### 1NC – OFF

#### Interp: Starlink aren’t appropriation – 2 warrants.

**Johnson summarizes 20** Johnson, C. D. (2020). *The Legal Status of MegaLEO Constellations and Concerns About Appropriation of Large Swaths of Earth Orbit*. Promoting Cooperative Solutions for Space Sustainability | Secure World. <https://swfound.org/media/206951/johnson2020_referenceworkentry_thelegalstatuso> (Chris Johnson is the Space Law Advisor for Secure World Foundation and has nine years of professional experience in international space law and policy.) //Recut Xu

No, This Is Not Impermissible Appropriation An opposite conclusion can also be reasonably arrived at when approached along the following lines. The counter argument would assert that the deployment and operation of these global constellations, such as SpaceX’s Starlink, OneWeb, Kepler, etc., are aligned with and in full conformity with the laws applicable to outer space. These constellations are merely the exercise and enjoyment of the freedom of exploration and use of outer space and do not constitute any impermissible appropriation of the orbits that they transit. Freedom of Access and Use Permits Constellations Rather than being a violation of other’s rights to access and explore outer space, the deployment of these constellations is more correctly viewed as the exercise and enjoyment of the right to access and use outer space. Article I of the Outer Space Treaty establishes a right to access and use space without discrimination. Not allowing an actor to deploy spacecraft, regardless of their number or destination, would be infringing with the exercise of their freedom. It would be discriminatory. Additionally, actors do not need permission from any other State, or group of States, to access and explore outer space. Aligned with the Intentions of the Outer Space Treaty This use of outer space by constellations in LEO, while not explicitly mentioned by the drafters of the Outer Space Treaty or other space law, actually is the fulfillment of their visions for the use of outer space. The preamble to the Outer Space Treaty (which contains the subject matter and purpose of the treaty and can be used for interpreting the operative articles of the treaty) speaks of the aspirations of humanity in exploring and using outer space. It is easy to see constellations that will provide Internet access to the world as fulfilling the visions of the drafters: The States Parties to this Treaty, Inspired by the great prospects opening up before mankind as a result of man’s entry into outer space, Recognizing the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes, Believing that the exploration and use of outer space should be carried on for the benefit of all peoples irrespective of the degree of their economic or scientific development, Desiring to contribute to broad international cooperation in the scientific as well as the legal aspects of the exploration and use of outer space for peaceful purposes, Believing that such cooperation will contribute to the development of mutual understanding and to the strengthening of friendly relations between States and peoples, As such, subsequent article of the Outer Space Treaty should be read in a permissive light, as permitting constellations, rather than a restrictive light which only sees potential negative aspects of constellations. Due Regard and Harmful Contamination Will be Addressed Operators in LEO are well aware of the challenges to space sustainability that their constellations will pose and will be taking efforts to mitigate the creation of debris. OneWeb is keenly focused on space sustainability and has even argued that the current norm, whereby spacecraft are not in space for longer than 25 years and are deorbited from lower orbits at the end of their lifetime (aka post mission disposal), is not sufficient to keep outer space clean and that shorter lifespan limits should be imposed on operators, especially operators in LEO, and operators of small satellites. Additionally, these systems will be able to cooperate with emerging space safety and space traffic management plans and can operate in ways that do not restrict or impinge on other users of the space domain. Because due regard is therefore displayed for the space domain, and to the interests of others, these constellations do not prejudice or infringe upon the freedoms of use and exploration of the space domain and are therefore not occupation, or possession, much less appropriation.

#### OST is the standard for space law.

Stockwell 20 [Samuel Stockwell (Research Project Manager, the Annenberg Institute at Brown University). “Legal ‘Black Holes’ in Outer Space: The Regulation of Private Space Companies”. E-International Relations. Jul 20 2020. Accessed 12/7/21. <https://www.e-ir.info/2020/07/20/legal-black-holes-in-outer-space-the-regulation-of-private-space-companies/> //Xu]

Although ratified into international law in 1967, the UN Outer Space Treaty (OST) is perhaps still the most relevant piece of legislation for analysing state and non-state entity activity in outer space. Designed to prevent both the militarisation of space and national appropriation of celestial bodies at the height of Cold War tensions, the UN OST holds significant influence as a form of customary international law (Hebert, 2014: 6). Ratified by over 100 nations – including major spacefaring nations such as the United States, Russia and China – the treatyis widely accepted as an authoritative document and has formed the basis for all other space treaties that have succeeded it (Kramer, 2017: 129). This is in contrast to more recent legislation such as the 1972 Moon Treaty designed to promote cooperation in Moon exploration and development, which the US and other major space superpowers have refrained from signing (Adolph, 2006: 968-969).

#### Semantics o/w –

#### a] Precision – they can arbitrarily jettison words which decks ground and preparation because there is no stasis point

#### b] Jurisdiction – the judge doesn’t have the authority to vote aff if it wasn’t legitimate

#### Violation – they defend Starlink

#### Vote for predictable limits – their aff explodes the object of the resolution to include any activity in space from Tourism to research – that allows them to cherry-pick the best aff with no neg ground – also kills predictable advocacies which decks prepared engagement.

TVA: defend private megaconstellations that isn’t spaceX

#### Vote on fairness – abuse skews your evaluation of substance – precedes education since if there’s abuse, you can’t expect me to clash. Drop the debater on T – I can’t respond to a new aff in the 2NR since I don’t have a 3NR to defend my offense. T link turns 1AR theory – proves the aff forced me to be abusive. affs should be topical as of the 1AC so it’s a fair standard. No RVIs on T: (A) The 1AR would just sit on T with frontlines so I’ll always lose to the unchecked 2AR collapse. (B) The aff has the burden of being topical so I have an unconditional right to read T. Use competing interps—either there’s a bright line which collapses, or there isn’t which causes intervention.

### 1NC – OFF

#### Focusing on the specific scenario they have described feels prudent but is logically indefensible – overly detailed predictions are highly improbable and create false perceptions of security.

**Yudkowsky, 07** – (Eliezer Yudkowsky, Co-founder and Research Fellow of the Singularity Institute for Artificial Intelligence—a non–profit research institute dedicated to increasing the likelihood of, and decreasing the time to, a maximally beneficial singularity, one of the world’s foremost experts on Artificial Intelligence and rationality, “Burdensome Details,” Less Wrong—a moderated community blog about human reasoning curated by the Future of Humanity Institute at Oxford University, September 20th, 2007, Available Online at http://lesswrong.com/lw/jk/burdensome\_details/)

According to probability theory, adding additional detail onto a story must render the story less probable. It is less probable that Linda is a feminist bank teller than that she is a bank teller, since all feminist bank tellers are necessarily bank tellers. Yet human psychology seems to follow the rule that adding an additional detail can make the story more plausible. People might pay more for international diplomacy intended to prevent nanotechnological warfare by China, than for an engineering project to defend against nanotechnological attack from any source. The second threat scenario is less vivid and alarming, but the defense is more useful because it is more vague. More valuable still would be strategies which make humanity harder to extinguish without being specific to nanotechnologic threats - such as colonizing space, or see Yudkowsky (this volume) on AI. Security expert Bruce Schneier observed (both before and after the 2005 hurricane in New Orleans) that the U.S. government was guarding specific domestic targets against "movie-plot scenarios" of terrorism, at the cost of taking away resources from emergency-response capabilities that could respond to any disaster. (Schneier 2005.) Overly detailed reassurances can also create false perceptions of safety: "X is not an existential risk and you don't need to worry about it, because A, B, C, D, and E"; where the failure of any one of propositions A, B, C, D, or E potentially extinguishes the human species. "We don't need to worry about nanotechnologic war, because a UN commission will initially develop the technology and prevent its proliferation until such time as an active shield is developed, capable of defending against all accidental and malicious outbreaks that contemporary nanotechnology is capable of producing, and this condition will persist indefinitely." Vivid, specific scenarios can inflate our probability estimates of security, as well as misdirecting defensive investments into needlessly narrow or implausibly detailed risk scenarios.

#### Objective scientific approaches fail in the context of space security– externalizes the agent from the actor and produces flawed policies.

**Hewitt 07** – (2007, Kenneth, PhD in geomorphology from London University, professor emeritus of geography and environmental studies and Research Associate at the Cold Regions Research Center at Wilfrid Laurier University, research focuses on risk and disaster theory, “Chapter 24: Social Perspectives on Comet/Asteroid Impact (CAI) Hazards: Technocratic Authority and the Geography of Social Vulnerability,” published in Comet/Asteroid Impacts and Human Society, ed. Peter T. Bobrowsky and Hans Rickman, springerlink DH)

From a social perspective it is generally a mistake to base risk assessment primarily on scientific, let alone popular, treatment of the hazardous agent. This problem has emerged as a major flaw in most work on disasters involving natural, technological, disease and social violence hazards (Hewitt 1983, 1997). Much of it ignores societal and context specific considerations, or subordinates them to properties of the dangerous agent.

