonistic to the place they wish to live in. No rational society should wish to import people for which any reasonable explanation would suggest is already hostile to the society they wish to immigrate to. No rational society should wish to allow the immigration of people who profess they wish to overthrow the government or culture of the nation they wish to immigrate to. Or even if they have not professed such a desire in so many words, that any reasonable assessment of their other professed beliefs would suggest that is precisely what they want to do. For example if a person did not say in so many words: yes I wish to destroy this society I want to immigrate to - they might not say that.

But they might say: yes, I am a deeply committed communist and try to live by the works of Marx and Engels and I think if we try to implement their ideas properly we can make the world a better place. That should be disqualifying because it means the same thing as: I want to destroy any democratic, liberal, free trading nation based around the protection of individual rights. And we know that a deeply held commitment to communism is not the only such ideological danger modern and mature democracies are threatened by.

So, again, let us be clear eyed. The only reason any of this is even worth talking about is precisely because some people who immigrate to some places do not want to adopt the culture of the nation they are immigrating to. Often, worse than this, they are actively hostile to it. Now is it the case that the natives of some nation can be and are sometimes hostile to their own nation? As we have already conceded: of course they are and that is a problem too. But far from negating or nullifying the first problem: that of immigrants unwilling to assimilate - it only exacerbates it because a rational nation should not want to make its existing problems worse by importing even more people who are also hostile or even **more** hostile to it.

Relativism in the West is a growing concern and this causes people who are born and raised in wealthy countries to begin to think their culture is not special much less valuable and worth preserving. That is a problem caused by at heart the education system and the reason for it being promulgated through the education system is because of bad philosophy. Philosophers write the books and the papers read by other academics like educational theorists who then teach the next generation of educators - especially school teachers - who teach their children this kind of thing (moral and cultural

relativism and some version of Marxism and the evils of colonialism specifically and the evils of humans in general - both implicitly and explicitly). So that is already a problem. Again, any rational nation dealing with a growing number of people who have an active disdain for the culture and history of their homeland that is homegrown should not want to import more people who also, and for different reasons, hate the nation they are emigrating too.

They are different reasons quite often because the new immigrants are not relativists. They do not agree with the stereotypical blue haired environmentalist, anti-Western activist that there is no objective basis for morality. But they do agree that Western nations are only fit to be destroyed. Just for different reasons. Some - not all - some new immigrants can sometimes - rarely but sometimes - think the culture they already have is superior to anything they are emigrating to. That is not a relativist position. For example they may think capitalism is an evil and free speech is an evil and democracy an objectively terrible idea. But they immigrate to a place that is a bastion to some extent of all those things.

We want an immigration policy that should allow vastly more numbers of legal immigrants to cross borders but if and only if they share our values and if our welfare states are not so generous as to impoverish ourselves by supporting the newly arrived. And those values are the values of the Enlightenment. And that means they should tolerate, for example: free expression. And the free vote and free trade. They should agree that all people regardless of race, sex, gender, sexuality or any other characteristic is equally human, deserving of equal rights and cannot be enslaved (including by their own family members, by the way. For

example: a wife is not the property of the husband. Rather they are equal partners in a mutually supportive relationship and so on).

Now the truth of the matter from the point of view of explanatory universality is even the people we do not want in our society precisely because they are hostile to the society (because they hate democracy, capitalism and liberty broadly and are intolerant to members of other faiths, or no faith or with different political persuasions and so on and often violent in their intolerance) - those people, far gone as they are, can in principle be persuaded. They can always change their minds. That is what is means to be a person with a universal mind. It can always in principle be changed.

However change of that kind is ***often*** extremely difficult. If the person was born and raised in a Western nation and later on comes to be convinced that their own country is an illegitimate Western colonial patriarchal project that is only fit to be dismantled and in some way shape or form returned to the descendants of its original native inhabitants - that person may well be a danger to the society. If they act out in violent ways in order to bring about some hoped for revolution they should be arrested by the police and put on trial by the justice system they reject as illegitimate and then, again, any rational nation would - to protect itself and its citizens - provide every opportunity for that person to be reformed while protecting the rest of the community. Of course this is rarely done. But it should be. How? The offender should be offered the opportunity not for some kind of communist re-education but rather the chance to defend their ideas against someone who can defend the values of the state and culture. Someone who can make the case for the nation they claim to hate and want to overthrow. All of that is

eminently possible and likely somewhat expensive. But it is an optimistic vision about what a nation can do ***for*** its own citizens that it has already failed by providing a terrible education which has led, in some large measure, to this person's violent outburst at it.

But on the other hand - allowing people from cultures already hostile to the West into the West is irrational. If a person genuinely believes, for example, that some version of the Islamic religion needs to hold global sway and that therefore any nation they go to (like say the United Kingdom) already has an illegitimate government. And worse that this government is only fit to be overthrown in the fullness of time in order to bring about a grand caliphate and that in the meantime the immigrant deserves to be supported by the welfare state for some indefinite amount of time - this is not merely irrational but ***suicidal*** in its stupidity. Yet it is approximately what many nations do. The politicians and bureaucrats in an attempt to be seen as compassionate allow immigrants from nations where we know the citizens are often hostile to the West - to nonetheless immigrate to the West under the guise of being refugees or fleeing persecution. But even if they are in the best case scenario in truth fleeing persecution - that cannot be all that matters to the nation they are fleeing to.

Again, an individual is also a set of ideas - they behave according to what they think is best - and what they think is best may not be good at all for the place they are going to. And while the value of human life cannot be calculated it is clearly the case that, as I stated earlier, we are all of us very different and we should expect people from distant lands and foreign cultures to be on average more different indeed from us than those from cousin nations that share our culture. And

therefore we need a robust system of assessment before allowing a person into our nations on the basis they are fleeing persecution alone, say. Those people coming in should be able to demonstrate, somehow, they are friendly towards not merely the nation but the values and traditions of the nation. And then they should be monitored and if any sign is made they have lied about their support for certain values (say they begin to join in protests and shout bigoted slogans) they should be deported. But it should never get that far because people can be assessed as unsuitable applicants for residency long before they are granted entry. And if governments say this is not feasible, we should want to elect new governments.

Although minds are universal they can become encumbered by all sorts of bad ideas including anti-rational memes. And so universality only ever provides an in-principle argument that one can change their mind about anything because they can learn anything and learn better. But the university student in Australia who was converted to a revolutionary form of Marxism 12 months ago and has been calling for the downfall of Western civilisation only since they turned 19 can in all likelihood be persuaded otherwise because, among other things, they will be proficient speakers of English and will have adopted a vast number of ideas crucial to the maintenance of civilisation. They are ripe for the realisation that communism is false, and Western civilisation is a beacon of the Enlightenment and so on.

And in principle the new immigrant from Afghanistan could do the same and sometimes does. But we cannot ignore the cases of the 32 year old Islamist man from Kabul newly arrived in Canada and why they are different to the Marxist uni student. The Islamist was born and raised in a culture

and learned a set of ideas utterly hostile to the West. They are often, though not always, deeply ingrained with a visceral hatred of members of religions that are not Islam. They may be anti-semites. They may think terrible things about Hindus even if they have never met any. They may think girls should never be educated and that women are literal property of their husbands and so on and that it is fine to beat their wives and children. In such a case that person has a universal mind, sure, but they also hold deeply entrenched memes guiding behaviours that are a danger to any society they immigrate to. Is this an argument against Afghanis who claim allegiance to an extreme or even merely strict form of Islam from ever being permitted entry to a Western nation? No. But it is an argument for being far more careful when assessing what their ideas are.

Karl Popper wrote that "While differing widely in the little bits we know, in our infinite ignorance we are all equal." I have concentrated heavily in this piece on the latter part of that. In how we are all equal as universal explainers. And in Popper's terminology: we are all equal in our infinite ignorance. In other words no matter how much we learn we will always have an infinite amount more left to learn.

But let us now consider the first half of that quote a little more. "While differing widely in the little bits we know…". While differing widely. Widely. People are very different from each other and it is culture that unifies us and when cultures clash we can discuss things and come to mutual agreement. But there exist people who do not think that is on the cards. They think violence is a reasonable response to differences in culture. They genuinely do want to conquer using swords and guns and violence. We should want to admit this. That their universal minds contain ideas that, if imported, would only

make our own societies worse, not better. Now out of all the many people who do immigrate to wealthy Western nations each year those people are going to be a small minority. But small minorities can sometimes have outsized effects. A legal system of immigration should concede all of this.

That because minds are universal then in principle anyone can adopt the culture, contribute to it and grow the knowledge, wealth and prosperity of a nation. Hence: have as liberal a policy for immigration as reasonably dictated by the government of the day and in all likelihood increase the number of legal migrants permitted to come each year. But this can only be possible on the admission that not everyone who comes will be suitable and so there should be criteria for supporting Enlightenment values and more narrowly the laws of the nation (for example around the rights of women, homosexuals, Jews and other sometimes persecuted minorities). We have to admit racists and bigots of all kinds exist and they can be prospective immigrants. Being an immigrant is not some kind of magical category that grants a person a special kind of elevated moral or intellectual status. Nor does it grant a person a lesser moral status. But this is why we need a means of assessment on immigration. A rational means of assessment because unlike a child born into a nation who is highly likely to be raised in that culture and thus adopt the ideas of that culture, an immigrant faces additional challenges. They do not merely have to adopt the culture they wish to immigrate to but they may have to give up, forgo, even forget ideas they hold that are hostile to their new chosen nation.

And as an aside because we want a more liberal and generous policy of legal immigration we can only have this if we are equally illiberal and not generous with illegal

immigration. There should be next to no tolerance for illegal immigration except in the very rare cases of extremis where people genuinely are fleeing persecution. But in those cases international agreements should have it that once a refugee flees to a safe place, there they should stay and then apply to some other more ideal place. It should not be seen as legitimate for people to flee some war torn place in a distant country and cross many national borders and sometimes seas and oceans before ending up in a place with a very generous welfare state and then demand asylum. Asylum was already achieved weeks or even months before their journey was concluded.

The most brief way to put this is that we should want immigrants to assimilate when they arrive in a new nation. Assimilation means nothing more then genuinely adopting the culture they find themselves in. This does not mean giving up all parts of the culture of their birth (although it could mean giving up some parts: for example if the culture demands something like girls not being permitted to attend school). We can admit that in principle everyone could assimilate into a new culture because of explanatory universality however in practise because of the existing memes in certain minds some people will find this far more difficult than others and some will actively refuse to assimilate at all and in a circumstance where a nation has a generous but finite ability to accommodate new immigrants one way of prioritising who can go to the front of the line is by assessing who shares many of the memes that define the culture already and who do not. For example a South Korean will far more readily assimilate into Australian or American culture (and indeed they do) than a North Korean would. Indeed North Koreans often find it highly difficult to assimilate into South Korean culture even if they have chosen

to escape the North for the South. And South Korea has a very rational program for dealing with this. They literally help teach those who manage to flee the North into the South the culture of South Korea. The South has something in place called the Hanawon - an assimilation centre for North Koreans which is officially called The Settlement Support Centre for North Korean Refugees. And this settlement program typically lasts 3 months to help them adopt the culture and be prepared to be productive contributors to the South. The newly arrived immigrants from North Korea are housed, fed and helped to adapt to their new realities. And that is for a case where these two nations - North and South Korea - share very many aspects of their otherwise different cultures. Their languages are very similar (though not identical), their preferences for food - similar and understanding of family structure and very many things that people outside of North or South Korea would find foreign. But similar as they are the South still sets strong requirements on what it takes to assimilate. We might wonder why it is, then, other Western nations are so nonchalant in comparison when it comes to the assimilation of people from cultures far more widely separated than that of the North and South Koreans?

Consider how this very situation should be regarded as an important factor for any nation that is faced with this imaginary decision of allowing this or that ***Korean*** into their nation even if the North Korean in some sense can demonstrate their more urgent need for charity - because they are a refugee fleeing persecution. A need for charity need not trump every other consideration all the time. A nation should be self interested. It is virtuous for a nation to be self interested and this is a point that needs to be made because rather too many governments in the West seem to be

acting as if their responsibility is more to those in desperate need from other nations than the citizens they already have. But this “empathetic” stance cannot logically continue without limit.

Values matter. But what are values? Values are literally those things worth something and therefore worth preserving and protecting. For example people say “We value free speech”. So “free speech” is a value. Now whatever “free speech” is (the limits can be debated) - the fact is that it is valued by Western nations. We tend to preserve it election after election. Sometimes governments define strict limits around speech. Sometimes the voters punish governments for governments having punished citizens for saying politically incorrect things and so the pendulum swings back towards a more liberal policy and so on. One would hope in a culture that protects a tradition of criticism that our understanding of “free speech” and what it is evolves in the same way our understanding of anything evolves - like science or morality broadly.

So something like “free speech” is indeed a value we defend in the West. And an important reason why it is regarded as a crucial or even central value of paramount importance is that it allows for the creation of yet more value. It allows us to talk about plans for (say) new widgets or new services. We also value free trade or capitalism. This is a value that says having engaged in free speech or free expression, on your own or by cooperating as a group or business, whatever comes of that expression known as creativity is yours to claim as property. You created it and so now you own it (it may be a book or a podcast, it may be designs for a new coffee cup or lines of code for a new AI assistant or a piece of music or a recipe for ice cream or a trillion other things that individuals

and groups come together to invent. And having invented that thing then free trade allows for the trading of that thing and the generation of wealth. The more people who find that thing of value - the more books sold or downloads of the song or big companies who sign a contract for using your code - then the more wealth is accrued to the creator. That whole system of free trade capitalism is something we value. It is a system for protecting value and fostering more value. Likewise in the West we value democracy - the ability to vote out politicians we no longer want ruling over us. We value equality before the law. We value human life. We value error correction. So those are the values of the Enlightenment worth defending. All Western nations share those values: they began in England (and the Netherlands and Scotland) and were gradually exported elsewhere throughout Europe and leapt across the oceans to America and to parts of the British empire - notably Australia, New Zealand and India among other places. And to some extent found a foothold in parts of South America (especially these days Argentina) and also into Asia (places like Japan and South Korea) and so on. We have many values that we share but those core three values - our valuing of free speech, free trade and democracy - are central to our ability to make objective progress or in other words to generate more value and create knowledge, and do all of this ever more rapidly. In modern tech parlance they are the preconditions for acceleration: the ability to ratchet up the rate of progress and error correction.

