#### Private entities are non-governmental.

Dunk 11 – Frans G. von der Dunk, 2011, [“The Origins of Authorisation: Article VI of the Outer Space Treaty and International Space Law,” University of Nebraska] Justin

4. Interpreting Article VI of the Outer Space Treaty One main novel feature of Article VI stood out with reference to the role of private enterprise in this context. Contrary to the version of the concept applicable under general international law, where “direct state responsibility” only pertained to acts somehow directly attributable to a state and states could only be addressed for acts by private actors under “indirect,” “due care”/“due diligence” responsibility,18 Article VI made no difference as to whether the activities at issue were the state’s own (“whether such activities are carried on by governmental agencies” . . .) or those of private actors (. . . “or by non-governmental entities”). The interests of the Soviet Union in ensuring that, whomever would actually conduct a certain space activity, some state or other could be held responsible for its compliance with applicable rules of space law to that extent had prevailed. However, the general acceptance of Article VI as cornerstone of the Outer Space Treaty unfortunately was far from the end of the story. Partly, this was the consequence of key principles being left undefined.

## 1

#### Interpretation: Debaters must only defend the resolution. To clarify – they can only debate the consequences of “Resolved: The appropriation of outer space by private entities is unjust”

#### Violation: They defend an additional analysis extra analysis as a prior question, central planning, and focus the debate on impacts tangential to the topic which

**I’ll read you a line –“we reject the regime of property as the white science of logistics.” That’s some form of extra topicality since they are saying the reject property as a whole.**

#### hold them to everything their evidence says – anything else allows them to read infinite components and shift out of anything they want making it impossible to negate

#### Standards:

#### 1]—Limits and Ground: Adding things outside of the res allows anything to become aff ground—bad because aff can add anything to the resolution and then neg has no predictable ground – also eliminates every neg response to debris/lunar heritage/ptd affs by including every solvency deficit to the resolution in an extra T plan

#### Procedural Fairness first—a) ballot pic – at the end of the day they care about competition and want their arguments to be flowed which proves they care about competition, if they don’t care about winning then just vote neg. Solves their offense, there is no reason a ballot is key – our interp precludes voting on non-topical affs but not the reading of them b) scope of solvency – one ballot can’t alter subjectivity, but it can rectify skews which means the only impact to a ballot is fairness and resolving skews.

#### Competing interps – a) you either defend the rez or don’t – there’s no in between. Drop the debater – Changing your advocacy kills NC strat because the 1ac advocacy is the only stasis point for NC offense, anything else moots all clash and fairness.

#### No impact turns or rvis - A] Perfcon – if T’s bad and you vote for them on that arg, you’re voting on T. B] Substance – if T’s bad then we should try debating on substance – impact turns force me to go for T since I need to defend my position.

## 2

#### The appropriation of outer space by private entities, except mega constellations when endorsed by an international cultural ethics office including all indigenous nations at the forefront of decision-making regarding space policy, is unjust.

#### Appropriation can be good but only if it is grounded in indigenous voices. That’s key to ensure space is maintained as a cultural heritage, rather than a final frontier, and meets their role of the ballot.

Vidaurri et al. ‘20 [Monica, Department of Physics and Astronomy, Howard University, NASA Goddard Space Flight Center; Aparna Venkatesan, Department of Physics and Astronomy, University of San Francisco; James Lowenthal, Department of Astronomy, Smith College; Parvathy Prem, Johns Hopkins University Applied Physics Laboratory;. Nature Astronomy, “The impact of satellite constellations on space as an ancestral global commons,” <https://www.nature.com/articles/s41550-020-01238-3>] brett

Most students of astrophysics learn early in their careers that we, and what we consume or use daily, have been in the cores of stars multiple times or created in the death throes of stars. When we analyse the data of galaxies from billions of light years away, we know we are looking at our cosmic past. This perspective—knowing that the Universe is within us and that we and the Sun will recycle back into future generations of stars and planets—is not as removed as some may believe from the relational view of many Indigenous cultures rooted in ‘Space and Place’, or cultural views of the night sky. Space is our past and our future; we are united in this ancestry and this ultimate fate.

We advocate for a radical shift in the policy framework of international regulatory bodies towards the view of space as an ancestral global commons that contains the heritage and future of humanity’s scientific and cultural practices. We do not use the term radical lightly; this shift requires a profound change in attitude towards what space means to all of us and our inherent beliefs about human ownership of space. Such an attitude contradicts the policies of many nations and actors in space today; for example, as recently as April 2020, the White House issued an Executive Order asserting that “Outer space is a legally and physically unique domain of human activity, and the United States does not view it as a global commons”.

We also urge federal and private space agencies and corporations to immediately establish a cultural ethics office that can offer an integrative approach for cultural intelligence, supporting scientific progress and cultural protocols from a shared ethical space rather than artificially siloed perspectives, and that the reports and findings of such offices be at the forefront of decision-making. This will begin the long overdue process of involving all the stakeholders for dark skies and near-Earth space, especially historically marginalized and Indigenous communities, as we develop new policies for space treaties and planetary protection that avoid replicating the costly mistakes of the past. The exhilaration of space exploration must be grounded in long-term thinking, centring of Indigenous voices, and sustainability.

#### Mega constellations compete.

Johnson 20 The Legal Status of MegaLEO Constellations and Concerns About Appropriation of Large Swaths of Earth Orbit Christopher D. Johnson C. D. Johnson (\*) Secure World Foundation, Washington, DC, USA e-mail: cjohnson@swfound.org © Springer Nature Switzerland AG 2020 J. Pelton (ed.), Handbook of Small Satellites, [https://doi.org/10.1007/978-3-030-20707-6\_95-1 https://swfound.org/media/206951/johnson2020\_referenceworkentry\_thelegalstatusofmegaleoconstel.pdf//avery](https://doi.org/10.1007/978-3-030-20707-6_95-1%20https://swfound.org/media/206951/johnson2020_referenceworkentry_thelegalstatusofmegaleoconstel.pdf//avery) [Recut Lex AKu]

If This Isn’t Appropriation, Then What Is? Arguing in the alternative, if these megaconstellations — in their dominant occupation of entire orbits in orbital planes with numerous satellites — could be considered (merely for the sake of argument) to not be appropriation, we must therefore ask: what would be appropriation? What use of void space, including orbits of the Earth, would constitute actual appropriation? What further, additional fact of these uses of space, if added to the scenario, would cause that constellation to cross over the line into clearly prohibited appropriation? Perhaps the exact same scenario, but supplemented with an actual, formal claim of sovereignty, issued by a government, is the only element which could be added to megaconstellations which would then cross the threshold into appropriation. However, a formal claim of sovereignty would be merely an act occurring on Earth and would not change any actual facts in the space domain. Consequently, the lack of a formal claim of sovereignty should not be the deciding criteria in arriving at the conclusion that megaconstellations constitute appropriation of orbits. Conclusion In conclusion, these megaconstellations effectively occupy entire orbital regions with their vast fleet of spacecraft and in so doing effectively preclude other actors from sharing those domains. They have done so, or are attempting to do so, without any international consensus or discussion, which is most egregious for a domain outside of State sovereignty and which no State can own. Governments will ultimately be responsible for this appropriation, and both are prohibited from appropriating space. In distinction to GSO, their permission to go there means that they could occupy these regions for incredibly long periods — which again shows their appropriation. These constellations significantly prevent others from using those regions, which therefore interferes with others’ right to explore and use space. And ultimately, this reckless ambition shows absolutely no due regard (as per Article IX) for the corresponding rights of others. As such, these megaconstellations constitute an impermissible appropriation of particular regions of outer space, regardless of any formal, official claim of such by a responsible, authorizing government

## 3

#### Constellations are key to ensure indigenous access to broadband, ecological sustainability, and bridge the rural broadband gap.