This is not about bad versus good science, nor to suggest agent-specific knowledge is not important. To neglect it or fail to take it seriously, as also happens, can be fatal too. Nevertheless, neglect or subordination of the other, especially social factors and contexts, is more widespread and leads to most of the common empirical and interpretive illusions about disasters (Green 1997). Work on CAI hazards is typical of the narrowest agent-specific approaches. It leads to what I would characterize as flawed preoccupations that in summary are:

1 Risk assessment dominated by the space hazard and primary impact parameters.

2 A focus on global and totalizing or ‘worst-case’ scenarios in which the full, most destructive, scope of the CAI hazards is expected, but neglecting (much more likely) regional disasters and less-than-calamitous glo qbal ones, and neglect of Earth environment and settlement conditions that will influence them, as outlined above.

3 Ignoring, or treating the geography of social exposure, vulnerability and capacities, as subordinate issues, at best summarized in global and impersonal probabilities of population exposure.

4 The assumption that only defenses directed against the Near Earth Objects (NEOs) themselves, using more or less advanced, mostly space technologies, offer ways to reduce risk and prevent disasters.

5 Proposals for responses, including disaster preparedness and allocation of resources, that are entirely about the hazard, the conditions and technologies associated with astrophysical and geophysical sciences.

#### The alternative is to reject the affirmative for their complicity with Newtonian linear regression and predictions. Use the ballot to as a signal of support for complexity theory—such a move is necessary to force academics and policy makers alike to reconsider the basis upon which they make predictions and take action. Only complexity theory allows understanding of events that in turn can produce BETTER responses and predictive models in the long run.

**Rosenau 97.** James N. Rosenau, president of the international studies association, professor of international affairs at GW, “Many Damn Things Simultaneously: Complexity Theory and World Affairs,” Complexity, Politics, and National Security pg. 37, jk

To acknowledge the limits of complexity theory, however, is not to assert that it is of no value for policy makers and academics charged with comprehending world affairs. Far from it: if the search for panaceas is abandoned and replaced with a nuanced approach, it quickly becomes clear that the underlying premises of complexity theory have a great deal to offer as a perspective or world view with which to assess and anticipate the course of events. Perhaps most notably, they challenge prevailing assumptions in both the academic and policy-making communities that political, economic, and social relationships adhere to patterns traced by linear regressions. Complexity theory asserts that it is not the case, as all too many officials and analysts presume, that "we can get a value for the whole by adding up the values of its parts."20 In the words of one analyst,

Look out the nearest window. Is there any straight line out there that wasn’t man-made? I’ve been asking the same question of student and professional groups for several years now, and the most common answer is a grin. Occasionally a philosophical person will comment that even the lines that look like straight lines are not straight lines if we look at them through a microscope. But even if we ignore that level of analysis, we are still stuck with the inevitable observation that natural structures are, at their core, nonlinear. If [this] is true, why do social scientists insist on describing human events as if all the rules that make those events occur are based on straight lines?21 A complexity perspective acknowledges the nonlinearity of both natural and human systems. It posits human systems as constantly learning, reacting, adapting, and changing even as they persist, as sustaining continuity and change simultaneously. It is a perspective that embraces non-equilibrium existence. Stated more generally, it is a mental set, a cast of mind that does not specify particular outcomes or solutions but that offers guidelines and lever points that analysts and policy makers alike can employ to more clearly assess the specific problems they seek to comprehend or resolve. Furthermore, the complexity perspective does not neglect the role of history even though it rejects the notion that a single cause has a single effect. Rather, focusing as it does on initial conditions and the paths that they chart for systems, complexity treats the historical context of situations as crucial to comprehension.

The first obstacle to adopting a complexity perspective is to recognize that inevitably we operate with some kind of theory. It is sheer myth to believe that we need merely observe the circumstances of a situation in order to understand them. Facts do not speak for themselves; observers give them voice by sorting out those that are relevant from those that are irrelevant and, in so doing, they bring a theoretical perspective to bear. Whether it be realism, liberalism, or pragmatism, analysts and policy makers alike must have some theoretical orientation if they are to know anything. Theory provides guidelines; it sensitizes observers to alternative possibilities; it highlights where levers might be pulled and influence wielded; it links ends to means and strategies to resources; and perhaps most of all, it infuses context and pattern into a welter of seemingly disarrayed and unrelated phenomena.

It follows that the inability of complexity theory to make specific predictions is not a serious drawback. Understanding and not prediction is the task of theory. It provides a basis for grasping and anticipating the general patterns within which specific events occur. The weather offers a good example. It cannot be precisely predicted at any moment in time, but there are building blocks—fronts, highs and lows, jet streams, and so on—and our overall understanding of changes in weather has been much advanced by theory based on these building blocks....We understand the larger patterns and (many of) their causes, though the detailed trajectory through the space of weather possibilities is perpetually novel. As a result, we can do far better than the old standby: predict that "tomorrow’s weather will be like today’s" and you stand a 60 percent probability of being correct. A relevant theory for [complex adaptive systems] should do at least as well.22

Given the necessity of proceeding from a theoretical standpoint, it ought not be difficult to adopt a complexity perspective. Indeed, most of us have in subtle ways already done so. Even if political analysts are not—as I am not—tooled up in computer science and mathematics, the premises of complexity theory and the strides in comprehension they have facilitated are not difficult to grasp. Despite our conceptual insufficiencies, we are not helpless in the face of mounting complexity. Indeed, as the consequences of turbulent change have become more pervasive, so have observers of the global scene become increasingly wiser about the ways of the world and, to a large degree, we have become, each of us in our own way, complexity theorists. Not only are we getting accustomed to a fragmegrative world view that accepts contradictions, anomalies, and dialectic processes, but we have also learned that situations are multiply caused, that unintended consequences can accompany those that are intended, that seemingly stable situations can topple under the weight of cumulated grievances, that some situations are ripe for accidents waiting to happen, that expectations can be self-fulfilling, that organizational decisions are driven as much by informal as formal rules, that feedback loops can redirect the course of events, and so on through an extensive list of understandings that appear so commonplace as to obscure their origins in the social sciences only a few decades ago.23 Indeed, we now take for granted that learning occurs in social systems, that systems in crisis are vulnerable to sharp turns of directions precipitated by seemingly trivial incidents, that the difference between times one and two in any situation can often be ascribed to adaptive processes, that the surface appearance of societal tranquillity can mask underlying problems, and that "other things being equal" can be a treacherous phrase if it encourages us to ignore glaring exceptions. In short, we now know that history is not one damn thing after another so much as it is many damn things simultaneously.

And if we ever slip in our understanding of these subtle lessons, if we ever unknowingly revert to simplistic formulations, complexity theory serves to remind us there are no panaceas. It tells us that there are limits to how much we can comprehend of the complexity that pervades world affairs, that we have to learn to become comfortable living and acting under conditions of uncertainty.

The relevance of this accumulated wisdom—this implicit complexity perspective—can be readily illustrated. It enables us to grasp how an accidental drowning in Hong Kong intensified demonstrations against China, how the opening of a tunnel in Jerusalem could give rise to a major conflagration, how the death of four young girls can foster a "dark and brooding" mood in Brussels, how an "October surprise" might impact strongly on an American presidential election, or how social security funds will be exhausted early in the next century unless corrective policies are adopted—to cite three recent events and two long-standing maxims.24 We know, too that while the social security example is different from the others—in that it is founded on a linear projection of demographic change while the other examples involve nonlinear feedback loops—the world is comprised of linear as well as nonlinear dynamics and that this distinction is central to the kind of analysis we undertake.

In other words, while it is understandable that we are vulnerable to the appeal of panaceas, this need not be the case. Our analytic capacities and concepts are not so far removed from complexity theorists that we need be in awe of their accomplishments or be ready to emulate their methods. Few of us have the skills or resources to undertake sophisticated computer simulations—and that may even be an advantage, as greater technical skills might lead us to dismiss complexity theory as inapplicable—but as a philosophical perspective complexity theory is not out of our reach. None of its premises and concepts are alien to our analytic habits. They sum to a perspective that is consistent with our own and with the transformations that appear to be taking the world into unfamiliar realms. Hence, through its explication, the complexity perspective can serve as a guide both to comprehending a fragmegrated world and theorizing within its limits.

