# Blake R2 1N

#### Utilitarianism is a theory of calculation

#### First, we must use frameworks that can apply to governments because the actor of the resolution is States. States cannot know specific details of situations they have to make decisions about. This requires a utilitarian metric that can make decisions without all knowledge. Thus this is the only fair calculus we can evaluate the

Robert E. **Goodin,** 19**95**

Goodin is a Professor of Philosophy at the Research School of the Social Sciences at the Australian National University. Cambridge University Press, “Utilitarianism As a Public Philosophy” pg 63

My larger argument turns on the proposition that there is something special about **the situation of public officials that makes utilitarianism more plausible for them** (or, more precisely, makes them adopt a form of utilitarianism that we would find more acceptable) **than private individuals**. Before proceeding with that larger argument, I must therefore say what it is that is so special about public officials and their situations that makes it both more necessary and more desirable for them to adopt a more credible form of utilitarianism.  Consider, first the argument from necessity. Public **officials are obliged to make** their **choices** under uncertainty, and uncertainty of a very special sort at that. All choices-public and private alike- are made **under some degree of uncertainty**, of course.  But in the nature of things, private individuals will usually have more complete information on the peculiarities of their own circumstances and on the ramifications that alternative possible choices might have for them. Public **officials**, in contrast, at relatively poorly informed as to the effects that their choices will have on individuals, one by one. What they **typically** do **know** are **generalities**: averages and aggregates. **They know what will happen most often** to most people as a result of their various possible choices. But that is all.  That is enough to allow public policy makers to use the utilitarian calculus – if they want to use it at all – to choose general rules of conduct. **Knowing** aggregates and **averages**, **they can proceed to calculate** the **utility payoffs** from adopting each alternative possible general rule. **But they cannot be sure what the payoff will be to any given individual or on any particular occasion**. Their knowledge of generalities, aggregates and averages is just not sufficiently fine-grained for that.

#### Second, duties and rights develop based framework devolves into consequentialism. Duties develop because of relative good and maximizing good. Rights, freedom, and autonomy are only impactful because of their ability to interact with the physical world which necessitates a perspective that maximizes benefits.

## Contention: Asteroid Mining

#### Asteroids can contain up to 50 billion USD in platinum

Andrew **glester** june, 11 **2018** “the asteroid trillionaires”  <https://physicsworld.com/a/the-asteroid-trillionaires/#:~:text=A%20Caltech%20study%20put%20the,as%20%2450bn%20of%20platinum.>

A [Caltech](http://www.caltech.edu/) study put **the cost of an asteroid-mining mission at $2.6bn** – perhaps not surprisingly the same estimated cost of NASA’s erstwhile ARM. It might sound a lot, **but a rare-earth-metal mine has comparable set-up costs of up to $1bn and a football-field-sized asteroid could contain as much as $50bn of platinum.**

#### There are 10 platinum rich asteroids near earth and 18 water rich asteroids

Andrew **glester** june, 11 **2018** “the asteroid trillionaires”  <https://physicsworld.com/a/the-asteroid-trillionaires/#:~:text=A%20Caltech%20study%20put%20the,as%20%2450bn%20of%20platinum.>

But how many asteroids are potential mining hotspots? [**Martin Elvis**](http://hea-www.harvard.edu/~elvis/)**, a Harvard University astrophysicist with an interest in asteroid mining, developed an equation in 2013 to estimate the number of asteroids that might be potential mining candidates with our current technology.** **The equation accounts for the number of asteroids within reach of today’s rocket ships, the likelihood of them being worth mining, whether it is practically feasible to mine them, and whether they would yield a profit.** When he first ran the numbers back in 2013, **Elvis estimated that around 10 potentially metal-rich asteroids, and 18 sufficiently water-rich, lie within our grasp.**

### Earth is too scarce of resources and we need alternative methods to get platinum now

**Melendez 17** [Melendez, Steven. 06-27-2017. “Forget Coal: Asteroid Mining Is Coming Sooner Than You Think”,  <https://www.fastcompany.com/40419405/theres-gold-and-platinum-and-cobalt-in-them-thar-asteroids>

