# 1NC

## 1

### T—Unjust

#### A topical affirmative must ban some subset of private appropriation, not merely regulate it

#### “Unjust” means the action is wrong, not ‘right under certain conditions’

Black’s Law No Date

Black’s Law Dictionary 2nd Edition. “Unjust.” No date. JDN. https://thelawdictionary.org/unjust/

**Contrary to right and justice**, or to the enjoyment of his rights by another, or to the standards of conduct furnished by the laws.

#### Appropriation must be without legal basis post-plan

Harvard Law Review 20

Harvard Law Review (It’s a law review. It’s at Harvard. They don’t list specific authors.) “The Intellectual History of Unjust Enrichment.” APR 3, 2020. 133 Harv. L. Rev. 2077. JDN. <https://harvardlawreview.org/2020/04/the-intellectual-history-of-unjust-enrichment/>

This Chapter charts the intellectual history of unjust enrichment, showing that many legal systems in the Western tradition identify unjust enrichment as a source of personal obligation separate from contract or tort. In the United States, unjust enrichment developed in law and equity, suffered through a period of instability in the post-fusion legal landscape, and has experienced a recent resurgence. The idea of “unjust enrichment” researched for this Chapter includes any treatment of an unequal transfer of value that operates as a source of obligation separate from obligations arising from consent or wrongdoing. This separate source of obligation can be identified as far back as the Roman Empire. The definition of “unjust enrichment” that seems to best fit this source of obligation is that of the Third Restatement: any unequal transfer of value **without an adequate legal basis.**

#### Violation—Harker’s plan only claims to “*restrict* asteroid mining done by private entities”

#### That’s cheating and a voting issue

#### 1. Limits—there are thousands upon thousands of possible restrictions: Tax mining. Require permits. Mandate environmental impact assessments. Only allow mining of certain resources or asteroids at a certain distance. The list is endless.

#### The plan doesn’t even say “substantially restrict” so they open the floodgates to tiny minutia that would barely trigger any DA.

#### 2. Ground—Allowing the aff to just say “restrict this… somehow” leaves the neg with zero viable ground. No advantage counterplan competes because the aff just gets to say “perm—that’s a restriction” meaning the neg is left defending radical anarcho-capitalism in space.

#### 3. Precision—the topic would use a term like “restrict” or “regulate” if it wanted to focus the debate on details of *how* private appropriation should occur.

#### 4. TVA—they could read a plan banning private space mining. There is no reason the verb “restrict” is key to a discussion of asteroids. Under my interp, the aff even still retains the nuance of saying public sector space mining projects are good if they want to, so they have strategic flexibility and some game against DAs.

#### Drop the debater—T is an aff burden and restarting in the 1AR is too late. Use competing interps to avoid arbitrariness and judge intervention.

## 2

### Relocation CP

#### Counterplan: Space-faring nations should restrict asteroid relocation done by private entities.

#### This whole aff is a lie. Their crucial link card is not about asteroid mining in general and their cutting leaves out key context. It’s about moving asteroids nearby and mining them in our orbit. It makes no sense at all to say mining distant asteroids would put debris into low earth orbit and the full card concedes that they’re all only describing relocating asteroids which they distinguish from mining them on site. Here’s their author: [I read YELLOW]

Sarah Scoles 15, “Dust from asteroid mining spells danger for satellites,” New Scientist, 5-27-2015, <https://www.newscientist.com/article/mg22630235-100-dust-from-asteroid-mining-spells-danger-for-satellites/>

IF THE gold mine is too far from home, why not move it nearby? It sounds like a fantasy, but would-be miners are already dreaming up ways to drag resource-rich space rocks closer to home. Trouble is, that could threaten the web of satellites around Earth.

Asteroids are not only stepping stones for cosmic colonisation, but may contain metals like gold, platinum, iron and titanium, plus life-sustaining hydrogen and oxygen, and rocket-fuelling ammonia. Space age forty-niners can either try to **work** an asteroid **where it is**, or tug it into a more convenient orbit.

