## 1NC-Off

#### Interpretation: the affrimative must defend a policy action

#### ‘Resolved’ preceding a colon indicates a legislative forum.

Blanche Ellsworth 81, English professor at SFSU and M.A. in English from UC Berkeley, 1/1/1981, *English Simplified*, 4th Edition, cc

A colon is also used to separate 3. THE SALUTATION OF A BUSINESS LETTER FROM THE BODY, Dear Sir Dear Ms. Weiner NOTE: In an informal letter, a comma follows the salutation: Dear Mary, Dear Uncle Jack 4. PARTS OF TITLES, REFERENCES, AND NUMERALS. TITLE: Principles of Mathematics: An Introduction REFERENCE: Luke 3:4—13 NUMERALS: 8:15 PM 5. PLACE OF PUBLICATION FROM PUBLISHER Indianapolis: Bobbs-Merrill 6. THE WORD RESOLVED FROM THE STATEMENT OF THE RESOLUTION. Resolved: That this committee go on record as favoring new legislation.

#### Justice implies a desirable departure from the status quo – that means the aff must rectify an injust social interaction

IHS n.d. [(Institute for Humane Studies at George Mason University, non-profit organization that engages with students and professors) “What is Justice?”] JL

One of the most influential accounts of the origin and nature of justice comes from Plato’s Republic. According to Plato’s account, we can think of the principles of justice as mutually agreed to principles for the coordination and structure of social interaction that would benefit all who are subject to them. What those principles are will depend on the society. In addition, there’s a second theory of justice that Plato offers that’s more general. According to this second theory, justice is “each getting what is rightfully theirs and no one getting what is rightfully another’s.” In other words, questions of justice always ask, “Who has a right to what?”

#### Justice is a policy question

Merriam Webster ND [(Mesrriam Webster) “Justice” https://www.merriam-webster.com/dictionary/justice] BC

Essential Meaning of justice

1: the process or result of using laws to fairly judge and punish crimes and criminals

1: characterized by injustice : UNFAIR

#### Policy education – the only way to regulate private sector activity is through government policy – that kills real world education and skews topic lit which is in the context of implementation

#### Vote negative to preserve limits and equitable division of ground – the resolution is the most predictable stasis point for debates, anything outside of that ruins prep and clash by allowing the affirmative to pick any grounds for debate. That greenlights a race away from the core topic controversies that allow for robust contestation, which favors the aff by making neg ground inapplicable, susceptible to the perm, and concessionary. Two additional impacts:

#### Accessibility – Cutting negs to every possible aff wrecks small schools, which has a disparate impact on under-resourced and minority debaters. Counter-interpretations are arbitrary, unpredictable, and don’t solve the world of neg prep because there’s no grounding in the resolution

#### Link turns their education offense – getting to the third and fourth level of tactical engagement is only possible with refined and well-researched positions connected to the resolutional mechanism. Repeated debates over core issues incentivize innovative argument production and improved advocacy based on feedback and nuanced responses from opponents.

#### Prefer our impact: they’ve skewed the game which necessarily comes first because it makes evaluating the aff impossible. The role of individual debate rounds on broader subject formation is white noise – *can you remember what happened in doubles of the Loyola tournament your junior year?* – individual rounds don’t affect our subjectivity, so fairness is the only impact your ballot can resolve. You should presume all their truth claims false because they have not been properly tested

#### They can’t get offense: we don’t exclude them, only persuade you that our methodology is best. Every debate requires a winner and loser, so voting negative doesn’t reject them from debate, it just says they should make a better argument next time.

## 1nc-off

#### CP: Space fairing states should

#### Teach the history of colonial impacts and of indigenous people in academic institution

#### Have Space Agencies adopt approaches recommended in Ethical Exploration and the Role of Planetary Protection in Disrupting Colonial Practices involving opinions of indigenous people

#### Create policies to define sustainable space regulations for economic, social and environmental balance in outer space

#### Have Civil Society Organizations with support go their governments should open discussions of human activity in space, specifically creating events for indigenous activist

Wood 20 [(Danielle Wood, Assistant Professor of Media Arts and Sciences), “On Indigenous People’s Day, Let’s Commit to an Anticolonial Mindset on Earth and in Space”, MIT Media Lab, https://www.media.mit.edu/posts/Anticolonial\_Mindset\_Earth\_and\_Space/, Oct. 13, 2020] SS

Here are five actions that can be taken today to adopt an Anticolonial Mindset to human activity in Space.