President Donald Trump is obsessed with returning America to its coal mining past—but scientists and entreprenurs have far more ambitious plans. As the planet’s **precious metal reserves tap out,** big business and NASA are looking to the skies. **The race to mine asteroids** swirling around the solar system is on. Space mining **may sound like science fiction**, but it’s **[is] real**, and big developments are on tap in the next decade. Asteroids are essentially massive rocks that orbit the sun, and many are thought to consist of **platinum**, gold, iron, and more. **A single** **500-meter-wide asteroid can contain** almost **175 times Earth’s annual platinum** mining **output,** **according to M**assachusetts **I**nstitute of **T**echnology research. **The metal,** worth about $930 per ounce, **is** used in jewelry and is a byword for luxury—think platinum credit cards—but it’s also **used in the catalytic converters installed in every modern car, in industrial chemical processes, and in many electronics.** SPACE MINING ECONOMICS Conventional wisdom may be that going to space to bring back what is needed on terra firma is economically nuts. Not so, analysts insist. “While the psychological barrier to mining asteroids is high, the actual financial and technological barriers are far lower,” says a recent report prepared on the subject by Goldman Sachs. Proponents say that before long, robots could be traveling to asteroids to extract platinum and other valuable minerals to haul back to Earth or even one day to use in space-based manufacturing plants. A 2012 Caltech study found that it could cost just $2.6 billion to capture an asteroid and bring it into orbit near Earth, making human exploration and robotic mining that much easier. “We expect that systems could be built for less than that given trends in the cost of manufacturing spacecraft and improvements in technology,” the Goldman report says. It also predicts the eventual result would be far lower costs: “Successful asteroid mining would likely crater the global price of platinum” by dramatically increasing the supply. “The market is a big unknown because of things like platinum,” says Jay McMahon, an assistant professor at the University of Colorado’s Center for Astrodynamics Research. “You don’t know what’s going to happen if you bring back a big haul of platinum, what that would do to the market on Earth or how much demand there is.”

#### The asteroid mining industry is predicted to be sustainable in 20-50 years, and the first physical mining of an asteroid is predicted to take place in 10

Tomasz **nowakowski** october 30, **2017** “asteroid mining could start 10-20 years from now, says industry expert”

<https://phys.org/news/2017-10-asteroid-years-industry-expert.html>

**"Asteroid mining on a regular basis,** **such as terrestrial mining takes place today,** **with an established industry and an ecosystem of supporting services businesses for the mining companies, could start anywhere from 20 to 50 years is my personal opinion. But any industry must start somewhere, and I think we will see the first asteroid being mined 10 to 20 years from now, at which point the surrounding ecosystem will begin to grow," Galache said**.

#### Platinum is critical to hydrogen fuel cells

**Fuelcellsworks**, **20** “hydrogen today and tomorrow: platinum” <https://fuelcellsworks.com/news/hydrogen-today-and-tommorow-platinum/>

Platinum is a silverish-white transition metal. With applications in investments, jewelry, and petroleum refining, **platinum is an incredibly versatile metal**. It also happens to be **[and] the best catalyst for hydrogen fuel cells**. Its electron structure lets it easily absorbs H2 and O2 but quickly dispels H2O. in other words, hydrogen and oxygen will stick onto platinum when it needs to join, but will quickly leave once combined, leaving more room for more hydrogen and oxygen

#### Ozin,15 - Geoffrey Ozin“Is there enough platinum to run a solar-powered hydrogen economy?”, Advanced Science News, <https://www.advancedsciencenews.com/is-there-enough-platinum-to-run-a-solar-powered-hydrogen-economy/>