Vidaurri et al. ‘20 [Monica, Department of Physics and Astronomy, Howard University, NASA Goddard Space Flight Center; Aparna Venkatesan, Department of Physics and Astronomy, University of San Francisco; James Lowenthal, Department of Astronomy, Smith College; Parvathy Prem, Johns Hopkins University Applied Physics Laboratory;. Nature Astronomy, “The impact of satellite constellations on space as an ancestral global commons,” <https://www.nature.com/articles/s41550-020-01238-3>] brett

Satellite constellations could greatly improve communications and ongoing monitoring of Earth phenomena ranging from weather and climate to disaster management. Such large constellations also have the potential to offer global connectivity through low-cost high-speed broadband internet. In principle, this could be the critical leap needed to bridge the very real digital divide2, especially for the world’s most minoritized populations, including Indigenous communities. This divide has been exposed as a chasm during this pandemic year, affecting many millions of students and low-income workers. Broadband internet has become essential for daily life, especially during a pandemic year when remote forms of learning, teaching, work and even health (for example, telemedicine) have become the norm. In 2019, the FCC offered US$20 billion in subsidies over ten years to address the digital divide in rural communities in the United States, which was quickly followed by a number of filings for LEOsats. LEOsat broadband may benefit rural communities more than urban areas—these ‘last mile’ connections are still challenging to complete relative to concentrated (urban) populations where ground-based cable/fibre internet infrastructure is cheaper. Large satellite constellations thus have the potential to bridge the digital chasm, but time will tell whether the promise of low-cost high-speed internet worldwide is achieved, and what the financial costs to customers are. This potential democratization of space is worth noting, even if it may not lead to fair participation in space.

#### **Only ensuring large scale access to rural broadband can enable adoption of precision agriculture.**

USDA ‘19 [US department of agriculture, April 2019, A Case For Rural Broadband, accessed 8/12/21, <https://mobroadband.org/wp-content/uploads/sites/44/2020/07/case-for-rural-broadband.pdf>] brett

Across the agricultural production cycle, farmers and ranchers can implement digital technologies as other modern businesses are doing, enhancing agriculture by driving decision-making based on integrated data, automating processes to increase operational efficiency, improving productivity with tasks driven by real-time insights, augmenting the role of management in the business of farming, and creating new markets with extended geographic reach. These patterns of digital transformation create fundamental shifts in agricultural production, developing new ways of working that make the industry more productive, attractive, and financially sustainable for farmers and ranchers. Tech companies which stand to benefit from industry transformation continue to capitalize on these shifts by developing new technologies, which according to one recent study, may help position themselves to capture a portion of an estimated $254 billion to $340 billion in global addressable digital agriculture market.13 Business Management shifts decision making from instinct to integrated data Precision Agriculture is transforming the way producers collect, organize, and rely on information to make key decisions. Traditionally, producers’ long-term experiences have created a competitive advantage: years of experiments have produced insights and instincts about the land they have farmed and the animals they have raised. But the volume of data that is possible to collect today can accelerate that learning curve, helping producers learn faster and more rapidly adapt to market shifts—particularly on new fields and with new animals—and creating more nuanced insights, enabling them to act on leading indicators. This creates a disparity between producers who can utilize high-speed Internet service and those who cannot. Examples include the ability to do the following: • create decision tools to help farmers and ranchers estimate the potential profit and economic risks associated with growing one particular crop over another • decide which fertilizer is best for current soil conditions • apply pesticides in targeted areas of the field, to control pests rather than applying pesticides over the entire field • use limited water resources more effectively • respond to findings of sensors that monitor animal health and nutrition Better choices about what, where, and when to plant, fertilize, and harvest—or breed, feed, and slaughter—can drive above-average returns by removing unrecognized inefficiencies and scaling insights. Digitization shifts supply chain management and resource allocation from generic to precise. Precision Agriculture helps make the business of farming more efficient by minimizing inputs— such as raw materials and labor—and maximizing outputs. For example, previous research has found that 40 percent of fields are over-fertilized, which not only inflates the cost of inputs but also results in 15 percent–20 percent yield loss suffered from improper fertilizer application.14 Precise application of inputs, such as fertilizer, herbicides, and pesticides, allows farmers to adjust inputs to location-based characteristics and use exact amounts needed, which saves money and increases sustainability due to more efficient resource stewardship. Improved fertilizer, soil, and water use can significantly improve water quality with less runoff and reduce climate gas emissions, which is important since agriculture accounts for 10-15 percent of worldwide emissions.15 Despite reductions in necessary inputs, Next Generation Precision Agriculture helps maintain or increase yields, leading to significant gains in efficiency14. Real-time insights also improve logistics. When growing melons, for instance, real-time data can help farmers overcome challenges in storing and shipping their products. Melons should be stored in an optimal refrigeration environment to minimize spoilage, and real-time precision sensors can reduce spoilage by alerting staff to suboptimal variations in temperature and humidity, allowing the execution of remedies before major losses occur. When refrigerated storage is full or the market price is at a peak, the “Internet of Things” can provide real-time information about where trucks are located and locating customers to market products to help make the sale. LABOR EFFICIENCY boosts productivity by automating routine processes and enabling real-time response Connected devices equip farmers with a clear picture of their operations at any moment, making it possible to prioritize tasks more effectively and triage the most pressing issues. While routine inspection and scouting has typically been a regular part of farm management and has increased farm profitability14, connected technologies can track, sense, and flag where a producer should focus their time and attention that day. Similarly, e-connectivity has allowed rural farms to access new training resources and high-skilled labor that has not been previously available. Real-time data and automation can radically improve a producer’s peace of mind and performance under time constraints, especially because of reduced physical and mental stress (no longer struggling to keep the machine on a row line between 6 and 10 hours in the field during harvest or planting). On dairy farms, for example, automated devices that milk and feed animals can also track each cow’s activity and alert producers to potential problems. Because these tasks are traditionally done by the producer and farm personnel, e-connectivity can substantially reduce the amount of time and effort necessary to run farms. This leads to dramatic increases in flexibility, enabling time and talent to be directed to more advanced tasks. Farmers can use newly found time to re-invest in more high-value tasks like long-term planning and management of the operation. This shift towards farm management opens new possibilities for the way that farms conduct business. GEOGRAPHIC ACCESS extends the reach of the supply chain and shifts marketing from standard to differentiated As explained in the previous section, as Precision Agriculture unlocks additional time and resources to explore new ways of doing business farmers are re-investing their time into identifying options to improve inputs, including better-trained labor and more effective types of inputs. New customers and markets can also be explored to increase sales volume and revenues.

#### Precision ag is key to solve ag runoff, a unique form of colonial dispossession.

Ling 17, Geoffrey Ling, a retired U.S. Army colonel, is an expert in technology development and commercial transition. He is a professor of neurology at Johns Hopkins University and the Uniformed Services University of the Health Sciences and a partner of Ling and Associates. Scientific American, June 26, 2017. “Precision Farming Increases Crop Yields” <https://www.scientificamerican.com/article/precision-farming/> brett

As the world’s population grows, farmers will need to produce more and more food. Yet arable acreage cannot keep pace, and the looming food security threat could easily devolve into regional or even global instability. To adapt, large farms are increasingly exploiting precision farming to increase yields, reduce waste, and mitigate the economic and security risks that inevitably accompany agricultural uncertainty.

Traditional farming relies on managing entire fields—making decisions related to planting, harvesting, irrigating, and applying pesticides and fertilizer—based on regional conditions and historical data. Precision farming, by contrast, combines sensors, robots, GPS, mapping tools and data-analytics software to customize the care that plants receive without increasing labor. Stationary or robot-mounted sensors and camera-equipped drones wirelessly send images and data on individual plants—say, information about stem size, leaf shape and the moisture of the soil around a plant—to a computer, which looks for signs of health and stress. Farmers receive the feedback in real time and then deliver water, pesticide or fertilizer in calibrated doses to only the areas that need it. The technology can also help farmers decide when to plant and harvest crops.

As a result, precision farming can improve time management, reduce water and chemical use, and produce healthier crops and higher yields—all of which benefit farmers’ bottom lines and conserve resources while reducing chemical runoff.

Many start-ups are developing new software, sensors, aerial-based data and other tools for precision farming, as are large companies such as Monsanto, John Deere, Bayer, Dow and DuPont. The U.S. Department of Agriculture, NASA and the National Oceanic and Atmospheric Administration all support precision farming, and many colleges now offer course work on the topic.

In a related development, seed producers are applying technology to improve plant “phenotyping.” By following individual plants over time and analyzing which ones flourish in different conditions, companies can correlate the plants’ response to their environments with their genomics. That information, in turn, allows the companies to produce seed varieties that will thrive in specific soil and weather conditions. Advanced phenotyping may also help to generate crops with enhanced nutrition.