1. Actions for Universities, Schools and Families: Learn and teach the history of the Colonial Mindset and its impacts on Earth (For example, read the books listed in the Endnotes and "Zinn, Howard. A people's history of the United States: 1492-present. Routledge, 2015.")

2. Actions for Space Agencies, Universities and Research Institutions: Adopt approaches recommended in “Ethical Exploration and the Role of Planetary Protection in Disrupting Colonial Practices”, a recent submission to the Planetary Science and Astrobiology Decadal Survey for 2023-2032, led by Frank Tavares and signed by over 100 scientists and interested parties: https://drive.google.com/file/d/1ca8RRy1MSpOAvexucgxWJIlBuNsdPRn8/view

3. Actions for Space Agencies, Committee on the Peaceful Use of Outer Space,[xxv] the United Nations Office of Outer Space Affairs, and Civil Society: Define sustainability to include economic, social and environmental balance, building on the model of the Sustainable Development Goals for Earth. Use this model to write a set of Sustainable Development Goals for locations in space, such as Earth’s orbit, the Moon and Mars.

4. Actions for Civil Society Organizations with support from government and industry: Hold debates, design sessions and listening sessions that are open to people from many backgrounds to discuss the just way to proceed with human space activity. Such work is underway by organizations such as the Secure World Foundation, the Space Generation Advisory Council, Open Lunar Foundation and others.

5. Actions for Universities, Space Agencies, Committee on the Peaceful Use of Outer Space, the United Nations Office of Outer Space Affairs, International Academy of Astronautics, International Institute of Space Law: Invite the perspective of Indigenous People and others that have experience colonization; hold listening sessions to consider alternative ways of conceiving of the value of the Moon and other celestial objects; consider how alternative ways of conceiving of shared property might be incorporated into future human activity in space.

The work described here builds on the existing treaties that form the basis for International Law guiding space activities, but it challenges us to include new ways to express anti-colonial mindsets on Earth and in Space. Let us pursue this work urgently. While the Colonial Mindset creates harm, exploitation and degradation, we can pursue an Anticolonial Mindset on Earth and in Space that fosters sustainability, equity and flourishing for both people and the environment.

## 1NC-Off

**The standard is maximizing expected wellbeing**

**First, pleasure and pain are intrinsically valuable. People consistently regard pleasure and pain as good reasons for action, despite the fact that pleasure doesn’t seem to be instrumentally valuable for anything.**

**Moen 16** [Ole Martin Moen, Research Fellow in Philosophy at University of Oslo “An Argument for Hedonism” Journal of Value Inquiry (Springer), 50 (2) 2016: 267–281] SJDI

Let us start by observing, empirically, that a widely shared judgment about intrinsic value and disvalue is that pleasure is intrinsically valuable and pain is intrinsically disvaluable. On virtually any proposed list of intrinsic values and disvalues (we will look at some of them below), pleasure is included among the intrinsic values and pain among the intrinsic disvalues**.** This inclusion makes intuitive sense, moreover, for there is something undeniably good about the way pleasure feels and something undeniably bad about the way pain feels, and neither the goodness of pleasure nor the badness of pain seems to be exhausted by the further effects that these experiences might have. “Pleasure” and “pain” are here understood inclusively, as encompassing anything hedonically positive and anything hedonically negative.2 The special value statuses of pleasure and pain are manifested in how we treat these experiences in our everyday reasoning about values**.** If you tell me that you are heading for the convenience store, I might ask: “What for?” This is a reasonable question, for when you go to the convenience store you usually do so, not merely for the sake of going to the convenience store, but for the sake of achieving something further that you deem to be valuable**.** You might answer, for example: “To buy soda.” This answer makes sense, for soda is a nice thing and you can get it at the convenience store. I might further inquire, however: “What is buying the soda good for?” This further question can also be a reasonable one, for it need not be obvious why you want the soda. You might answer: “Well, I want it for the pleasure of drinking it.” If I then proceed by asking “But what is the pleasure of drinking the soda good for?” the discussion is likely to reach an awkward end. The reason is that the pleasure is not good for anything further; it is simply that for which going to the convenience store and buying the soda is good.3 As Aristotle observes**:** “We never ask [a man] what his end is in being pleased, because we assume that pleasure is choice worthy in itself.”4 Presumably, a similar story can be told in the case of pains, for if someone says “This is painful!” we never respond by asking: “And why is that a problem?” We take for granted that if something is painful, we have a sufficient explanation of why it is bad. If we are onto something in our everyday reasoning about values, it seems that pleasure and pain are both places where we reach the end of the line in matters of value.