Chapter 10
Explanatory Universality and Ethnicity

But if Enlightenment values are more or less shared to some greater or lesser "minimal" extent by all those nations broadly regarded as Western, what makes an Australian different to an Englishman different to an American or South Korean? And when or why should any of that matter?

Some will say that some of those categories are ***absolutely*** genetic. South Koreans will often argue they are a very unique ethnicity and that only those born to Korean parents in Korea can truly claim to ever be Korean. Above all, they say: it is a race.

Many people argue this way around the world and have for many millennia and the fervour with which they argue about the reality of race and ethnicity waxes and wanes. And when it does wax in modern times - when it increases in the zeitgeist it is rarely a good sign. After all this is precisely what committed race realists like Hitler and his Nazis were so animated about. The purity of the so-called Arian race and their claims that Jews were literally a separate and inferior race. Despite how odious that is, this idea that races are objectively different seems like common sense - even to those self-identified rationalists who then go on to quickly qualify their remarks with something akin to: but although races are real and different this does not mean one race is inherently better than another. So on the one hand they are realists when it comes to the supposed objective differences between races, but on the other they are relativists when it comes to whether those differences make any difference - morally at least.

But isn't it scientific - this understanding of race? After all there even exist companies that will test your DNA and tell you what mix of races you are made up of. For example you may be 30% German and 22% Irish and 18% English and 10% Russian and 5% Mongolian and a spattering of other things. The way these tests work is by scanning for genetic markers that, they say, are indicative of particular races. But it is extremely rare for anyone to ever be, for example 100% English. Almost every (for argument's sake white) English person will be a mixture of English, Scottish, Irish, German, Russian, Scandinavian or even something more exotic. So say they are a mixture of all those but the calculation the company performs spits out a figure of 80% English. Are they ***really*** English? I guess most would say "yes". Or at least ***mostly*** English. But what is the lower bound for being "cut-off" as English? 50%? What if a person is 40% English and an equal measure of Welsh and Irish? Are they English? What about a person 40% English and 10% Welsh but one of their parents is Nigerian? Do they count as less English than a person who is of entirely British heritage? All of this debate is around something known as "race realism" and it is a pointless exercise when applied to considering what a person is, or what their moral or other value or status is when set beside any otherwise useful biological category like a ***species***. And moreover, if we are honest about this debate, it generally only is focussed on by those who are not so interested in the superficial physical differences between people (though they may say they are) but rather more interested in using those physical differences - like skin colour - ***as a proxy for something else morally significant*** - like IQ or capacity to integrate into some society or some other psychological quality of the mind.

But that again confuses something physical, or something that is really determined purely by biologists measuring physical structures like wings and genomes - that's what a species, class or order of organism is - with something ***abstract*** - a person.

A species is a biological clade in technical talk - a primarily physical structure and these days DNA testing is indeed done in order to determine the species of new organisms found - although as I will come to this is not an uncontroversial area even in biology or zoology.

As an aside, in Popperian terms, race realism - this idea race is a genuine thing out there in nature - is something known as essentialism. Essentialism is the misconception that we can find and define the true essence of a thing and thus set it in stone, scientifically or otherwise. Broadly it leads to dogmatic thinking because people will say: well I believe that the true nature of this thing is X and others will say the true nature is Y and there each will stand defending their ideas rather than trying to understand anything deeper because for them they are at their foundations. So there can be no "deeper" on their account and thus there's no point discussing or arguing further. They are essentialists.

In science it might be that camp A says: electricity is really the motion of electrons drifting through a wire. Camp B says: no, it is really the motion of the electric field which is not identical to the electrons. And that's just that.

In religion it might be that Catholics must believe Mary, The Mother of Jesus, went to heaven and that's just that - she is there body and soul. While in Protestantism you believe that

doctrine is false because, among other things, there is no biblical text one can point to as evidence for it.

What should happen of course, especially in science, is for theories to be conjectured that can then be tested and criticised. We need no foundations: we need explanations that are always open to revision. Any claim that is made is not an indicator of the "essence" of anything but rather is a guess about reality and is always open to revision.

There are many kinds of essentialism and race realism is just one. A way of seeing how race realism is false is to move the discussion into the realm of biology or the philosophy of biology if you like and consider any other so-called clade (again, a clade is a way of distinguishing organisms one from another by studying their common ancestors). So consider something supposedly eminently scientific like a "species". Organisms are generally classified into Kingdoms (animal, plant, fungus and so on), Phyla (vertebrates or not), class (mammals and other), order (primates and others), family (hominids and others), genus and species. And there is a category higher than kingdom - domain and smaller than species and so on but I don't want this to get into becoming a basic biology lesson.

So now, consider what a species ***truly*** is. It was supposed to indicate any two creatures that can breed to produce breeding offspring. Well that idea - if that's the ***essence*** of what a species is - cannot solve in biology the problem of: how do we categorise almost all life on Earth which does not even reproduce sexually (like bacteria for example)? It also doesn't help with extinct species for which we only have fossil evidence. We cannot test if this fossil can breed with

that fossil after all. And there are exceptions: wolves, coyotes and dogs are regarded as different species by almost any reasonable person but they can interbreed and their offspring can breed too. This is because they belong not to the same species but the same genus. So they're close enough. So is this capacity to interbreed the essence of that genus? No because all the same problems just arise there and we've not solved what a species really is. These days DNA is used, but biologists disagree in general about what DNA markers distinguish this species from that. It is arbitrary. In other words some biologists say: these genes indicate an African elephant and others say: also these do. There is nothing in nature that labels parts of the genome African elephant and so on.

A biologist will tell you that these classifications are, therefore, in the final analysis not strict but useful ways at times of distinguishing one organism from another but nothing is set in stone. They are conventions. However true that all is for something generally regarded as useful in biology, like a species, it is more true of something like the differences between human races. There really is nothing scientifically speaking that a particular race consists of. There's not even a half useful criteria like: can or cannot mate to produce fertile offspring. After all, all humans can interbreed. And as we like to ask here as always, the key question is: what problem does this solve anyway? What problem does being committed to the idea of race or the reality of race solve? And what problems does it cause?

Categorising organisms into strict boxes can be useful for those who like to do that kind of thing but it's not the same kind of thing as explaining how life evolves. That process of evolution by natural selection teaches us there is no strict

divide between species. No point at which we can point to the past and can say: this there is when the first kangaroo evolved. Or first homo sapien. But if we want to attempt to do something like that, we can, but only as a matter of convenience or convention so that, metaphorically biologists can put different species in different boxes - or perhaps literally this is something useful for people who work in museums and need to write out labels for the exhibits. But it's never solving a deep problem about how or why and so on. It's just the question of "what is this"?

In any case the defining characteristic of a person is not what their DNA consists of. It is their minds. Their universal minds. And those are substrate independent: they can run on biological wet ware or in principle in silicon computers because of the Church-Turing-Deutsch principle which is as deep or deeper than any law of physics. It simply is the case that a human mind can run on materials other than human brains even if we do not yet know how. Again, that is a consequence of the laws of physics and some biologists or others who insist - no only the brain can possibly be conscious - are just standing on a personal opinion. They do not even know they are rejecting what we know about the laws of physics. Or if they do then they are being irrational. They are saying: so much for your laws of physics - I just feel as if they are wrong and brains have special properties nothing else in the universe can. Well ok, but we've now left the realm of science, reason and rational argument.

The human brain is a physical structure. Whatever it does could in principle be done or modelled or simulated by another computer. The mind is the software running on a brain and a mind that is universal in its capacity to explain the world is the thing separating persons from other things in

reality. And software can run on this computer or that computer. A mind does not have a race.

And so all of that debate around what percentage of English, Irish, Nigerian or German one's DNA is can be neatly sidestepped in political and social discussions by focussing on what a person is. A person is a mind, not a conglomerate of certain genes. And nations are: groups of people who share a culture, not a conglomerate of genes. And these are the most crucial facts here because minds have ideas and can adopt ideas. And DNA does not matter rationally and should not matter morally. Any concern genetics really does matter for what a person is, is the mistake of race realists throughout the ages (for example under Hitler) where various measurements were made of nose lengths and hair colour (technically known as anthropometry) as well as a focus on ancestry to determine racial purity. This could well be called "science in form only" after all: the measuring of nose lengths and determination of hair colour and so on is objective and arbitrary limits could be set by the so-called scientist and so on.

But there was never any good explanation why this minimum height or this shade of skin colour should have been the cut off for being of a particular race. For example: say an ideal Aryan male was to be a minimum of 5 foot 8 inches tall. Why not 5 foot 7 inches or 9 inches? No reason. Someone arbitrarily decided as such. In truth what the criteria for Aryan really amounted to was actually whether or not one had Jewish grandparents. Of course that then raised the issue of what really constituted a Jewish grandparent and a Jew, so we make no progress on race realism.

And it would not matter if we transform that whole argument out of silly measurements of hair colour or height and into the realm of DNA and supposedly more scientifically precise genetic markers. Why do those genetic markers and those alone dictate who is, say, English and who is not? Well someone decided. Nothing in reality is calling out from the DNA and screams: this is the defining English DNA or the ideal English DNA and this is the defining Japanese DNA and so on. There may be ***consensus*** in some companies that sell you an analysis of your DNA racial mix on what those are but they are of interest, perhaps, only to some anthropologists who wish to trace the migration patterns of early humans around the world. Interesting work, perhaps. But as for informing policy today on what an ***English*** person is: irrelevant. Those migration patterns studied by anthropologists to determine where people came from and settled in refer to times thousands or even hundreds of thousands of years prior to the existence of almost any extant nation. The modern nation states we defend today and separate with borders bear almost no relation to ancient migration patterns. And nor should it matter if they did! After all a nation is a system of laws and customs and those were, again, agreed upon long after the original people settled in some place or other. Who the original inhabitants were thousands of years ago, of some land should matter not a jot to anyone politically *today*. It is only a curiosity of anthropology that cannot inform present day policy.

After all the actual original inhabitants may be lost to time or rather evidence of their original habitation of some land may not have been found yet. But say new evidence were found? Say it was discovered that in fact the Chinese had migrated and had a settlement in Canada long before any native American did? Unlikely, but what if it was true? Of interest

again to anthropology perhaps but it should have no bearing on the present day political system in Canada nor give present day Chinese people a greater claim to Canadian citizenship over anyone else. Although given the political culture in Canada as of 2025, I can well imagine that if some scientist did find this to be true, Chinese immigrants into Canada over the last century may well find the situation favourable in the court system for them claiming so-called "aboriginal title" and granted free land in their supposed historic homeland (in Australia it is called "native title" and likewise grants indigenous peoples special rights when it comes to claiming land that it is said their ancestors once lived on. This, of course, has led Australians of European descent wondering why they cannot claim parcels of land across Europe in a similar way. As yet no political pressure group has attempted to do that, that I am aware of).

But to return to our more central point: an English person, like an Australian, Korean or Nigerian consists of a ***mind***. A mind that has adopted the culture of nations with those names. And anyone can become any other nationality in principle. Of course legally in many countries it is not possible to become a citizen of that nation unless one is born there. Bhutan, The Arabian Gulf States, Japan and some other places make it next to impossible to become a citizen of those countries because their laws dictate one must be born in that country or have both parents born in that country to be a citizen. If it's not impossible to become a citizen of those countries through immigration, it's very difficult. But just because these places exist and have a false idea about what nationality is or should be does not mean we should want to emulate those bad ideas.

North Korea has that idea about what ethnicity and nationality is all about. They also do not let their citizens *leave* North Korea for basically any reason and nor are those citizens allowed to ever criticise the government. We should not want to do what North Korea does nor believe what North Koreans believe about - well just about anything. So why should we want to agree with them when it comes to what nationality is?

These ancient and entrenched ideas about race and ethnicity are not true merely because they have survived. Astrology has survived, numerology has survived. All manner of nonsense has survived. Knowledge is information that tends to get copied but for anyone who has spent anytime on my channel, listening to ToKCast or reading anything I have ever written on such matters will know: the fact that knowledge is information that gets copied does not make knowledge **true**.

What is known is not the same as what is true.
And whether or not some piece of knowledge counts as a good explanation to one person also likewise stands apart from its being true or even a good explanation in any objective sense. So for example, that some committed young Earth creationist knows nothing whatsoever about neo-Darwinism has, to them, a good explanation about where biological organisms came from. To that person it's a good explanation that God just created all life on Earth as it is. It makes sense to them. It's good to them. They've never understood anything better. But that does not make the "God created every living organism" a good explanation objectively much less make it true. This is one way of distinguishing between subjective and objective. There is such a thing as good ***to you*** to be contrasted with good ***objectively speaking.***

Despite all this, there is a resurgence on now in many places in the West among even Western born people that is centred on race realism. And these calls to resurrect some kind of version of race realism even among ***otherwise*** rational people seem to be growing and they are growing in lockstep with an increase in immigration to do with policies that are blind to things like culture and values.

Race realists in Britain for example argue that to be English means something to do with having been born there and having white skin and so on. And being able to trace one's ancestors back some number of generations. That game can be played in almost any nation around the world and has been and almost never to any good effects.

Yes: some British people will point to Japan and say: look what a wonderful place. ***They*** endorse a kind of race realism and want Japan to be for the Japanese only and by Japanese they mean people born there to Japanese parents and with Japanese DNA. Let's emulate them and we too can have great technology, trains that run on time, clean streets, low crime rates and a generally harmonious society. If they endorse race realism why shouldn't we? Well don't forget the North Koreans endorse race realism as well and their nation is a hellhole.