**\*\*\*[Harker’s Card Begins]\*\*\***

NASA chose the second option for its Asteroid Redirect Mission, which aims to pluck a boulder from an asteroid’s surface and relocate it to a stable orbit around the moon. But an asteroid’s gravity is so weak that it’s not hard for surface particles to escape into space. Now a new model warns that debris shed by such transplanted rocks could intrude where many defence and communication satellites live – in geosynchronous orbit. According to Casey Handmer of the California Institute of Technology in Pasadena and Javier Roa of the Technical University of Madrid in Spain, 5 per cent of the escaped debris will end up in regions traversed by satellites. Over 10 years, it would cross geosynchronous orbit 63 times on average. A satellite in the wrong spot at the wrong time will suffer a damaging high-speed collision with that dust. The study also looks at the “catastrophic disruption” of an asteroid 5 metres across or bigger. Its total break-up into a pile of rubble would increase the risk to satellites by more than 30 per cent (arxiv.org/abs/1505.03800). That may not have immediate consequences. But as Earth orbits get more crowded with spent rocket stages and satellites, we will have to worry about cascades of collisions like the one depicted in the movie Gravity. Handmer and Roa want to point out the problem now so that we can find a solution before any satellites get dinged. “It is possible to quantify and manage the risk,” says Handmer. “A few basic precautions will prevent harm due to stray asteroid material.”

#### Their author also agrees asteroid mining is fundamentally good and the CP wouldn’t get circumvented or rolled back as long as we do it now

Sarah Scoles 15, “Dust from asteroid mining spells danger for satellites,” New Scientist, 5-27-2015, <https://www.newscientist.com/article/mg22630235-100-dust-from-asteroid-mining-spells-danger-for-satellites/>

Aspiring space miners are taking the risk seriously. “We will be utilising containment techniques,” says Meagan Crawford of Deep Space Industries, a California-based firm which hopes to be mining metals from asteroids by 2020. One possibility is bagging, in which the asteroid is placed in a kind of shroud to prevent dust and loose stones from escaping. “All of our mining targets will be chosen specifically to minimise the risk of particulate interaction with other bodies,” she says.

The risk from NASA’s mission, planned for the 2020s, is small, Nolan points out. But if space mining takes off, things will get complicated. “**The establishment of good asteroid mining practices early on is essential** for the preservation of a non-renewable resource: uncluttered space,” says Handmer.

## 3

### Space Col CP

#### CP: The appropriation of outer space for mining by private entities through bounded first possession by landfall is just.

#### CP is the best system to develop Mars – common ownership chills first movers and is less efficient.

Collins 08 (Lecturer, The City Law School, City University, London, UK. B.A.Hon., J.D.(Toronto), M.Sc., B.C.L. (Oxford)), "EFFICIENT ALLOCATION OF REAL PROPERTY RIGHTS ON THE PLANET MARS" B.U. J. SCI. & TECH. L. [Vol.14:201, NCS, DOA 2/5/22, https://www.bu.edu/jostl/files/2015/02/Collins\_142.pdf