**Moreover, *only* pleasure and pain are intrinsically valuable. All other values can be explained with reference to pleasure; Occam’s razor requires us to treat these as instrumentally valuable.**

**Moen 16** [Ole Martin Moen, Research Fellow in Philosophy at University of Oslo “An Argument for Hedonism” Journal of Value Inquiry (Springer), 50 (2) 2016: 267–281] SJDI

I think several things should be said in response to Moore’s challenge to hedonists. First, **I do not think the burden of proof lies on hedonists to explain why the additional values are not intrinsic values. If someone claims that X is intrinsically valuable, this is a substantive, positive claim, and it lies on him or her to explain why we should believe that X is in fact intrinsically valuable.** Possibly, this could be done through thought experiments analogous to those employed in the previous section. Second, **there is something peculiar about the list of additional intrinsic values** that counts in hedonism’s favor**: the listed values have a strong tendency to be well explained as things that help promote pleasure and avert pain.** To go through Frankena’s list, life and consciousness are necessary presuppositions for pleasure; activity, health, and strength bring about pleasure; and happiness, beatitude, and contentment are regarded by Frankena himself as “pleasures and satisfactions.” The same is arguably true of beauty, harmony, and “proportion in objects contemplated,” and also of affection, friendship, harmony, and proportion in life, experiences of achievement, adventure and novelty, self-expression, good reputation, honor and esteem. Other things on Frankena’s list, such as understanding, **wisdom, freedom, peace, and security, although they are perhaps not themselves pleasurable, are important means to achieve a happy life, and as such, they are things that hedonists would value highly.** **Morally good dispositions and virtues, cooperation, and just distribution of goods and evils, moreover, are things that, on a collective level, contribute a happy society, and thus the traits that would be promoted and cultivated if this were something sought after.** To a very large extent, the intrinsic values suggested by pluralists tend to be hedonic instrumental values. Indeed, pluralists’ suggested intrinsic values all point toward pleasure, for while the other values are reasonably explainable as a means toward pleasure, pleasure itself is not reasonably explainable as a means toward the other values. Some have noticed this. Moore himself, for example, writes that though his pluralistic theory of intrinsic value is opposed to hedonism, its application would, in practice, look very much like hedonism’s: “Hedonists,” he writes “do, in general, recommend a course of conduct which is very similar to that which I should recommend.”24 Ross writes that “[i]t is quite certain that by promoting virtue and knowledge we shall inevitably produce much more pleasant consciousness. These are, by general agreement, among the surest sources of happiness for their possessors.”25 Roger Crisp observes that “those goods cited by non-hedonists are goods we often, indeed usually, enjoy.”26 What Moore and Ross do not seem to notice is that their observations give rise to two reasons to reject pluralism and endorse hedonism. The first reason is that if **the suggested non-hedonic intrinsic values are potentially explainable by appeal to just pleasure and pain** (which, following my argument in the previous chapter, we should accept as intrinsically valuable and disvaluable), **then—by appeal to Occam’s razor—we have at least a pro tanto reason to resist the introduction of any further intrinsic values and disvalues. It is ontologically more costly to posit a plurality of intrinsic values and disvalues, so in case all values admit of explanation by reference to a single intrinsic value and a single intrinsic disvalue, we have reason to reject more complicated accounts.** **The fact that suggested non-hedonic intrinsic values tend to be hedonistic instrumental values does not, however, count in favor of hedonism solely in virtue of being most elegantly explained by hedonism; it also does so in virtue of creating an explanatory challenge for pluralists.** The challenge can be phrased as the following question: **If the non-hedonic values suggested by pluralists are truly intrinsic values in their own right, then why do they tend to point toward pleasure and away from pain?**27