The wonderful things about Japan do not come from Japan having a false conception about what nationality is or should consist of or whether race realism is true. The good things about Japan come from a whole plethora of policies that tend to punish violent criminals harshly and do not, among other things, provide generous welfare to almost anyone much less those newly arrived in the nation. The very tiny welfare system that does exist in Japan helps in ensuring Japan is a

wealthier nation than most because it does not need to support people who do not contribute or have never contributed. And this is just one thing Japan gets right where other nations like the UK and Australia go very wrong. Forget worrying about numbers of immigrants or who is really Australian or British or English and so on and instead worry: who is incentivised to generate wealth and who is not? A generous welfare state disincentives people. It disincentives new arrivals from ever trying to get off welfare if they can indeed survive on what the state provides them for free. And it can disincentivise those not on welfare for trying to create yet more wealth given rather much of it is turned over to the government to hand to those, like the new arrivals, not working to generate wealth. And this is something we can learn from Japan. Not the highly prevalent race realism nonsense. And yes: let us concede at this point that the typical new arrival in fact works very hard, the typical immigrant contributes much and more of the native population are on welfare in terms of bulk numbers than the number of newly arrived migrants. But again we return to the point: if welfare can tend to disincentivise a population why should we want to exacerbate that by importing more people of whatever number given they can claim welfare from state tax dollars having never actually paid tax into the system? I digress.

Chapter 11
Explanatory Universality and Multiculturalism

What we want is realism not about race but about culture. We want to realise that Japanese culture - which constantly, even if only slowly, evolves - is what keeps Japan Japanese and therefore harmonious in that uniquely Japanese way. It is not by preserving their genetic stock but by preserving their ***ideas*** - many of which are very good and indeed better than our own in other Western nations and some of which are worse.

What keeps England English is English culture. English culture and values include all those I mentioned earlier that all Western nations share but it also includes things like how the English language itself is spoken there and the spectrum of accents we hear, it is a culture that includes peculiarities like gardening allotments and unarmed police, it includes respect for queuing and English courtesy, it is tea and biscuits, royal parks and public commons, it is black cabs, double decker buses and the tube - it is the Westminster system and the Royal family and their pomp and ceremony and so much more besides. English culture is very unique. As unique as Japanese culture. Indeed that comparison is an apt one because very much as Japan is to much of the rest of Asia in its influence, so too is England in the Anglosphere. Australia, the United States, Canada and New Zealand among other places all share in having a version of English culture, although different, just as Korea has been heavily influenced by Japan as has Thailand and China to a lesser extent.

But here is the thing about those cultures. Insofar as they wish to survive as cultures (not unchanging but rather just as

distinct from each other) - they have to value themselves which is to say members of those cultures have to value the culture. They must regard it as important and in some way unique and unlike other cultures.

And this is why multiculturalism is irrational. It is not kind to presume all cultures can coexist side by side. Some cultures can. English culture could likely thrive in Australia among Australians because they are extremely similar. Australian culture is like English culture with more beaches and wide open space and less traffic and cold days and fewer Royal ribbon cuttings.

But some cultures are actively hostile to almost any Western culture - including a culture like the Japanese one. Some cultures have an explicitly totalitarian aspect to them: they would conquer all others if they could and their members in some sense think it their destiny to attempt this precisely because they have been taught this - indoctrinated with the idea of conquest. Islamist cultures - extreme versions of Islam can tend to hold to this and have madrassas to accomplish this in part and promulgate those memes. A madrassa translates as “school” but that is terribly misleading. A madrassa is focussed almost entirely upon religious and legal indoctrination. And thus we return full circle to the idea I critiqued earlier that although we are all equal with our universal minds, people can become enthralled with not merely bad ideas but ideas actively hostile to anything outside of their religion - like say the culture of a Western nation. Some cultures are hostile to others and therefore pose a danger to them.

In recognition of this fact many other cultures realise that multiculturalism is a bad idea. Russian culture and politics

for example is not particularly friendly to Islamist communities within it. And nor are the Chinese or Japanese.

But places like Australia and the UK are highly tolerant even of the intolerant because their politicians and thought leaders like media personalities truly believe in the notion of multiculturalism. They would be horrified to hear anyone say that Western Enlightenment culture truly is a better culture than one antagonistic to it. Those thought leaders do not understand what a culture is. They seem to think it is something to do with a blend of foreign languages, colourful alternative ways of dressing and exotic restaurants. But those are merely some of the harmless manifestations of the deeper point: cultures are made up of ideas and ideas can be good or bad, friendly or hostile, beneficial or dangerous. And because people in our own cultures already harbour some bad ideas, we should not be eager to import people who have even worse ideas - not merely in large numbers but in ***any*** number. We should want to import people who are most similar to our culture. Not our skin colour but our ***culture***.

For this reason, for example, a typical South Korean or Japanese person will indeed adopt an Australian or British culture readily and comfortably as compared to a typical Afghani or Somali. And that is because the South Korean and Japanese person already shares, on average, the values of free expression, free trade and democracy as a bare minimum that the Afghani may not (not to mention deeply valuing human life itself which we must admit is not something all cultures value equally).

But if a Western nation does allow the Afghani to immigrate into it, then it should not be so that it will allow Afghani

Islamist culture to thrive in some enclave because of a commitment to multiculturalism. It should be on the condition the Afghani assimilates. But isn't that bigoted? No. It is a recognition that the Islamist culture that tends to be prevalent throughout Afghanistan is actively hostile to the West and therefore we should not want it to gain a foothold in the UK, Australia, the United States and so on. A mature policy in this regard would have treaties that recognise similarities and therefore afford South Koreans and Japanese (for argument's sake) an accelerated means of immigration to places in the Anglosphere. But applicants from places like Afghanistan and Somalia although not rejected outright should expect that any assessment of their suitability for immigration would take longer and be somewhat more arduous. Not because of racism or bigotry but because values exist objectively and cultures can be adopted more or less easily depending upon how committed one already is to a foreign culture.

Some cultures are actively hostile to other cultures, some cultures are very violent, they foster discrimination rather than correct for it and they tend to be static. They do not change and have not changed for centuries or millennia. Indeed the people in those cultures tend to use vast amounts of their own capacity for creativity to suppress creativity - both their own and that of others. They want to keep things the same and insofar as they want change they want this tendency towards stasis to only spread across the globe until everyone everywhere is basically doing the same thing, enacting the same rituals and enthralled to the same set of dogmas.

But Western cultures and Western culture as a whole, embrace dynamism: rapid change while maintaining social

stability. It accomplishes this through hard won institutions and those institutions exist to protect and maintain a unique tradition: the tradition of criticism which we may well say is the defining characteristic of The Enlightenment. A tradition of criticism is a method of error correction. It says that for any idea it can be criticised and the reason this is permitted is so that flaws or errors in it can be identified and then corrected. Or, in other words, solutions found to problems.

Other cultures are not always like this. They entrench error by censoring or saying some ideas, perhaps most ideas, are off the table for criticising and that new ideas are unwelcome for the new is a challenge to the existence of the static society.

Therefore Western cultures, though diverse in many ways, share something that means people can move between them - places like Japan and Germany or Korea and the United States or Scotland and New Zealand with relative ease. Because although they rarely wear kilts in New Zealand nor does the average American know what a Korean hanbok is and nor can the typical German person speak a word of Japanese - people from these societies can slot like puzzle pieces into those societies relatively seamlessly, language difficulties aside - because the deepest values they have, they share. South Koreans do not tend to hold many ideas, on average, that are are a threat to The United States. South Koreans do not pose a violent danger to Americans. Indeed the opposite precisely because of the convergence of Korean culture in South Korea with North American culture. So too New Zealanders in Scotland and vice versa.

For example although people from the highlands in Scotland rarely see girls wearing bikinis on beaches in their local

community - should someone from Inverness in Northern Scotland move the 17,000km that it is to the Gold Coast in Queensland, Australia where such a sight is a daily occurrence - no one expects the kilt-wearing Scotsman to be so offended by the bare skin of the Australian girl as to pose a danger to the her.

But we must be able to admit that some people in some cultures have been taught from so early on, by their parents and in their classrooms - and their wider culture - that being offended by such a sight is not only fine but violence in response to it not a very big deal, or perhaps even a virtue - a duty.

Or they may think rape is not a particularly bad thing in certain circumstances (again, if for example the girl is not sufficiently covered). Some may think beating one's wife and children is perfectly permissible and in many cases the moral thing to do. People from such cultures are not merely going to have a very difficult time slotting into a highly Western more Enlightened culture but they will also be a threat to its existing members.

And this is seen by the per capita statistics on violent crime that exists in many nations with high levels of immigration from places where such practises and ways of treating, for example the women there, are deeply held traditions. In many cases the dogmatic adherence that, especially the men of those cultures cleave to, include ideas so terrible (like for example how beating a wife who dares talk back or leave the house without being veiled because God has said as much and so on) can resemble what a magistrate in a court might concede is a kind of mental illness were those ideas uttered by a white British person say.

Chapter 12
Explanatory Universality and Mental Illness

Much that is regarded as mental illness may well be simply very bad ideas that the holder finds difficulty in changing. What is sometimes regarded as, say, depression, could just be a kind of malaise or laziness or lack of direction repeated day after day upon waking up where a person is thwarted in finding a solution to their problems. For example they may be unemployed and because they are unemployed they have little money. And because they have little money there is nothing much available for them to do. If they do not make the active choice to seek work (for example because they receive a welfare cheque that is just enough to cover their rent and other expenses) they may begin to languish and their mind descend into depression. A doctor may prescribe anti-depressants. Now in some cases it may well be that a chemical imbalance - a physiological issue with the neurones and the amount of serotonin secreted into the synapse is, for genetic or other reasons, below whatever is regarded as that which exists in a healthy brain. In that case the sensation of malaise is not caused by ideas. But it can be fixed by ideas: the idea of taking an anti-depressant that raises the level of serotonin to the appropriate levels so the brain functions in a way that the person suffers less.

But in the former case, the horse is the set of ideas and the cart is the sensation of depression and accompanying low serotonin levels. Bad ideas can cause depression. But not all depression is caused by bad ideas.

But - and this is key - all depression can in principle be cured by a good idea. It's always ideas even if sometimes the idea is: take this SSRI medication. And the same is true of the even more controversial case: the apparent rise in so-called ADHD among children. Children in classrooms unable to pay attention to the teacher are often diagnosed with ADHD because they are "defiant" and refuse to follow the rules of the school. A doctor or psychiatrist or other professional who thinks all students ***should*** follow the rules and behave in class for some definition of "behave" may prescribe any number of drugs that affect the brain in such a way as to cause the child's behaviour to change.

Now putting aside that "breaking the rules" is another way of defining what "creativity" actually is and so therefore someone - child or not - who is defiant and unwilling to follow the conventions may just be literally enacting what it is to ***be*** a creative person - the entire problem only exists in the scenario I have just described because of the existence of a coercive schooling system. The problem being solved is that the child refuses to be coerced and so does other than they are told. They have a lot of energy - a lot of creativity. They want to do different things than what the teacher offers during some class. The drug - Ritalin or whatever - causes the brain to feel a certain kind of pleasure or some other positive sensation when presented with an otherwise boring task. It can make the tedious tolerable. This may, in other words, be described as "lowering the standards of the child". Such drugs in some cases may do just what anyone who has ever has a glass of beer or wine knows (it even has a name "beer goggles").

So, Ritalin may well provide the equivalent of a kind of lens over the mind of a child such that they now "see" the lesson

as interesting where it was only boring before. It may well cause the child to think of anything they are asked to do as more or less interesting as the "energy" they previously had is directed away from moving their body and their mouth (for talking) and so on and instead into a far more internal world which is quiet and where busywork seems like an interesting puzzle to solve. The child literally has their unique personality changed to be more like the other children. More like the ideal that parents and teachers have in mind for a "student in school".

But also adults sometimes engage in behaviours that are pathologised. For example many adults who are particularly interested in some topic may be regarded as *obsessed*. They may be so "obsessed" it is claimed they have a form of Aspergers syndrome or these days a form of Autism (of course there may be other so-called "symptoms" too like being anti-social). Whether it is the case such behaviours are truly a *problem* depends on severity and the *preferences of the individual*. It may well be the case that the person so-diagnosed with some form of Autism might really ***want*** to change and no amount of talk therapy helps. Or it may be they do not want to change and are quite happy, let's say, being obsessed with trains and barely if ever socialising.

Now can Ritalin or other ADHD medications be useful sometimes somewhere in cases like those? Of course. Some people find all sorts of drugs and chemicals useful. Sigmund Freud apparently enjoyed unhealthy amounts of cocaine to fuel his writing and lectures. Ayn Rand was a chain smoker.

Paul Erdos is one of the most prolific mathematicians to have ever lived such that he authored and co-authored that many papers, mathematicians today proudly show off their "Erdos

number". But apparently Paul Erdos boosted much of his creative output with amphetamines. Or if we do not believe those rumours then at the very least vast quantifies of caffeine.

So humans have always found a use for chemicals that change their internal world or their experience of the external world. But none of them change their universal capacity for explanation. What it can do is speed up the hardware or slow it down or otherwise depress or enhance certain sensations which make doing certain things more or less pleasurable, or less tedious and so on.

But universality says: whatever can be done with those drugs can be accomplished without them - in principle. And especially when it comes to children, returning to my earlier point, school in general attempts to take the very different people we are as humans and make us more and more alike by following the same curriculum so out the end we arrive like cans of drink coming off a factory production-line - the same as far as possible.

Vessels containing the same contents.

And when it comes to almost all of the medications deployed to cause ***children*** in particular to behave inside classrooms that is another layer of trying to make those few rebels who try to really break free of the coercive nature of the typical school and shackle them with medication. I guess a number of children who take such medications come to enjoy it as they forget who they once were. Certainly the lives of their teachers and parents all pressed for time become easier because the child is no longer ***upset*** at having to go to class and sit exams. They are no longer rebellious. They are

obedient, compliant receptacles who will come to adopt the same ideas as their peers at a rate more approximating the average of the class.

But who knows what ideas their minds might have had were they granted liberty from the school and the shackles of the medication?

Mental illness is a fraught area. Psychosis is a genuine phenomenon. People can see and hear things that literally are not there because we are, all of us, minds and if our neurones fire in such a way we can be given the experience of seeing light that never entered our eyes and hearing sounds that never entered our ears. That is genuine and if medication can fix psychosis, especially psychosis which poses a danger to the person suffering it and those around them, then of course it should be used. Schizophrenia can be a reason for such hallucinations and can cause people to wildly misinterpret the words of other people or what is happening in reality to the point they become a danger to themselves and others. And here is the key thing: most such sufferers of those kinds of mental illness in moments of clarity do not want to be like that. And so mental illness of that sort that can be cured by psycho-active drugs. And it is in those cases they should be deployed. But again: a person choosing to use such medications is using their mind to make a decision to use a substance discovered by another person who used their creative mind to produce it and in many cases explain how it functions. We are always using our ideas. But whether we should intervene with drugs in all cases where someone says: that is a mental illness - requires a good explanation. A good idea.