As an alternative to fixing future claims on Mars based upon a re-allocation of pre-existing ones, the most efficient mechanism of real property allocation of an un-owned res nullius planet Mars would be a limited form of first possession: the allotment of only a portion of land to the first arriving organization, not the entire surface of the planet. The size of the allocation would be set at the optimal level to encourage exploration and development while conserving land for future explorers. The first landers could claim all terrain, for example, within a hundred kilometer radius of their landing point subject to an increase if productive use is made of an even larger portion. The rest of the planet would remain un-owned and available to become possessed by subsequent explorers. This bounded first possession is in keeping with the language of the Outer Space Treaty and Moon Treaties that prohibit only sovereign claims to the celestial body, which could be interpreted to mean the planetary sphere itself. Such a credible interpretation reads in the word “entire” to the following provision for the purpose of clarity: “neither the entire surface or entire subsurface of the Moon [or Mars] shall become the property of any State”.”74 Partial allocation as described is just because landing on one minuscule portion of a world should not entitle a claimant to ownership of all of it, much of which may be left completely idle by the original explorer, resulting in an inefficient use of the planet’s resources. The problem of inefficient races to achieve the legal right to first possession will be avoided by this regime, as second and third place finishers will be rewarded with other plots of land on the surface. Consequently pre-mature and therefore non-productive missions will be avoided because there is no risk of exclusion for failing to land first; the marginal benefit of arriving second will be as high as the marginal benefit of arriving first. Of course, the pride engendered by first arrival, such as that generated by the first Moon landing, would help to encourage earlier Mars expeditions rather than later ones. Incentive to settle on Mars before others may similarly result from the fact that some regions of the planet could be more valuable than others. For example, just as the flat, northern hemisphere would may be more conducive for agriculture than the rugged southern hemisphere, the equatorial zone would probably hold greater value because of their warmer climates.75 Part of the concern of developing nations in espousing the Common Heritage principle for planetary bodies was that the planet’s resources would already be depleted by the time nations with weaker initial resource endowments (the developing world) are capable of exploiting the land on Mars.76 Plot ownership would address this concern since vast regions of Mars would likely remain un-owned for centuries, giving developing nations a chance to “catch up”. Private easements and restrictive covenants arrived at by bargaining among the landed owners (rather than through international political consensus) and enforced through private litigation would control competing land uses such as over exploitation or pollution in order to produce an efficient allocation of resources. At least in the early stages of colonization there would be no need to incur the cost of a special “Mars Court” to adjudicate such disputes. Instead, landowners could litigate in the courts of their choice on Earth, subject to that court’s own rules on taking jurisdiction. For example, an American corporation owning land on Mars could bring suit in nuisance against another American landowner in the Federal court of the United States.77 Disputes between sovereign landowners on Mars could similarly be brought in the International Court of Justice.78 Again, it is expected that such private land use adjudication among fewer parties should be less costly than public control of commonly held land through regulation.79 Moreover, bargaining among a limited number of initial owners should arrive at the most efficient manner of land use without the need to resort to lawsuits. Excessive land use regulation resulting from the need to satisfy all decision-makers could diminish the overall productivity of the land, especially if such regulations were imposed ex post after valuable resources had already been wasted. It is further expected that landowners on Mars would adopt the self-imposed obligation to engage in reasonable and productive use of that land in order to maximize the value of their own holdings. Such “injunctions against waste”80 would become more significant in later stages of settlement when vacant land on Mars had become scarcer. Accordingly, if a plot is not being used efficiently, for example, by an owner that held expertise in space travel but not in colonization, then title in the land could be transferred on the authority of a court, perhaps through the Common Law doctrine of adverse possession,81 to another party that had these skills and intentions. Should a terraforming project be undertaken – transforming the whole of Mars into an environment that could sustain life - landowners would have an incentive to “free ride” by not contributing resources to such an inherently communal project, allowing them to benefit from the labors of others without cost. Perhaps a mandatory fee could be imposed upon all residents by a court in order to address this problem – although it is unclear what legal precedent could be invoked to do so - in advance of the establishment of zoning or centralized governance on the planet.82 Market forces should provide, however, that a party not adding value to its land through development would have an incentive to sell or lease it to a party that would make a more productive use of it. Thus, the first explorers might wish simply to sell their claims as suggested above. To facilitate such bargaining among landowners, the establishment of a land registry system, which would set standardized plot dimensions and record transactions and would represent one of the few costs associated with private ownership of land on Mars, would be necessary.83 The recognition of bounded land claims on a planet appears already to be envisioned by the text of the Moon Treaty which as noted above, permits individual states to retain jurisdiction and control over their personal property, such as bases and equipment, that is brought to the moon.84 However, as noted above, the rights in such chattels are not equivalent to the full property rights exercised by terrestrial landowners since there is no exclusivity – treaty requires parties to allow others to use these equipment and facilities when requested.85 On one hand such compulsory property sharing is economically efficient because it would encourage further development by minimizing one of the costliest aspects of settlement. A subsequent arrival could benefit from existing infrastructure devoting resources to the more productive development of the region without redundant expenditure that would impede overall progress. However, the common property regime envisioned by the space treaties ignores the reality that without adequate compensation for such sharing there might be an incentive to free-ride by waiting for another explorer to incur the initial costs of establishing a Mars base with oxygen/fuel production facilities. It would therefore be more cost effective to be the second or third Mars colonizer, potentially inducing a strategic waiting game. To resolve this problem it should be permissible to charge a fee for the use of one’s facilities because such fees represent the fundamental economic gain of granting property rights in land on Mars. Developed land, such as land with a base upon it that could sustain human life, becomes valuable to subsequent visitors, and this can generate revenue that will offset the initial costs. Bargaining would naturally set the use fee at an optimal level that encouraged subsequent parties to land and make use of existing facilities and would not be too low to deter the initial landing and construction. Thus, the direction to share resources in the Moon Treaty might be unnecessary – sharing might increase wealth for all parties, much as land values increase in proportion to the rise in population of an area. Given that large scale inhabitation of Mars might only result from a catastrophe on Earth, there may be some need to incorporate the common law defense of necessity for emergency trespass, although this defense would not preclude the payment of reasonable compensation for use or damage to existing infrastructure.86