#### Interp: The aff must defend their epistemic orientation before the impacts of the plan.

#### 1 - justifications can affect our organizing knowledge of the world more than actions themselves - ie both liberals and David Duke want to cut funding to Israel - one because antisemitism and the other cuz colonialism is bad

#### 2 – they have infinte prep time and staked out every part of the 1ac as a reason to vote aff – that means they should justify their research process

#### Extinction not an impact when probability is non-linear --

### 1NC – OFF

#### Interp – the aff may not defend only one private entity

#### Atemporal gerunds that refer to a kind of activity are interpreted generically.

Fonteyn 19, [Lauren Fonteyn – PhD in Linguistics] Oxford University Press 2019 DOA: 2/18/19 “Categoriality in Language Change: The Case of the English Gerund” [https://books.google.com/books?id=MPqNDwAAQBAJ&pg=PA81&lpg=PA81&dq=can+a+gerund+refer+to+specific+instances&source=bl&ots=xMutSWcthz& sig=ACfU3U2uvTp2YwDVyXZGdPj5p5umdW4iHQ&hl=en&ppis=\_c&sa=X&ved=2ahUKEwi5-7TW8dznAhVLT6wKHcAYBww Q6AEwCnoECAkQAQ#v=onepage&q&f=false](https://books.google.com/books?id=MPqNDwAAQBAJ&pg=PA81&lpg=PA81&dq=can+a+gerund+refer+to+specific+instances&source=bl&ots=xMutSWcthz&%20sig=ACfU3U2uvTp2YwDVyXZGdPj5p5umdW4iHQ&hl=en&ppis=_c&sa=X&ved=2ahUKEwi5-7TW8dznAhVLT6wKHcAYBww%20Q6AEwCnoECAkQAQ#v=onepage&q&f=false) SLHS-RR

Referentially used gerunds (like prototypical noun phrases) can realize generic reference, referring to a kind or type of activity, or non-generic reference, profiling an instantiated event. Generic reference is illustrated in (21), where Not being, the raising or keeping a Standing Army within the United Kingdom of Great Britain and Ireland in Time of Peace, and a knitting of the brows all refer to a kind of activity. Such generic gerunds can be considered “atemporal,” as they are not confined to one particular time or location. (21) a. Not being is to be the development of being; death, of life. (186X, PPCMBE) [generic] b. Whereas the raising or keeping a Standing Army within the United Kingdom of Great Britain and Ireland in Time of Peace, unless it be with the Consent of Parliament, is against Law. (1865, PPCMBE) [generic] c. Painful sensations, being mostly far more intense than pleasur- able ones, cause muscular actions of a much more decided kind. A sudden twinge produces a convulsive start of the whole body. A pain less violent, but continuous, is accompanied by a knitting of the brows, a setting of the teeth or biting of the lip, and a contraction of the features generally. (1854-1859, CLMET3.1) [generic]

#### Semantics outweighs –

#### a] Precision – they can arbitrarily jettison words which decks ground and preparation because there is no stasis point

#### b] Jurisdiction – the judge doesn’t have the authority to vote aff if it wasn’t legitimate

#### Vote neg for limits and ground – infinite combination of affs from starlink, blue origin virgin galactic. Explodes aff ground – you cherry-pick affs with no neg ground and I must prep all affs while they prep one – generics like mining and spacecol don’t link.

#### Supercharged by them not defending implementation – I can’t make shift DA like US primacy, solvency deficits CP – no PICs because no implementation

#### TVA Solves – read this aff as an advantage – we still get discussion on their aff.

### 1NC – OFF

#### Interp: The aff must only defend private entities – private entities are independent of the public

#### Violation – SpaceX is not a private entity

#### Starlink operated by SpaceX.

Wikipedia No Date [Wikipedia. No Date. Accessed 1/16/22. “Starlink”. <https://en.wikipedia.org/wiki/Starlink> //Xu]

Starlink is a satellite internet constellation operated by SpaceX[1][2] providing satellite Internet access to most of the Earth.[3][4] The constellation has grown to over 1,700 satellites through 2021, and will eventually consist of many thousands of mass-produced small satellites in low Earth orbit (LEO), which communicate with designated ground transceivers. While the technical possibility of satellite internet service covers most of the global population, actual service can be delivered only in countries that have licensed SpaceX to provide service within any specific national jurisdiction. As of January 2022, the beta service offering is available in 24 countries.

#### NASA partners with SpaceX

Sheetz 19 [Michael Sheetz (Space Reporter for CNBC.com). “How NASA is evolving through partnerships with private space companies.” CNBC. NOV 30 2019. Accessed 1/16/22. <https://www.cnbc.com/2019/11/30/how-nasa-is-evolving-through-partnerships-with-private-space-companies.html> //Xu]

Each batch of tipping point awards are divided among multiple programs. The most recent awards, announced in September, saw 14 U.S. companies win a combined $43 million to develop technologies that will help NASA's "Moon to Mars" initiative. The contracts went to a wide variety of companies — from SpaceX to Blue Origin to Astrobotic – for a variety of purposes — from producing cryogenic production, to developing sustainable energy generators or building affordable propulsion systems for small spacecraft. SpaceX and Boeing to fly NASA astronauts Another one of the agency's top focuses is a program called Commercial Crew, which is the agency's solution to end reliance on Russian Soyuz spacecraft to send astronauts to the space station. NASA has awarded SpaceX and Boeing more than $3.1 billion and $4.8 billion, respectively, since 2014 to develop capsules capable of launching U.S. astronauts multiple times per year. SpaceX and Boeing are close to completing work on their respective Crew Dragon and Starliner capsules, while Bridenstine said in October that the first launches with crew on board may happen as early as the first months of 2020. Commercial Crew is representative of a shift within NASA, where the agency buys services rather than hardware from companies. While delays have plagued the program, both companies are in the final stages of testing the capsules. Boeing expects to conduct its uncrewed test flight of Starliner on Dec. 17, which will be much like SpaceX's Demo-1 mission earlier this year. And, after SpaceX completed a key test of its Crew Dragon capsule, the company expects to conduct a test of the capsule's emergency escape system during a launch in December. NASA expects to pay about $90 million per seat to fly with Boeing and $55 million to fly with SpaceX. A seat on a Russian Soyuz spacecraft would cost about $82 million per person currently.

#### Black’s Law Dictionary defines private as “Affecting or belonging to private individuals, as distinct from the public generally. Not official.”

[“What is PRIVATE?” Black’s Law Dictionary. No Date. Accessed 1/4/21. <https://thelawdictionary.org/private/> //Xu]

#### Merriam Webster defines entity as “something that has separate and distinct existence and objective or conceptual reality”

[“entity”. Merriam Webster. No Date. Accessed 1/7/22. <https://www.merriam-webster.com/dictionary/entity> //Xu]

#### Proves partnerships and collaborations aren’t topical.

#### Voter for limits and ground - imprecisely includes thousands of affs that expand immunity and deprives us of the enforcement counterplan - makes it impossible to be neg

#### Grammar - very idea of a topic rests on the assumption that words have stable meanings and relationships - precision internal link turns every piece of aff offense

#### Not specifying your agent is a voting issue - decimates core neg ground - Cross X is too late for the 1NC strat

### 1NC – Framing O/V

#### 1] This doesn’t mean extinction first – but rather minimizing suffering comes first

#### 2] Value to life outweighs death – Death only matters if there is some sort of value to it

#### 3] Extinction foreclosing future value is not a reason to vote for them – they’d have to win the UQ claim that value in the future will go up which it won’t

#### AND Non-human suffering is the largest impact -- in quantity and severity.

Moen 16 Ole Martin Moen (University of Oslo, Centre for the Study of Mind in Nature). “The ethics of wild animal suffering.” Etikk i praksis. Nord J Appl Ethics (2016), 91–104. JDN. <http://www.olemartinmoen.com/wp-content/uploads/TheEthicsofWildAnimalSuffering.pdf>

