## 1NC -- Kant

### Framework

#### Ethics must be derived from the apriori

#### Uncertainty- we could have an evil demon manipulating our worldview, or live in the matrix- apriori ethics solve

#### Is/ought- there’s a gap between physical world and questions of morality, because it can only tell us what is but not what ought to be- for instance I can observe cyanide is poisonous but that doesn’t logically entail a maxim about how to act

#### This apriori ethic is practical reason, prefer:

#### Internal motivation- any other theory can infinitely be questioned with “why” which is regressive- however asking why about practical reason concedes its authority.

#### Induction- it’s circular because we can only premise its reliability with further induction, but that’s circular

#### Reflective endorsement is the correct procedure because we must endorse all reasons for action before we can act on them.

Korsgaard ‘92 (Christine M. Korsgaard. “The Sources of Normativity.” The Tanner Lectures on Human Values, Nov. 16 and 17, 1992, <https://tannerlectures.utah.edu/_documents/a-to-z/k/korsgaard94.pdf>. CHRISTINE M. KORSGAARD is currently Professor of Philosophy at Harvard University. She was educated at the University of Illinois at Urbana-Champaign, and at Harvard, where she received her Ph.D. degree in philosophy in 1979. She has taught at several schools in the University of California system, including UC Santa Barbara, UCLA, and UC Berkeley, and at the University of Chicago. She is a member of the American Philosophical Association, the North American Kant Society, the Hume Society, and the American Society for Political and Legal Philosophy. She has published and lectured extensively on Immanuel Kant.)

But the human mind is self-conscious in the sense that it is essentially reflective. I’m not talking about being thoughtful, which of course is an individual property, but about the structure of our minds that makes thoughtfulness possible. A lower animal’s attention is fixed on the world. Its perceptions are its beliefs and its desires are its will. It is engaged in conscious activities, but it is not conscious of them. That is, they are not the objects of its attention. But we human animals turn our attention on to our perceptions and desires themselves, and we are conscious of them. That is why we can think about them. And this sets us a problem no other animal has. It is the problem of the normative. For our capacity to turn our attention onto our own mental activities is also a capacity to distance ourselves from them and to call them into question. I perceive, and I find myself with a powerful impulse to believe. But I back up and bring that impulse into view and then I have a certain distance. Now the impulse doesn’t dominate me and now I have a problem. Shall I believe? Is this perception really a reason to believe? I desire and I find myself with a powerful impulse to act. But I back up and bring that impulse into view and then I have a certain distance. Now the impulse doesn’t dominate me and now I have a problem. Shall I act? Is this desire really a reason to act? The reflective mind cannot settle for perception and desire, not just as such. It needs a reason. Otherwise, at least as long as it reflects, it cannot commit itself or go forward. If the problem springs from reflection then the solution must do so as well. If the problem is that our perceptions and desires might not withstand reflective scrutiny, then the solution is that they might. We need reasons because our impulses must be able to withstand reflective scrutiny. We have reasons if they do. The normative word “reason” refers to a kind of reflective success. If “good” and “right” are also taken to be intrinsically normative words then they too must refer to reflective success. And they do. Think of what they mean when we use them as exclamations: “Good!” “Right!” There they mean: I’m satisfied, I’m happy, I’m committed, you’ve convinced me, let’s go. They mean the work of reflection is done. “Reason” then means reflective success. So if I decide that my desire is a reason to act, I must decide that on reflection I endorse that desire. And here we find the problem. For how do I decide that? Is the claim that I look at the desire and see that it is intrinsically normative or that its object is? Then all of the argu- 80 The Tanner Lectures on Human Values ments against realism await us. Does the desire or its object inherit its normativity from something else? Then we must ask what makes that other thing normative, what makes it the source of a reason. And now of course the usual regress threatens. So what brings reflection to an end?

#### Any reasonable ethic entails using universalizable maxims- reason is only able to reach the same conclusion or else it wouldn’t be reasonable, ie 2+2=4 for me and everyone else because there isn’t an apriori distinction between capacity to reason.

#### Furthermore, if maxims must be universalizable then any violations of freedom are impermissible- if one person’s freedom is violated it justifies violating everyone’s which is a contradiction in conception because it assumes we have the freedom to violate someone’s freedom.