Growers are not universally embracing precision agriculture for various reasons. The up-front equipment costs—especially the expense of scaling the technology to large row-crop production systems—pose a barrier. Lack of broadband can be an obstacle in some places, although the USDA is trying to ameliorate that problem. Seasoned producers who are less computer-literate may be wary of the technology. And large systems will also be beyond the reach of many small farming operations in developing nations. But less expensive, simpler systems could potentially be applied. Salah Sukkarieh of the University of Sydney, for instance, has demonstrated a streamlined, low-cost monitoring system in Indonesia that relies on solar power and cell phones. For others, though, cost savings down the road may offset the financial concerns. And however reticent some veteran farmers may be to adopt new technology, the next generation of tech-savvy farmers are likely to warm to the approach.

#### Precision ag good.

Zippy Duvall 18. president of the American Farm Bureau Federation, 11-1-2018, "For farmers, broadband is a necessity, not a luxury," TheHill, https://thehill.com/blogs/congress-blog/technology/414370-for-farmers-broadband-is-a-necessity-not-a-luxury

Just like every other U.S. business competing in an increasingly global economy, America’s farmers and ranchers need reliable, high-speed internet service. It is no longer a luxury; it is an absolute necessity in our digital age. Robust broadband networks foster more efficient, economical and environmentally responsible agriculture operations. Rural broadband deployment is now a priority for Congress, the administration and federal agencies. But there is still work to do to ensure rural and agricultural communities have fair and open access to the fixed and mobile broadband networks they need to prosper and succeed. High-speed broadband networks are vital to ensure farmers and ranchers can use the latest in precision agricultural equipment. They are central to following commodity markets and communicating with customers, vendors and suppliers. Speedy internet connections mean American farmers can gain a foothold in new markets around the world while ensuring they are complying with ever-changing regulatory standards. The nature and science and technology of farming is constantly changing. Modern farming techniques such as [precision agriculture give farmers important information](https://www.nationalgeographic.com/environment/future-of-food/food-future-precision-agriculture/) to maximize yields on every piece of the land they work right down to the square foot, in many cases. But precision ag requires a wireless broadband connection for data collection and analysis done on the farm and in remote data centers, too. Farmers and ranchers cannot take full advantage of such cutting-edge equipment if they do not have access to wireless broadband in the field or on the ranch. As time goes by, those connections will become ever more important in a world [expected to add more than 2 billion people by 2050](https://www.un.org/development/desa/en/news/population/world-population-prospects-2017.html). Rural communities – already under extreme economic pressure – need broadband now and will need it even more in the very near future. Broadband is essential to help rural communities access health care and government services, as well as educational and business opportunities that would otherwise be unavailable. Put simply, our rural and farming communities must be able to access high-speed internet just as easily and efficiently as suburban and urban communities. Bridging this digital divide is critical to the success of America’s farmers. Rural broadband is to this century what rural electrification was to the last: a critical part of economic survival. Chances for economic recovery in rural America will fade unless we have broadband service throughout the nation.

#### Great power war.

John Castellaw 17. 36-year veteran of the U.S. Marine Corps and the Founder and CEO of Farmspace Systems LLC, “Opinion: Food Security Strategy Is Essential to Our National Security,” 5/1/17, https://www.agri-pulse.com/articles/9203-opinion-food-security-strategy-is-essential-to-our-national-security

The **U**nited **S**tates faces many threats to our National Security. These threats include continuing wars with extremist elements such as **ISIS** and potential wars with rogue state **North Korea** or regional nuclear power **Iran.** The heated economic and diplomatic competition with **Russia** and a surging **China** could **spiral out of control**. Concurrently, we face threats to our future security posed by growing civil strife, famine, and refugee and migration challenges which create incubators for extremist and anti-American government factions. Our response cannot be one dimensional but instead must be a nuanced and comprehensive National Security Strategy combining all elements of National Power including a Food Security Strategy. An **American Food Security Strategy** is an imperative factor in **reducing the multiple threats impacting our National wellbeing.** Recent history has shown that **reliable food supplies and stable prices produce more stable and secure countries.** Conversely, food insecurity, particularly in poorer countries, can lead to instability, unrest, and violence. **Food insecurity** drives **mass migration** around the world from the Middle East, to Africa, to Southeast Asia, destabilizing neighboring populations, **generating conflicts**, and threatening our own security by **disrupting** our **economic, military, and diplomatic relationships**. Food system shocks from extreme food-price volatility can be correlated with protests and riots. Food price related protests toppled governments in Haiti and Madagascar in 2007 and 2008. In 2010 and in 2011, food prices and grievances related to food policy were one of the major drivers of the Arab Spring uprisings. Repeatedly, history has taught us that **a strong agricultural sector** is **an unquestionable requirement** for inclusive and sustainable growth, broad-based development progress, and **long-term stability**. The impact can be remarkable and far reaching. **Rising income**, in addition to reducing the opportunities for an upsurge in extremism, leads to changes in diet, producing **demand** for more diverse and nutritious foods provided, in many cases, from **American farmers** and ranchers. **Emerging markets** currently purchase **20 percent of U.S. agriculture** exports and that figure is **expected to grow** as populations boom. Moving early to ensure stability in strategically significant regions requires long term planning and a disciplined, thoughtful strategy. To combat current threats and work to prevent future ones, our national leadership must employ the entire spectrum of our power including diplomatic, economic, and cultural elements. The best means to prevent future chaos and the resulting instability is positive engagement addressing the causes of instability before it occurs. This is not rocket science. We know where the instability is most likely to occur. The world population will grow by 2.5 billion people by 2050. Unfortunately, this massive population boom is projected to occur primarily in the most fragile and food insecure countries. This alarming math is not just about total numbers. Projections show that the greatest increase is in the age groups most vulnerable to extremism. There are currently 200 million people in Africa between the ages of 15 and 24, with that number expected to double in the next 30 years. Already, 60% of the unemployed in Africa are young people. Too often **these situations deteriorate into shooting wars** requiring the deployment of our military forces. We should be continually mindful that the price we pay for committing military forces is measured in our most precious national resource, the blood of those who serve. For those who live in **rural America**, this has a disproportionate impact. Fully 40% of those who serve in our military come from the farms, ranches, and non-urban communities that make up only 16% of our population. Actions taken now to increase agricultural sector jobs can provide economic opportunity and stability for those unemployed youths while helping to feed people. A recent report by the Chicago Council on Global Affairs identifies agriculture development as the core essential for providing greater food security, economic growth, and population well-being. Our active support for **food security**, including agriculture development, has helped **stabilize key regions** over the past 60 years. A robust food security strategy, as a part of our overall security strategy, can mitigate the growth of terrorism, build important relationships, and support continued American economic and agricultural prosperity while materially contributing to our Nation’s and the world’s security.

## 4

#### The Role of the Judge is to vote for whoever does the better debating – any other metric is arbitrary and self serving.

#### The standard and role of the ballot is to maximize expected well-being.

#### Extinction must outweigh – moral uncertainty demands we preserve the conditions for life, even a tiny risk outweighs, and future gains in quality of life ensure it’s a prior question

Todd 17 [Ben has a 1st from Oxford in Physics and Philosophy, has published in Climate Physics, once kick-boxed for Oxford, and speaks Chinese, badly. "The case for reducing extinction risk." <https://80000hours.org/articles/extinction-risk/>] brett