If you have an open wound, a fractured bone, or terminal cancer, you suffer. But how do wounds, bone fractures, and cancers feel for animals such as sparrows, rabbits, and bears? Theoretically, it is possible that it does not feel like anything at all, because animals might not be conscious. Perhaps animals are just complicated machines, more like clocks and cars than like humans. Though it is difficult to establish conclusively that animals really are conscious, however, it is also increasingly difficult to see why rejecting consciousness in animals is any more reasonable than rejecting consciousness in other human beings. Although solipsism at the species level might make sense within religious contexts where humans are taken to have originated separately from all other animals, it coheres well with neither neuroscience nor evolution. Comparing ourselves to sparrows, rabbits, and bears, we may observe that we have the same kind of neurons, the same main brain parts, and the same pain pathways (C and A delta fibers) that they have. Sparrows, rabbits, and bears, moreover, react to noxious stimuli the same way we do, and they stop doing so when anesthetized (see Griffin & Speck 2004; Dawkins 2015). Since we and other animals are genetically, neurologically, and functionally very close, we would need weighty evidence to conclude that, despite these similarities, humans work in fundamentally different ways from other animals: humans consciously, animals non-consciously.1 Increased understanding of animal consciousness helped spur the animal ethics movement. Keeping animals in small cages, castrating them without anesthetics, and branding them with glowing irons—practices that, if performed on humans, would land the perpetrator in prison for decades—are common farming practices around the world. Millions of farm animals live and die under such conditions. Opposing human disregard for animal welfare, Peter Singer (1990) famously argues that just as we have gradually expanded our circle of moral concern to encompass ethnic groups other than our own, and finally humanity as a whole, we should further expand it to include other sentient species. According to Singer, it is suffering as such that is bad, and it is bad whoever experiences it. Though the animal ethics movement is commendable, its circle of moral concern has hitherto expanded almost exclusively to captive animals. With very few exceptions—most notably, David Pearce and Jeff McMahan, whom I shall discuss in detail below—animal ethicists have failed to adequately take into account the suffering of animals living in the wild. Wild animals, however, vastly outnumber captive animals, and arguably, billions of wild animals live lives that are even more painful and distressing than those of their captive counterparts. Though it might well be difficult to alleviate suffering in the wild, and comparatively easier to alleviate suffering caused by humans, disregarding wild animal suffering from the outset involves a form of anthropocentrism that, sadly, enjoys wide acceptance even among those who purport to oppose the doctrine. We might dub this the second anthropocentrism. While traditional anthropocentrics are concerned only with human suffering, anthropocentrics of the second kind are concerned only with human-caused suffering. I will suggest, however, that if we take suffering as such to be bad (roughly along the lines that Singer does), it is unclear why the species membership of those who cause the suffering is morally relevant while the species membership of those who suffer is not. My aim in this paper is not to sway those who are indifferent to animal welfare. Rather, my aim is to make those who are concerned with animal welfare more concerned with the welfare of wild animals. Moreover, I shall exclusively discuss welfarist concerns, so if there are other grounds to care for animals, they lie beyond the scope of this paper. My discussion is limited to mammals and birds, the reason for which is that these are the animals whose ability to suffer is least disputed. If fish, amphibians, reptiles, and/or invertebrates can also suffer, my conclusion is amplified. The empirical side Let me start by defending three empirical claims: (1) that there are vastly more wild than captive animals; (2) that wild animals have the same capacity to suffer as captive animals; and (3) that many, perhaps most, wild animals suffer at least as much as their captive counterparts. These are all empirical claims that say nothing about the value significance of wild animal suffering. As such, we should accept or reject these claims irrespective of our ethical views. How many captive animals are there? According to the Food and Agriculture Organization of the United Nations (2014), the total number of livestock in the world is—at any given time—roughly 25 billion, the majority of which are chicken, followed by ducks, cattle, and sheep. Although this figure leaves out pets and laboratory animals, let us take for granted, for the sake of convenience, that the number of livestock is roughly representative of the number of captive animals. How many wild animals are there? According to Brian Tomasik’s (2014a) estimations, which are generated from research data on the typical prevalence of various animals in various environments coupled with data on the global prevalence of these environments, there are—at any given time—between 60 and 200 billion birds and between 100 and 1,000 billion mammals. If we assume the middle estimate for both birds and mammals, there are, at any given time, 700 billion wild birds and wild mammals combined. This is roughly 25 times the number of birds and mammals in captivity. (If we were to include in our estimates fish, amphibians, reptiles, and invertebrates, which are rare in human captivity but very prevalent in the wild, we would end up with thousands of times more wild than captive animals.) A further empirical premise is that wild animals have the same ability to suffer as captive animals. By this I simply mean that if you tear the skin of both a wild and a captive animal, there is no compelling reason to believe that this would hurt more for the captive animal than for the wild animal. In fact, if we were to conclude that there is a difference between the two, we should probably conclude that while captive animals are more docile (due to drugs and lack of stimulation), wild animals remain sharp and focused. Let us assume, however, that the ability to suffer is the same, or roughly the same, in captive and wild animals. How much do wild animals actually suffer? Very likely, some wild animals suffer very little. Some live long and peaceful lives, have few natural enemies, and have ample supplies of food. When they die, moreover, many animals die quick and painless deaths. The fact that some lives in the wild are pleasant, however, does not contradict the fact for billions of wild animals, life is filled with suffering. One prominent source of suffering is predation. Every day, millions of animals are eaten alive, and though some of them are killed quickly, larger animals will often stay alive for minutes or hours before they die of blood loss, suffocation, drowning, or internal bleeding from poisoning (Tomasik 2014b). While some become paralyzed, and are likely to feel nothing, others feel excruciating pain. Predation is a very visible cause of suffering. In response to this, Tyler Cowen (2003) and Jeff McMahan (2010) have argued that if we can easily prevent a predator attack, we have at least a pro tanto moral reason to do so. In their view, the way predators kill their prey is often so gruesome that if a human were to treat animals similarly, we would have strong reasons to intervene – and for the animal that is eaten alive, the species membership of the attacking predator is likely to matter very little. Though this is an important observation, I think Cowen and McMahan fail to appreciate that suffering caused by predation is likely to account for only a small fraction of the total suffering in nature. Though death from predation might be the most violent and visible cause of suffering, deaths from disease and parasites tend to be more drawn out in time. The same is true of deaths from droughts, floods, and freezing. Life in the wild is also a constant quest for nutrition; at any given time, thousands of animals are in the process of starving to death. Though there is no agent responsible for this suffering, and though it might be hard for us to detect it, the suffering is nonetheless real and prevalent. When a parent animal starves or freezes to death, gets eaten, or dies from disease, its young offspring will often face an equally painful death. This borders on an important point, namely that most suffering in nature is likely to be endured by very young individuals. The reason is not primarily that many parent animals die (although that is also the case), but that most wild animals give birth to many more offspring than are likely to reach adulthood. While humans normally give birth to just one child per year, and provide extensive care to each child (this is called the Kselection strategy), many animals follow a different reproductive strategy: they give birth to dozens or hundreds of offspring every year, and care very little for each individual (the r-selection strategy). These strategies both work to spread the parents’ genes in the population, but the r-selection strategy—which is most common in smaller animals—leads to enormous amounts of suffering because of the very large number of young individuals that are left to starve to death or get eaten, either by their stronger siblings or by other predators (for an elaboration, see Horta 2010). If the average female in a given animal population gives birth to 50 offspring every year—and the population size remains stable year after year—then the majority of individuals in that population will be individuals dying before reaching adulthood. If we grant that animals become conscious shortly after birth, as we assume to be the case with humans, their deaths will often involve pain, and since their lives are very short, they will have very few good things in life to weigh up for all that is bad. For these reasons, Richard Dawkins is almost certainly correct when he writes: The total amount of suffering per year in the natural world is beyond all decent contemplation. During the minute that it takes me to compose this sentence, thousands of animals are being eaten alive, others are running for their lives, whimpering with fear, others are being slowly devoured from within by rasping parasites, thousands of all kinds are dying of starvation, thirst and disease (Dawkins 1995: 131-32). Wild animal suffering is mostly invisible to us. Humans never see the vast majority of wild animals, and those that are seen by us are predominantly healthy and moving. We do not see the young individuals starving to death or the adult individuals being devoured by parasites, and we must keep in mind that even if we saw them, their suffering would often not be apparent to us. While we have evolved to pick up pain cues from other human beings, we are much worse at picking up pain cues from non-human animals, especially those that are genetically remote from us. Moreover, many animals hide signs of weakness and disease to avoid attracting predators (including humans) looking for easy prey. When Thomas Hobbes wrote that life, in the state of nature, is “solitary, poor, nasty, brutish, and short,” he meant human life (Hobbes 1651/1996: XIII.9). It seems, however, that the description is also fitting for the lives of many non-human animals. Because of the brutality of wildlife, one could even make the provocative case that a typical life in the wild is even more painful and distressing than a typical life in human captivity. Although factory farming is often grotesque, animals in captivity are seldom killed in ways that draw out their deaths over several minutes or hours; they are not exposed to predators until they are slaughtered; they typically have access to sufficient amounts of food and water; and the temperature tends to be comfortable. Concerning larger animals, such as cattle, individuals with serious Moen, O.M. Etikk i praksis. Nord J Appl Ethics (2016), 91–104 95 diseases will often be euthanized. For this reason, it is not clear that the average life in the wild is filled with any less suffering than the average life in captivity. However, even if wild animals do, on average, suffer less than captive animals, the sheer number of wild animals is still so overwhelming that the majority of suffering on Earth almost certainly takes place among animals living in wild nature.