#### Colonization of Mars is feasible but requires investment incentive now. Mining for water and resources is key to accelerating colonization

Martin & Saydam 21

(BA Journalism University of Central Lancashire, Media & Content Coordinator for The University of New South Wales Serkan Saydam received his BSc, MSc and PhD degrees in Mining Engineering from the Dokuz Eylul University, Izmir, Turkey and completed his Postdoctoral Fellowship at the University of Witwatersrand, Johannesburg, South Africa. He then worked at De Beers for 3 years as project manager in Johannesburg, South Africa. Serkan joined the School of Mining Engineering as a Senior Lecturer in 2006 and was promoted to Associate Professor in 2012. Serkan then was then promoted to the Professorial role in 2017 and he is currently working as a Professor and Director of Research at the School of Minerals and Energy Resources Engineering at UNSW. A key focus of his research is to address the current needs and future challenges faced by the mining industry. These are generally very complex engineering problems, as mining environments become more extreme and constraints are imposed due to increasing social, environmental, and health and safety standards. His fields of research include ground control, mine planning & design, technology integration, new mining methods and off-Earth mining. In addition, he established research collaboration with NASA's Jet Propulsion Laboratory & Kennedy Space Center, and Luxembourg Space Agency as well more than 20 research organisations and universities globally. He has more than 250 publications and graduated 18 PhD students. Serkan is currently Fellow Member of Australian Institution of Mining and Metallurgy; President of the ISRM Commission on Planetary Rock Mechanics; Deputy Director of the Australian Centre for Space Engineering Research (ACSER) at UNSW; Deputy Secretary General and Council Member of the SOMP (The Society of Mining Professors). <https://newsroom.unsw.edu.au/news/science-tech/mars-settlement-likely-2050-says-unsw-expert-%E2%80%93-not-levels-predicted-elon-musk>, USNW Sydney Newsroom, 3/10/21, NCS, <https://newsroom.unsw.edu.au/news/science-tech/mars-settlement-likely-2050-says-unsw-expert-%E2%80%93-not-levels-predicted-elon-musk> brackets for spelling mistake

Robotic mining that can provide water and fuel is the key to developing a colony on the red planet within the next 30 years. Mars will be colonised by humans by the year 2050, as long as autonomous mining processes quickly become more commercially viable. That’s the view of Professor Serkan Saydam from UNSW Sydney in the wake of the amazing landing on Mars by NASA’s Perseverance rover. Perseverance is expected to provide answers about whether forms of life ever existed on the red planet, but it is also designed to help address the challenges of future human expeditions there. Professor Saydam, from the School of Mineral Energy Resources Engineering, says the main focus in terms of creating a colony on Mars is finding water – and being able to extract it and process it using robots before humans land. “Everything is all about water,“ Prof. Saydam says. “You use water as a life support, plus also being able to separate out the hydrogen to use as an energy source. “The process for having humans on Mars will be to set up operations, go there and produce water with robots first, and then be able to extract the hydrogen to make the energy ready before people arrive. “Innovation in robotics and autonomous systems are clearly important so that we have the water ready and the hydrogen separated and ready for when human beings land. “At the moment, we don’t have ability to do it. There are significant research efforts, specifically here at UNSW under ACSER (Australian Centre for Space Engineering Research), about the best way to do it, but there is no consensus yet. It also depends on how many people we expect to be living on Mars. Is it five, or 5000, or 50,000, or even more?“ Entrepreneur Elon Musk has claimed he’s confident there will be a city of 1 million on Mars by 2050, transported there by 1000 Starships proposed by his SpaceX venture, with plans for up to three rocket launches per day. Prof. Saydam says that may be unrealistic in the specific timeframe, but admits that demand for travel and a potential colonisation of Mars is what’s needed to drive the technological developments required. “I think the technology is ready and we already have the knowledge, but the main problem is having the focus,“ says Prof. Saydam, who is organising an International Future Mining Conference in December 2021 that will feature former NASA astronaut Pamela Melroy and Honeybee Robotics vice-president Kris Zacny. “It’s a bigger question: ‘Why don’t we do that already on earth? Why are we still using human beings for physical work in mining here?’ We have huge experience in mining, but still heavily depend on humans. “One issue is that demand is not there. For companies to get involved in developing products (for Mars missions), they need to be able to produce minerals or something that can be used for manufacturing goods and then sell it. “At the moment, everything is just a cost and there is no revenue for companies.“ However, that could be starting to change. United Launch Alliance, a joint venture between Lockheed Martin and Boeing who are heavily invested in the rockets used to launch spaceships, has publicly announced they will pay $500 per kilogram for fuel – derived from water – supplied on the moon. That rises to $3000 per kilogram if the fuel is available in a low-earth orbit. “That immediately creates a market,“ Prof. Saydam says. “Plus, if Elon Musk does what he says and puts people on the surface of Mars in 20 years, then that also creates a market. “I believe a colony on Mars is going to happen, but between 2040 and 2050 is more feasible. This could be shortened depending on the technological advances that can reduce the costs or [form] from stronger motivation. “What I think will happen is that first of all we will do these activities on the moon and have a colony there. Then we can use the moon as a petrol station to get to Mars and beyond. “But before 2050, I think we will have settlements on both the moon and Mars.“