In this new age, what should be our biggest priority as a civilisation? Improving technology? Helping the poor? Changing the political system? Here’s a suggestion that’s not so often discussed: our first priority should be to survive. So long as civilisation continues to exist, we’ll have the chance to solve all our other problems, and have a far better future. But if we go extinct, that’s it. Why isn’t this priority more discussed? Here’s one reason: many people don’t yet appreciate the change in situation, and so don’t think our future is at risk. Social science researcher Spencer Greenberg surveyed Americans on their estimate of the chances of human extinction within 50 years. The results found that many think the chances are extremely low, with over 30% guessing they’re under one in ten million.3 We used to think the risks were extremely low as well, but when we looked into it, we changed our minds. As we’ll see, researchers who study these issues think the risks are over one thousand times higher, and are probably increasing. These concerns have started a new movement working to safeguard civilisation, which has been joined by Stephen Hawking, Max Tegmark, and new institutes founded by researchers at Cambridge, MIT, Oxford, and elsewhere. In the rest of this article, we cover the greatest risks to civilisation, including some that might be bigger than nuclear war and climate change. We then make the case that reducing these risks could be the most important thing you do with your life, and explain exactly what you can do to help. If you would like to use your career to work on these issues, we can also give one-on-one support. Reading time: 25 minutes How likely are you to be killed by an asteroid? An overview of naturally occurring existential risks A one in ten million chance of extinction in the next 50 years — what many people think the risk is — must be an underestimate. Naturally occurring existential risks can be estimated pretty accurately from history, and are much higher. If Earth was hit by a 1km-wide asteroid, there’s a chance that civilisation would be destroyed. By looking at the historical record, and tracking the objects in the sky, astronomers can estimate the risk of an asteroid this size hitting Earth as about 1 in 5000 per century.4 That’s higher than most people’s chances of being in a plane crash (about one in five million per flight), and already about 1000-times higher than the one in ten million risk that some people estimated.5 Some argue that although a 1km-sized object would be a disaster, it wouldn’t be enough to cause extinction, so this is a high estimate of the risk. But on the other hand, there are other naturally occurring risks, such as supervolcanoes.6 All this said, natural risks are still quite small in absolute terms. An upcoming paper by Dr. Toby Ord estimated that if we sum all the natural risks together, they’re very unlikely to add up to more than a 1 in 300 chance of extinction per century.7 Unfortunately, as we’ll now show, the natural risks are dwarfed by the human-caused ones. And this is why the risk of extinction has become an especially urgent issue. A history of progress, leading to the start of the most dangerous epoch in human history If you look at history over millennia, the basic message is that for a long-time almost everyone was poor, and then in the 18th century, that changed.8 Large economic growth created the conditions in which now face anthropogenic existential risks This was caused by the industrial revolution — perhaps the most important event in history. It wasn’t just wealth that grew. The following chart shows that over the long-term, life expectancy, energy use and democracy have all grown rapidly, while the percentage living in poverty has dramatically decreased.9 Chart prepared by Luke Muehlhauser in 2017. Literacy and education levels have also dramatically increased: Image source. People also seem to become happier as they get wealthier. In The Better Angels of Our Nature, Steven Pinker argues that violence is going down.10 Individual freedom has increased, while racism, sexism and homophobia have decreased. Many people think the world is getting worse,11 and it’s true that modern civilisation does some terrible things, such as factory farming. But as you can see in the data, many important measures of progress have improved dramatically. More to the point, no matter what you think has happened in the past, if we look forward, improving technology, political organisation and freedom gives our descendants the potential to solve our current problems, and have vastly better lives.12 It is possible to end poverty, prevent climate change, alleviate suffering, and more. But also notice the purple line on the second chart: war-making capacity. It’s based on estimates of global military power by the historian Ian Morris, and it has also increased dramatically. Here’s the issue: improving technology holds the possibility of enormous gains, but also enormous risks. Each time we discover a new technology, most of the time it yields huge benefits. But there’s also a chance we discover a technology with more destructive power than we have the ability to wisely use. And so, although the present generation lives in the most prosperous period in human history, it’s plausibly also the most dangerous. The first destructive technology of this kind was nuclear weapons. Nuclear weapons: a history of near-misses Today we all have North Korea’s nuclear programme on our minds, but current events are just one chapter in a long saga of near misses. We came near to nuclear war several times during the Cuban Missile crisis alone.13 In one incident, the Americans resolved that if one of their spy planes were shot down, they would immediately invade Cuba without a further War Council meeting. The next day, a spy plane was shot down. JFK called the council anyway, and decided against invading. An invasion of Cuba might well have triggered nuclear war; it later emerged that Castro was in favour of nuclear retaliation even if “it would’ve led to the complete annihilation of Cuba”. Some of the launch commanders in Cuba also had independent authority to target American forces with tactical nuclear weapons in the event of an invasion. In another incident, a Russian nuclear submarine was trying to smuggle materials into Cuba when they were discovered by the American fleet. The fleet began to drop dummy depth charges to force the submarine to surface. The Russian captain thought they were real depth charges and that, while out of radio communication, the third world war had started. He ordered a nuclear strike on the American fleet with one of their nuclear torpedoes. Fortunately, he needed the approval of other senior officers. One, Vasili Arkhipov, disagreed, preventing war. Thanks to Vasili Arkhipov, we narrowly averted a global catastrophic risk from nuclear weapons Thank you Vasili Arkhipov. Putting all these events together, JFK later estimated that the chances of nuclear war were “between one in three and even”.14 There have been plenty of other close calls with Russia, even after the Cold War, as listed on this nice Wikipedia page. And those are just the ones we know about. Nuclear experts today are just as concerned about tensions between India and Pakistan, which both possess nuclear weapons, as North Korea.15 The key problem is that several countries maintain large nuclear arsenals that are ready to be deployed in minutes. This means that a false alarm or accident can rapidly escalate into a full-blown nuclear war, especially in times of tense foreign relations. Would a nuclear war end civilisation? It was initially thought that a nuclear blast might be so hot that it would ignite the atmosphere and make the Earth uninhabitable. Scientists estimated this was sufficiently unlikely that the weapons could be “safely” tested, and we now know this won’t happen. In the 1980s, the concern was that ash from burning buildings would plunge the Earth into a long-term winter that would make it impossible to grow crops for decades.16 Modern climate models suggest that a nuclear winter severe enough to kill everyone is very unlikely, though it’s hard to be confident due to model uncertainty.17 Even a “mild” nuclear winter, however, could still cause mass starvation.18 For this and other reasons, a nuclear war would be extremely destabilising, and it’s unclear whether civilisation could recover. How likely is a nuclear war to permanently end civilisation? It’s very hard to estimate, but it seems hard to conclude that the chance of a civilisation-ending nuclear war in the next century isn’t over 0.3%. That would mean the risks from nuclear weapons are greater than all the natural risks put together. (Read more about nuclear risks.) This is why the 1950s marked the start of a new age for humanity. For the first time in history, it became possible for a small number of decision-makers to wreak havoc on the whole world. We now pose the greatest threat to our own survival — that makes today the most dangerous point in human history. And nuclear weapons aren’t the only way we could end civilisation. How big is the risk of run-away climate change? In 2015, President Obama said in his State of the Union address that:19 “No challenge  poses a greater threat to future generations than climate change” Climate change is certainly a major risk to civilisation. The graph below shows estimates of climate sensitivity. Climate sensitivity is how much warming to expect in the long-term if CO2 concentrations double, which is roughly what’s expected within the century. Does climate change pose an existential risk? Wagner and Weitzman predict a greater than 10% chance of greater than 6 degrees celsius of warming. Image source The most likely outcome is 2-4 degrees of warming, which would be bad, but survivable. However, these estimates give a 10% chance of warming over 6 degrees, and perhaps a 1% chance of warming of 9 degrees. That would render large fractions of the Earth functionally uninhabitable, requiring at least a massive reorganisation of society. It would also probably increase conflict, and make us more vulnerable to other risks. (If you’re sceptical of climate models, then you should increase your uncertainty, which makes the situation more worrying.) So, it seems like the chance of a massive climate disaster created by CO2 is perhaps similar to the chance of a nuclear war. Researchers who study these issues think nuclear war seems more likely to result in outright extinction, due to the possibility of nuclear winter, which is why we think nuclear weapons pose an even greater risk than climate change. That said, climate change is certainly a major problem, which should raise our estimate of the risks even higher. (Read more about run-away climate change.) What new technologies might be as dangerous as nuclear weapons? The invention of nuclear weapons led to the anti-nuclear movement just a decade later in the 1960s, and the environmentalist movement soon adopted the cause of fighting climate change. What’s less appreciated is that new technologies will present further catastrophic risks. This is why we need a movement that is concerned with safeguarding civilisation in general. Predicting the future of technology is difficult, but because we only have one civilisation, we need to try our best. Here are some candidates for the next technology that’s as dangerous as nuclear weapons. In 1918-1919, over 3% of the world’s population died of the Spanish Flu.20 If such a pandemic arose today, it might be even harder to contain due to rapid global transport. What’s more concerning, though, is that it may soon be possible to genetically engineer a virus that’s as contagious as the Spanish Flu, but also deadlier, and which could spread for years undetected. That would be a weapon with the destructive power of nuclear weapons, but far harder to prevent from being used. Nuclear weapons require huge factories and rare materials to make, which makes them relatively easy to control. Designer viruses might be possible to create in a lab with a couple of biology PhDs. In fact, in 2006, The Guardian was able to receive segments of the extinct smallpox virus by mail order.21 Some terrorist groups have expressed interest in using indiscriminate weapons like these. (Read more about pandemic risks.) In fact, in 2006, The Guardian was able to receive segments of the extinct smallpox virus by mail order. Relevant experts suggest synthetic pathogens could potentially pose a global catastrophic risk. Who ordered the smallpox? Credit: The Guardian Another new technology with huge potential power is artificial intelligence. The reason that humans are in charge and not chimps is purely a matter of intelligence. Our large and powerful brains give us incredible control of the world, despite the fact that we are so much physically weaker than chimpanzees. So then what would happen if one day we created something much more intelligent than ourselves? In 2017, 350 researchers who have published peer-reviewed research into artificial intelligence at top conferences were polled about when they believe that we will develop computers with human-level intelligence: that is, a machine that is capable of carrying out all work tasks better than humans. The median estimate was that there is a 50% chance we will develop high-level machine intelligence in 45 years, and 75% by the end of the century.22 Graph of expert prediction from Grace et al: The median estimate was that there is a 50% chance we will develop high-level machine intelligence in 45 years These probabilities are hard to estimate, and the researchers gave very different figures depending on precisely how you ask the question.23 Nevertheless, it seems there is at least a reasonable chance that some kind of transformative machine intelligence is invented in the next century. Moreover, greater uncertainty means that it might come sooner than people think rather than later. What risks might this development pose? The original pioneers in computing, like Alan Turing and Marvin Minsky, raised concerns about the risks of powerful computer systems,24 and these risks are still around today. We’re not talking about computers “turning evil”. Rather, one concern is that a powerful AI system could be used by one group to gain control of the world, or otherwise be mis-used. If the USSR had developed nuclear weapons 10 years before the USA, the USSR might have become the dominant global power. Powerful computer technology might pose similar risks. Another concern is that deploying the system could have unintended consequences, since it would be difficult to predict what something smarter than us would do. A sufficiently powerful system might also be difficult to control, and so be hard to reverse once implemented. These concerns have been documented by Oxford Professor Nick Bostrom in Superintelligence and by AI pioneer Stuart Russell. Most experts think that better AI will be a hugely positive development, but they also agree there are risks. In the survey we just mentioned, AI experts estimated that the development of high-level machine intelligence has a 10% chance of a “bad outcome” and a 5% chance of an “extremely bad” outcome, such as human extinction.22 And we should probably expect this group to be positively biased, since, after all, they make their living from the technology. Putting the estimates together, if there’s a 75% chance that high-level machine intelligence is developed in the next century, then this means that the chance of a major AI disaster is 5% of 75%, which is about 4%. (Read more about risks from artificial intelligence.) People have raised concern about other new technologies, such as other forms of geo-engineering and atomic manufacturing, but they seem significantly less imminent, so are widely seen as less dangerous than the other technologies we’ve covered. You can see a longer list of existential risks here. What’s probably more concerning is the risks we haven’t thought of yet. If you had asked people in 1900 what the greatest risks to civilisation were, they probably wouldn’t have suggested nuclear weapons, genetic engineering or artificial intelligence, since none of these were yet invented. It’s possible we’re in the same situation looking forward to the next century. Future “unknown unknowns” might pose a greater risk than the risks we know today. Each time we discover a new technology, it’s a little like betting against a single number on a roulette wheel. Most of the time we win, and the technology is overall good. But each time there’s also a small chance the technology gives us more destructive power than we can handle, and we lose everything. Each new technology we develop has both unprecedented potential and perils. Image source. What’s the total risk of human extinction if we add everything together? Many experts who study these issues estimate that the total chance of human extinction in the next century is between 1 and 20%. For instance, an informal poll in 2008 at a conference on catastrophic risks found they believe it’s pretty likely we’ll face a catastrophe that kills over a billion people, and estimate a 19% chance of extinction before 2100.25 Risk At least 1 billion dead Human extinction Number killed by molecular nanotech weapons. 