**Moral uncertainty means preventing extinction should be our highest priority.  
Bostrom 12** [Nick Bostrom. Faculty of Philosophy & Oxford Martin School University of Oxford. “Existential Risk Prevention as Global Priority.” Global Policy (2012)]  
These reflections on **moral uncertainty suggest** an alternative, complementary way of looking at existential risk; they also suggest a new way of thinking about the ideal of sustainability. Let me elaborate.¶ **Our present understanding of axiology might** well **be confused. We may not** nowknow — at least not in concrete detail — what outcomes would count as a big win for humanity; we might not even yet **be able to imagine the best ends** of our journey. **If we are** indeedprofoundly **uncertain** about our ultimate aims,then we should recognize that **there is a great** option **value in preserving** — and ideally improving — **our ability to recognize value and** to **steer the future accordingly. Ensuring** that **there will be a future** version of **humanity** with great powers and a propensity to use them wisely **is** plausibly **the best way** available to us **to increase the probability that the future will contain** a lot of **value.** To do this, we must prevent any existential catastrophe.

**Reducing the risk of extinction is always priority number one.   
Bostrom 12** [Faculty of Philosophy and Oxford Martin School, University of Oxford.], Existential Risk Prevention as Global Priority.  Forthcoming book (Global Policy). MP. http://www.existenti...org/concept.pdfEven if we use the most conservative of these estimates, which entirely ignores the   possibility of space colonization and software minds, **we find that the expected loss of an existential   catastrophe is greater than the value of 10^16 human lives**.  **This implies that the expected value of   reducing existential risk by a mere one millionth of one percentage point is at least a hundred times the   value of a million human lives.**  The more technologically comprehensive estimate of 10  54 humanbrain-emulation subjective life-years (or 10  52  lives of ordinary length) makes the same point even   more starkly.  Even if we give this allegedly lower bound on the cumulative output potential of a   technologically mature civilization a mere 1% chance of being correct, we find that the expected   value of reducing existential risk by a mere one billionth of one billionth of one percentage point is worth   a hundred billion times as much as a billion human lives. **One might consequently argue that even the tiniest reduction of existential risk has an   expected value greater than that of the definite provision of any ordinary good, such as the direct   benefit of saving 1 billion lives.**  And, further, that the absolute value of the indirect effect of saving 1  billion lives on the total cumulative amount of existential riskâ€”positive or negativeâ€”is almost   certainly larger than the positive value of the direct benefit of such an action.

## Case

### Framing

#### ROB is to vote for the better debater – anything else is arbitrary, self–serving, and impact justified – they haven’t justified how debate shapes subject formation – it doesn’t – the role of individual debate rounds is white noise – can you remember what happened round () of () your senior year?

#### No warrant for why reps shape reality so just vote for whoever did the better debating.

#### Also no framework

### Advantage

#### Space exploration isnt equivalent to the death cause by western exploration

Drake 18 [(NADIA DRAKE, science journalist and contributing writer at National Geographic.), “We need to change the way we talk about space exploration”, National Geographic, https://www.nationalgeographic.com/science/article/we-need-to-change-way-we-talk-about-space-exploration-mars, NOVEMBER 9, 2018] SS

When discussing space exploration, people often invoke stories about the exploration of our own planet, like the European conquest and colonization of the Americas, or the march westward in the 1800s, when newly minted Americans believed it was their duty and destiny to expand across the continent.

But increasingly, government agencies, journalists, and the space community at large are recognizing that these narratives are born from racist, sexist ideologies that historically led to the subjugation and erasure of women and indigenous cultures, creating barriers that are still pervasive today.

To ensure that humanity’s future off-world is less harmful and open to all, many of the people involved are revising the problematic ways in which space exploration is framed. Numerous conversations are taking place about the importance of using inclusive language, with scholars focusing on decolonizing humanity’s next journeys into space, as well as science in general.

“Language matters, and it’s so important to be inclusive,” NASA astronaut Leland Melvin said recently during a talk at the University of Virginia.