### 1NC – Wipeout

#### The best estimate is there are 210 million current alien civilizations

Lichfield 16 – Gideon Lichfield, Editor-in-Chief of MIT Technology Review, Senior Editor at Quartz, Fellow at the Data & Society Research Institute, MSc in the Philosophy of Science from the London School of Economics and Political Science, BSc in Physics and Philosophy from the University of Bristol, Former Adjunct Professor in the Global Journalism Program at New York University, “There Have Probably Been Trillions Of Alien Civilizations, And Yet We May Still Never See One”, Quartz, 6-11, <https://qz.com/704687/there-have-probably-been-trillions-of-alien-civilizations-and-yet-we-may-still-never-see-one/>

[Paper internally quoted is by Adam Frank, Professor of Physics and Astronomy at the University of Rochester and Woodruff Sullivan, Professor of Astronomy and Astrobiology at the University of Washington]

Sorry, everybody. We’re just not that special.

In more than five decades of scanning the heavens, the search for extraterrestrial intelligence (SETI) has found no sign of alien life. Yet now two American astronomers, in the scientific equivalent of a back-of-the-envelope calculation, are estimating that over the course of its history the universe has seen at least half a trillion technologically advanced species.

The paper in Astrobiology by Adam Frank and Woodruff Sullivan notes that, in just the last few years, we’ve gained a much clearer sense of how hospitable the universe is to life. NASA’s Kepler space telescope has identified thousands of planets in our neighborhood of the galaxy, along with their sizes and distances from their stars. From there it’s fairly easy to guess how many may hold liquid water, which is probably essential for complex life. In our Milky Way galaxy alone there are, by this estimate, some 60 billion such “habitable” planets, write Frank and Sullivan.

The big remaining unknown is how many of these planets give rise to the kinds of lifeforms that build advanced technology (if nuclear weapons and Oculus Rifts can be called “advanced”). Since Earth is the only one we know of, the guesses vary wildly, but one such civilization per 10 billion habitable planets is generally considered “highly pessimistic,” wrote Frank in the New York Times yesterday (paywall). In astronomy-speak, this means the figure could be 10, 100 or even 1,000 times too low.

Using that “pessimistic” proportion, and other numbers from Frank and Sullivan’s paper, I calculated how many alien civilizations should have emerged within various subregions of the universe during its history:

Table

Description automatically generated with medium confidence

Remember, 420 billion intelligent civilizations is the “pessimistic” estimate. But sadly—or happily, depending on your view of aliens—it doesn’t make us any less alone.

Though Frank and Sullivan wisely avoid putting a number on how many alien species are knocking around right now, we can do our own back-of-the-envelope reckoning. A crucial unknown factor is how long a technologically advanced civilization lasts before either going extinct or blasting itself back to the stone age. Judging by the past century of human history, even a thousand years might be optimistic. But let’s be really optimistic and call it a million years. That’s the average lifespan of a mammalian species that doesn’t invent the means of its own destruction.

I’m also going to assume that, though the universe is 13.8 billion years old, advanced species didn’t begin to appear until a couple of billion years ago. It took most of the universe’s history to form the kinds of planets, rich in heavier elements, on which creatures like us could evolve.

So if there have been 420 billion civilizations in the past 2 billion years, each one lasting a million years, then on average, about 210 million of them have existed simultaneously at any given moment.

Update: Seth Shostak, senior astronomer at the SETI Institute, has responded to this article saying that “many have guessed” that one in a million habitable worlds would produce advanced intelligence, rather than one in 10 billion. If so, and sticking to the other assumptions, there’d a good chance of at least one other civilization in our own galaxy existing at the same time as ours, meaning it would much closer, and thus more plausibly detectable.

#### Universe destruction outweighs human extinction---earth is insignificant.

Hughes 18 [Dr. Nick Hughes, Postdoctoral Research Fellow at University College Dublin, PhD in Philosophy from University of St Andrews & University of Olso, and Dr. Guy Kahane, Professor of Philosophy at the University of Oxford, D. Phil. in Philosophy from Oxford University, “Our Cosmic Insignificance”, 7-6, http://www.unariunwisdom.com/our-cosmic-insignificance/]

Humanity occupies a very small place in an unfathomably vast Universe. Travelling at the speed of light – 671 million miles per you are herehour – it would take us 100,000 years to cross the Milky Way. But we still wouldn’t have gone very far. Our modest Milky Way galaxy contains 100–400 billion stars. This isn’t very much: according to the latest calculations, the observable universe contains around 300 sextillion stars. By recent estimates, our Milky Way galaxy is just one of 2 trillion galaxies in the observable Universe, and the region of space that they occupy spans at least 90 billion light-years. If you imagine Earth shrunk down to the size of a single grain of sand, and you imagine the size of that grain of sand relative to the entirety of the Sahara Desert, you are still nowhere near to comprehending how infinitesimally small a position we occupy in space. The American astronomer Carl Sagan put the point vividly in 1994 when discussing the famous ‘Pale Blue Dot’ photograph taken by Voyager 1. Our planet, he said, is nothing more than ‘a mote of dust suspended in a sunbeam’. Stephen Hawking delivers the news more bluntly. We are, he says, “just a chemical scum on a moderate-sized planet, orbiting round a very average star in the outer suburb of one among a hundred billion galaxies.”

And that’s just the spatial dimension. The observable Universe has existed for around 13.8 billion years. If we shrink that span of time down to a single year, with the Big Bang occurring at midnight on 1 January, the first Homo sapiens made an appearance at 22:24 on 31 December. It’s now 23:59:59, as it has been for the past 438 years, and at the rate we’re going it’s entirely possible that we’ll be gone before midnight strikes again. The Universe, on the other hand, might well continue existing forever, for all we know. Sagan could have added, then, that our time on this mote of dust will amount to nothing more than a blip. In the grand scheme of things we are very, very small.

For Sagan, the Pale Blue Dot underscores our responsibility to treat one another with kindness and compassion. But reflection on the vastness of the Universe and our physical and temporal smallness within it often takes on an altogether darker hue. If the Universe is so large, and we are so small and so fleeting, doesn’t it follow that we are utterly insignificant and inconsequential? This thought can be a spur to nihilism. If we are so insignificant, if our existence is so trivial, how could anything we do or are – our successes and failures, our anxiety and sadness and joy, all our busy ambition and toil and endeavour, all that makes up the material of our lives – how could any of that possibly matter? To think of one’s place in the cosmos, as the American philosopher Susan Wolf puts it in ‘The Meanings of Lives’ (2007), is ‘to recognise the possibility of a perspective … from which one’s life is merely gratuitous’.

The sense that we are somehow insignificant seems to be widely felt. The American author John Updike expressed it in 1985 when he wrote of modern science that:

We shrink from what it has to tell us of our perilous and insignificant place in the cosmos … our century’s revelations of unthinkable largeness and unimaginable smallness, of abysmal stretches of geological time when we were nothing, of supernumerary galaxies … of a kind of mad mathematical violence at the heart of the matter have scorched us deeper than we know.

In a similar vein, the French philosopher Blaise Pascal wrote in Pensées (1669):

When I consider the short duration of my life, swallowed up in an eternity before and after, the little space I fill engulfed in the infinite immensity of spaces whereof I know nothing, and which know nothing of me, I am terrified. The eternal silence of these infinite spaces frightens me.

Commenting on this passage in Between Man and Man (1947), the Austrian-Israeli philosopher Martin Buber said that Pascal had experienced the ‘uncanniness of the heavens’, and thereby came to know ‘man’s limitation, his inadequacy, the casualness of his existence’. In the film Monty Python’s The Meaning of Life (1983), John Cleese and Eric Idle conspire to persuade a character, played by Terry Gilliam, to give up her liver for donation. Understandably reluctant, she is eventually won over by a song that sharply details just how comically inconsequential she is in the cosmic frame.

Even the relatively upbeat Sagan wasn’t, in fact, immune to the pessimistic point of view. As well as viewing it as a lesson in the need for collective goodwill, he also argued that the Pale Blue Dot challenges ‘our posturings, our imagined self-importance, and the delusion that we have some privileged position in the Universe’.

When we reflect on the vastness of the universe, our humdrum cosmic location, and the inevitable future demise of humanity, our lives can seem utterly insignificant. As we complacently go about our little Earthly affairs, we barely notice the black backdrop of the night sky. Even when we do, we usually see the starry skies as no more than a pleasant twinkling decoration.

This sense of cosmic insignificance is not uncommon; one of Joseph Conrad’s characters describes

one of those dewy, clear, starry nights, oppressing our spirit, crushing our pride, by the brilliant evidence of the awful loneliness, of the hopeless obscure insignificance of our globe lost in the splendid revelation of a glittering, soulless universe. I hate such skies.