10% 5% Total killed by superintelligent AI. 5% 5% Total killed in all wars (including civil wars). 30% 4% Number killed in the single biggest engineered pandemic. 10% 2% Total killed in all nuclear wars. 10% 1% Number killed in the single biggest nanotech accident. 1% 0.5% Number killed in the single biggest natural pandemic. 5% 0.05% Total killed in all acts of nuclear terrorism. 1% 0.03% Overall risk of extinction prior to 2100 n/a 19% These figures are about one million times higher than what people normally think. In our podcast episode with Will MacAskill we discuss why he puts the risk of extinction this century at around 1%. In his his book The Precipice: Existential Risk and the Future of Humanity, Dr Toby Ord gives his guess at our total existential risk this century as 1 in 6 — a roll of the dice. Listen to our episode with Toby. What should we make of these estimates? Presumably, the researchers only work on these issues because they think they’re so important, so we should expect their estimates to be high (“selection bias”). But does that mean we can dismiss their concerns entirely? Given this, what’s our personal best guess? It’s very hard to say, but we find it hard to confidently ignore the risks. Overall, we guess the risk is likely over 3%. Why helping to safeguard the future could be the most important thing you can do with your life How much should we prioritise working to reduce these risks compared to other issues, like global poverty, ending cancer or political change? At 80,000 Hours, we do research to help people find careers with positive social impact. As part of this, we try to find the most urgent problems in the world to work on. We evaluate different global problems using our problem framework, which compares problems in terms of: Scale – how many are affected by the problem Neglectedness -how many people are working on it already Solvability – how easy it is to make progress If you apply this framework, we think that safeguarding the future comes out as the world’s biggest priority. And so, if you want to have a big positive impact with your career, this is the top area to focus on. In the next few sections, we’ll evaluate this issue on scale, neglectedness and solvability, drawing heavily on Existential Risk Prevention as a Global Priority by Nick Bostrom and unpublished work by Toby Ord, as well as our own research. First, let’s start with the scale of the issue. We’ve argued there’s likely over a 3% chance of extinction in the next century. How big an issue is this? One figure we can look at is how many people might die in such a catastrophe. The population of the Earth in the middle of the century will be about 10 billion, so a 3% chance of everyone dying means the expected number of deaths is about 300 million. This is probably more deaths than we can expect over the next century due to the diseases of poverty, like malaria.26 Many of the risks we’ve covered could also cause a “medium” catastrophe rather than one that ends civilisation, and this is presumably significantly more likely. The survey we covered earlier suggested over a 10% chance of a catastrophe that kills over 1 billion people in the next century, which would be at least another 100 million deaths in expectation, along with far more suffering among those who survive. So, even if we only focus on the impact on the present generation, these catastrophic risks are one of the most serious issues facing humanity. But this is a huge underestimate of the scale of the problem, because if civilisation ends, then we give up our entire future too. Most people want to leave a better world for their grandchildren, and most also think we should have some concern for future generations more broadly. There could be many more people having great lives in the future than there are people alive today, and we should have some concern for their interests. There’s a possibility that human civilization could last for millions of years, so when we consider the impact of the risks on future generations, the stakes are millions of times higher — for good or evil. As Carl Sagan wrote on the costs of nuclear war in Foreign Affairs: A nuclear war imperils all of our descendants, for as long as there will be humans. Even if the population remains static, with an average lifetime of the order of 100 years, over a typical time period for the biological evolution of a successful species (roughly ten million years), we are talking about some 500 trillion people yet to come. By this criterion, the stakes are one million times greater for extinction than for the more modest nuclear wars that kill “only” hundreds of millions of people. There are many other possible measures of the potential loss–including culture and science, the evolutionary history of the planet, and the significance of the lives of all of our ancestors who contributed to the future of their descendants. Extinction is the undoing of the human enterprise. We’re glad the Romans didn’t let humanity go extinct, since it means that all of modern civilisation has been able to exist. We think we owe a similar responsibility to the people who will come after us, assuming (as we believe) that they are likely to lead fulfilling lives. It would be reckless and unjust to endanger their existence just to make ourselves better off in the short-term. It’s not just that there might be more people in the future. As Sagan also pointed out, no matter what you think is of value, there is potentially a lot more of it in the future. Future civilisation could create a world without need or want, and make mindblowing intellectual and artistic achievements. We could build a far more just and virtuous society. And there’s no in-principle reason why civilisation couldn’t reach other planets, of which there are some 100 billion in our galaxy.27 If we let civilisation end, then none of this can ever happen. We’re unsure whether this great future will really happen, but that’s all the more reason to keep civilisation going so we have a chance to find out. Failing to pass on the torch to the next generation might be the worst thing we could ever do. So, a couple of percent risk that civilisation ends seems likely to be the biggest issue facing the world today. What’s also striking is just how neglected these risks are. Why these risks are some of the most neglected global issues Here is how much money per year goes into some important causes:28 Cause Annual targeted spending from all sources (highly approximate) Global R&D $1.5 trillion Luxury goods $1.3 trillion US social welfare $900 billion Climate change >$300 billion To the global poor >$250 billion Nuclear security $1-10 billion Extreme pandemic prevention $1 billion AI safety research $10 million As you can see, we spend a vast amount of resources on R&D to develop even more powerful technology. We also expend a lot in a (possibly misguided) attempt to improve our lives by buying luxury goods. Far less is spent mitigating catastrophic risks from climate change. Welfare spending in the US alone dwarfs global spending on climate change. But climate change still receives enormous amounts of money compared to some of these other risks we’ve covered. We roughly estimate that the prevention of extreme global pandemics receives under 300 times less, even though the size of the risk seems about the same. Research to avoid accidents from AI systems is the most neglected of all, perhaps receiving 100-times fewer resources again, at around only $10m per year. You’d find a similar picture if you looked at the number of people working on these risks rather than money spent, but it’s easier to get figures for money. If we look at scientific attention instead, we see a similar picture of neglect (though, some of the individual risks receive significant attention, such as climate change): Existential risk research receives less funding than dung beetle research. Credit: Nick Bostrom Our impression is that if you look at political attention, you’d find a similar picture to the funding figures. An overwhelming amount of political attention goes on concrete issues that help the present generation in the short-term, since that’s what gets votes. Catastrophic risks are far more neglected. Then, among the catastrophic risks, climate change gets the most attention, while issues like pandemics and AI are the most neglected. This neglect in resources, scientific study and political attention is exactly what you’d expect to happen from the underlying economics, and are why the area presents an opportunity for people who want to make the world a better place. First, these risks aren’t the responsibility of any single nation. Suppose the US invested heavily to prevent climate change. This benefits everyone in the world, but only about 5% of the world’s population lives in the US, so US citizens would only receive 5% of the benefits of this spending. This means the US will dramatically underinvest in these efforts compared to how much they’re worth to the world. And the same is true of every other country. This could be solved if we could all coordinate — if every nation agreed to contribute its fair share to reducing climate change, then all nations would benefit by avoiding its worst effects. Unfortunately, from the perspective of each individual nation, it’s better if every other country reduces their emissions, while leaving their own economy unhampered. So, there’s an incentive for each nation to defect from climate agreements, and this is why so little progress gets made (it’s a prisoner’s dilemma). And in fact, this dramatically understates the problem. The greatest beneficiaries of efforts to reduce catastrophic risks are future generations. They have no way to stand up for their interests, whether economically or politically. If future generations could vote in our elections, then they’d vote overwhelmingly in favour of safer policies. Likewise, if future generations could send money back in time, they’d be willing to pay us huge amounts of money to reduce these risks. (Technically, reducing these risks creates a trans-generational, global public good, which should make them among the most neglected ways to do good.) Our current system does a poor job of protecting future generations. We know people who have spoken to top government officials in the UK, and many want to do something about these risks, but they say the pressures of the news and election cycle make it hard to focus on them. In most countries, there is no government agency that naturally has mitigation of these risks in its remit. This is a depressing situation, but it’s also an opportunity. For people who do want to make the world a better place, this lack of attention means there are lots high-impact ways to help. What can be done about these risks? We’ve covered the scale and neglectedness of these issues, but what about the third element of our framework, solvability? It’s less certain that we can make progress on these issues than more conventional areas like global health. It’s much easier to measure our impact on health (at least in the short-run) and we have decades of evidence on what works. This means working to reduce catastrophic risks looks worse on solvability. However, there is still much we can do, and given the huge scale and neglectedness of these risks, they still seem like the most urgent issues. We’ll sketch out some ways to reduce these risks, divided into three broad categories: 1. Targeted efforts to reduce specific risks One approach is to address each risk directly. There are many concrete proposals for dealing with each, such as the following: Many experts agree that better disease surveillance would reduce the risk of pandemics. This could involve improved technology or better collection and aggregation of existing data, to help us spot new pandemics faster. And the faster you can spot a new pandemic, the easier it is to manage. There are many ways to reduce climate change, such as helping to develop better solar panels, or introducing a carbon tax. With AI, we can do research into the “control problem” within computer science, to reduce the chance of unintended damage from powerful AI systems. A recent paper, Concrete problems in AI safety, outlines some specific topics, but only about 20 people work full-time on similar research today. In nuclear security, many experts think that the deterrence benefits of nuclear weapons could be maintained with far smaller stockpiles. But, lower stockpiles would also reduce the risks of accidents, as well as the chance that a nuclear war, if it occurred, would end civilisation. We go into more depth on what you can do to tackle each risk within our problem profiles: AI safety Pandemic prevention Nuclear security Run-away climate change We don’t focus on naturally caused risks in this section, because they’re much less likely and we’re already doing a lot to deal with some of them. Improved wealth and technology makes us more resilient to natural risks, and a huge amount of effort already goes into getting more of these. 2. Broad efforts to reduce risks Rather than try to reduce each risk individually, we can try to make civilisation generally better at managing them. The “broad” efforts help to reduce all the threats at once, even those we haven’t thought of yet. For instance, there are key decision-makers, often in government, who will need to manage these risks as they arise. If we could improve the decision-making ability of these people and institutions, then it would help to make society in general more resilient, and solve many other problems. Recent research has uncovered lots of ways to improve decision-making, but most of it hasn’t yet been implemented. At the same time, few people are working on the issue. We go into more depth in our write-up of improving institutional decision-making. Another example is that we could try to make it easier for civilisation to rebound from a catastrophe. The Global Seed Vault is a frozen vault in the Arctic, which contains the seeds of many important crop varieties, reducing the chance we lose an important species. Melting water recently entered the tunnel leading to the vault due, ironically, to climate change, so could probably use more funding. There are lots of other projects like this we could do to preserve knowledge. Similarly, we could create better disaster shelters, which would reduce the chance of extinction from pandemics, nuclear winter and asteroids (though not AI), while also increasing the chance of a recovery after a disaster. Right now, these measures don’t seem as effective as reducing the risks in the first place, but they still help. A more neglected, and perhaps much cheaper option is to create alternative food sources, such as those that be produced without light, and could be quickly scaled up in a prolonged winter. Since broad efforts help even if we’re not sure about the details of the risks, they’re more attractive the more uncertain you are. As you get closer to the risks, you should gradually reallocate resources from broad to targeted efforts (read more). We expect there are many more promising broad interventions, but it’s an area where little research has been done. For instance, another approach could involve improving international coordination. Since these risks are caused by humanity, they can be prevented by humanity, but what stops us is the difficulty of coordination. For instance, Russia doesn’t want to disarm because it would put it at a disadvantage compared to the US, and vice versa, even though both countries would be better off if there were no possibility of nuclear war. However, it might be possible to improve our ability to coordinate as a civilisation, such as by improving foreign relations or developing better international institutions. We’re keen to see more research into these kinds of proposals. Mainstream efforts to do good like improving education and international development can also help to make society more resilient and wise, and so also contribute to reducing catastrophic risks. For instance, a better educated population would probably elect more enlightened leaders (cough), and richer countries are, all else equal, better able to prevent pandemics — it’s no accident that Ebola took hold in some of the poorest parts of West Africa. But, we don’t see education and health as the best areas to focus on for two reasons. First, these areas are far less neglected than the more unconventional approaches we’ve covered. In fact, improving education is perhaps the most popular cause for people who want to do good, and in the US alone, receives 800 billion dollars of government funding, and another trillion dollars of private funding. Second, these approaches have much more diffuse effects on reducing these risks — you’d have to improve education on a very large scale to have any noticeable effect. We prefer to focus on more targeted and neglected solutions.