#### And, private appropriation is key – fear of expropriation.

Collins 08 (Lecturer, The City Law School, City University, London, UK. B.A.Hon., J.D.(Toronto), M.Sc., B.C.L. (Oxford)), "EFFICIENT ALLOCATION OF REAL PROPERTY RIGHTS ON THE PLANET MARS" B.U. J. SCI. & TECH. L. [Vol.14:201, NCS, DOA 2/5/22, https://www.bu.edu/jostl/files/2015/02/Collins\_142.pdf

III. THE CURRENT LEGAL REGIME FOR PROPERTY IN OUTER SPACE In order to frame the discussion of future real property claims on Mars, this article will briefly discuss existing law on property in space. There are currently two relevant international treaties: The Outer Space Treaty and the Moon Treaty, both of which establish that Mars (and the other planets) are res communis: common property owned by the people of Earth. The former agreement, signed in 1967 as the result of efforts of the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS), establishes that space is “the province of all mankind” and “free for exploration and use by all states without discrimination of any kind, on a basis of equality” and also that there should be “free access to all areas of celestial bodies”, 16 clearly precluding the exclusivity of possession that is the foundation of ownership. Celestial bodies, including Mars, cannot be the subject of national appropriation by claims of sovereignty.17 The Outer Space treaty was signed by the United States, the USSR and 89 other nations and as such it can be viewed as a legally binding commitment in international law. The later Moon Treaty, ratified by only seven countries, establishes that all resources outside the earth are the “common heritage of mankind” and that no entity, either public or private can exclusively own any space resource,18 and that there must be “equitable sharing” by all state parties in the benefits derived from space resources, taking into consideration the needs of developing countries.19 This language of public ownership mirrors The Law of the Sea convention, which establishes that no nation can own the world’s oceans.20 The Moon Treaty permits the retention of “samples” taken from planetary bodies, although it encourages that such materials be made available to other nations for the purposes of scientific experiment.21 The laws of space, interpreted by some to allow for commercial mining, thus recognize the concept of personal property.22 Although the Moon Treaty allows parties to retain ownership of the equipment, vehicles and installations that they place there23 this is not true ownership in the common law sense since there is no right to exclude because Article XV requires that all vehicles, installations and equipment shall be open to use by all other parties. This partial acknowledgement of private personalty may hold the potential for “quasi-sovereignty” involving ownership of objects on the surface of planets by individuals or corporations.24 The simple delineation between equipment and land may be difficult to draw on Mars, however, because the planet’s atmosphere necessitates artificial construction, such as a greenhouse, in order to render the surface agriculturally productive or habitable. According to the common law, a chattel (in which ownership is retained in space) loses its status as a chattel and becomes a fixture when it is so affixed to land that it becomes part of the land,25 and evidently according to treaty at that point ownership is lost. In this way a base built upon the soil or rock of Mars for the purpose of habitation or as a greenhouse, even if it is resting upon the planet’s surface under its own weight without attachment, as long as it is intended to permanently improve the land, will become a fixture26 and is therefore common property. Thus, there is a strong risk that an investment such as a base that possibly costs billions of dollars in preparation and transportation would become public property once it was placed upon the planet’s surface. Together the space treaties embody the now widely-criticized notion27 that every human, as represented by the states in which they are members, has an effective “right” to Mars. Under this regime the allocation of Martian resources, possibly including land itself, will be determined by the “administrative model” in which each nation decides the distribution based on each country having an equal vote, much like the current United Nations regime.28 Not surprisingly, the United States and the Soviet Union rejected the limitations on the use of space resources, refusing to sign the Moon Treaty. Indeed none of the signatories of the Moon Treaty has space travel capability, suggesting that it does not reflect any practical concerns in space exploration and development. Rather, the Moon Treaty illustrates resistance to the idea of private advancement through the acquisition or use of space resources as expressed through the voting dominance of less-developed nations in intergovernmental organizations.29 Still, as many legal commentators have noted, the benefit sharing doctrines enunciated in the treaties are fortuitously vague and as such have little force in international law. At best they are loose policy guidelines, not concrete obligations.30 Interestingly, the treaties also present inconsistent principles: the Moon Treaty’s common ownership concept contradicts the prohibition against national appropriation found in the Outer Space Treaty,31 although this is little more than a semantic distinction. The ambiguity of these treaties and the fact that the Moon Treaty has not been ratified by space-faring nations suggests that property law in space remains, hopefully for the purpose of incentivization, clouded. Many commentators, notably Carl W. Christol, further assert the need to clarify and formalize the law of space exploration generally.32 An internationally recognized legal regime for property rights on Mars is essential; otherwise uncertainty (if not the fear of expropriation in the name of mankind) will endanger financial investment both in reaching and then colonizing the planet.