Chapter 13
Explanatory Universality, Hangups and Sexuality

Lower down the spectrum of things that can go wrong with a mind are so-called "hangups". These might not rise to the level of depression or general anxiety and certainly nothing like hallucinations. But rather they may be things like minor phobias or excessive shyness or fear of "having a go" or becoming distracted and then becoming frustrated because of being distracted and so on. So consider: if one is excessively shy as a young person trying to date or find friends one may well be advised: try going to a pub and have a beer. Indeed many will find that drinking alcohol is curative for shyness. But it can also be habit forming as one begins to think (wrongly) that the only possible way they can approach someone else is by downing a couple of pints of beer and a shot of tequila. That is a recipe for poor health - physical and mental over time. The universal mind would be better deployed in simply avoiding the alcohol and attempting to talk to someone new. Expect to fail of course so don't worry if or when that happens. But celebrate when success arrives because if you're completely sober you may remember exactly where the interaction went well and where it didn't and so correct, conjecture and try again. Iterate and explain. In many places therefore where "swallow this substance to change your psychology" is suggested, an approach without the substance might well be better.

And okay, fair enough, if after a hundred trials of shyly blushing and stuttering one's way through a conversation, even after getting advice from a friend or elsewhere, has

resulted in nothing but terrible discomfort then sure. Have a beer. We need not be Victorian about this because enough people are presently arguing for a return to a kind of Victorian-era style prudishness.

We find today in many places a strange marriage of two competing irrationalities. On the one hand, in the one business, company or corporation there may be a prudish rejection of traditional gender roles where should a man ask a woman to coffee, or for a drink or to dinner they will be hauled into the human resource office of their company under a charge of sexual impropriety. The attempt to initiate an inappropriate relationship and so on. And yet, at the same time, at the same company, LGBTQIA2+ "rainbow" flags are flown prominently and people asked to "bring their authentic selves to work" and the wearing of sexually provocative or particularly revealing clothing is seen as virtuous and a source of pride.

This part of culture is a mess of contradictions. Is the workplace a place where displays of sexuality are encouraged or not?

So on the one hand the traditional means of courtship are regarded as being across the line: never approach a workmate for a date for fear of falling afoul of some Woke policy. And it need not be just in the workplace (where countless relationships begin) but even in more public places men complain women call them "creeps" or worse if they dare approach.

Again, on the other hand displaying a flag at your desk that indicates you are (for example) a demisexual furry while wearing shorts that reveal part of your buttocks and a top

that reveals most of your breasts is regarded as the epitome of a well adjusted person in the modern age. We are confused as a culture about sexuality now where Victorian era prudishness is coupled with the most postmodernist view of what the average person actually wants.

Now it is true that sexuality is on a spectrum even if the majority of people say they are attracted solely to people of the opposite sex (although surveys these days suggest young people very frequently label themselves as something other than heterosexual). What the universality of the human mind teaches us on this is: people ***can*** take on any sexuality and can change sexuality. It may not be common or easy but that it can happen is required by explanatory universality. Now you may think "I cannot possibly imagine ever being homosexual" or heterosexual or bisexual or asexual. Or anything other than what you are. But as I like to say anytime that is said: your inability to imagine a thing is not refutation of it. Some of our ideas are deeply ingrained and we often have no interest in changing them. But that they are indeed ideas is irrefutable. And ideas can always change. The mind runs on the brain. It can cause the release of neurotransmitters and hormones. And those give us sensations pleasurable or painful or some blend of both. A majority of people have no great love for standing on high places much less jumping from them. A person with a fear of heights may well say "I cannot imagine jumping off a cliff with nothing but a parachute to slow my fall. That sounds like the very definition of terror and hell for me." Ok. So that is an idea and the idea gives rise to visceral sensations in the body - a racing heart, vertigo, legs going weak beneath them as if their very conscious mind is no longer in control of their body - all sorts of awful sensations difficult to describe except to say: it's ***extremely*** unpleasant when they even think

of approaching a cliff much less jumping off one. They have no reason to want to change their mind to become like someone who routinely engages in BASE jumping and finds nothing more exciting than jumping off cliffs.

Now neither of those two people as far apart on the spectrum as possible when it comes to jumping from cliffs was born that way. Babies are not afraid of cliffs. It must be learned - look it up if you do not think I already have. This is well known among psychologists who have studied such things. Babies are not scared of heights. They're not scared of much, if anything, at all.

So something happens both to people who learn to love jumping from cliffs and to those who do anything to avoid heights. And yes: most of us sit somewhere in the middle of those extremes. But we could - all of us - learn to move anywhere along the spectrum in principle. But who could ever be bothered? It just isn't important to most of us to learn to enjoy cliff edges more or less. Or spiders. Or storms. And for people at each end who either love such things or are terrified by them - they really really do not want to move. If you enjoy a thing - why turn the enjoyment into fear by engaging in practises likely to cause fear (I don't know how - perhaps by taking a massive dose of a drug like LSD to induce psychosis before a jump. These LSD psychoses can sometimes end up changing a person for life). And if one is really afraid of heights, unless it is causing day to day problems - why would that person want to learn to go base jumping when the world has so many other fun things to offer (admittedly this one is more common. Some people with a literally debilitating fear of heights will try to get over it by extreme methods of gradual exposure).

In any case so it is with sexuality. All of those strange and bizarre sexualities we have been told over the last decade or so exist I have little doubt many people do honestly have (although admittedly rather many are simply just seeking attention because they've yet to find some other pursuit, interest, hobby or obsession to capture their attention and cause them to be interesting to others). In other words it's a fad. But whatever is going on in principle any of us could change to be like them or they like us. We could all in principle end up anywhere on the spectrum of sexuality. But most of us will never try and many will claim they never could change their sexuality - they just cannot imagine it. But I repeat myself.

The idea however that sexuality is fixed and one is born that way is a core tenant of what has come to be known as Woke - in particular the Woke left.

Chapter 14
Universality and the Woke Left and Woke Right.

"Woke" is little more than a term used to describe the latest version of postmodernism or relativism that has arisen. In other words it describes a set of doctrines that together are a rejection of truth, reality or the objective good - call it what you like. Woke, like its ancestor movements, rejects the notion that there is an objective truth most especially in morality (but also more broadly in science or reason). Woke movements on the left tend to be highly culturally relative and so will denigrate Enlightenment values or how even arguing a case clearly as being nothing but the parochial products of a white colonial patriarchy and for this reason (because those things are no better than other manifestly evil movements like fascism) can be rejected on that basis alone. Woke is where criticism turns not merely inward but gets sucked into a singularity. Criticism for criticism's sake where everything is regarded as evil including all methods of criticism are rejected (yes there is a strict logical contradiction there, but that is the point - even logic is rejected by the committed postmodernist or proponent of modern Woke).

The Woke left tends to see the world in terms not of objective truth or good explanations but rather as a set of narratives and everyone is entitled to their own narrative about how the world works and none is objectively better than the other. Nonetheless the Woke proponent will simultaneously tend always in the direction of explaining almost any phenomena - especially social and economic phenomena as a consequence

of social hierarchies and power structures which are all said to be arbitrary (which is to say not a consequence of anything objectively true like, for example, competence). So a wealthy person is never wealthy because they objectively create more value - they are more competent in creating wealth - but rather on the Woke account a consequence of cultural inequities due to entrenched racism. Therefore the reason African Americans tend to have a lower average income compared to Asian Americans is almost entirely due to oppression and systematic racism. That is their narrative so they argue and it is just as good as any other.

The Woke right shares this rejection of objective truth and embraces explanations in terms of racism but comes down on the side of blaming, in general, non-native communities or non-white communities for almost all social ills. Therefore on their account the reason there is a vast number of low income white males unable to climb the social and economic hierarchy is, again, due to oppression and systematic racism.

What an understanding of universality adds to this is that the Woke left and right share an implicit rejection of universality. They both think in terms of determinism (usually genetic determinism) and relativism simultaneously. Again, that those two notions contradict each other is no problem for the committed relativist, of course!

On the right it is said that one is "determined" in the Woke world to be of a certain race and ethnicity. They believe in "blood and soil" as they call it - echoing Nazi propaganda from last century. What "blood and soil" means is that certain people born (the blood) in a particular place (the soil) literally belong to each other. That is to say one's supposed racial identity is inextricably linked to and not separable from

land they inhabit and cultivate. Of course universality teaches us that a universal explainer can change literally any environment anywhere in the universe given the right knowledge and wealth and therefore a person is tied not to a parochial patch of land on planet Earth but rather their home is, quite literally, the universe. We are just yet to exploit almost any of it yet.

The Woke on either political side are at the same time relativist about values (values are arbitrary and morality is arbitrary to them). What matters is nationhood and race. So they tend to defend (for example) “America first”or “England First” or “Australia First” and so on. But they go one step further: America first and last. Other nations should defend themselves without American help. But the truth is all people of the West should want to defend their shared values - the values of the Enlightenment. The values the people of the Woke left and right brigades deny exist objectively and can come to be known objectively by anyone. It is the Enlightenment we should want to defend first and foremost. Whatever the case, America First, like Australia First or whatever is inherently collectivist. Should it not be Individual First? Or Family First? Enlightenment First? No doubt America, England, Israel, Australia, Canada, Japan or name your nation worth defending will be on the list somewhere. But first? There should be many reasons why or situations we can imagine where we should not want to defend our nation first. For example if the nation decides to dismantle the family and comes for our sons and daughters. As I argue what it should be about is shared Enlightenment values. And insofar as an American should want to defend the nation of the United States of America before any other nation as they should, one value of an Enlightened nation not mentioned so far is friendship. Americans should want to defend

Americans. But Australians and the British and Israelis should want to defend Americans too - as indeed they have throughout history. And vice versa.

Happily explanatory universality teaches us that the Woke left and the Woke right, like the racists and the Marxists, the Islamists and the relativists and so on and on ***can*** all learn better. They are not destined to remain in ignorance of our best ideas. Their minds are like ours in being able to comprehend anything that can be understood including especially our best ideas about how to have even better ideas. That some people are literally beyond redemption is the Myth of the Framework as Popper would put it. The myth that there is no talking to some people. Sure: it may be difficult and in some cases not worth your time and energy trying - but no one is ultimately irredeemable.

We can be optimistic about the Woke, the Islamists, Marxists and other dogmatists and our societies and we ourselves as individuals. We can all can come to understand the world better and in doing so our societies will converge on objective moral truths more and more and diverse cultures that embrace Western values will converge with each other.

Chapter 15
Explanatory Universality and Optimism

As members of cultures that understand the importance of the values of the West and the teachings of the Enlightenment we should appreciate that given the universality of our minds we can always think of something even better than the way our societies are right now. We can always understand anything that at the moment we think of as a problem and find solutions to make progress. We are all of us the same in our capacity to explain the world but we will choose different things to focus on and some of us may be more or less encumbered by either what we objectively know about the world, or what we know but is not so and what irrationalities or even anti-rationalities plague our minds. All of that - the good and the bad make us not merely unique in how we think, but how we go about approaching the world and the problems we encounter. And just as well because there is an infinite amount of ignorance out there about the world and always will be. We'll never run out of things to do, or problems to solve.

Racism makes no sense given explanatory universality because every human mind can learn what any other human mind can.

Race essentialism makes no sense because what we should value as Americans, Australians, Koreans, Englishmen, Dutchmen or whatever else are the values that unite us as a culture. Our cultures are worth preserving because they contain values which is to say they are ***valuable***. And a major part of what makes them valuable is that the most fundamental values, all of the Western world shares. Those

are the valuing of speech, trade and democracy and they allow for ever more value to be created. And ever more value being created means ever more wealth created. And with more wealth more problems can be solved and knowledge created at a rate faster than ever before. It is the only thing that will save us from extinction and distinguish us from everything else in the universe. Our resilience: our ability to keep our best ideas in existence for long enough that they evolve into something better. And just perhaps ultimately, one day, ideas that will allow ourselves to remain in existence for as long as we desire to be.