#### Hydrogen as a clean energy source for fuel cells in the transportation and power generation sectors, as well as an effective reducing agent for transforming carbon dioxide to value-added chemicals and fuels, could solve some of the adverse consequences of burning fossil fuels that release greenhouse gas into the atmosphere and chemicals that pollute the environment [1, 2]. Today, hydrogen is produced by steam reforming, gasification and electrolysis. Most of hydrogen is produced from fossil fuels (48% natural gas, 30% oil, 18% coal) while electrolysis of water accounts for only 4%. The electricity to enable water electrolysis has traditionally come from fossil and nuclear sources, which are increasingly being replaced by clean, renewable electrical energy from solar, hydro and wind. The practical realization of the full environmental and security benefits of clean and renewable hydrogen for use in fuel cells and conversion of carbon dioxide to chemicals and fuels, will necessitate the development of large-scale, low-cost hydrogen generation methods from renewable resources with a minimal carbon footprint. Amongst the different options for generating hydrogen, the photo-electrochemical approach, which utilizes sunlight to directly split water is considered to be amongst the most promising technologically and economically. Nevertheless, efficiency, figures-of-merit and longevity issues, requiring basic-directed research to improve loss mechanisms and increase electrodes, materials and device performance and stability, ultimately to develop operationally safe systems, remain the most challenging and critically important issues to enable advances in the field [3]. Photo-electrochemistry is an electrochemical technique, which employs light harvesting catalysts most often based on specialized semiconductor and metal nanostructures and combinations thereof. It is a truism that many research scientists, who recognize the axiom of the ‘materials dilemma’, remain skeptical of finding a practical and efficient photo-catalyst that can enable the light-assisted electrochemical H2 evolution reaction from H2O at a sufficiently large scale to facilitate a TW H2 economy. This refers to the challenge often confronted by scientists, engineers, industry and manufacturers trying to discover champion materials for a large scale catalytic process, where the best performers are comprised of elemental compositions in short supply and too pricey while inferior performers consist of earth abundant low cost elemental compositions. This is certainly true for the catalytically active platinum group metals Ru, Os, Rh, Ir, Pd and Pt in nanostructured forms as well as the catalytic sites of diverse classes of molecules, clusters, polymers and materials. In the case of the photo-electrochemical H2 evolution reaction from aqueous phase H2O, the champion catalyst remains Pt [Platinum] despite much research devoted to find a more abundant cheaper alternative. This is simply because Pt [platinum] as a H2 evolution catalyst still has the world-record exchange current density and low Tafel slope. Moreover, Pt is reported to be more durable in acidic environments, which is the common case in photo-electrochemical devices. This illustrates the difficult choice one has to make in translating solar fuels materials science to a technology that could be implemented on a large scale. Should one continue to focus attention on bringing down the cost of rare and expensive superior performance materials like Pt or devote time and effort to improving the poorer performance of common cheap materials? It turns out not surprisingly that the efficiency of the H2 evolution reaction sensitively depends on the loading and size of the nanostructured Pt catalyst integrated with the photon harvesting, electron transporting photocathode. In this context, it is pertinent that a recent study has quantified how much Pt is actually required to optimise the H2 evolution rate in a photo-electrochemistry experiment using an exceptionally well-defined Pt-TiO2-Ti-pn+Si composite photocathode [4]. In this experiment, the size and loading of Pt nanoparticles were controlled using a sophisticated supersonic molecular beam source that was able to deposit mass-selected Pt nanoparticles from the gas-phase, with retention of their size, onto the photocathode. From detailed materials characterization measurements and in depth photo-electrochemistry experiments, it was found that the size of the most active Pt nanoparticles for the H2 evolution reaction was 5 nm at a loading level of 100 ng/cm2 on the photocathode. For a state-of-the-art over-potential of 50 mV this translated to about 54 tons of Pt in order to create a TW scale photo-electrochemical H2 generation infrastructure. How