Lucianne Walkowicz, an astronomer featured in National Geographic’s docudrama series Mars, spent the last year studying the ethics of Mars exploration as the Chair of Astrobiology at the U.S. Library of Congress. We recently spoke with Walkowicz to examine the problems associated with old-fashioned verbiage and to discuss some solutions. What follows is a record of that conversation, edited for length and clarity.

Why is it so crucial to consider the words we use when describing space exploration?

The language we use automatically frames how we envision the things we talk about. So, with space exploration, we have to consider how we are using that language, and what it carries from the history of exploration on Earth. Even if words like “colonization” have a different context off-world, on somewhere like Mars, it’s still not OK to use those narratives, because it erases the history of colonization here on our own planet. There’s this dual effect where it both frames our future and, in some sense, edits the past.

What are some of the problematic narratives the term “colonization” brings up?

One narrative that comes up a lot draws on the history of Europeans coming to the Americas.

I’ve seen people talk about the arrival of the first European settlers as this romantic, heroic story of people making it in a harsh environment. But of course, there were already people here, in the Americas, when those historical events happened.

Furthermore, a lot of the Europeans’ ability to live throughout the Americas came at the cost of genocide for indigenous people. I think it’s not intuitive, particularly when we talk to white Americans, for example, to think of the history of Columbus’s journey as a story of genocide. But it’s important to realize that’s what it is.

A lot of those historical narratives are also bound up in the history of slavery, for example, so when we talk about how colonies in Virginia grew from being a few settlers to becoming tens of thousands of people, it’s also important to realize that roughly half of those people came against their own will, and many died along the way.

#### Earth is dying

Arora 19 (Naveen Kumar Arora, Professor in the Department of Environmental Science, Ex-Head Department of Env. Microbiology, Babasaheb Bhimrao Ambedkar University.)(“Earth: 50 years challenge”, Environmental Sustainability, March 2019, Volume 2, Issue 1, pp 1–3)//ASMITH

The life of earth is estimated to be 4.54 billion years with an error range of 50 million years. Life appeared on earth around 3.5 billion years ago. Around 200,000 years ago, Homo sapiens evolved and started the great civilizations on the planet. Study suggests that human population is only 0.01% of all the life forms on Earth. This shows how existence of humans is just a miniscule part if we compare it with the existence of our planet or of the presence of life on earth. But if we go through the events particularly in last 10,000 years (of recorded history of mankind), it becomes clear that the presence of humans on earth brought several changes in both the biological and non-biological components. Most of the striking changes have appeared in last 50 years or so. According to reports, humans have destroyed about 83% of wild mammals and half the species of plants till date. On the whole, humans have consumed 30% of the known resources resulting into scarcer ecosystem services for future generations. If these trends continue, the Earth will soon be experiencing mass extinctions and we will be left with an even more degraded planet.

