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Why Physics

William Gillis

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At some point my friends eventually feel compelled to ask me why, as an anarchist, I would want to work as a theoretical physicist—rather than say an AI researcher or a geneticist or a cryptographer or a materials scientist or a restoration ecologist. Those are clearly high-impact professions; developments in these fields can reshape the world, and there is desperate need for more people to work in them.

The answer is simple: I want to make sure I'm right.

I'm really concerned that I might be wrong in some deep way that matters. In a way that ends up hurting people or having a negative effect I never predicted, or going against an unknown but better desire that I might've otherwise developed. I could never just permanently lock myself into some random project because *it seemed like a good idea at the time*. I'm a due-diligence kinda person. Prior to being an anarchist, prior to wanting to change the world in any particular direction, I am a radical. And so my first allegiance is making sure I really am grasping at the roots. That my values, desires and the strategies I might choose aren't predicated on a mistaken impression of the world in some deep way.

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A term that some AI researchers have adopted is the “ontological update problem” and I think that phrase captures it perfectly. Your goals are only ever expressible in terms of the map of the world you carry in your head, and if that map is revealed as poorly matching the actual world you are never entirely clear on how to proceed. It may well be that the world is nothing like you thought, that the things you take to be crystal clear are in fact absurdly murky, and the murky clear. It may be that what you thought perfectly actionable is in fact not just impossible but incoherent. Our picture of the world, of how it works and what is possible, determines what values we gravitate towards, it determines who we are. To give up on searching for a better map of the world is to give up on improving yourself.

I could never *exclusively* dedicate my life to working on some random tool or campaign, no matter how seemingly commonsensical or certain the issue. Always at the back of my head would be scratching a ruthless uncertainty. The infuriating and unrelenting knowledge that the commitments of my life were an already-made gamble. I would be haunted by the notion that if I revisited that gamble and thought about my choice further I might evaluate things differently. I would feel imprisoned by the having sunk too much into enacting a plan of action, incapable of revising or updating the hasty assumptions and first impressions that led to this avenue.

There are, of course, practically infinite things to doubt, to check, to re-evaluate, to continually probe just to be a vigilant human being. You will never hit them all up. But some issues are deeper than others, some far more sweeping in their consequence.

What if everything we think we know about time or causality is wrong? What if everything we think we know about complexity, about consciousness, about energy, about the very parameters that so closely guide and fence in what we consider to be possible, are wrong? How will the universe end? What

are the basic parameters that constrain all possibilities? What does it mean to speak of “consequence” in an infinite multi-universe of a certain type? Is there a difference between life and non-life? Etc. Etc. Etc. Sometimes huge ramifications spiral out from even the most esoteric of mathematical questions.

Philosophy can map out a great many fundamental questions and dependencies, but it can often only go so far and is quickly exhausted. Theoretical physics is the first place we start to draw hesitant answers, where a stray insight could change everything. I cannot imagine a world where I am not drawn to it like a loadstone. Where the latest big paper on AdS/CFT doesn't pull at me with a raw nagging hunger. I am fascinated by everything. In every subject I feel a needling pull to explore, to check around every corner for another unforeseen cataclysmic insight or jarringly missed piece, for just a little more of a map. But physics is the frontier, the inescapable root.

It is also, of course, utterly beautiful, full of wondrous experiences that almost cannot be described or compared, granting perspectives that reveal entirely new colors at play in the world. The qualia of physics and math, the richness, the crystal clarity, the complex humor of someone's proof, the overwhelming resonance of the revealed relations and their potency at further exploration make sad jokes of all the cheap fragmentary poetic or neural associations one can momentarily garner and perhaps struggle to hold onto from drugs and religions. Trying to explain this kind of experiential depth to those who have never even glimpsed mathematics beyond arithmetic isn't like explaining sex to a preschooler, it's like trying to explain the subjectivity of other individuals' knowledge to a toddler or self-awareness to an newborn. The doors it opens to experiencing reality and the remarkable solidity of the whole affair are not even fathomable beforehand. Once you taste this, once you remember what such world-shattering and then world-expansion feels like, when

you realize that there could still be yet more of them ahead...
there is no ignoring it ever again.

Physics is where I finally fully satiate my yearning humility, and my desperate need to never give up my agency in some foolhardy or naive gamble. I am not a physicist because I'm an anarchist—because I want to make the world a better place—if it was only so I might instead be content to build cheaper solar panels or even train as a sniper. I am a physicist because before any of that I care about getting things right. Because I am a radical. Unlimited in audacity while driven by an infinite humility that refuses to take anything for granted.

I am drawn to theoretical physics because I want to remain alive. I don't want to let the death to creep in anywhere, I don't want to let even just one tiny part of me permanently surrender to the putrid rot of "good enough".

And I suspect I would be less capable at fighting for a better world if I was any other sort of person.

Sorry, is that too much to stick in a Statement of Purpose?