#### Life on earth is doomed – countless eventualities and unforeseen dangers.

Meyer 16

(Robinson Meyer is a staff writer at The Atlantic. He is the author of the newsletter The Weekly Planet, and a co-founder of the COVID Tracking Project at The Atlantic.), "Human Extinction Isn't That Unlikely", The Atlantic, 4/29/16, NCS, https://www.theatlantic.com/technology/archive/2016/04/a-human-extinction-isnt-that-unlikely/480444/

Nuclear war. Climate change. Pandemics that kill tens of millions. These are the most viable threats to globally organized civilization. They’re the stuff of nightmares and blockbusters—but unlike sea monsters or zombie viruses, they’re real, part of the calculus that political leaders consider everyday. A new report from the U.K.-based Global Challenges Foundation urges us to take them seriously. The nonprofit began its annual report on “global catastrophic risk” with a startling provocation: If figures often used to compute human extinction risk are correct, the average American is more than five times likelier to die during a human-extinction event than in a car crash. Partly that’s because the average person will probably not die in an automobile accident. Every year, one in 9,395 people die in a crash; that translates to about a 0.01 percent chance per year. But that chance compounds over the course of a lifetime. At life-long scales, one in 120 Americans die in an accident. Yet the risk of human extinction due to climate change—or an accidental nuclear war, or a meteor—could be much higher than that. The Stern Review, the U.K. government’s premier report on the economics of climate change, assumed a 0.1-percent risk of human extinction every year. That may sound low, but it adds up when extrapolated to century-scale. Across 100 years, that figure would entail a 9.5 percent chance of human extinction. And that number might even underestimate the risk. Another Oxford survey of experts from 2008 posited the annual extinction risk to be a higher figure, 0.2 percent. And the chance of dying from any major global calamity is also likely higher. The Stern Review, which supplies the 9.5-percent number, only assumed the danger of species-wide extinction. The Global Challenges Foundation’s report is concerned with all events that would wipe out more than 10 percent of Earth’s human population. “We don’t expect any of the events that we describe to happen in any 10-year period. They might—but, on balance, they probably won’t,” Sebastian Farquhar, the director of the Global Priorities Project, told me. “But there’s lots of events that we think are unlikely that we still prepare for.” For instance, most people demand working airbags in their cars and they strap in their seat-belts whenever they go for a drive, he said. We may know that the risk of an accident on any individual car ride is low, but we still believe that it makes sense to reduce possible harm. So what kind of human-level extinction events are these? The report holds catastrophic climate change and nuclear war far above the rest, and for good reason. On the latter front, it cites multiple occasions when the world stood on the brink of atomic annihilation. While most of these occurred during the Cold War, another took place during the 1990s, the most peaceful decade in recent memory: In 1995, Russian systems mistook a Norwegian weather rocket for a potential nuclear attack. Russian President Boris Yeltsin retrieved launch codes and had the nuclear suitcase open in front of him. Thankfully, Russian leaders decided the incident was a false alarm. Climate change also poses its own risks. As I’ve written about before, serious veterans of climate science now suggest that global warming will spawn continent-sized superstorms by the end of the century. Farquhar said that even more conservative estimates can be alarming: UN-approved climate models estimate that the risk of six to ten degrees Celsius of warming exceeds 3 percent, even if the world tamps down carbon emissions at a fast pace. “On a more plausible emissions scenario, we’re looking at a 10-percent risk,” Farquhar said. Few climate adaption scenarios account for swings in global temperature this enormous. Other risks won’t stem from technological hubris. Any year, there’s always some chance of a super-volcano erupting or an asteroid careening into the planet. Both would of course devastate the areas around ground zero—but they would also kick up dust into the atmosphere, blocking sunlight and sending global temperatures plunging. (Most climate scientists agree that the same phenomenon would follow any major nuclear exchange.) Yet natural pandemics may pose the most serious risks of all. In fact, in the past two millennia, the only two events that experts can certify as global catastrophes of this scale were plagues. The Black Death of the 1340s felled more than 10 percent of the world population. Eight centuries prior, another epidemic of the Yersinia pestis bacterium—the “Great Plague of Justinian” in 541 and 542—killed between 25 and 33 million people, or between 13 and 17 percent of the global population at that time. No event approached these totals in the 20th century. The twin wars did not come close: About 1 percent of the global population perished in the Great War, about 3 percent in World War II. Only the Spanish flu epidemic of the late 1910s, which killed between 2.5 and 5 percent of the world’s people, approached the medieval plagues. Farquhar said there’s some evidence that the First World War and Spanish influenza were the same catastrophic global event—but even then, the death toll only came to about 6 percent of humanity. The report briefly explores other possible risks: a genetically engineered pandemic, geo-engineering gone awry, an all-seeing artificial intelligence. Unlike nuclear war or global warming, though, the report clarifies that these remain mostly notional threats, even as it cautions: [N]early all of the most threatening global catastrophic risks were unforeseeable a few decades before they became apparent. Forty years before the discovery of the nuclear bomb, few could have predicted that nuclear weapons would come to be one of the leading global catastrophic risks. Immediately after the Second World War, few could have known that catastrophic climate change, biotechnology, and artificial intelligence would come to pose such a significant threat.