#### Anticipating extinction breeds empathy and entangled care. Distancing ourselves from considering extinction reifies detached elitism.

Offord, 17—Faculty of Humanities, School of Humanities Research and Graduate Studies, Bentley Campus (Baden, “BEYOND OUR NUCLEAR ENTANGLEMENT,” Angelaki, 22:3, 17-25, dml) [ableist language modifications denoted by brackets]

You are steered towards overwhelming and inexplicable pain when you consider the nuclear entanglement that the species Homo sapiens finds itself in. This is because the fact of living in the nuclear age presents an existential, aesthetic, ethical and psychological challenge that defines human consciousness. Although an immanent threat and ever-present danger to the very existence of the human species, living with the possibility of nuclear war has infiltrated the matrix of modernity so profoundly as to paralyse [shut down] our mind-set to respond adequately. We have chosen to ignore the facts at the heart of the nuclear program with its dangerous algorithm; we have chosen to live with the capacity and possibility of a collective, pervasive and even planetary-scale suicide; and the techno-industrial-national powers that claim there is “no immediate danger” ad infinitum.8

This has led to one of the key logics of modernity's insanity. As Harari writes: “Nuclear weapons have turned war between superpowers into a mad act of collective suicide, and therefore forced the most powerful nations on earth to find alternative and peaceful ways to resolve conflicts.”9 This is the nuclear algorithm at work, a methodology of madness. In revisiting Jacques Derrida in “No Apocalypse, Not Now (Full Speed Ahead, Seven Missiles, Seven Missives),”10 who described nuclear war as a “non-event,” it is clear that the pathology of the “non-event” remains as active as ever even in the time of Donald Trump and Kim Jong-un with their stichomythic nuclear posturing.