Humans in last 50 years, because of ever-increasing population associated with pollution and destruction of natural ecosystems have completely changed the face of the Earth. The exponential increase in human population in last few decades brought about many drastic changes on Earth making it look much degraded and bruised. One such phenomenon is Earth’s present carbon dioxide (a potent green house gas) level in the atmosphere which has exceeded 411 parts per million (ppm), much higher as compared to about 323 ppm about 50 years ago, resulting in major environmental issues such as global warming and climate change. According to the Fifth Assessment Report of Intergovernmental Panel on Climate Change, anthropogenic activities have been described as the main cause of increased green house gases level, of which 2/3rd come from burning of fossil fuels and 1/3rd is from land use changes. The increased clearing of forests and vegetated lands, due to overgrazing and industrial transformation, in the 1970s showed disturbed albedo and evapotranspiration leading to warming of earth, change in carbon cycle and global catastrophic events of biodiversity extinction. NASA’s Goddard Institute for Space Studies (GISS) analyzed that the average global temperature of earth has increased by about 0.8 °C since 1880 and two-thirds of this warming has been reported since 1975. The nexus of responses and catastrophic events also point towards the accelerated rate of melting of glaciers with the loss of 226 gigatons/year of ice between 1971 and 2009. The highest impacted glacier loss was reported from Greenland Ice Sheet (about sixfold higher) and Antarctic ice (almost quadrupled) in merely 20 years. Correspondingly, the sea level rise has almost doubled in last 20 years, with increment being 3.1 mm/year since 1993. Chemical and pesticide pollution is another menace to the ecosystems. According to reports, more than 1,40,000 chemicals including pesticides, plastics, etc. have been synthesized till date since 1950 and each year 10 millions tons of toxic compounds are being dumped into the environment leading to land degradation, soil salinization and contamination of water resources. This has resulted in the problem of safe drinking water around the globe. As per reports of CNN, about 500 million tons of heavy metals, toxic sludge and hazardous solvents were estimated to be released in global water supply in 2007 making it unsafe to consume. Plastic pollution is also a big nuisance caused by humans on Earth. The stats show that annual production of plastics during 1970s was about 50 million metric tons and it has increased to over 348 million metric tons at present. In terms of biodiversity losses, WWF’s Living Planet Report highlights that humans have eradicated 60% of the Earth’s wildlife in less than 50 years. About 20% of Amazon forests are lost in the last half century. A recent study revealed that of total global tree cover loss between 2001 and 2015, 27% depreciation came from commodity driven deforestation i.e. conversion of forests permanently in order to expand commodities such as meat, minerals, oils and gas. Other drivers are forestry i.e. loss within the managed forests or tree plantations (26%), shifting agricultural practices (24%), wildfires (23%), and urbanization (0.6%). Half of the shallow-water corals have also been leached out by anthropogenic activities polluting the oceans and seas in last 30 years. The recent analysis shows that the population of freshwater animals has plummeted by 75% since 1970s. Reports say that the damage done is so rapid that even if we end it now, it will take centuries to replenish the natural world.

The global human footprints over the past 50 years are so dominating that even the view of the planet from space shows the modification of various critical ecosystems and the demography. The complementing series of aerial pictures taken through satellites show that many hotspot ecosystems and areas have been tremendously degraded. Focusing on what all we have lost over the past half century, the red list is so long that it cannot be confined in few pages. The Great Barrier Reef visible even from space has shown 50% loss due to severe bleaching by increased temperature of the oceans in just 30 years and is predicted that up to 90% may die within next century. Shrinking of the Dead Sea has shown an alarming rate of around four feet a year and the sea has already lost one-third of its surface area. The increasing temperature has caused high rate of snow melting in the European mountain range The Alps, and the most unsettling event reported in 2017 was that the winter season was 38 days shorter in comparison to that in 1960. The human oriented massive irrigation project over past 50 years has shrunk the fourth largest lake Aral Sea, to only 10% and it will soon be a thing of the past. NASA’s monitoring of Arctic Sea ice since 1978 have detected a steep decline in overall ice content. The polar ice thawing stories over the past half centuries have been highly alarming and Antarctic alone has lost 40 billion tons of ice each year from 1979 to 1989 and this trend rose to 252 billion tons per year in 2009 and today Antarctic has already lost 6 times the ice it had 40 years ago. The ‘Third Pole’ i.e. The Himalayan- Hindu Kush mountain range and the Tibetan Plateau in Central Asia is also impacted by the negative trends of global warming and in the past 50 years this remote region has lost 509 glaciers resulting in the local temperature rise by 1.5 °C. Recently in 2018, a huge chunk of ice in Helheim Glacier in Greenland, about the size of Manhattan, with 10 billion tons of ice, split out and tumbled into sea; this loss was indicated as the most disturbing irreversible loss. The record breaking heat waves in Australia and Europe are already the hard and fast evidences to how much humans have changed the face of Earth. Australia witnessed the hottest summer in the recorded history in the year 2018–2019. The high melting of glaciers and warming of the poles led to the extreme freezing of Chicago, which became colder than Mount Everest, Siberia and the poles. The summers in Iran shockingly changed the size and color of Lake Urmia from green to brown due to blooming of algae and bacteria. Similarly, there are numerous reports which show the decline of fertile lands, increased soil salinity, loss of forests and so on, clearly visible by the satellite images.