The young Bertrand Russell, a close friend of Conrad, bitterly referred to the Earth as “the petty planet on which our bodies impotently craw.” Russell wrote that:

Brief and powerless is Man’s life; on him and all his race the slow, sure doom falls pitiless and dark. Blind to good and evil, reckless of destruction, omnipotent matter rolls on its relentless way…

This is why Russell thought that, in the absence of God, we must build our lives on “a foundation of unyielding despair.”

When we consider ourselves as a mere dot in a vast universe, when we consider ourselves in light of everything there is, nothing human seems to matter. Even the worst human tragedy may seem to deserve no cosmic concern. After all, we are fighting for attention with an incredibly vast totality. How could this tiny speck of dust deserve even a fraction of attention, from that universal point of view?

This is the image that is evoked when, for example, Simon Blackburn writes that “to a witness with the whole of space and time in its view, nothing on the human scale will have meaning”.

Such quotations could be easily multiplied—we find similar remarks, for example, in John Donne, Voltaire, Schopenhauer, Byron, Tolstoy, Chesterton, Camus, and, in recent philosophy, in Thomas Nagel, Harry Frankfurt, and Ronald Dworkin.

The bigger the picture we survey, the smaller the part of any point within it, and the less attention it can get… When we try to imagine a viewpoint encompassing the entire universe, humanity and its concerns seem to get completely swallowed up in the void.

Over the centuries, many have thought it absurd to think that we are the only ones. For example, Anaxagoras, Epicurus, Lucretius, and, later, Giordano Bruno, Huygens and Kepler were all confident that the universe is teeming with life. Kant was willing to bet everything he had on the existence of intelligent life on other planets. And we now know that there is a vast multitude of Earth-like planets even in our own little galaxy.

#### Alien lives should be valued as equal to humans---anything else is arbitrary and a logic of devaluation that is at the root of violence

Packer 7 – Joe Packer, then MA in Communication from Wake Forest University, now PhD in Communication from the University of Pittsburgh and Professor of Communication at Central Michigan University, Alien Life in Search of Acknowledgment, p. 62-63

Once we hold alien interests as equal to our own we can begin to revaluate areas previously believed to hold no relevance to life beyond this planet. A diverse group of scholars including Richard Posner, Senior Lecturer in Law at the University of Chicago, Nick Bostrom, philosophy professor at Oxford University, John Leslie philosophy professor at Guelph University and Martin Rees, Britain’s Astronomer Royal, have written on the emerging technologies that threaten life beyond the planet Earth. Particle accelerators labs are colliding matter together, reaching energies that have not been seen since the Big Bang. These experiments threaten a phase transition that would create a bubble of altered space that would expand at the speed of light killing all life in its path. Nanotechnology and other machines may soon reach the ability to self replicate. A mistake in design or programming could unleash an endless quantity of machines converting all matter in the universe into copies of themselves. Despite detailing the potential of these technologies to destroy the entire universe, Posner, Bostrom, Leslie, and Ree’s only mention of alien life in their works is in reference to the threat aliens post to humanity. The rhetorical construction of otherness only in terms of the threats it poses, but never in terms of the threat one poses to it, has been at the center of humanity’s history of genocide, colonization, and environmental destruction. Although humanity certainly has its own interests in reducing the threat of these technologies evaluating them without taking into account the danger they pose to alien life is neither appropriate nor just. It is not appropriate because framing the issue only in terms of human interests will result in priorities designed to minimize the risks and maximize the benefits to humanity, not all life. Even if humanity dealt with the threats effectively without referencing their obligation to aliens, Posner, Bostrom, Leslie, and Ree’s rhetoric would not be “just,” because it arbitrarily declares other life forms unworthy of consideration. A framework of acknowledgement would allow humanity to address the risks of these new technologies, while being cognizant of humanity’s obligations to other life within the universe. Applying the lens of acknowledgment to the issue of existential threats moves the problem from one of self destruction to universal genocide. This may be the most dramatic example of how refusing to extend acknowledgment to potential alien life can mask humanity’s obligations to life beyond this planet.

#### Extinction ends human-caused suffering and death of non-human animals---this outweighs any value to humanity---AND we access it even if the process is slow, because societal breakdown ends this suffering in the short term

May 18 – Dr. Todd May, Professor of Philosophy at Clemson University, PhD in Philosophy from Penn State University, MA in Psychology from Duquesne University, “Would Human Extinction Be a Tragedy?”, The New York Times, 12-17, https://www.nytimes.com/2018/12/17/opinion/human-extinction-climate-change.html

There are stirrings of discussion these days in philosophical circles about the prospect of human extinction. This should not be surprising, given the increasingly threatening predations of climate change. In reflecting on this question, I want to suggest an answer to a single question, one that hardly covers the whole philosophical territory but is an important aspect of it. Would human extinction be a tragedy?

To get a bead on this question, let me distinguish it from a couple of other related questions. I’m not asking whether the experience of humans coming to an end would be a bad thing. (In these pages, Samuel Scheffler has given us an important reason to think that it would be.) I am also not asking whether human beings as a species deserve to die out. That is an important question, but would involve different considerations. Those questions, and others like them, need to be addressed if we are to come to a full moral assessment of the prospect of our demise. Yet what I am asking here is simply whether it would be a tragedy if the planet no longer contained human beings. And the answer I am going to give might seem puzzling at first. I want to suggest, at least tentatively, both that it would be a tragedy and that it might just be a good thing.

To make that claim less puzzling, let me say a word about tragedy. In theater, the tragic character is often someone who commits a wrong, usually a significant one, but with whom we feel sympathy in their descent. Here Sophocles’s Oedipus, Shakespeare’s Lear, and Arthur Miller’s Willy Loman might stand as examples. In this case, the tragic character is humanity. It is humanity that is committing a wrong, a wrong whose elimination would likely require the elimination of the species, but with whom we might be sympathetic nonetheless for reasons I discuss in a moment.

To make that case, let me start with a claim that I think will be at once depressing and, upon reflection, uncontroversial. Human beings are destroying large parts of the inhabitable earth and causing unimaginable suffering to many of the animals that inhabit it. This is happening through at least three means. First, human contribution to climate change is devastating ecosystems, as the recent article on Yellowstone Park in The Times exemplifies. Second, increasing human population is encroaching on ecosystems that would otherwise be intact. Third, factory farming fosters the creation of millions upon millions of animals for whom it offers nothing but suffering and misery before slaughtering them in often barbaric ways. There is no reason to think that those practices are going to diminish any time soon. Quite the opposite.

Humanity, then, is the source of devastation of the lives of conscious animals on a scale that is difficult to comprehend.

To be sure, nature itself is hardly a Valhalla of peace and harmony. Animals kill other animals regularly, often in ways that we (although not they) would consider cruel. But there is no other creature in nature whose predatory behavior is remotely as deep or as widespread as the behavior we display toward what the philosopher Christine Korsgaard aptly calls “our fellow creatures” in a sensitive book of the same name.

If this were all to the story there would be no tragedy. The elimination of the human species would be a good thing, full stop. But there is more to the story. Human beings bring things to the planet that other animals cannot. For example, we bring an advanced level of reason that can experience wonder at the world in a way that is foreign to most if not all other animals. We create art of various kinds: literature, music and painting among them. We engage in sciences that seek to understand the universe and our place in it. Were our species to go extinct, all of that would be lost.

Now there might be those on the more jaded side who would argue that if we went extinct there would be no loss, because there would be no one for whom it would be a loss not to have access to those things. I think this objection misunderstands our relation to these practices. We appreciate and often participate in such practices because we believe they are good to be involved in, because we find them to be worthwhile. It is the goodness of the practices and the experiences that draw us. Therefore, it would be a loss to the world if those practices and experiences ceased to exist.

One could press the objection here by saying that it would only be a loss from a human viewpoint, and that that viewpoint would no longer exist if we went extinct. This is true. But this entire set of reflections is taking place from a human viewpoint. We cannot ask the questions we are asking here without situating them within the human practice of philosophy. Even to ask the question of whether it would be a tragedy if humans were to disappear from the face of the planet requires a normative framework that is restricted to human beings.

Let’s turn, then, and take the question from the other side, the side of those who think that human extinction would be both a tragedy and overall a bad thing. Doesn’t the existence of those practices outweigh the harm we bring to the environment and the animals within it? Don’t they justify the continued existence of our species, even granting the suffering we bring to so many nonhuman lives?

To address that question, let us ask another one. How many human lives would it be worth sacrificing to preserve the existence of Shakespeare’s works? If we were required to engage in human sacrifice in order to save his works from eradication, how many humans would be too many? For my own part, I think the answer is one. One human life would be too many (or, to prevent quibbling, one innocent human life), at least to my mind. Whatever the number, though, it is going to be quite low.

Or suppose a terrorist planted a bomb in the Louvre and the first responders had to choose between saving several people in the museum and saving the art. How many of us would seriously consider saving the art?