The question of our times is whether we have an equal or more compelling capacity and willingness to end this impoverished but ever-present logic of pain and uncertainty. How not simply to bring about disarmament, but to go beyond this politically charged, as well as mythological and psychological nuclear algorithm? How to find love amidst the nuclear entanglement; the antidote to this entanglement? Is it possible to end the pathology of power that exists with nuclear capacity? Sadly, the last lines of Nitin Sawhney's “Broken Skin” underscore this entanglement:

Just 5 miles from India's nuclear test site

Children play in the shade of the village water tank

Here in the Rajasthan desert people say

They're proud their country showed their nuclear capability.11

As an activist scholar working in the fields of human rights and cultural studies, responding to the nuclear algorithm is an imperative. Your politics, ethics and scholarship are indivisible in this cause. An acute sense of care for the world, informed by pacifist and non-violent, de-colonialist approaches to knowledge and practice, pervades your concern. You are aware that there are other ways of knowing than those you are familiar and credentialed with. You are aware that you are complicit in the prisons that you choose to live inside,12 and that there is no such thing as an innocent bystander. You use your scholarship to shake up the world from its paralysis, abjection and amnesia; to unsettle the epistemic and structural violence that is ubiquitous to neoliberalism and its machinery; to create dialogic and learning spaces for the work of critical human rights and critical justice to take place. All this, and to enable an ethics of intervention through understanding what is at the very heart of the critical human rights impulse, creating a “dialogue for being, because I am not without the other.”13

Furthermore, as a critical human rights advocate living in a nuclear armed world, your challenge is to reconceptualise the human community as Ashis Nandy has argued, to see how we can learn to co-exist with others in conviviality and also learn to co-survive with the non-human, even to flourish. A dialogue for being requires a leap into a human rights frame that includes a deep ecological dimension, where the planet itself is inherently involved as a participant in its future. This requires scholarship that “thinks like a mountain.”14 A critical human rights approach understands that it cannot be simply human-centric. It requires a nuanced and arresting clarity to present perspectives on co-existence and co-survival that are from human and non-human viewpoints.15

Ultimately, you realise that your struggle is not confined to declarations, treaties, legislation, and law, though they have their role. It must go further to produce “creative intellectual exchange that might release new ethical energies for mutually assured survival.”16 Taking an anti-nuclear stance and enabling a post-nuclear activism demands a revolution within the field of human rights work. Recognising the entanglement of nuclearism with the Anthropocene, for one thing, requires a profound shift in focus from the human-centric to a more-than-human co-survival. It also requires a fundamental shift in understanding our human culture, in which the very epistemic and rational acts of sundering from co-survival with the planet and environment takes place. In the end, you realise, as Raimon Panikkar has articulated, “it is not realistic to toil for peace if we do not proceed to a disarmament of the bellicose culture in which we live.”17 Or, as Geshe Lhakdor suggests, there must be “inner disarmament for external disarmament.”18 In this sense, it is within the cultural arena, our human society, where the entanglement of subjective meaning making, nature and politics occurs, that we need to disarm.

It is 1982, and you are reading Jonathan Schell's The Fate of the Earth on a Sydney bus. Sleeping has not been easy over the past few nights as you reluctantly but compulsively read about the consequences of nuclear war. For some critics, Schell's account is high polemic, but for you it is more like Rabindranath Tagore: it expresses the suffering we make for ourselves. What you find noteworthy is that although Schell's scenario of widespread destruction of the planet through nuclear weaponry, of immeasurable harm to the bio-sphere through radiation, is powerfully laid out, the horror and scale of nuclear obliteration also seems surreal and far away as the bus makes its way through the suburban streets.

A few years later, you read a statement from an interview with Paul Tibbets, the pilot of “Enola Gay,” the plane that bombed Hiroshima. He says, “The morality of dropping that bomb was not my business.”19 This abstraction from moral responsibility – the denial of the implications on human life and the consequences of engagement through the machinery of war – together with the sweeping amnesia that came afterwards from thinking about the bombing of Hiroshima, are what make you become an environmental and human rights activist. You realise that what makes the nuclear algorithm work involves a politically engineered and deeply embedded insecurity-based recipe to elide the nuclear threat from everyday life. The spectre of nuclear obliteration, like the idea of human rights, can appear abstract and distant, not our everyday business. You realise that within this recipe is the creation of a moral tyranny of distance, an abnegation of myself with the other. One of modernity's greatest and earliest achievements was the mediation of the self with the world. How this became a project assisted and shaped through the military-industrial-technological-capitalist complex is fraught and hard to untangle. But as a critical human rights scholar you have come to see through that complex, and you put energies into challenging that tyranny of distance, to activate a politics, ethics and scholarship that recognises the other as integral to yourself. Ultimately, even, to see that the other is also within.20

## Case

#### Extinction outweighs it precludes the possibility for future generations and denies any possible value to life – any other metric is paternalistic resulting in involuntary death turns their offense. Framing issue alt solvency is dependent upon generating social life, which is impossible in a state of biological death. Any 1AR argument should be rejected cuz it’s paternalistic for them to justify the INVOLUNTARY death of indigenous individuals.

#### 1] Vote neg on presumption

#### a] They have no intrinsic benefit to specifically reading [x] within the debate space and thus no reason to affirm their strategy

#### b] Movements don’t spill up – competition means you ally yourself with people who vote for you and alienate those who are forced to debate you ensuring the failure of the movement

#### c] The regurgitation of knowledge from the 1ac proves that it is not a departure from the status quo, but rather gets coopted by academia

#### 2] No link – market approach is good and inevitable IN SPACE.

Broker 20 [(Tyler, work has been published in the Gonzaga Law Review, the Albany Law Review and the University of Memphis Law Review.) “Space Law Can Only Be Libertarian Minded,” Above the Law, 1-14-20, <https://abovethelaw.com/2020/01/space-law-can-only-be-libertarian-minded/>] TDI

The impact on human daily life from a transition to the virtually unlimited resource reality of space cannot be overstated. However, when it comes to the law, a minimalist, dare I say libertarian, approach appears as the only applicable system. In the words of NASA, “2020 promises to be a big year for space exploration.” Yet, as Rand Simberg points out in Reason magazine, it is actually private American investment that is currently moving space exploration to “a pace unseen since the 1960s.” According to Simberg, due to this increase in private investment “We are now on the verge of getting affordable private access to orbit for large masses of payload and people.” The impact of that type of affordable travel into space might sound sensational to some, but in reality the benefits that space can offer are far greater than any benefit currently attributed to any major policy proposal being discussed at the national level. The sheer amount of resources available within our current reach/capabilities simply speaks for itself. However, although those new realities will, as Simberg says, “bring to the fore a lot of ideological issues that up to now were just theoretical,” I believe it will also eliminate many economic and legal distinctions we currently utilize today. For example, the sheer number of resources we can already obtain in space means that in the rapidly near future, the distinction between a nonpublic good or a public good will be rendered meaningless. In other words, because the resources available within our solar system exist in such quantities, all goods will become nonrivalrous in their consumption and nonexcludable in their distribution. This would mean government engagement in the public provision of a nonpublic good, even at the trivial level, or what Kevin Williamson defines as socialism, is rendered meaningless or impossible. In fact, in space, I fail to see how any government could even try to legally compel collectivism in the way Simberg fears. Similar to many economic distinctions, however, it appears that many laws, both the good and the bad, will also be rendered meaningless as soon as we begin to utilize the resources within our solar system. For example, if every human being is given access to the resources that allows them to replicate anything anyone else has, or replace anything “taken” from them instantly, what would be the point of theft laws? If you had virtually infinite space in which you can build what we would now call luxurious livable quarters, all without exploiting human labor or fragile Earth ecosystems when you do it, what sense would most property, employment, or commercial law make? Again, this is not a pipe dream, no matter how much our population grows for the next several millennia, the amount of resources within our solar system can sustain such an existence for every human being. Rather than panicking about the future, we should try embracing it, or at least meaningfully preparing for it. Currently, the Outer Space Treaty, or as some call it “the Magna Carta of Space,” is silent on the issue of whether private individuals or corporate entities can own territory in space. Regardless of whether governments allow it, however, private citizens are currently obtaining the ability to travel there, and if human history is any indicator, private homesteading will follow, flag or no flag. We Americans know this is how a Wild West starts, where most regulation becomes the impractical pipe dream. But again, this would be a Wild West where the exploitation of human labor and fragile Earth ecosystem makes no economic sense, where every single human can be granted access to resources that even the wealthiest among us now would envy, and where innovation and imagination become the only things we would recognize as currency. Only a libertarian-type system, that guarantees basic individual rights to life, liberty, and the pursuit of happiness could be valued and therefore human fidelity to a set of laws made possible, in such an existence.