A team of researchers’ from several countries including Sweden, Australia, Denmark, USA, England, Canada, Germany and Holland declared climate change and biodiversity loss as the “core boundaries” which if breached can transform Earth to inhabitable state. Stephen Hawking in his recently published book “Brief Answers to the Big Questions” stated that the biggest threat to mankind on Earth is the human induced climate change. Although the technology has advanced at an unprecedented rate and this has improved the living standards a lot but the cost of this development in terms of damage to the planet as a whole is also extraordinary. We share the planet with millions of other species but have almost single handedly exploited it to the extent that every specie is affected one way or the other. The industrial, agricultural and the infrastructural revolution have resulted in over exploitation of resources and pollution of every nook and corner of the planet. The technologies which were developed to adorn and ease our routines has brought antonymic effect threatening the survival and has made it very clear that no human science can replace “nature’s perfect systems” which have been carving the environment and ecosystems of earth to balance it in the zone of habitability.

#### Space colonization is key to ensure human survival – pursuing it as soon as possible is crucial

Kovic 18 (Marko Kovic, co-founder and president of the thinktank ZIPAR, the Zurich Institute of Public Affairs Research. He is also co-founder and CEO of the consulting firm ars cognitionis,. He has a PhD in political communication, University of Zurich) “Why space colonization is so important”, Nov 10, 2018, https://medium.com/@marko\_kovic/space-colonization-why-nothing-else-matters-a877723f77d4)//ASMITH

Why, you might wonder, does space colonization matter, possibly more than anything else, as the title of this article claims? Because the future of humankind directly and completely dependent on whether and how we manage to colonize space.

Space colonization is a double-edged sword. On one hand, the creation of permanent and self-sustainable human habitats beyond Earth is unavoidable if humankind is to exist in the long-term future. On the other hand, however, space colonization could bring about a catastrophically bad future if we colonize space in a bad way. That future that might be worse than one in which humankind does not exist.

Space or bust: Why we must reach for the stars

Why should we pursue space colonization in the first place? Don’t we have more pressing problems today, on Earth?

Yes, we do have many problems on Earth today, and we should try to solve them. But space colonization is just that: A strategy for dealing with certain problems. An the problems that space colonization would be dealing with are, arguably, among the greatest problems of them all: Existential risks; risks that might lead to the extinction of humankind [1]. Currently, all of our proverbial existential eggs are in the same basket. If a natural existential risk strikes (for example, a large asteroid colliding with Earth) or if a man-made existential risk results in a catastrophic outcome (for example, runaway global warming [2, 3]), all of humankind is at risk because humankind is currently limited to planet Earth. If, however, there are self-sustainable human habitats beyond Earth, then the probability of an irreversibly catastrophic outcome for all of humankind is drastically reduced.

Investing in space colonization today could therefore have immense future benefits. Using resources today in order to make space colonization possible in the medium-term future is not a waste, but a very profitable investment. If humankind stays limited to Earth and if we go extinct as a consequence of doing so, then we will all the billions of life years and billions of humans who might have come to exist — and who would have experienced happiness and contributed to humankind’s continued epistemic and moral progress.

Taking space colonization more seriously today does not, of course, mean that we should only pursue space colonization and ignore everything else that is bad in the world. We should continue dealing with current global problems and, at the same time, invest greater resources into space colonization. At this point in our history and our technological development, even modest amounts of resources directed at space colonization would go a long way, such as public funding of basic research. Additionally, it is very likely that technological advances in the domain of space colonization would improve our lives in other ways as well thanks to technology transfer [4] — investing in space colonization today would probably be a win-win situation.

So the situation seems clear: We must pursue space colonization and try to spread beyond Earth as fast as possible. Unfortunately, there is a catch: Yes, we must colonize space if humankind is to survive, but space colonization itself is very risky. So much so that bad outcomes of space colonization might be even worse for humankind than “merely” going extinct.

#### \*\*\*\*Every second of delayed colonization kills 10^29 potential human lives

Bostrom 3 Nick Bostrom, philosopher at the University of Oxford, a Ph.D. degree in philosophy from the London School of Economics, and was a British Academy Postdoctoral Fellow at the University of Oxford, 2003, “Astronomical Waste: The Opportunity Cost of Delayed Technological Development”, Utilitas Vol. 15, No. 3, https://nickbostrom.com/astronomical/waste.html#\_edn8, EO

As I write these words, suns are illuminating and heating empty rooms, unused energy is being flushed down black holes, and our great common endowment of negentropy is being irreversibly degraded into entropy on a cosmic scale. These are resources that an advanced civilization could have used to create value-structures, such as sentient beings living worthwhile lives.