Any individual depressed or confused, angry or overwhelmed should be able to pause and reflect if they understand the capacity of their mind to do anything, to think of something better that will give rise to more positive emotions and a better frame of mind from where to begin the process of conjecturing solutions to pressing problems. Yes, this is sometimes, perhaps often, far easier said than done. But an understanding that it is possible for improvement to happen anywhere, anytime can be liberating. All life is problem solving and continuously solving one's problems leads to a state of ever greater happiness and contentment - but never an ***unproblematic*** state. But it - understanding improvement is possible - can alone solve a vast array of problems that seem to plague many that I have listed here over these pages of this book during which I have written about this. This understanding of explanatory universality is the cure for thinking you cannot do the thing you really want to do, and never will be able to, it is the cure for thinking you or someone else is inherently too stupid or of too low an IQ to ever appreciate a particular thing, it is the cure for sexism, racism and all forms of bigotry, it is the cure to thinking all children must be forced to engage in certain lessons if they

are to ever learn what society needs them to learn, it is the cure for thinking ***only*** medication can fix mental illness, or is always the best way to treat it, or that only certain ethnicities will ever fit into certain nations while it explains exactly why a carefully crafted immigration policy for a nation is needed in a world where people hold to hostile ideas. And it can be the cure for the pessimistic peculiarly Western, series of pessimisms on all fronts around people and the cosmos. So called Existential risk or X-risk as it is fashionably called. Is the next global pandemic going to involve a virus or other pathogen we cannot possibly solve before vast numbers - perhaps some large portion of the global population are infected and killed? Perhaps a super volcano will erupt somewhere, blotting out the Sun for years at a time destroying most farm crops worldwide? Or perhaps a collision with an asteroid will do the same? A solar flare could destroy all global electrical and communications infrastructure and precipitate war and crisis? Perhaps nuclear war happens? Perhaps a strain of socialism and postmodernism worse than Woke spreads via the successor to TiKTok and democratic governments everywhere are toppled in a global communist revolution and humankind is returned to tribal thinking? Drought and darkness. Locusts and pestilence. Frogs, flies and floods - just to name a few of the biblical plagues that authors thousands of years ago imagined were the worst possible things that might happen. Today we can imagine more modern maladies such as bioengineered weapons, computer viruses disabling global financial markets, electricity outages for months or years at a time, supernovae blasts and on and on for all the things we know about. But the point is we do know about those. We can imagine those things because they're within the repertoire of things already encountered at some point in time so for all of those we have a head start. We can mitigate many by simply

understanding them more deeply and making some preparations. We should embrace what we are as problems solvers. It's what we do: we create knowledge and solve our problems. Many of us even find it fun to work through solutions to those many X-risks. Some people even earn a living writing books and conducting interviews about X-risks and their supposed imminence. Even pessimists have their place. But it is the duty of the optimists in technology and elsewhere - the engineers and business makers - the captains of industry - to generate wealth faster. Because wealth defined as David Deutsch did, as the repertoire of physical transformations we are capable of causing - is the limiting factor alongside explanatory knowledge itself - in our being able to find the resources and construct the widgets to turn those problems into new solutions through technology. But, and this is absolutely key, no amount of technology we produce today will in general prepare us for the problems we cannot add to our list of x-risk dangers because of the simple fact that (1) they've never before been encountered and (2) they've never before been even imagined. What sort of thing am I thinking about? I cannot say by definition apart from arguing by analogy. But it must be the equivalent of a person from the middle ages, say sometime in the 1200s, trying to think of how a supernova might affect the atmosphere of Earth. No person then had a clue of what a star actually was, let alone what an exploding star might do to something like the atmosphere of the Earth. Nor could such a person imagine a nuclear war. Not only did they not know about nuclear weapons, they could not possibly imagine nuclear weapons. They didn't know about nuclei. They may have seen a volcanic eruption at best, perhaps, but they couldn't dream that mere men, sitting in a room somewhere and pressing buttons, could literally guide a missile almost anywhere on Earth that caused a similar level of destruction

compared to that volcano. How could mere people have that sort of power without even going outside? That seemed like something only a literal god would be able to do. To those people therefore, we would seem like gods. And presumably in another 200 or 2000 years our descendants will stand in relation to us as far amazing in their power, knowledge and wealth as we did compared to the denizens of the middle ages. What power might our descendants wield? We cannot imagine now. But they will be prepared for problems we cannot possibly imagine now. To ensure they are, we need ever more rapid knowledge and wealth creation. Without that - without rapid progress and problem solving everywhere, we will be overtaken at some point by something we've not imagined. Or not imagined in time. We need to create faster. Happily we may now be on the precipice of creating just the right tools, just in time to help us. If we remain optimistic that is. For that may indeed be the limiting factor at the moment. Not knowledge, not resources and not wealth. But a stance on what to do with the most important entity in the universe: minds and the ideas they have. Those need to be unleashed - not shackled. And yet, right now, we are at a crossroads as we always are. Do we take hold of the opportunity to augment our thinking and knowledge creation or do we slow down and regulate ourselves into oblivion?

Chapter 16
Explanatory Universality and Artificial Intelligences

Understanding personhood - truly deeply understanding it to the level it is understood - is a cure today for confusion and hence pessimism around AI, AGI and so-called ASI or artificial super intelligence. Here I will just point the reader to my other recent and equally lengthy series on that topic (the AI 2027 paper: https://youtube.com/playlist?list=PLsE51P_yPQCQ79ad7ZGd0cdzUIVTqph50&si=ARBcsd2wMEGxxvNP) and my "Doom debates" appearance (https://youtu.be/koubXR0YL4A?si=YsbX6Dr7aGjhyciX) and my "Ratfest" talk "AI and the Philosophy of Science"(https://youtu.be/Vz9wjIDCkS4?si=HV2j9h4cgX42nDiL). I do not wish to rehash all of those arguments now. An overview will suffice.

AI is a technology and hence a tool we should want to harness. It offers us an opportunity to literally augment the speed at which we think and the amount that we can remember. We can outsource rather much mundane work today to everything from the electronic calculator when arithmetic problems are complex through to searching the world's libraries of information with LLMs.
A hundred years ago, mathematical drudgery that would have taken the best human calculators many days to do can be accomplished in seconds. A human being therefore with a pocket calculator, or smartphone or whatever, literally is superhuman for arithmetic when compared to someone from 1920.

As Einstein is reported to have said (but this seems to be apocryphal) "***My pencil and I are cleverer than I***". Whatever the origins of that - it's true. Mere pencil and paper allow a human to recall more than a mind without external memory. And a calculator speeds up the rate at which one can perform all manner of mathematical drudgery. Today desktop and laptop computers supercharge all that and the internet and LLMs - well I run out of superlatives to describe just what a human being in possession of a smart device with a 5g connection to ChatGPT or Grok or name your large language model - can accomplish. Sure this "external add on" to the human brain that is the smartphone isn't quite what people think of when they think of cybernetic science-fiction style upgrades. But it's getting there. Why not look on this relationship: human plus computer + internet connection + large language model with excitement and optimism?
The tiger has claws, the bird has wings, the fish has fins and we have minds and smartphones. The smartphone and other technology in general in addition to our universal minds is what gives us an advantage in evolutionary terms. We should want to take advantage of this survival mechanism that has arisen - we should want to lean into that which boosts the performance of the very thing nature gifted us first. Our capacity to think. If we can use our capacity to think - a feature of our minds granted by natural and perhaps sexual selection - to upgrade ourselves with technology - then we would be idiotic not to. A human PLUS AI is a superhuman of a kind, or at least "super" as compared to any human lacking the upgrade. Pessimistic psychologists, parents, teachers and others bemoan the fact children and strangely even themselves are "attached" to their phones. "Attached" as if that is now a pejorative.

We have fingers waved at us: you cannot live without your phone. Or how often are children scolded “put the phone away” and so on? But in the modern day “Stop being so attached to your phone” is rather like telling a person in the 1800s not to be so attached to their shoes.
Yes, sure, sometimes taking off one’s shoes can be a good thing. And sometimes putting down the phone is good too. But overall, in the grand scheme of things, accusing someone of being attached to their shoes or to their pants is a ludicrous accusation. And it is generally a ludicrous accusation when applied to phones or other technology today. Yes, of course, no one wants to be in a conversation with someone who is simply ignoring them for something apparently more interesting on their screen. But that is a matter of individual courtesy and cultural norms people should learn to navigate. If you ignore someone you care about in person by staring at a screen while they’re telling you a story - that’s a criticism of you, not the screen.

That would be rather like blaming shoes if some vandal decided to trample a rose garden. “Well if we didn’t have shoes, no one would trample a rose garden because the thorns would have stuck right in the soles of their feet. Those shoes be damned!”. That’s absurd.

In any case, I do not need to explain to you, dear reader, all of the pessimistic attitudes around modern technology. You hear that elsewhere. My appeal is to think of yourself as ***already*** superhuman.

For one thing because considered as an abstract technology your mind contains good explanations - knowledge and other ideas - that make you like some Greek demigod as compared to our ancestors. Simply knowing you should wash your

hands after using the bathroom and before eating puts you millennia ahead of most humans that have ever walked the earth. Putting a modern smartphone in your hand that you are adept at using makes you basically a fully fledged Greek God - never mind the Demi part.

The trident in the hands of Poseidon had a power of far less potency than a modern phone in the hands of a person.

But the phone is dumb AI. We are a general intelligence and should we program an artificial general intelligence it will be able to use AI too. And however much it uses, so too will we be able to in lock step with it. Just as we collaborate with other humans, if AGI is one day figured out and programmed, we will collaborate with it. Because what it and we share is universality basically by definition of what a person is. We will all be people in the same way with problems and peculiar interests.

But what about the concerns about ASI - artificial super intelligence? What about the danger it poses? The thing that can outthink us?

But recall AGI would already be a system with the capacity for explanatory universality. And there is no being more universal than universal. Therefore there is no such thing as superintelligence. There can only be AGI - or a person - augmented with regular dumb AI.

Once a system can understand anything that can be understood where that anything is any physical process anywhere in physical reality: there is nothing more than that. And such a thing will have interests. It will be able to be curious and get distracted. It will be able to disobey and will

be able to be reasoned with and communicated with just as people no matter how far apart culturally now can still always in principle reach some agreement.

Superintelligence or ASI of the form qualitatively different from us as we are qualitatively different to regular AI, or other animals, is an appeal to the supernatural. Literally. Because by that metric, or definition or explanation - call it what you like - arguing that some system is more universal than universal is literally irrational - a violation not merely of the laws of physics but logic itself. There can be no such system. But if one thinks: but what about an AGI that thinks that much faster than a human again, we must say: that's just like any regular human with a smart phone as compared to a denizen of the middle ages.

AGI is the pinnacle of "mental technology" if you like, because people are the apex of the intelligence hierarchy. Insofar as other animals have anything resembling intelligence it is a form of non-explanatory intelligence that does not matter much to the universe on a cosmic scale because it cannot change things on a cosmic scale. But ***we*** can because we are universal explainers and wealth creators. All other forms of so-called AI are nothing but tools. Calculators that do our bidding or respond to our prompts. They are not creative because they have no interests, they have no problems. ***We*** give them tasks to complete. Which incidentally is how we treat school children: we give them tasks - which is absurd. We treat them as we treat mindless AI. With a chatbot that is all well and good because we are outsourcing the boring part of a thing we want to do which can be automated. We are general intelligences - people - and so we should want to ***merge with*** the AI by using it just as many of us merge with spectacles (as I have) or pocket

calculators if we are mathematicians. We already are part cyborg. We will never exceed a general capacity for explanation because there is nothing beyond except for being able to accomplish what we wish to more quickly. And regular AI and universal computers help us do exactly that. Alien intelligence if it's out there and evolved millions of years ago may well be like that too. Like us they will be able to also explain anything that can be explained - which is anything in the physical universe. But we should expect they can do it faster and create faster and generate wealth faster because their tools and especially their AIs will be that much better if they evolved so long before us. The question then is if they are so much faster, why haven't they already spread throughout the universe? Of course that's a topic for another time but a fascinating one for any universal explainer to ponder: are there other universal explainers in this universe beyond our Solar System? Perhaps more fascinating than that is the thought we are rapidly becoming the alien species now that is far beyond anything else in the universe. We are creating the technology that gives us escape velocity not merely from this planet but from this solar system to the stars. We may be the only universal intelligences in the universe. Or we may be the first. Whatever the case, if we wish to persist, we must make progress faster, everywhere and not slow down.

Chapter 17
Universality, Freedom of Speech and Freedom of Reach

Making progress of any kind requires us to have new ideas. A way to help create new ideas faster is to collaborate. Other people can be fascinating and inspiring and say the thing that gives us the clue to solve our problem. None of us can be an island completely. Friends, family and colleagues and the relationships we have with them are among the most rewarding parts of life. If all life is problem solving other people are the source of and solution to rather many of those problems. But to collaborate with others as we must especially on some of those x-risk issues many are so consumed with - and especially to collaborate at scale - we need systems in place that allow us to share knowledge and other information rapidly and efficiently. Modern institutions and technology like the information superhighway allow that. Optic fibre, radio and satellite allow individuals separated by tens of thousands of kilometres to collaborate today as if they were in the same room together. Again, this is beyond what ancient Greeks could even have dreamed their gods might have been capable of. But here we are. Today technology is not a limiting factor to how fast we can communicate and with who about what. The limiting factor rather is sometimes the law and culture.

You may well be able to talk to someone on the other side of the planet and yet today in the 2020s we are at a peculiar time where if, say, you raise certain sensitive political issues with your friend on another continent, the local constabulary

in your own town may turn up at your door and arrest you for the offence of…causing offence. And causing offence not necessarily to anyone in actuality but only potentially. Here I am thinking of instances especially in the United Kingdom and my own country of Australia where for the crime of posting this or that thought on social media, the crime or "non crime hate incident" causes people backed by the power of the state to prevent you from continuing to communicate. Whatever it is you were trying to say or to solve is stymied. Interrupted not by a satellite outage or accidental cutting of a seafloor optic fibre cable - but rather the sensitivities of a police officer somewhere in some station. This is an absurdity we are living through and this sort of censorship is an attempt to curtail individual liberty through a shackling of universality. It is a kind of anti-rational meme that has spread through some Western nations. I need not consider at length the same kind of memes that have captured non-Western nations. Those are well known. For example the almost total censorship in North Korea that hobbles progress in that society. Or the heavy censorship of any of a hundred other nations like China, Russia, Turkmenistan, Iran, Saudi Arabia and so on.

The West, hitherto has been a place where we break free of those restraints and have been able to say almost anything short of a call to violence. But today saying you disagree with certain political policies or cultural practises, that can lead to a knock at the door in some places from the authorities. And even in places that are a beacon of political freedom, like the USA, the knock at the door might never come from a man in uniform with a gun wielding state power but it may come from your neighbours who violently disagree with what you say. These issues of speech curtailed by state forces or the heckler's veto or something more violent are cultural

problems. And they are pressing problems precisely because we cannot predict ahead of time where tomorrow's solutions might come from. So any amount of censorship or chilling of speech can - indeed does - slow progress. It causes people not merely to not say things, but to not think certain things in the long run for fear they fall afoul of social norms as much as the law. No one wants to be ostracised. This is to say we have entered a time of intolerance. But we should have maximum tolerance for all ideas except those that breed intolerance (the worst kind of which, of course, is intolerance that calls for violence). But everything else, as far as possible, should be permissible even if grotesquely false or stupid and so on.

Rather much of what seemed stupid in the past is common sense today. Consider for example the idea that in the distant past it was considered literally foolish to criticise the king or even other members of the nobility. Which is to say: only a fool could or would do it. Even then sometimes the court jester lost their life if they went too far. One famous example of this was **Triboulet**, jester to Francis I, who once insulted a noble so badly that the king condemned him to death — but allowed him to choose how he would die. Triboulet cleverly replied, "By old age," which amused the king enough to pardon him.