#### 3] The aff gives the state MORE power – 1AC specifically bans private companies from space but not public companies which leaves only the public sector for space exploration, all 1AC evidence proves how much people want to go space, however after the 1AC its done only through the state which is net worse according to the aff. Think about who is responsible for CENTURIES of violence against indigenous folks and pushed them into reserves, Federal governments so its worse to let them appropriate space.

#### 4] Only evaluate the net amount violence solved by the aff Filter the debate through scope of solvency—there’s no impact to root cause if they don’t solve it. Aff cannot overcome the sum total of colonialist violence – structural barriers that are outside the scope of resolution will always exist

#### 5] The aff's sentimental politics promises that empathetic identification with the suffering black body via the ballot creates uplift and emancipation. This creates passivity and relies on an economy of redemption where the presentation of suffering simplifies the subject into a hateful image, sanctioning further violence and coercive mimeticism.

**Berlant, 8** **(Lauren Berlant, George M. Pullman Professor of English and Chair of the Lesbian and Gay Studies Project at the University of Chicago, 2008, accessed on 1-11-2021, *The Female Complaint: The Unfinished Business of Sentimentality in American Culture*, "Poor Eliza", http://library.lol/main/2DD3D18490A01AC7C631407842AB003F) //lex dy**

What distinguishes these critical texts are the startling ways they struggle to encounter the Uncle Tom form without reproducing it, declining to pay the inheritance tax. The countersentimental does not involve the aesthetic destruction of the contract sentimentality makes between its texts and readers, that proper reading will lead to more virtuous, compassionate feeling and therefore to a better self. What changes is the place of repetition in this contract, a crisis frequently thematized in formal aesthetic and generational terms. In its traditional and political modalities, the sentimental promises that in a just world an expressive consensus would already exist about what constitutes material uplift, amelioration, emancipation, and those other horizons toward which empathy directs itself. Identification with suffering, the ethical response to the sentimental plot, leads to some version of a mimetic repetition in the audience and thus to a generally held view about what transformations would bring the good life into being. The presumption that the terms of consent are transhistorical, translocal, and transdifferential because true feeling is shared explains in part why emotions, especially painful ones, are so central to the world-building aspects of sentimental alliance. Countersentimental texts withdraw from the contract that presumes consent with the conventionally desired outcomes of identification and compassion. What about the democratic pleasures of anonymity and alterity, let alone sovereign individuality? Is sentimentality ultimately antisovereign, a discipline of the body toward assuming universal response? Such desires as those for a felt unconflictedness might well motivate the sacrifice of surprising thought on behalf of the emotional normativity of the sentimental world, as though there is not a political economy to the meaning of emotions that bridge inequalities, such as compassion and love. What, if anything, can be built from diverse knowledges and experiences of the pain of nondominant peoples? How can one desire to refuse the enmeshment of one’s story about the humiliations of history with the conventions of narrative suffering while being true to the facts and affects of ordinary subordination? Disinheriting without disavowing requires foregrounding ambivalence, as we will see. More than a critique of human empathic attachment as such, the countersentimental modality challenges the place literature and storytelling have come to stand for in the normalization of gestures of emotional humanism in the United States across a span of almost two centuries. Three moments in this genealogy, which differ as much from each other as from the credulous citation of Uncle Tom’s Cabin we saw in The King and I and Dimples, will mark here some potential within the archive that counters the repetitive compulsions of sentimentality. I cite these resistances and refusals not to side with claims about the immoral “aridity” of sentimental politics but to provide evidence of the kinds of ambivalence that the “liberal paternalism” of sentimentality engenders in those whom its aesthetic has spoken about, to, and for in ways that completely confuse definitions of the human and the inhuman.23 This essay begins with a famous passage from James Baldwin’s “Everybody’s Protest Novel,” a much cited essay about Uncle Tom’s Cabin that is rarely read in the strong sense because the powerful language of rageful truth telling it uses would want to shame in advance any desire to make claims for the tactical efficacy of suffering and mourning in the struggle to transform the United States into a counterracist nation. Baldwin’s claim is that associating the human with the suffering actually limits the human to a mode of absolute passivity that, ethically, cannot embody the human in its fullness. Baldwin’s engagement with Stowe in this essay comes amid a general wave of protest novels, social problem films, and film noir in the United States after World War II: Gentleman’s Agreement, The Postman Always Rings Twice, The Best Years of Our Lives. Works like these, he says, “emerge for what they are: a mirror of our confusion, dishonesty, panic, trapped and immobilized in the sunlit prison of the American dream.”24 They cut the complexity of human motives and self-understanding “down to size” by preferring “a lie more palatable than the truth” about the social and material effects the liberal pedagogy of optimism has, or doesn’t have, on “man’s” capacity to produce a world of authentic truth, justice, and freedom.25 “Truth” is the central keyword for Baldwin. He defines it as “a devotion to the human being, his freedom and fulfillment: freedom which cannot be legislated, fulfillment which cannot be charted.”26 Stowe’s totalitarian religiosity, in contrast, her insistence that subjects “bargain” for heavenly redemption with their own physical and spiritual mortification, sanctions the fundamental abjection of all persons, especially the black ones who wear the dark night of the soul out where all can see it. Additionally, Baldwin argues that Uncle Tom’s Cabin instantiates a tradition of locating the destiny of the nation in a false model of the individual soul, one imagined as free of ambivalence, aggression, or contradiction. In contrast, by advocating for the “human being” he means to repudiate stock identities as such, arguing that the stark simplicity of the icon, type, or cliché confirms the very fantasies and institutions against which the sentimental is ostensibly being mobilized. This national/liberal refusal of complexity is what he elsewhere calls “the price of the ticket” for membership in the American dream: as the Uncle Tom films suggest, whites need blacks to “dance” for them so that they might continue disavowing the costs or ghosts of whiteness, which involve religious traditions of self-loathing and cultural traditions confusing happiness with analgesia.27 The conventional reading of “Everybody’s Protest Novel” sees it as a violent rejection of the sentimental.28 Sentimentality is associated with the feminine (Little Women), with hollow and dishonest uses of feeling (Uncle Tom’s Cabin), and with an aversion to the real pain that real experience brings. “Causes, as we know, are notoriously bloodthirsty,” he writes: the politico-sentimental novel uses suffering vampirically to simplify the subject, thereby making the injunction to compassion safe for the consumer of the suffering spectacle.29 But it turns out that there is more to the story. In “Everybody’s Protest Novel” Baldwin bewails the sentimentality of Richard Wright’s Native Son too, because Bigger Thomas is not the homeopathic other to Uncle Tom after all, but one of his “children,”30 the heir to his negative legacy. Both Tom and Thomas live in a simple relation to violence and die only knowing slightly more than they did before they were sacrificed to a white ideal of the soul’s simple purity, its emptiness. This addiction to the formula of redemption through violent simplification persists with a “terrible power” and not just for the privileged classes: it constitutes minoritized U.S. populations as inhuman through attachment to the most hateful objectified, cartoon-like versions of their identities; it provokes the shamed subcultures of America to imitate the stereotypical image.

#### 6] Lack of advocacy for material change strengthens the link- the 1AC uses images of Black suffering and their response is just to say that’s bad. They literally commodify all of this suffering for the sake of a ballot in a debate round so they can feel happy and win trophies while sidelining the fact that they aren’t actually doing anything. Ballot is bad – judge is an authoritarian adjudicator.

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