often this 54 tons have to be replaced is a crucial question. The issue of a well-designed Pt recycling system is clearly advisable. This tonnage amounts to around 30% of the current global annual production of Pt most of which is currently used in automobile catalytic converters and jewellery. In terms of known Pt mineral resources (earth abundance 3.7×10-6 %) this does not seem like an insurmountable obstacle if it was decided by policy makers, the renewable energy industry and process engineers to establish an economically and environmentally viable TW H2 clean and green global technology founded upon the photo-electrochemical splitting of H2O using Pt as the metal of choice. It is pertinent to note that it may prove possible to reduce this amount of Pt by many orders of magnitude if the size of the Pt nanoparticles could be reduced from 5 nm to the atomically dispersed state and the catalytic activity for the H2 evolution reaction maintained if not improved [5]. Encouragingly in this context, a recent report revealed that the readily accessible, nanoporous layered material carbon nitride (C3N4), can anchor individual Pd atoms at the N sites and is able to function as a thermally stable hydrogenation catalyst for the production of many organic substances [6]. If this breakthrough can be extended to Pt atoms on C3N4-based photocathodes, this has the potential to reduce the Pt catalyst tonnage requirement by orders of magnitude. For photo-electrochemical hydrogen generating systems, besides the availability and cost of Pt, techno-economic challenges will also be encountered by constraining the area for water splitting to that of the light harvesting units and the area and cost of required land. The overall cost analysis of this kind of integrated photo-electrochemistry system will have to be compared with the cost efficiency of competing hydrogen producing technologies that employ Pt electro-catalysts based upon electrically integrated photovoltaic-electrolysis systems and grid integration of decoupled photovoltaics and electrolysis systems [7]. It is worth noting that the production of Pt since the early 2000s has varied between just over 150 tons to about 220 tons. Obviously there is scope for further production if necessary. The price has been volatile. It was stable from 1992 to 2000 and then steadily rose until it touched about $2,252 per ounce in 2008. It then fell off a cliff later in 2008 falling to $774 per ounce. It has since gone up and down, as high as $1,900 per ounce and today stands at about $950 per ounce [8]. The price of Pt seems to be related to the fortunes of the economy, when the economy is good and growing so does the price of Pt. A big question is, do we want to base a H2 economy on a rare element like Pt, where countries could be held to ransom on either the price or supply rather like the current situation with oil? Perhaps, when more research scientists challenge the doctrine of the ‘materials dilemma’ by using new value propositions with economic models for producing Pt, they may entice business and industry leaders to produce Pt as if it were a ‘common element’, one that was absolutely essential for creating a sustainable future. Currently, fossil fuel industry methods remain economically advantageous, despite the adverse consequences on our environment and climate. A transition to clean energy technologies will take time, nevertheless many companies have already realized the benefits of this ground-breaking change. An impressive example of the conversion from fossil to H2 fuel is seen with Toyota. After more than twenty years of rigorous research and development they have manufactured automobiles with H2 fuel-cell powered engines to become commercially available later this year [9]. To enable this transition, H2 fuel stations as well as H2 generators integrated into automobiles will have to be rapidly developed. It seems that we should not yet write off rare expensive Pt [platinum] as the catalytic metal of choice for making solar H2 on an industrially significant scale to power a global hydrogen economy. If Pt is selected as the catalyst of choice, there should as well be alternative choices of cheap and abundant elemental compositions, which can quickly take the place of Pt as a photo-catalyst. We shouldn’t stop looking for cheaper alternatives as there’s a whole bunch of interesting alternative materials out there. To invoke the wisdom of the American novelist, Mark Twain: “It ain’t what you don’t know that gets you into trouble. It’s what you’re sure you know that does.” If we’re so sure that Pt [platinum] is too rare and expensive to process on a global industrial scale, we may be adding to our troubles, rather than resolving them with this nano solution.