So, then, how much suffering and death of nonhuman life would we be willing to countenance to save Shakespeare, our sciences and so forth? Unless we believe there is such a profound moral gap between the status of human and nonhuman animals, whatever reasonable answer we come up with will be well surpassed by the harm and suffering we inflict upon animals. There is just too much torment wreaked upon too many animals and too certain a prospect that this is going to continue and probably increase; it would overwhelm anything we might place on the other side of the ledger. Moreover, those among us who believe that there is such a gap should perhaps become more familiar with the richness of lives of many of our conscious fellow creatures. Our own science is revealing that richness to us, ironically giving us a reason to eliminate it along with our own continued existence.

One might ask here whether, given this view, it would also be a good thing for those of us who are currently here to end our lives in order to prevent further animal suffering. Although I do not have a final answer to this question, we should recognize that the case of future humans is very different from the case of currently existing humans. To demand of currently existing humans that they should end their lives would introduce significant suffering among those who have much to lose by dying. In contrast, preventing future humans from existing does not introduce such suffering, since those human beings will not exist and therefore not have lives to sacrifice. The two situations, then, are not analogous.

It may well be, then, that the extinction of humanity would make the world better off and yet would be a tragedy. I don’t want to say this for sure, since the issue is quite complex. But it certainly seems a live possibility, and that by itself disturbs me.

#### Humans will inevitably go to space if we don’t go extinct

Baumann 17 – Tobias Baumann, PhD Student in Computer Science at University College London, Master’s Degree in Mathematics and Bachelor’s Degree in Computer Science and Physics from Ulm University, Former Quantitative Trader at Jane Street Capital, “S-Risks: An Introduction”, 8-15, http://s-risks.org/intro/

Crucially, factory farming is the result of economic incentives and technological feasibility, not of human malice or bad intentions. Most humans don’t approve of animal suffering per se – getting tasty food incidentally happens to involve animal suffering. In other words, technological capacity plus indifference is already enough to cause unimaginable amounts of suffering. This should make us mindful of the possibility that future technologies might lead to a similar moral catastrophe.

New technologies and astronomical stakes

Barring extinction or civilizational collapse, technological progress will likely be inexorable. This means that new technologies will endow humanity with unprecedented power. Similar to technologies of the past, they will give rise to both tremendous opportunities and severe risks. If such advances allow us to colonize other planets, the stakes will become truly astronomical – the observable universe contains more star systems than all the grains of sand on Earth. This makes it even more important that we will use this newfound power responsibly.

As we have seen, technological capacity combined with moral indifference can lead to a moral catastrophe. A future development akin to factory farming might cause suffering on an astronomical scale, vastly exceeding anything we’ve done so far. Such events are called s-risks (an abbreviation of “suffering risks” or “risks of astronomical suffering”).

#### That exports astronomical wild animal suffering throughout the Universe---outweighs

Bruers 18 – Stijn Bruers, Professor in the Department of Philosophy and Moral Sciences at Ghent University, PhD in Physics and PhD in Moral Philosophy, “My Cause Prioritization”, 2-15, https://stijnbruers.wordpress.com/2018/02/15/my-cause-prioritization/

Welfare biology

Because at least some people choose a conditional maximum as their reference preference, we have to give some weight to the person affecting view in population ethics. In that case, we have a priority to avoid the existence of individuals with lives not worth living. Here we face the problem of wild animal suffering. It is possible that some animals in nature have lives not worth living, because their lives are full of negative experiences due to hunger, diseases, injuries, parasites and predators. Especially the animals with an r-selection reproductive strategy have a problem: these animals have a lot of offspring (the population has a high rate of reproduction, hence the name ‘r-selection’), and only a few of them survive long enough to reproduce themselves. Most lives of those animals are very short and probably miserable. We are not likely to see the majority of those animals, because they will die and be eaten quickly.

A better reproductive strategy in terms of well-being, is K-selection: having few offspring with long lives and high survival rates. If a life is long, it is more likely to be positive because it has proportionally fewer negative experiences of hunger or deadly diseases. Only humans are very close to a perfect K-selection: the average fertility rate of a woman is 2,5 children, and this rate is decreasing and expected to reach 2 children in the second halve of this century. When it reaches 2 children per woman, and when all children survive till they reproduce, the human population becomes stable. Every human can have a full live. (As lifespan increases, the fertility rate can drop below 2 children per woman.)

According to the person affecting view, we have to give priority to avoiding r-selection and promoting K-selection. Perhaps with genetic manipulation (e.g. gene drives), we can turn every population into K-selection (where female animals have on average two offspring) and make sure that all animals have long healthy lives. But for the moment, only humans are about to reach the ideal K-selection reproduction.

Healthy humans have other advantages: they have complex preferences and strong personal identities over time, which means they can have potentially high levels of lifetime well-being when their preferences are satisfied. So it is possible that humans can have larger relative preferences than non-human animals. Most humans can also clearly communicate their preferences: it is easier to determine the levels of well-being of humans who can self-consciously think and speak than the levels of well-being of non-human animals who can only communicate their preferences in very indirect ways through behavior. Estimating the well-being or relative preferences of wild animals is very difficult and may require accurate brain scans. We can be very confident that the lives of healthy humans are worth living, but not confident at all that the life of an average wild animal is worth living.

The above implies that we can give a priority to saving and helping humans. This preference for healthy humans (increasing the relative number of healthy humans) is not speciesism, because the basic criteria to derive this preference (e.g. the level of personal identity over time, the level of communication and the level of K-selection) did not refer to species membership. The above discussion did not use the word ‘species’ at all. Given our current state of knowledge, a preference for healthy humans is most likely to satisfy the maximum relative preferences principle.

Pros and cons of human population growth

As explained above, helping humans means increasing K-selection in the world. The more individuals who belong to a K-selection population, the better. However, there are also problems with human population growth. More humans means more competition for scarce resources, more people who can invent dangerous technologies, more greenhouse gas emissions, higher likelihood of spreading of dangerous viruses. These things increase existential risks. But it can also mean more mutually beneficial situations through trade and cooperation, more inventions of good technologies, higher likelihood of resistance against dangerous viruses.

However, there is one very big disadvantage of giving priority to humans: most humans consume animal products. Buying animal products gives an incentive to breed animals who have lives not worth living in e.g. factory farms. Fighting poverty and promoting economic development might increase animal suffering: a $1,000 increase in per capita GDP in the poorest countries implies an increased consumption of 1.7 kg of meat per person per year. Saving the life of a human omnivore means a consumption of about 30 kg of meat.

It is difficult to estimate the total costs and benefits of further human population growth. Give the consumption of animal products, I tend towards the conclusion that decreasing human population growth is valuable, but only if it is done in a way that has other cobenefits. Avoiding unwanted pregnancies through family planning is the only strategy that has a lot of cobenefits in terms of women’s rights, health of newborn children, environmental impact reduction and poverty reduction. The benefit-cost ratio of family planning is high. This means that family planning may also be consistent with the total view in population ethics, even if fewer happy people might come into existence. Finally by reducing the fertility rate, family planning is a means to reach perfect K-selection. Therefore, I give a low priority to family planning by supporting organizations such as Marie Stopes International.

Cause area: veganism and antidiscrimination

As helping humans involves a risk of increasing animal suffering, I give a high priority to promoting veganism, animal rights and antispeciesism. According to some thought experiments, we can conclude that most animals in agriculture and aquaculture have lives not worth living, so creating those lives violates both the person affecting view and the total view in population ethics. Promoting veganism is a more neglected area than improving human health and well-being.

Furthermore, veganism also has many cobenefits in terms of improved human health: less chronic diseases due to healthier diets, less health impact from climate change due to lower greenhouse gas emissions, less malnutrition due to lower food prices for the poorest people, and less health risks from pollution, zoonotic viruses and antibiotic resistant bacteria.

Veganism also facilitates spreading the value of antidiscrimination. Speciesism is an example of discrimination. If people consume animal products, a cognitive dissonance prevents them from valuing animals as equal to humans. When they eat vegan, this cognitive dissonance diminishes and they are more open to the value of antispeciesism. The interspecies model of prejudice predicts that a decrease in speciesism results in a decrease in racism, i.e. a decrease of prejudice against other groups of people. Antispeciesism is also necessary to start scientific research about wild animal suffering and to find safe and effective means to intervene in nature to improve wild animal well-being. And finally, antispeciesism becomes important when it comes to the development of artificial general intelligence and superintelligence. If we create superintelligent AI machines and implement them with our own speciesist goals, even more animals can be exploited by AI machines for many years in the future.