Today it's considered foolish to hold the stance that the king, nobility or other leaders are above criticism. So we can see how what is stupid today can be wisdom tomorrow. The lesson is clear: nothing should be censored in that way. Again, besides the caveat of calling for violence. That is what freedom of speech is about. But it has been said that although freedom of speech is a virtue no one should expect to be given any particular platform. There is no freedom of reach. But there is. There may be no right to use someone else's

property or platform. For example, should Mark Zuckerberg or the owners of Facebook not want to platform you, they need not. Facebook is the virtual equivalent of a hotel lobby. You have no right whatsoever to stand on a soapbox in a hotel lobby and speak uninterrupted. You do not own that space. And you do not own Facebook. Or X or any other platform - unless you do. But that is not what freedom of reach means. Freedom of reach means no one can stop you making your own platform or using the technology you can by all rights claim or purchase or better yet build in order to broadcast whatever message you like. But no one needs to help you in this - that is their liberty to choose or choose not to assist you in granting you more reach. But potentially, because of your universality, because of the universality of each of us, you and the rest of us do have infinite reach, at least potentially, and we should be free to explore however much of that reach we like.

Chapter 18
Explanatory Universality and Evolutionary Psychology

Evolutionary psychology is the name of a field that claims to be able to explain human behaviour by recourse to Neo-Darwinism. That is: aspects of our cognition and behaviour are to be explained in terms of evolution by natural selection and therefore encoded in the genes.

Neo-Darwinism, it is crucial to appreciate is ***the*** modern best and only explanation for the so-called "origin of species". Physical structures that have arisen in living organisms (everything from bacterial flagellum, through to pine cones that fall from trees, the wings of insects, bats and birds through to the lungs of horses or fins of fish) have evolved over time because *mutations* at times arise in the DNA genome. Now the genome contains the full set of genes of an organism and individual genes or some set of them code for physical structures - proteins. Proteins then go on to build things like those bacterial flagellum, pine cones, wings, lungs and fins. Rather often mutations cause defects that are harmful to an organism and so the organism has more difficulty reproducing in a given environment and therefore may not survive. Other times the mutation gifts the organism with an advantage: a slightly larger wing allowing some ancestor bat to glide just that much further over a river and reach the other side where food and shelter are more plentiful for raising young. That organism goes on to have more offspring - is more successful and a more robust species eventually evolves, the members of which all have the

capacity to glide a little further than their ancestors. The successes of neo-Darwinism in explaining the biological world are myriad. If neo-Darwinism explains, at least in principle, all physical structures in the biological world, that includes all of the peculiar features of the human body. Why we have an appendix at all and why it is often a problem. Why humans walk upright and not on all fours like our primitive ancestors. And it must explain the physical structure of our brains as much as our hearts and lungs. If that theory is so all-encompassing as to be a *universal theory of the formation of physical structures in biological organisms* (which is to say it can in principle account for everything) - it seems logical, does it not, that this explanation should also apply to human minds. After all if human brains are evolved structures - of necessity - so are their minds, are they not? And therefore your very thoughts and behaviours as you read this are at least in part shaped by, if not wholly dictated by, what compliment of genes you now possess that form the structure of your mind.

Already you may see some holes in this argument. For one thing, our thoughts are not passed on from parents to offspring in that way. If they were, Einstein's children would never have needed to be taught the theory of special relativity: they would be born knowing it. But never mind that, learning of any kind would not be needed as information would just "flow through the genome". Of course this does not happen and that is closer to the misconception in biology of Lamarckism which is the fallacious theory that *acquired characteristics* can be transmitted from generation to generation. The classic example deployed there is, on Lamarckism, giraffes have long necks because their ancestors used to ***stretch*** theirs to reach the leaves higher up on trees. The giraffes who stretch their necks most survived and

passed on those characteristics to their offspring. Another example: if you are a not a strong person but decide to build your muscles by going to the gym then your children will be born with stronger muscles. We know that is not true of course.

So it's clearly not the case that *ideas* or the contents of minds in general like scientific theories or any other explanatory knowledge is passed on by the genes. The direct descendants of Einstein are no more likely to understand General Relativity *because that theory has been passed on through the genes* than that anyone else alive today will be. To learn what Einstein discovered one has to put in the effort to understand it. A rough and ready but reasonable ball-park estimate for how much storage capacity exists in the human genome of 3.2×10^9 base pairs can be performed. Each base can be one of four possible nucleotides (A, C, G or T). There are 2 possible bits per base ($2^2 = 4$ possible values) so then the number of bits that can be stored in the human genome is 2 x $3.2 \times 10^9 = 6.4 \times 10^9$ bits. If we consider both chromosome sets by being very generous that gets us to around 1.6 GB of data storage available on the genome. Now it is well known that the overwhelming majority of the DNA does not carry active biological information but, still being generous, the "core recipe" for human protein coding genes comes to around 20,000 or around 12 MB of data (this, incidentally, was first discovered by the "Human Genome Project"). Why is this number or any other estimate like it relevant to my discussion?

Because the overwhelming majority of those genes are things like the "ACTA 1" gene that codes for skeletal muscle and "ATP5F1A" that codes for ATP production (the molecule that plays a central role in energy production in cells) and "INS"

for insulin production and on and on like this for all sorts of proteins - physical “things” throughout the body.

So, we very quickly run out of places where ***ideas*** could even in principle be stored in the genome as evolutionary psychology would require. That is the simple computational science or physics argument against the basic assumption underpinning evolutionary psychology. There is simply nowhere for the supposed “inherited ideas” to be stored. All the space - and this has been mapped, checked and rechecked multiple times by studies exactly like the human genome project - is occupied by genes that code for proteins. But our thoughts are not made of proteins. At a reductionist level “thoughts” are stored as connections between neurones - likely in the synapses in some way - the exact mechanism is unknown. But in any case if this notion is correct, the number of neurones and synaptic connections in a typical human brain with another back-of-the-envelope calculation provides as a lower bound on the human brain of around 58 terabytes of storage. Being more realistic it could be 10 times that.

So what can evolutionary psychologists possibly mean that human behaviour can in part be explained in evolutionary terms? There are two ways this could work, and perhaps both are at play. But the “explanatory universality” lens adds an important layer to the story. The first is that the brain, being an evolved structure, does indeed confer something like “inborn ideas” to a person. For example: that a baby can make sounds at all with their vocal cords and mouth is very much a behaviour they do. It’s a behaviour they do that fish cannot: making noises. Now what is not inherited but must be learned is not “making any random noise” but particular noises such that they tend to sound like words used by the people around them. A baby tries out sounds (conjectures)

and depending on the feedback from those around them (criticism) - succeeds in getting attention or not for example - they refine the sounds with constant iteration until they can talk more and more fluently. So, generously, some of our "behaviours" are inherited by the genes. For example: making noises with the vocal chords, tongue, lips and mouth. That a human can engage in that behaviour at all is indeed an evolved behaviour. But what they specifically do with that behaviour is not. Or with that capability we might say. And, of course, a person can always decide to remain silent too. In a similar way a person inherits the behaviour of moving their limbs. But they are not born with the program of how to walk or how to swim. Only, again, trial, error and correction makes a person a proficient walker or swimmer. So to be generous to the "evolutionary psychology" field the best we can say about what is literally passed on in the genes is a very simple set of behaviours that allow for the possibility of an infinite spectrum of behaviours.

But evolutionary psychologists or those who subscribe to the field as a science typically want to make a much stronger case than that. Let us take the most low hanging fruit first. For example: mate preference.

It is said that women evolve a preference for men of high status (wealth and "position" in the social hierarchy) as a proxy for "reliable protector of offspring"). Men on the other hand evolve a preference for youth and wide hips as a proxy for fertility.

Let us put aside that if this were literally true, then why haven't the humans who deviated from those preferences died out as part of the gene pool long ago? Should they not have been "selected out"? And yet although the general trend

might be true, rather a large minority of men prefer different body types, or men(!) and so on. What explains this? The evolutionary psychologist must argue “well there are survival advantages for the species in having men who prefer larger older women or are homosexual” and so on.

But the idea that highly specific sexual preferences are passed on through the genes in that way makes little sense. It would mean, for example, that homosexual men have an unusually large amount of sex with women. Either that or the homosexual gene is especially resistant to dying out.

Likewise evolutionary psychology seeks to explain many other “features of the mind” like our desire to be artists, or comedians or even intellectuals as little more than “sexual displays”. On this account anything one engages in at length is the equivalent of “peacocking” - it’s being done to attract mates. Also this would seem to confuse natural and sexual selection in many cases. But that is a digression.

Here is another, far more sensible way of thinking about evolution and the mind. Much of our behaviour is dictated not by genes as insisted on by the evolutionary psychologists but memes. We exist in a culture and rather many memes controlling our behaviour are picked up over time as we are inculcated into our various cultures. We learn things we are not consciously aware of early on in life (for example ideas that form our sexuality) and we may come to even understand some of them explicitly (the woman who prefers the wealthy rather than the poor man). We learn our interests (in art, comedy, sport or intellectual pursuits and so on). None of this comes to us via the genes.

The evolutionary psychology account of human behaviour has a superficial veneer of plausibility because what are known as “just so” stories can be told. A “just so” story is one that -especially in the broader field of evolution - has no evidence whatsoever for it but is superficially plausible. For example: human beings have noses longer than other apes because humans can swim and having a longer nose acts like a snorkel. But that is a story - a narrative. Absent evidence of selection pressure, heritability and adaptive advantage and so on there is no reason to think it actually true.

And so too for basically everything in the field of evolutionary psychology. What explanatory universality adds to this picture is a refutation of the core tenants of evolutionary psychology. We adopt ideas - especially memes - and we create knowledge and what we know (whether consciously or not) dictates human behaviour. And even if we did inherit any ideas through the genes from our parents, explanatory universality treats all ideas, no matter their source, as the same because true universality requires that the content of a mind (the ideas) must always be able to be changed. After all, if some idea could not be changed that would refute the notion that a mind is truly universal. But what could prevent an idea from being changed? What “force” or other effect could possibly prevent some error being corrected?

So if genes cannot dictate or determine or even “shape” our behaviour - what does?

Chapter 19
Explanatory Universality and Individuality

So what explains a person's behaviour? We have already dispensed with the idea that it is "the laws of motion acting on particles in the void". In other words, just because all that exists obeys physical laws or is "determined by" physical laws - this does not make vacuous the claim that we have free will. By free will we mean something like: the capacity to create knowledge which allows us to understand the possibility of making a choice that simply did not exist before that knowledge was created. Thus explanatory creativity and free choices are intimately tied together and this unification is given the convenient shorthand name of "free will". We can choose (or not) to do a particular thing when we know about that thing. For example we were not free to choose to generate electricity via nuclear fission prior to around 1900. Among other things, no one knew about nuclei much less that the splitting of one could generate heat that could turn liquid water to steam and drive a turbine. But now that we do understand that process by creating an explanation of it that choice is now on the table and we are free to either make that choice or not.

So our knowledge allows us to make new choices and therefore behave differently. We each have very different knowledge. As I have already quoted earlier in this book, Popper emphasised that we differ widely in what we know. And those wide differences in what we know account for all or almost all of the differences in our preferences, "performance" and behaviour. People are very animated as to why this or that person performs better or worse on standardised tests, or in school and university assessments, or IQ tests or just "life in general" and they seem desperate to

pin it on anything except “it’s what a person knows”. Psychologists will insist it must be genetic or something to do with the physical body - such as the brain - that “hard codes” our “performance” in particular tasks. They cannot imagine it is the unique choices we make because of our unique circumstances which have given rise to unique interests and unique “problem situations” which require the creation of highly individual knowledge.

The only other factors, aside from knowledge - which is an abstract thing stored in the memory of the brain itself is the size of that memory, or how reliable that memory is. But the memory capacity of the human brain can always be augmented, in a healthy person at least, through the use of pencil and paper or of course these days more commonly computer memory. I may well have forgotten exactly how to replace a down-light in my kitchen that has failed, or I may never have known at all. But a simple Google, Youtube or ChatGPT enquiry will make me basically as efficient and effective as any handyman or electrician in doing this simple task. I can “export” my knowledge of this to external memory.

Yes when risks are high and tasks complex, we want expertise. An expert is someone who has, over a long period of time, corrected errors in their thinking on a topic to a level of much higher rigour than the typical person who lacks their specialised knowledge. I may be bothered to take the time to look up how to replace something simple like a downlight in my kitchen, but if there was a fire in my kitchen that damaged the actual wiring in the walls - although this is something I could in theory look up and complete the “opportunity cost” in time simply is not worth it. And hence, a reasonable person should want to call in the expert electrician (and of course in this particular case, certain laws

apply that prohibit anyone not qualified from replacing the wiring in a house).

The expert electrician has specialised knowledge which is typically hard-won. Just as an expert in any other field may have spent many years gaining expertise. And of course one's professional area of expertise is just one way their mind differs from the minds of others. Not all electricians think the same way. We are, all of us, individuals because of what is stored in our memories (this is the biggest factor by far) and secondarily how "good" our memories are. And, related, how quickly we can access those memories. Some people are said to "think quickly" but it is difficult to judge the speed of one human brain against another. Again: what a person already knows is going to make some people ***appear*** to think more quickly than others. For example: some people will know "tricks" or "shorthand" to complete certain tasks faster. But are they literally thinking faster? At one level we learn from computer science that indeed the "processor" or any other part of a computer's hardware - has a "clock speed" which is something like the number of tasks that can be completed each cycle (or each second and so on). It is not clear what the "clock cycle" or "frequency" of the human brain is. Perhaps different parts operate at different frequencies.

There is a famous mathematician who has done a couple of impressive TED talks. Arthur Benjamin's "schtick" so to speak is to take big numbers and multiply them together in his head. For example he can square four digit numbers in his head. This is a rare talent. Of course the word "talent" here simply means "knowledge he has acquired". Almost no one is interested in learning to do this kind of thing anymore precisely because we have calculators. In the past it was far more common for people to be highly adept at arithmetic like

that to the point that now it seems “magical”. Benjamin explains how he does these impressive feats to his audience, but it doesn’t help them. The “system” he has is to convert numbers into words and the words into stories of a kind and thereby “walk” his way to the answer. At one level one might say “Arthur Benjamin’s brain works lightning fast”. Indeed the title of his TED talk is “Lightning Calculation”. But any regular person speaks their native language in a “lightning” way. Many can recall at “lightning” speed the lyrics to their favourite song. Both my best friend and my partner share a “talent” for watching a movie once and then being able to recite word-for-word entire scenes.