#### Hydrogen energy is Key to negative emissions and is more effective than current methods of fighting climate change

**DeWeerdt**, 6-26-**18** “Could the hydrogen economy throw us a climate-change lifeline?”, Anthropocene, http://www.anthropocenemagazine.org/2018/06/could-hydrogen-economy-throw-climate-change-lifeline/

According to scientists who track humanity’s greenhouse gas budget, it’s looking more and more likely that we will emit more carbon dioxide than is compatible with limiting global warming to **2 °C**, let alone 1.5 °C, as envisioned in the Paris Agreement. That reality has focused more attention on negative emissions – technologies for pulling carbon dioxide out of the air and sequestering it more or less permanently. Many attempts to model different emissions pathways and predict future climate now assume that negative emissions will be necessary to plug the hole in our carbon budget. So far, most attention has focused on a method called bioenergy with carbon capture and storage **(BECCS**): grow certain trees or grasses on large plantations, harvest and burn them for energy, **capture the resulting carbon dioxide, and inject it underground**. The problem is that **this might not be feasible in practice**. For one thing, **the scale** of carbon removal needed **is so massive** that there may not be enough land to grow bioenergy crops without putting natural ecosystems or food production at risk. And scientists aren’t sure that storing huge quantities of carbon dioxide underground will be safe and secure over the long term. But **there may be other options**. According to an analysis published yesterday in Nature Climate Change, negative-emissions methods to produce hydrogen fuel could have **even greater power generation** and **carbon storage potential** than BECCS, and cost less. What’s more, **negative-energy hydrogen would yield byproducts that** **fight ocean acidification.** The process uses renewable energy to split water to yield hydrogen fuel. Meanwhile, a series of additional chemical reactions convert dissolved carbon dioxide to bicarbonate. Scientists have recently developed several different methods that are variations on this same basic theme. Bicarbonate is an important component of seawater and is used as raw material by shell-forming organisms. One effect of ocean acidification is that bicarbonate is in shorter supply, making it more difficult for marine organisms to make shells. Negative-emissions hydrogen would **replenish the ocean’s stock of bicarbonate while sequestering** **carbon**. It’s essentially an accelerated version of a natural process, called mineral weathering, that has kept ocean chemistry in balance across geologic time scales. In the new analysis, researchers evaluated the potential of negative-emissions hydrogen energy production and carbon dioxide removal. They calculated that **the** global energy **system could produce between 300 and 3,000 exajoules of negative-emissions hydrogen energy per year. (One exajoule is equivalent to** the amount of energy contained in **174 million barrels of oil.) The method could remove** between 90 and **900 gigatonnes of carbon dioxide** from the air **annually**. Anthropogenic carbon dioxide emissions are currently about 41 gigatonnes per year. By comparison, other scientists have calculated that **BECCS could** produce as much as 300 exajoules of energy yearly, and **sequester up to 12 gigatonnes** of carbon per year. The new analysis also suggests that negative-emissions hydrogen is more efficient than BECCS, in that it removes about seven times more carbon dioxide per unit of energy generated. How much this would all cost depends on what form of renewable electricity is used. The researchers estimate that using hydropower to split water would cost 7 per kilowatt hour of hydrogen fuel produced, while using high-cost solar electricity would cost 64 cents. Carbon removal would cost between $3 and $161 per tonne, again depending on the form of energy used. Overall, these estimates are less than or roughly equal to the cost of carbon capture and storage in fossil fuel-based systems. They are also equivalent to or much lower than the costs associated with BECCS. On the other hand, a downside of negative-emissions hydrogen is that hydrogen fuel is not as readily used by the global energy system as the electricity produced by BECCS is. But this could change in a future **“hydrogen economy”** as this fuel gets more integrated into the transportation system and the energy grid. Negative-emissions hydrogen could also have its own environmental impacts from mining minerals and water use. And it remains to be seen how well this would work in practice, especially at a large scale. But as an argument that it’s worth exploring alternatives to BECCS, negative-emissions hydrogen looks pretty compelling. “The negative-emissions energy field is in its infancy and therefore the methods discussed here are unlikely to be the only ones ultimately worth considering,” the researchers write.

**Climate change is an existential risk that multiplies other impacts**

**Torres 16** (Phil, PhD candidate @ Rice in tropical conservation biology, affiliate scholar @ Institute for Ethics and Emerging Technologies, July 22, 2016, “Op-ed: **Climate Change Is the Most Urgent Existential Risk**,” <http://ieet.org/index.php/IEET/more/Torres20160807>)