The cause area of veganism is also relatively neglected and tractable, which means effective altruists have a lot of high impact opportunities in this area. Effective vegan advocacy, perhaps with deep canvassing, is promising. But clean meat, and more generally tissue engineering, appear to be very promising as well. With these technologies, we can create animal products without using animals. It might also be a crucial technology for wild animal suffering reduction, as it can provide a food alternative for predators. The tissue engineering technology can also be used to extend life and replace a lot of animal experimentation. Therefore, I support the Good Food Institute and to a lesser degree the Methuselah Foundation.

Catastrophic risks

There are several possible extinction risks (X-risks) where everyone dies: asteroid impacts, supervolcano eruptions, pandemic viruses, runaway global warming, global nuclear war, dangerous nanotechnology. According to the total view of population ethics, extinction of sentient and intelligent life is a tragedy, because it means a lot of future preference satisfaction (well-being, happiness) is lost. Hence, extinction prevention (X-risk reduction) gets a top priority.

From a person affecting view, extinction is less bad, because with extinction, non-existent future beings cannot complain and wild animals with lives not worth living will no longer be born, so future complaints will be avoided. Extinction is only bad for those of the current generations who value a continued existence in the far future, and especially for the last generation, because most extinction scenarios involve suffering when everyone dies.

But there is a class of catastrophic risks that is even worse than X-risks: S-risks or suffering risks, where the future contains huge populations of sentient beings with lives full of misery. This is worse than extinction, because an S-risk is terrible both from a total view as well as from a person affecting view.

An example of an S-risk is space colonization where we export wild animal suffering and livestock farming: the number of animals with lives not worth living will multiply when other planets are colonized. Before we start with space colonization, we should first adopt veganism and antispeciesist values such that we will not export and multiply animal suffering

#### Cosmogenesis is inevitable

Merali 17 – Dr. Zeeya Merali, PhD in Cosmology from Brown University, Master’s in Natural Sciences from the University of Cambridge, Freelance Journalist and Author Whose Work Has Appeared in Scientific American, Nature, New Scientist, and Discover, and on the BBC, “Scientists Want to Create a Universe in a Lab, And They Actually Could”, Futurism, 10-20, https://futurism.com/scientists-may-create-universe-actually-could

Physicists aren’t often reprimanded for using risqué humour in their academic writings, but in 1991 that is exactly what happened to the cosmologist Andrei Linde at Stanford University. He had submitted a draft article entitled ‘Hard Art of the Universe Creation’ to the journal Nuclear Physics B. In it, he outlined the possibility of creating a universe in a laboratory: a whole new cosmos that might one day evolve its own stars, planets and intelligent life. Near the end, Linde made a seemingly flippant suggestion that our Universe itself might have been knocked together by an alien ‘physicist hacker’. The paper’s referees objected to this ‘dirty joke’; religious people might be offended that scientists were aiming to steal the feat of universe-making out of the hands of God, they worried. Linde changed the paper’s title and abstract but held firm over the line that our Universe could have been made by an alien scientist. ‘I am not so sure that this is just a joke,’ he told me.

Fast-forward a quarter of a century, and the notion of universe-making – or ‘cosmogenesis’ as I dub it – seems less comical than ever. I’ve travelled the world talking to physicists who take the concept seriously, and who have even sketched out rough blueprints for how humanity might one day achieve it. Linde’s referees might have been right to be concerned, but they were asking the wrong questions. The issue is not who might be offended by cosmogenesis, but what would happen if it were truly possible. How would we handle the theological implications? What moral responsibilities would come with fallible humans taking on the role of cosmic creators?

Theoretical physicists have grappled for years with related questions as part of their considerations of how our own Universe began. In the 1980s, the cosmologist Alex Vilenkin at Tufts University in Massachusetts came up with a mechanism through which the laws of quantum mechanics could have generated an inflating universe from a state in which there was no time, no space and no matter. There’s an established principle in quantum theory that pairs of particles can spontaneously, momentarily pop out of empty space. Vilenkin took this notion a step further, arguing that quantum rules could also enable a minuscule bubble of space itself to burst into being from nothing, with the impetus to then inflate to astronomical scales. Our cosmos could thus have been burped into being by the laws of physics alone. To Vilenkin, this result put an end to the question of what came before the Big Bang: nothing. Many cosmologists have made peace with the notion of a universe without a prime mover, divine or otherwise.

#### That causes infinite suffering

Tomasik 17 – Brian Tomasik, Researcher, Cofounder and Advisor at the Foundational Research Institute, BS in Computer Science from Swarthmore College, Former Research Assistant at the University of Pennsylvania, Former Software Development Engineer II at Microsoft, “Lab Universes: Creating Infinite Suffering”, Essays on Reducing Suffering, 6-16, https://reducing-suffering.org/lab-universes-creating-infinite-suffering/

Background on lab universes

Some physical theories predict that it may be possible to create new, "baby" universes out of a small amount of matter. Technical reviews of the topic can be found in Stefano Ansoldi and Eduardo I. Guendelman, "Child Universes in the Laboratory," and Gordon McCabe, "How to Create a Universe." Popular-level introductions include the following:A Swarm of Ancient Stars - GPN-2000-000930

--Jim Holt, "The Big Lab Experiment," Slate, 2004

--Zeeya Merali, "Create Your Own Universe," New Scientist, 2006

--Robert Krulwich, "Build Your Own Universe," NPR, 2006.

McCabe explained the concept clearly (p. 6):

Now, one of the most intriguing possibilities opened up by inflation, is the possible creation of a universe 'in a laboratory'. Creation in a laboratory is taken to mean the creation of a physical universe, by design, using the 'artificial' means available to an intelligent species. It is the ability of inflation to maintain a constant energy density, in combination with a period of exponential expansion, which is the key to these laboratory creation scenarios. The idea is to use a small amount of matter in the laboratory, and induce it to undergo inflation until its volume is comparable to that of our own observable universe. The energy density of the inflating region remains constant, and because it becomes the energy density of a huge region, the inflating region acquires a huge total (non-gravitational) energy.

Andrei Linde, one of the founders of inflationary cosmology, put it this way (p. 8):

Indeed, one may need to have only a milligram of matter in a vacuum-like exponentially expanding state, and then the process of self-reproduction will create from this matter not one universe but infinitely many!

Another pioneer of inflation is Alan Guth, the subject of a 1987 New York Times article:

PHYSICISTS often probe the workings of nature on a cosmic scale, but Prof. Alan H. Guth and his colleagues at the Massachusetts Institute of Technology may have set themselves the ultimate research goal. They are seeking a mechanism by which humans might create a new universe from scratch.

Outrageous though such a notion may be, Dr. Guth and his collaborators are perfectly serious about their investigation. "Ten years ago, we couldn't even have posed the question of whether a man-made universe would be possible," he said. "But physics has progressed a long way since then, and today we can ask this and related questions in the real hope of finding scientifically testable answers. We are working in a new and exciting environment."

In his 1997 book, The Inflationary Universe (pp. 268-69), Guth wrote:

To put the story in perspective, one should remember that the process of eternal inflation [postulated by the theory of the self-reproducing inflationary universe ...] leads to an exponential increase in the number of pocket universes on time scales as short as 10-37 seconds. Since the time needed for the development of a super-advanced civilization is measured in billions of years or more, there appears to be no chance that laboratory production of universes could compete with the "natural" process of eternal inflation.

On the other hand, a child universe created in a laboratory by a super-advanced civilization would set into motion its own progression of eternal inflation. Could the super-advanced civilization find a way to enhance its efficiency? We may have to wait a few billion years to find out.

Infinite suffering

Starting a chain of eternal inflation in the laboratory would produce infinitely many new universes. But what types of universes would emerge? Suppose we assume -- as do Jaume Garriga and Alex Vilenkin in their 2001 article "Many worlds in one" -- that there are only finitely many possible universe histories of a particular duration (say, 13.7 billion years, the age of our universe); call these "histories" for short. The existence of infinitely many universes needn't, in general, imply the existence of all possible histories. As Alex Vilenkin notes in his 2006 book Many Worlds in One, the sequence 1, 3, 5, 7, ... contains infinitely many integers but doesn't contain all possible integers, and one might imagine an analogous situation for universe histories (p. 114). However, because "the initial conditions at the big bang are set by random quantum processes during inflation" (p. 114), the theory of inflation does imply that lab universes would instantiate all possible histories infinitely many times (with probability one -- see the second Borel-Cantelli lemma). This would, of course, include infinitely many replications of the Holocaust, infinitely many acts of torture, and so on. Indeed, there would be infinitely many universes in which Hitler won World War II, as well as infinitely many universes that would be as close as physically possible to "hell on earth" (or on any other planet). The assumption of finitely many possible histories is not really important. As long as we assume that the probability is greater than zero that suffering will emerge in a random universe, creating infinitely many universes would create infinite amounts of suffering.