The rate of this loss boggles the mind. One recent paper speculates, using loose theoretical considerations based on the rate of increase of entropy, that the loss of potential human lives in our own galactic supercluster is at least ~10^46 per century of delayed colonization.[1] This estimate assumes that all the lost entropy could have been used for productive purposes, although no currently known technological mechanisms are even remotely capable of doing that. Since the estimate is meant to be a lower bound, this radically unconservative assumption is undesirable.

We can, however, get a lower bound more straightforwardly by simply counting the number or stars in our galactic supercluster and multiplying this number with the amount of computing power that the resources of each star could be used to generate using technologies for whose feasibility a strong case has already been made. We can then divide this total with the estimated amount of computing power needed to simulate one human life.

As a rough approximation, let us say the Virgo Supercluster contains 10^13 stars. One estimate of the computing power extractable from a star and with an associated planet-sized computational structure, using advanced molecular nanotechnology[2], is 10^42 operations per second.[3] A typical estimate of the human brain’s processing power is roughly 10^17 operations per second or less.[4] Not much more seems to be needed to simulate the relevant parts of the environment in sufficient detail to enable the simulated minds to have experiences indistinguishable from typical current human experiences.[5] Given these estimates, it follows that the potential for approximately 10^38 human lives is lost every century that colonization of our local supercluster is delayed; or equivalently, about 10^29 potential human lives per second.

While this estimate is conservative in that it assumes only computational mechanisms whose implementation has been at least outlined in the literature, it is useful to have an even more conservative estimate that does not assume a non-biological instantiation of the potential persons. Suppose that about 10^10 biological humans could be sustained around an average star. Then the Virgo Supercluster could contain 10^23 biological humans. This corresponds to a loss of potential equal to about 10^14 potential human lives per second of delayed colonization.

What matters for present purposes is not the exact numbers but the fact that they are huge. Even with the most conservative estimate, assuming a biological implementation of all persons, the potential for one hundred trillion potential human beings is lost for every second of postponement of colonization of our supercluster.[6]

II. THE OPPORTUNITY COST OF DELAYED COLONIZATION

From a utilitarian perspective, this huge loss of potential human lives constitutes a correspondingly huge loss of potential value. I am assuming here that the human lives that could have been created would have been worthwhile ones. Since it is commonly supposed that even current human lives are typically worthwhile, this is a weak assumption. Any civilization advanced enough to colonize the local supercluster would likely also have the ability to establish at least the minimally favorable conditions required for future lives to be worth living.

The effect on total value, then, seems greater for actions that accelerate technological development than for practically any other possible action. Advancing technology (or its enabling factors, such as economic productivity) even by such a tiny amount that it leads to colonization of the local supercluster just one second earlier than would otherwise have happened amounts to bringing about more than 10^29 human lives (or 10^14 human lives if we use the most conservative lower bound) that would not otherwise have existed. Few other philanthropic causes could hope to match that level of utilitarian payoff.

#### Space colonization solves climate change

Youn and Theodorou 19, 5/9, "Blue Origin, Jeff Bezos unveils plans for space colonization," ABC News, https://abcnews.go.com/Business/blue-origin-jeff-bezos-unveils-lunar-lander-mission/story?id=62941981 TDI  
His inspiration? American physicist Gerard O'Neill, who became interested in the idea of space colonization in 1969.

Bezos extolled his belief in the idea that humans could live in environments that were ideal and create colonies where heavy industry can be carried out without subjecting the earth to atmospheric pollution. He also did refer to coming back to Earth.

“Earth is the best planet. It is not even close. Don’t even get me started on Venus," Bezos said.

The Amazon founder identified two initial goals that Blue Origin would focus on: a radical reduction in launch costs and establishing resources for space. Like Elon Musk's SpaceX, Blue Origin has focused on reusable rockets.

Blue Origin would begin by sending human's into space in 2019 on New Shepard -- a suborbital vehicle designed for space tourism -- which uses liquid hydrogen, an incredibly efficient fuel source