#### Space col brings infinite expected value – outweighs.

Baum 16

[Seth D. Baum, Executive Director of the Global Catastrophic Risk Institute, “The Ethics of Outer Space: A Consequentialist Perspective,” 2016, Springer, pp. 115-116, EA]

Space colonization is notable because it may be able to bring utterly immense increases in intrinsic value. Early colonies might start small, given that other planets and moons have inhospitable environments. However, it may be possible to build large indoor colonies or create more hospitable outdoor environments (i.e., terraforming). Even just on other planets and moons in the Solar System, space colonies could multiply the total area available for human habitation. And there are many more planets around other stars, as ongoing research on exoplanets is now learning. One recent study estimates 22 % of Sun-like stars have Earth-like exoplanets (Petigura et al. 2013), implying billions to tens of billions of potentially habitable planets across the galaxy. Opportunities at any given star may also be quite a bit greater than those available only on planets. Earth only receives about one two-billionth of the Sun’s radiation. To collect all the Sun’s radiation, humanity would need a Dyson swarm (named after Dyson 1960), which is a series of structures that surrounds a star, collecting its radiation to power a civilization. A Dyson swarm around the Sun could potentially enable a civilization a billion times larger than is possible on Earth. Likewise, Dyson swarms around one billion stars would bring humanity approximately 1018 (one billion–billion) times more energy per unit time. Space colonies could also increase the amount of time available for human civilization. Earth will remain habitable for a few billion more years (O’Malley-James et al. 2014). Stars will continue shining for about 1014 more years (Adams 2008). That gives us an additional 105 times more energy, for a total of 1023 times more energy than is available on Earth. After the stars fade, other energy sources may be available. And even if our current universe eventually becomes uninhabitable, it may be possible to move to other universes (Kaku 2005). The physics here is speculative, but it cannot be ruled out, and hence there is a nonzero chance of a literally infinite opportunity for space colonization (Baum 2010a). Whether the opportunity is infinite or merely, say, 1023 times larger than what can be done on Earth, the opportunity is clearly immense. As long as space colonization is an improvement (Sect. 8.3.1), then it would seem that the consequentialist should prioritize space colonization. The sooner space colonization begins, the more of its immense opportunity can be gained. Indeed, Ćirković (2002) estimates 5 × 1046 human lifetimes are lost for every century in which space colonization is delayed.