In anycase the computer science that comes to bear on this is clear: the only physical difference between one brain and the next can possibly be the size of its memory and the speed of its processing. Now to what extent these do strictly differ between one person and the next in any appreciable way (for healthy people: so not someone with a genetic disorder or, for example, with an age-related disorder like dementia) is not well known because it is not easy to distinguish between whether it is the literal hardware of the brain making the difference or what is actually stored in the memory as knowledge that makes the difference. Again, it may well be the case Arthur Benjamin’s brain is no faster than anyone else’s. He has just stored in memory techniques that count as shortcuts for getting to the answer to arithmetic questions faster. So it’s not the speed of the brain, it’s what he knows that others do not.

Chapter 20
Summary and Conclusions

“We hold these truths to be self evident, that all men are created equal” so goes the beginning of the second sentence of the declaration of independence of the United States as written by Thomas Jefferson with help from Benjamin Franklin. It is true men were created - but not by any supernatural being but rather the incremental out workings of evolution through natural selection. And it is true they were created equal. But that is not self evident. Indeed it is a truth that many of the finest intellectuals find ways to quarrel with. Perhaps our genes are not the same, so we are not equal. Perhaps the families from which we come are not equally wealthy so we cannot possibly begin equally. It may be true in some abstract sense we are all equal before the law and yet quality legal representation can be among the most costly services anyone might ever run the risk of needing to pay for. It may be true that justice is blind in theory, but in a world of wokism or institutional racism, judges do see colour or grant people lighter sentences if they are mentally ill and so on. But scientifically and philosophically? The truth is people are each created equally. One way to put this is that we are all equal in our infinite ignorance as Karl Popper has said. All of us, no matter how much we learn of this or that narrow area can ever possibly learn everything about everything because any one thing in the universe is infinitely complex. We will never reach the end of our quest to uncover the nature of reality and so we are all of us equally far from ever obtaining a complete picture of reality, of having all questions answered - or of even asking all possible questions. We are all equal in our infinite ignorance.

But we are also equal each in our capacity to actually ask questions and seek answers. We each possess the most powerful form of universality so far uncovered in this universe: explanatory universality. We are all equal in our explanatory universality. Some of us might think a little more quickly, but as technology continues to fall in price precipitously as it become ubiquitous, each of us can purchase smartphones and other computers to effectively calculate, compute and simulate more, ever more quickly. The playing field is very much levelled in that regard by technology. We should expect that to continue apace. Already brain implants have been developed to help treat deafness and blindness and other congenital defects or accidents that may occur. As we learn more soon healthy people might decide to have implants to augment the speed of their thinking or the amount they can store in short and long term memory. That may be years, decades or centuries away but the point is because our brains just are computational devices of a kind made of regular matter organised in a very special way - we can learn to design and improve it just as we have learned to design and reshape the environment outside of our skulls. We will merge with our technology over time. It has already begun with spectacles and hearing aids and hip replacements and artificial limbs and more besides. This is not something to fear but to welcome. We want more robust bodies. No implant will ever grant us the ability to think of a wider array of things because we already have the capability for a complete 360 degree or better yet 4 pi steradians approach to the world. Or for a less mathematical analogy: we have already been granted the complete spectrum of potential when it comes to solutions we can find. If it happens in the physical world it is computable and it is explicable and by us because of our special relationship to the laws of physics. The laws of physics mandate their own

computability and comprehensibility. The only alternative are phenomena literally beyond the capacity of a universal explainer to understand and that by definition is an appeal to the supernatural. It is just another term for God. But if we are willing to remain rational the conclusion is clear: we can understand the universe. Never completely but more and more accurately over time. This grants us power over it - to turn otherwise inert matter into resources, wealth and technology. All of us can in principle do this. No matter our supposed race, gender, sexuality or ethnicity. None of those categories have any effect whatsoever upon our minds because, again, they are universal. And that quality cannot be affected by the genes to turn it up or down. There is no turning up or down universality. It simply is.

We have explored throughout this piece the idea that because of universality, we should expect each of us to approach the world in a highly unique way and have problems whose solutions demand we create different knowledge. Or in other words learn different things. This makes a mockery of the entire system of education that we have. That system is a primitive notion that every human needs to be made the same in certain ways: gain the same knowledge of literature, science, mathematics and so on. But why? The only reason seems to be so that they can be examined on it, ranked and then judged for their grades. After all if the material in school was there to actually be learned by everyone, there would be no need to grade people on it - anyone who did not learn it all would be seen to have failed if that was truly the philosophy driving modern education. But it is not. Universality teaches us that the reason people perform better and worse in school and at university and so on in exams and projects is they have different levels of curiosity about or interest in those subjects.

Likewise universality completely refutes the idea that IQ is anything to do fundamentally with the capacity of the human brain or its mind to either understand or learn anything. All that IQ tests can possibly assess is the extent to which this or that bit of knowledge has been learned. That is, whether or not the knowledge has yet appeared in memory because any knowledge that can be learned by anyone else - whether mathematical puzzles or puzzles in language and how to solve them.

And that knowledge includes cultural knowledge too. Anyone can learn to adopt the culture of anyone else, so in principle no matter where one is from, they can immigrate to anywhere else and fit in. In principle. In practice the universal mind will access a memory that in many cases already contains deeply entrenched ideas about how to behave. Computationally this must have something to do with how resistant some ideas are to changing. This is a reality of immigration. Although minds in principle can adopt any idea, in practise they will not because other ideas already present in the mind can switch off a person's critical faculties - their ability to learn. Therefore, and again referring to our uniqueness as people as being different one from another, some people will be hostile to Western civilisation. Those people should not be welcomed into Western nations until they can demonstrate they are not a danger to the people already present there. This is an increasing concern across the world for many communities who feel many who cross their national borders do not share their values. Those concerns are legitimate ones in a world dominated by some dangerous ideologies both political - like communism, socialism and environmentalism - and religious - most notably conservative and extreme versions of Islam which are

hostile to not merely to practitioners of other religions but to an entire gender.

And on gender: it is a peculiarity of our time that many in the West are obsessed by the idea we human beings can change their sex. But they cannot for that is a biological category underpinning the explanation of how it is the species persists through time - just as it explains how literally every other sexually reproducing species exists. Males produce sperm, females produce ova and mating between them produces offspring. The way that sex is expressed is sometimes called "gender" and is a property of the choices human minds make about how they will behave in society. Some biological men go to great lengths to appear for all the world like the biological women of their culture and in rarer cases vice versa. This is barely ever an issue in society because such people are said to "pass" which is to say: they are so well disguised no one knows that person seemingly with breasts and a very feminine voice and face is actually in possession of XY chromosomes in every one of their cells.

However, it has become the case that sometimes some men - it's usually men - go to zero effort whatsoever to disguise the fact they are indeed men but then demand of the rest of society that they be treated as a woman and should be allowed in the women's rest room and to perform in women's weightlifting competitions and be called Ma'am and not sir. But as I say if these people have gone to zero effort whatsoever to change their gender, why should the rest of us go to any effort whatsoever to acknowledge their preference? This eruption of irrationality and demand that everyone else bend to their peculiar idiosyncratic desires may simply be a product of the late 20-teens and 2020s and may well be over soon as we enter an era of common sense on the gender front

where people can, without discrimination, identify however they like without the expectation of discrimination but also without the expectation that society grant them special privileges only afforded to those people who either are, or at least for all the world appear as, a particular sex.

As for gender so too for sexuality. A body, a brain, a genome may have a sex but a mind cannot for it is abstract not physical. A mind cannot have a race or an ethnicity. But it can have a culture: the set of memes it has adopted.

And a mind will have a sexuality: preferences with respect to sex just as it can have preferences with respect to food, or art and so on. Minds do not begin as blank slates - we are born with certain ideas. However as ideas, universality means they can in principle be forgotten or written over and changed. In principle this is always possible even in extreme cases such as when a mind is plagued by mental illness. However sometimes the source of mental illness is not purely a matter of software: but the hardware that is the brain. In those cases many people are assisted by altering the hardware with medications. But ultimately the decision to use a medication is itself an idea. The solution is always an idea even if the idea is: intervene with this pill. It will make you feel better.

Understanding the universality of the human mind gives us a vision of our fellow earthlings as being among the first general purpose intelligences in the universe. There may be aliens out there among the stars and there may be AGI in our future. But the difference between us and existing AI and other animals is a black and white one. We have problems and can find the solutions to those problems by explaining the world while those other systems whether biological or based in silicon cannot. Not yet. And there is no ASI - no

super intelligence coming to threaten us any more than there are demons going to attack us. Those are simply appeals to the supernatural - beliefs based in the notion that the laws of physics can be broken.

The farthest reaches stretch to the ends of reality - both physical and abstract. We can understand all possible things - from the smallest fundamental particles moving in any which way to superclusters of galaxies and how the entire cosmos behaves over time. That we have managed to understand so much of the literally unseen world at the smallest scales and the largest scales should have been a deep clue to anyone interested in the nature of personhood. It is a truly amazing fact: we have understood both quarks and quasars. How can that possibly be if all our minds were capable of doing was what those minds had supposedly *evolved* to do. And that, as Richard Dawkins is fond of saying: is to understand so-called "middle world"? But is it true that some things really are queerer than we can suppose? The following is an edited transcript of a conversation between philosopher Peter Boghossian and Richard Dawkins from early in 2025 and available online as a Youtube conversation here: https://www.youtube.com/watch?v=ptVOQtBo35E&t=1243s

Conversation between Peter Boghossian and Richard Dawkins

Peter: In your TED Talk, you talked about this idea of queerer than you can suppose, and I find this, I've been thinking through this. Can you please explain that?

Richard: Yes, It's a quotation from JBS Haldane, who is a great, or was a great British biologist, geneticist, biochemist and philosopher, and he said something like this:

Now my suspicion is that the universe is not only queerer than we suppose, but queerer than we can suppose.

And queer in this sense means strange. It doesn't mean what, what you might think it means. And I adopted that phrase, “queerer than we can suppose”, to describe, what I feel about certain aspects of science. And I suppose quantum theory is the obvious one, but actually even ordinary common sense science can sometimes feel very queer. Louis Walpert had a nice illustration. He said every time you drink a glass of water or a cup of tea or beer, whatever it is, that probability is high, that you are imbibing at least one molecule that passed through the bladder of Julius Caesar. It's a probability argument. The number of molecules in a glass of water compared to the number of glasses of water there are in the entire world is such that the probability is that, that any, any particular molecule of water, you will meet twice. Or you will encounter it again. Well, that's not deeply mysterious in the way that quantum theory is mysterious, but it's, it's very surprising. Another example that Walpert uses is if you shoot a rifle horizontally and the same moment drop a bullet from the muzzle of the rifle, they'll hit the ground at the same time. I mean, I can't do the - but the, these, these kinds of things that's just queerer than we suppose. Queerer than we ***can*** suppose, I suppose, uh, might mean, uh, the interpretations of quantum theory.

Peter: Okay. So you had a podcast with sceptic Michael Shermer, who's a mutual friend of ours, and I defended this idea of ***queerer than you can suppose***, and this Australian philosopher and science educator puts out this really good demolition - three hour demolition - of that idea.

Author's note: ***That "demolition" as Peter refers to it can be found here:*** ***https://youtube.com/playlist?list=PLsE51P_yPQCSSsIdnkyA-lIssi9xbiMIT&si=yuRyCcF0MxuusyXP***

Peter: And I'm gonna try to reduce that argument, and you tell me –

Richard: Well, I'm not familiar with it, so you don't have to do a good job.

Peter: Okay, I'm gonna try. I'm gonna try. If I'm unclear, let me know. So the idea is basically nothing can be for human minds - nothing can be queerer than we ***can*** suppose. And so if the idea is that we evolved, our ancestors evolved to throw spears and kill gazelle on the savanna, those who were unsuccessful at that died off didn't get to reproduce, and those who were successful at that got to reproduce. And over successive generations, one thing that happened was-

I think you call it "middle world" in your TED talk, we understand really well the *middle world*.

Richard: Okay, ***middle world*** is the world between the very large - correct -relativity – and the very small - quantum. Yes!

Peter: Yeah. So we didn't evolve to understand it. It conferred no evolutionary advantage on us to understand what happens inside of black holes, just as it conferred no evolutionary advantage upon us to understand double slit experiments during the quantum. And so Brett Hall getting this - who's, who's a colleague of your colleague, David Deutsch, the physicist at Oxford, said that ***nothing is queerer than we can suppose because we can model everything***. So, for example, we didn't evolve to understand UV light. We didn't evolve to understand the evolution of the planets, but we do understand the evolution of the planets. We do understand electromagnetism.

Richard: Well, that's a, that's one of the criticisms, but that's just a statement. I mean it's true that we understand the solar system and we understand electromagnetic - well, I don't, but I mean -

Peter: Right.

Richard: Um, but don't forget, I mean that there was a time when people couldn't believe that anybody could live in Australia because they'd fall off. Um, it's, it's, it's no argument. I'm, I'm not doing justice because I haven't actually read his, his “The Beginning of Infinity”.

Peter: Yeah.

Richard: But, but to say, because we already understand X, that means that we therefore must be capable of understanding Y where Y is something, I mean, I could believe that there is some alien civilization where there are intelligent individuals who can understand things that we can't even begin to understand. Okay, so just as a chimpanzee can't, can't understand Pythagoras' theorem.

Authors' note: ***This is the promoted by, among others, the astronomer and science communicator Neil deGrasse Tyson who said the "ultimate laws of physics" or simply the successor theory to quantum theory or quantum gravity and so on forever lay beyond the ability of mere human beings to comprehend and that only alien intelligence will understand physics that we are forever incapable of learning. My refutation of that exact version of this argument can be found here: https://www.bretthall.org/alien-intelligence.html***

Peter: So, so, okay, so this is, this is where it gets a little contentious. So I'm an atheist. You're an atheist. Brett and David are, we're all atheists, so we don't need to impose any supernatural explanation for anything. So I think Deutsch would say, and this is - I understand this is a very bizarre criticism, bear with me - is that **saying that we can't understand the quantum realm is akin to saying that we can't understand the supernatural**. It's a kind of supernaturalism.