Humanity faces a number of formidable challenges this century. Threats to our collective survival stem from asteroids and comets, supervolcanoes, global pandemics, climate change, biodiversity loss, nuclear weapons, biotechnology, synthetic biology, nanotechnology, and artificial superintelligence. With such threats in mind, an informal survey conducted by the Future of Humanity Institute placed the probability of human extinction this century at 19%. To put this in perspective, it means that the average American is more than a thousand times more likely to die in a human extinction event than a plane crash.\* So, given limited resources, which risks should we prioritize? Many intellectual leaders, including Elon Musk, Stephen Hawking, and Bill Gates, have suggested that artificial superintelligence constitutes one of the most significant risks to humanity. And this may be correct in the long-term. But I would argue that two other risks, namely **climate change** and biodiveristy loss, should **take priority** right now over **every other known threat**. Why? Because these ongoing catastrophes **in slow-motion** will frame our **existential predicament** on Earth not just for the rest of this century, but for literally **thousands of years** to come. As such, they have the capacity to **raise[s]** or lower the **probability of other risks scenarios** unfolding. Multiplying Threats Ask yourself the following: are **wars** more or less likely in a world marked by **extreme weather events**, **megadroughts**, **food supply disruptions**, and sea-level rise? Are **terror**ist attacks **more** or less **likely** in a world beset by **the collapse of global ecosystems**, **ag**ricultural failures, **econ**omic uncertainty, and political instability? Both government officials and scientists agree that the answer is **“more likely.”** For example, the current Director of the CIA, John Brennan, recently identified “the impact of **climate change**” as one of the “deeper causes of this **rising instability” in** countries like **Syria, Iraq, Yemen, Libya, and Ukraine**. Similarly, the former Secretary of Defense, Chuck Hagel, has described climate change as a **“threat multiplier”** with “the potential to exacerbate many of the challenges we are dealing with today — from infectious disease to terrorism.” The Department of Defense has also affirmed a connection. In a 2015 report, it states, “Global **climate change will aggravate** problems such as **poverty**, **social tensions**, **environmental degradation**, **ineffectual leadership** and **weak political institutions** that threaten stability in a number of countries.” **Scientific studies have further shown a connection between the environmental crisis and violent conflicts.** For example, a 2015 paper in the Proceedings of the National Academy of Sciences argues that climate change was a causal factor behind the record-breaking 2007-2010 drought in Syria. This drought led to a mass migration of farmers into urban centers, which fueled the 2011 Syrian civil war. Some observers, including myself, have suggested that this struggle could be the beginning of World War III, given the complex tangle of international involvement and overlapping interests. The study’s conclusion is also significant because the Syrian civil war was the Petri dish in which the Islamic State consolidated its forces, later emerging as the largest and most powerful terrorist organization in human history. A Perfect Storm The point is that climate change **and** biodiversity loss could **very easily** **push societies to the brink of collapse**. This will exacerbate **existing geopolitical tensions** and introduce entirely **new power struggles** between state and nonstate actors. At the same time, advanced technologies will very likely become increasingly powerful and accessible. As I’ve written elsewhere, the malicious agents of the future will have bulldozers rather than shovels to dig mass graves for their enemies. The result is a perfect storm of more conflicts in the world along with unprecedentedly dangerous weapons. If the conversation were to end here, we’d have ample reason for placing climate change and biodiversity loss at the top of our priority lists. But there are other reasons they ought to be considered urgent threats. I would argue that they could make humanity more vulnerable to a catastrophe involving superintelligence and even asteroids. The basic reasoning is the same for both cases. Consider superintelligence first. Programming a superintelligence whose values align with ours is a formidable task even in stable circumstances. As Nick Bostrom argues in his 2014 book, we should recognize the “default outcome” of superintelligence to be “doom.” Now imagine trying to solve these problems amidst a rising tide of interstate wars, civil unrest, terrorist attacks, and other tragedies? The societal stress caused by climate change and biodiversity loss will almost certainly compromise important conditions for creating friendly AI, such as sufficient funding, academic programs to train new scientists, conferences on AI, peer-reviewed journal publications, and communication/collaboration between experts of different fields, such as computer science and ethics. It could even make an “AI arms race” more likely, thereby raising the probability of a malevolent superintelligence being created either on purpose or by mistake. Similarly, imagine that astronomers discover a behemoth asteroid barreling toward Earth. Will designing, building, and launching a spacecraft to divert the assassin past our planet be easier or more difficult in a world preoccupied with other survival issues? In a relatively peaceful world, one could imagine an asteroid actually bringing humanity together by directing our attention **toward a common threat**. **But** if the “**conflict multipliers**” of climate change and biodiversity loss have already **catapulted civilization** into chaos and turmoil, I strongly suspect that humanity will become more, rather than less, susceptible to dangers of this sort. Context Risks We can describe the dual threats of climate change and biodiversity loss as “context risks.” Neither is likely to directly cause the extinction of our species. But **both will define the context in which civilization confronts all the other threats** before us. In this way, they could **indirectly** contribute to the **overall danger of annihilation** — and this worrisome effect could be significant. For example, according to the Intergovernmental Panel on Climate Change, the effects of climate change will be “severe,” “pervasive,” and “irreversible.” Or, as a 2016 study published in Nature and authored by over twenty scientists puts it, the consequences of climate change “will extend longer than the entire history of human civilization thus far.” Furthermore, a recent article in Science Advances confirms that humanity has already escorted the biosphere into the sixth mass extinction event in life’s 3.8 billion year history on Earth. Yet another study suggests that we could be approaching a **sudden**, **irreversible**, catastrophic **collapse of the global ecosystem**. If this were to occur, it could result in “widespread social unrest, economic instability and loss of human life.” Given the potential for environmental degradation to **elevate the likelihood of nuclear wars, nuclear terrorism, engineered pandemics, a superintelligence takeover**, and perhaps even **an impact winter** it **ought to** **take precedence over all other risk concerns** — at least in the near-term. Let’s make sure we get our priorities straight

# A2 Case