## AC

#### The counterplan solves all of their war scenarios—those just say the legality of property is ambiguous now, which causes conflict, but the CP resolves that ambiguity just as well as the aff by clarifying that property is allowed rather than banned.

#### Their environment link is ridiculous and miniscule. It’s from “HowItWorksDaily.com” and just says satellite data lets us know that warming is happening. That’s only one tiny step toward solving it.

#### The card doesn’t actually have a warrant for this being an existential risk anyway.

#### Multilat solves nothing—co-op on space empirically doesn’t spill over

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The importance of China’s space diplomacy should not be overstated, however. Relations in space do not drive relations on Earth. International cooperatio)n on space activities usually follows progress in the overall relationship and is more of an indicator of the state of a relationship than a critical component. Although China’s increasing space power does play a role in advancing its diplomatic interests, there is no evidence that it has directly produced tangible political benefits in other areas besides space.632 As its space power increases this may change. China, for example, could have more of a say in international technical organizations such as the International Telecommunications Union over rules governing satellites and satellite frequency issues, but as yet this is unrealized.

#### Turn—space mining is key to solve warming

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For a certain kind of investor, asteroid mining is a path to untold riches. Astronomers have long known that asteroids are rich in otherwise scarce resources such as platinum and water. So an obvious idea is to mine this stuff and return it to Earth—or, in the case of water, to a moon base or Earth-orbiting space station. There is no shortage of interest in these ventures. In the last decade, investors have funded half a dozen companies that have set their sights on various nearby rocks. To many observers, it’s only a matter of time before such a mission gets the green light. But profit margins are only part of the picture. A potentially more significant aspect of these missions is the impact they will have on Earth’s environment. But nobody has assessed this environmental impact in detail. Today, that changes thanks to the work of Andreas Hein and colleagues at the University of Paris-Saclay in France. These guys have calculated the greenhouse-gas emissions from asteroid-mining operations and compared them with the emissions from similar Earth-based activities. Their results provide some eyebrow-raising insights into the benefits that asteroid mining might provide. The calculations are relatively straightforward. Rocket launches release significant amounts of greenhouse gases into the atmosphere. The fuel on board the first stage of a rocket burns in Earth’s atmosphere to form carbon dioxide. For kerosene-burning rockets, one kilogram of fuel creates three kilograms of CO2. (The second and third stages operate outside the Earth’s atmosphere and so can be ignored.) Reentries are just as damaging. That’s because a significant mass of a re-entering vehicle ablates in the upper atmosphere, producing NOx such as nitrous oxide (N2O), a greenhouse gas that is about 300 times more potent than CO2. By one estimate, the space shuttle released about 20% of its mass in the form of N2O every time it returned to Earth. Hein and co use these numbers to calculate that a kilogram of platinum mined from an asteroid would release some 150 kilograms of CO2 into Earth’s atmosphere. However, economies of scale from large asteroid-mining operations could lower this to about 60 kilograms of CO2 per kilogram of platinum. That needs to be compared with the emission from Earth-based mining. Here, platinum mining generates significant greenhouse gases, mostly from the energy it takes to remove this stuff from the ground. Indeed, the numbers are huge. The mining industry estimates that producing one kilogram of platinum on Earth releases around 40,000 kilograms of carbon dioxide. “The global warming effect of Earth-based mining is several orders of magnitude larger,” say Hein and co. The figures for water are also encouraging. In this case, the authors calculate the greenhouse-gas emissions from an asteroid-mining operation that returns water to anywhere within the moon’s orbit, a so-called cis-lunar orbit. They compare this to the emissions from sending the same volume of water from Earth into orbit. The big difference is that a water-carrying vehicle from Earth can haul only a small percentage of its mass as water. But an asteroid-mining spacecraft can transport a significant multiple of its mass as water to cis-lunar orbit. “Substantial savings in greenhouse gas emissions can be achieved,” say Hein and co.

## 2N

#### T- they can just perm any cp with vague wording. I asked them multiple times in cross, they couldn’t give a straight answer as to what was restricted and only vaguely mention a multilateral program which I took out with popeteller et al 15- coop in space doesn’t reflect back on earth; no guarantee it solves. This is clearly cheating and abusive. Don’t let them get away with this. Its not hard to read a topical aff and win- tons of debaters do it.

#### aff doesn’t get to change what they consider to be unjust, that’s literally just the neg ground!!!!! Neg offense. If its unjust currently, VOTE NEG