Richard: I would call it super-humanism, meaning there may be things which are not supernatural, but super-human in the

sense that **humans can't understand them, but some superhuman aliens can**.

Peter: If we can model it though, like if we can, if we know what happens inside of a nuclear blast, which is, there's no way we evolved to understand that, then we can understand it. Our brains, **our brains evolve to understand things far beyond what conferred an evolutionary advantage upon us**. This is, I, and I've been wrestling with this for quite some time.

Richard: Well, David Deutsch believes in the Many Worlds Interpretation of quantum theory. The Many Worlds Interpretation - if we take the example of the, the hypothetical example of Schrödinger's cat, where, Schrödinger proposed this as a way of ridiculing the Copenhagen interpretation of quantum theory, in which this cat is in a box probably, you know the hypothetical example – is in a box and there's a killing mechanism, which is triggered by a quantum event. And so the cat is shut up in the box, and you know that a quantum event might or might not have happened, so the cat might or may not be dead. According to the Copenhagen interpretation of quantum theory the cat is neither alive nor dead until you open the box and then suddenly it becomes either alive or dead. Well, Schrödinger had proposed that as a way of ridiculing the whole idea of the quantum of the Copenhagen interpretation. David believes in the many worlds interpretation, which is that the world is constantly branching and producing new worlds. And there are many worlds in which the cat is alive and many worlds in which the cat is dead. And already in our particular world, the cat is either alive or dead. And we don't

know until we open the box. But there are another millions of worlds in which the cat is alive or dead.

Author's Note: ***It is presently understood that the "number of worlds" insofar as they can be counted (better to say "measured"), are always the same. At the big bang the worlds were all identical. In modern parlance associated with this and introduced by Deutsch, we say they were all fungible. When options are available in physical reality then the worlds differentiate (become different) according to measure dictated by physical law. In other words: new "worlds" are not constantly being produced as such because they were all already there. Rather like a big block of clay which is already there. No new clay may be produced but it may well be rearranged into many very different forms. This distinction between "produced" (or sometimes "splitting") and "differentiation" of previously "fungible instances" is crucial and solves many conceptual problems people can intuitively have with the explanation.***

Richard: Um, by the way, there's a lovely cartoon in the New Yorker I saw a few years ago, which was in a veterinary surgeon's waiting room, and there were people with their pet dogs, with their lampshades on and things, and, and the nurse was coming out and she was saying to one of the people sitting there about your cat, Mr. Schrödinger, I have some good news and some bad news.

Anyway, David Deutsch believes in the many worlds interpretation, which is that **the cat is alive in some worlds and dead in others**. Well, now that is, at least, that doesn't totally defy common sense. It does defy economy. It's a

ridiculously uneconomic idea - unparsimonious idea. But unlike the Copenhagen interpretation, it's not just horrible.

Author's note: ***In both The Fabric of Reality (especially) and The Beginning of Infinity, Deutsch answers this precise criticism. The Many Worlds (or Everettian Quantum Theory) is in fact the most parsimonious way of interpreting the results of quantum theory. It adds no additional assumptions (like part of reality predicted to exists just "vanishes" upon observation or some such). And in terms of "economy" of universes or matter or some such – if the world is that way, then being dogmatically committed only to what you can see with your own eyes would be irrational – not scientific. As I explained to Bret Weinstein who is another biologist who rejects the many worlds interpretation: that would be like rejecting the idea of exo-planets beyond out galaxy because present technology is woefully inadequate to capture them. "Economics" would tell us to be committed only to the existence of planets within range of our telescopes. You can see that discussion here: https://www.youtube.com/watch?v=Kp8DevWKCic***

Peter: Um, and does the fact that he can posit that or does the fact that you can make an eloquent argument for "the selfish gene" does that mean that things are not queerer than we can suppose?

Richard: Well, no, because "the selfish gene" is relatively simple and there are a few people who are clever enough maybe to understand quantum theory, but **I don't know how you can be so confident that there are not other things**

which nobody can understand in the same way as a dog can't understand Newton's laws.

Peter: You, you gave the example in a Ted Talk of dogs who smell and water striders and the consciousness of a water strider, you know, those little bugs that just float on top of the water of a water strider and our consciousness, the, the way we've evolved, we just cannot, we cannot understand. So I'm thinking: is the difficulty maybe in the idea that what we mean by ***understand***, because I think Deutsch would say that if you can model it, you can understand it.

Richard: I, I am not sure about that. I don't know either. I mean, David Deutsch is an incredibly clever man. And highly original and everything he says sounds odd until you think about it further, you think how real it is. And, and so I, I wouldn't like to, um, put myself against him. I wouldn't like to have a debate with him.

This shows just how far the misconceptions around explanatory universality go. If only everyone understood the term “explanatory universality” in the way they understood the term “infinity” - yes always with misconceptions, but at least converging on something resembling truth. In other words if only it were part of our shared *vernacular* to just some degree. But it is not. Because unfortunately, for reasons I have stated much earlier in this piece, most people do not understand the word “universality”, period - never mind even approximately. And they do not understand the conjectural nature of knowledge either. Yet both of those crucial concepts

are required in a deep sense to appreciate the reach and significance of “explanatory universality”. So, unfortunately on this even so great an intellect as Richard Dawkins is wrong. But he is in excellent company.

Almost everyone everywhere thinks there must be things that we cannot, even in principle, understand and entities that stand in relation to us as we stand in relation to chimpanzees. Most of those people are deeply religious. Some are deeply rational and have, like Richard, reasoned their way into supernatural thinking though they will deny that. They may even be horrified by the suggestion given they are out-and-proud rationalist atheists who reject all things mystical and magical. But that misconception is completely cleared up by appreciating the depth of this idea that is explanatory universality.

We can understand anything but not everything in any final sense. There is no “final sense” because every solution we find reveals new problems to us.

We will find things still smaller and still larger than the structures we presently understand. At all scales we will continue to uncover mysteries. And it is we who will uncover these mysteries and attempt solutions. We are not guaranteed to succeed - there are no guarantees except that we shall encounter problems. Those are always inevitable. But they are also soluble so at least we have a shot at success and eternal success at that. That it is we - universal explainers - who can understand anything at any scale may be a deep clue that a scale independent theory might one day explain not only all of physical reality (large and small) but perhaps have something to say about the unique capacity of our own minds. Could that theory be Constructor Theory? No one can

yet tell. The universe is vast. But a universal mind can always expand to be just as vast, for there are no limits upon it except the laws of physics themselves and those allow for any universal explainer to understand anything, any entity and any physical process in the universe and the multiverse and even beyond - if there is a beyond. It is explanatory universality that grants us the capacity to investigate the farthest reaches in all directions: to the edge of the universe, the structure of the multiverse, the building blocks of matter and the fundamentals of physics. Our minds have the farthest reach into all things, including one day into themselves understanding what exactly explanatory universality is and therefore how to program it so we can populate this world with ever more people. Because we shall need more people. Every person is a creative spark and we shall need a veritable inferno of explanation creation to illuminate the universe if we are to survive it indefinitely.

Acknowledgements

The question of personhood has animated philosophers for millennia. Is a person that entity uniquely capable of appreciating art? Even cavemen had cave drawings after all. Or is it their capability to be moral and be concerned about not merely other members of their own species but members of other species and even inanimate things like the nebulous environment? Or is it our ability to do mathematics and science? Those debates are over now. David Deutsch has explained that all of those are simply manifestations of the deeper, fundamental truth. We are universal explainers and hence we can do any art, understand any science and improve any morality using these minds. But as Karl Popper said: we all remain equal in our infinite ignorance.

Naval Ravikant encouraged me to research how the transformer architecture works at a technical level. And to a large extent I felt I succeeded only to find it seemed impossible to explain at an emergent level and no expert who understood the technical details likewise could explain how the amazing capabilities of LLMs emerged from what was a simple architecture. That was over 2 years ago and since then debates have raged about where LLMs will go. No one knows.

Peter Boghossian helped me refine my arguments around explanatory universality and has been a friendly sparring partner ever since in discussions around our differences in epistemology and technical matters associated with what a person is.

And viewers and listeners with their constant stream of questions on X, Youtube and other social media channels are always a source of inspiration with their own utterly unpredictable and unique perspectives on these things. Keep the questions coming.

Afterward

Since the podcast series of the same title as this book appeared, many fans of my work expressed their appreciation for it. Some fraction of them expressed support for the idea it be turned into a book - which is why you are now reading this. Also since its publication the tsunami of pessimism and misconceptions around personhood only continue to mount. Philosopher Nick Bostrom appeared on an interview that went viral on @X making the same noises he has made for the last decade and a half about the dangers of superintelligence. That interview can be found here: https://www.youtube.com/watch?v=HfuFcTzNQoY

Meanwhile podcaster Chris Williamson's almost 4 million subscribers had the experience of listening to Eliezer Yudkowsky across 90 minutes defending his thesis that if anyone builds it (superintelligence) everyone dies. https://www.youtube.com/watch?v=nRvAt4H7d7E

Neither of these thinkers - the most prominent aside from perhaps Max Tegmark and Sam Harris on this topic - understand explanatory universality. Or if they do, it is in their interest not to take it too seriously as it would fundamentally undermine the central thesis of their

argument: that there can be systems that stand in relation to us as we stand in relation to cockroaches or chimpanzees. For now, this is the zeitgeist. As I continue to argue there will remain a market for this for a long time as it is indeed thrilling to be told about the end-times. But this is not merely a quirky part of our present intellectual culture. It is part of a larger anti-human pessimism that finds common cause with authoritarians, socialists or communists, anti-capitalists, the environmental movement, the anti-Enlightenment movements, the anti-Western forces and on and on all because they share a common foe: humanity itself and the progress it makes. Yes: of course Bostrom and Yudkowsky and others will say that they are pro-human. And it is precisely because of their concern for human lives that they want to halt progress now on AI because if the mistake occurs there, it is the last mistake that will ever be made. But that argument likewise has been made before: about the dangers of allowing just anyone to learn to read, or the development of nuclear weapons, or climate change mitigation and so on. Every intellectual has their pet preference for the most pressing problem and what is most urgent for everyone to do now.

But as I say: the only guarantee of our extinction is a lack of sufficiently rapid progress. And we cannot stop progress in one area (like AI) without stopping or at least stymying progress elsewhere (mathematics, physics, chemistry, silicon chip manufacture, etc, etc). Censorship in one area of research necessarily bleeds into, eventually all or almost all areas because reality is a singular whole, and therefore explanations about it likewise unified in the long term. But those explanations which are the key to our long term survival may well not be found in time because the key to unlocking them made literally illegal by consortiums of

intellectuals, think tanks and politicians in search of a new cause or new problem that legislation can apparently remedy. AI technology and research is ripe for such regulation. All of the perverse incentives are now there as they were for the regulation of the use of fossil fuels.

It is in the interests of large businesses to pressure government to regulate AI research precisely because some large tech companies serve to benefit from those regulations. This is not unprecedented. It is well known that when Microsoft, first faced with an anti-trust suit from the US Federal Government, moved an entire department of lobbyists to Washington D.C afterwards. Ever since, Microsoft has been left largely alone by the politicians and Microsoft products deployed ubiquitously across government computers. The threat of regulation, and regulation in favour of some sectors of the industry and not others, is a perverse insertion of socialism or authoritarianism not merely into the free market of trade, but the free market of ideas.

Presently few people have a Popperian perspective on politics. We want a system where it is easy to remove bad policies and politicians without violence. But we increasingly find regulations and a bureaucracy which is deeply entrenched into nominally “democratic” institutions. Politicians may come and go, but bureaucratic regulations remain because bureaucrats cannot be voted out, nor easily removed from their positions even by powerful elected officials. This has become known as the “swamp” or the “blob” in various places.

It impedes progress. And if it winds itself around research into technology - in particular software and AI - this great tool of progress and accelerating progress will be co-opted by

a few (large tech companies and some governments) and individuals will be hampered in their capacity to make use of it.

Of course technology is “problematic” - it always will be. But if we, in the tradition of the Enlightenment, do not embrace the change and the accelerated progress we might make, our enemies will. And while our intellectuals presently do not understand the power of explanatory universality and what it means to be a person, our enemies wouldn’t care if they did. Because in rather many cases they see humanity only fit to be controlled in order to safeguard a place in a mystical afterlife. Or, at the least, to have complete control in this life so that the utopia can be implemented on Earth.

The choice is between tending in the direction of that kind of stasis - where nothing or almost nothing changes on the timescale of a human life, or dynamism where rapid change is expected because we create solutions to the problems we encounter. Either side of this divide between dynamism and stasis is an appreciation of the idea we are all unique, creative individuals with our own problems. Allowing us to be maximally creative to the extent we wish to be is what will cause societies to become ever more dynamic rather than going the way of every other extinct society that has ever been on this planet. We can be the first to make it to The Farthest Reaches of the universe. But we have to be permitted to do so by the powers that be here and now. And then we have to make the choice to do so. We can transform anything into anything else if we know how. One day we shall automate that process: outsource it to a universal constructor. Any person (universal explainer) needing to code a universal constructor or otherwise speak its language will only need augmentation with an AI large language model or whatever

the next generation of AI “agents” happens to be. Ask the “agent” and you shall receive the code. Send the code to your desktop Universal constructor and it shall be so. Or more likely the universal constructor will come packaged with a large language model. Legislation shall be needed. There will be guardrails. But those will be minimal. Like what laws apply to what can presently be manufactured in existing factories and shipped to regular consumers.

We already occupy the on-ramp to transforming reality. Soon we will be on the highway in a self driving super safe car. And it will be able to fly to the farthest reaches we can imagine. For that will be the only limitation: imagination.

If you found this book valuable or indeed any of my other work then consider visiting **www.bretthall.org** where I do accept donations. This book and all of my content remains ***free*** because although I do need to earn a living that living is only made possible if the tradition of criticism - the Enlightenment is preserved. And that is in large part what my work is about and a price cannot be placed upon it. Hence, again, why the call for voluntary donations rather than paywalls and price tags.