#### Thus the standard is consistency with a Kantian ethic.

#### Impact calculus:

#### Universalizable maxims or violations of freedom are impermissible. Impacts are irrelevant

#### Yes act omission and intent foresight distinction

#### Culpability- there is an infinite amount of foreseen impacts or omissions which means we either have infinite culpability or none

#### Humans have infinite value.

#### Korsgaard 83 bracketed for gendered language (Christine M., “Two Distinctions in Goodness,” The Philosophical Review Vol. 92, No. 2 (Apr., 1983), pp. 169-195, JSTOR)// sosa

The argument shows how Kant's idea of justification works. It can be read as a kind of regress upon the conditions, starting from an important assumption. The assumption is that when a rational being makes a choice or undertakes an action, [they] he or she supposes the object to be good, and its pursuit to be justified. At least, if there is a categorical imperative there must be objectively good ends, for then there are necessary actions and so necessary ends (G 45-46/427-428 and Doctrine of Virtue 43-44/384-385). In order for there to be any objectively good ends, however, there must be something that is unconditionally good and so can serve as a sufficient condition of their goodness. Kant considers what this might be: it cannot be an object of inclination, for those have only a conditional worth, "for if the inclinations and the needs founded on them did not exist, their object would be without worth" (G 46/428). It cannot be the inclinations themselves because a rational being would rather be free from them. Nor can it be external things, which serve only as means. So, Kant asserts, the unconditionally valuable thing must be "humanity" or "rational nature," which he defines as "the power set to an end" (G 56/437 and DV 51/392). Kant explains that regarding your existence as a rational being as an end in itself is a "subjective principle of human action." By this I understand him to mean that we must regard ourselves as capable of conferring value upon the objects of our choice, the ends that we set, because we must regard our ends as good. But since "every other rational being thinks of his existence by the same rational ground which holds also for myself' (G 47/429), we must regard others as capable of conferring value by reason of their rational choices and so also as ends in themselves. Treating another as an end in itself thus involves making that person's ends as far as possible your own (G 49/430). The ends that are chosen by any rational being, possessed of the humanity or rational nature that is fully realized in a good will, take on the status of objective goods. They are not intrinsically valuable, but they are objectively valuable in the sense that every rational being has a reason to promote or realize them. For this reason it is our duty to promote the happiness of others-the ends that they choose-and, in general, to make the highest good our end.

#### Prefer additionally:

#### Performativity-arguing against the framework concedes it’s authority because you need the reason and freedom to do so

#### TJFs- any framework is functionally an interpretation of the word ought which means they should be justified theoretically

#### Resources- a kant debate can be won analytically, whereas util requires massive evidence files small programs cant access. This OW- accessibility controls the IL to accessing any other impact

#### Actor spec- things like the constitution proves maxims are used IRL which OW on portable education since that’s how the government works

### Offense

#### Libertarianism mandates a market-oriented approach to space—that negates

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

The impact on human daily life from a transition to the virtually unlimited resource reality of space cannot be overstated. However, when it comes to the law, a minimalist, dare I say libertarian, approach appears as the only applicable system.

In the words of NASA, “2020 promises to be a big year for space exploration.” Yet, as Rand Simberg points out in Reason magazine, it is actually private American investment that is currently moving space exploration to “a pace unseen since the 1960s.” According to Simberg, due to this increase in private investment “We are now on the verge of getting affordable private access to orbit for large masses of payload and people.” The impact of that type of affordable travel into space might sound sensational to some, but in reality the benefits that space can offer are far greater than any benefit currently attributed to any major policy proposal being discussed at the national level. The sheer amount of resources available within our current reach/capabilities simply speaks for itself. However, although those new realities will, as Simberg says, “bring to the fore a lot of ideological issues that up to now were just theoretical,” I believe it will also eliminate many economic and legal distinctions we currently utilize today.

For example, the sheer number of resources we can already obtain in space means that in the rapidly near future, the distinction between a nonpublic good or a public good will be rendered meaningless. In other words, because the resources available within our solar system exist in such quantities, all goods will become nonrivalrous in their consumption and nonexcludable in their distribution. This would mean government engagement in the public provision of a nonpublic good, even at the trivial level, or what Kevin Williamson defines as socialism, is rendered meaningless or impossible. In fact, in space, I fail to see how any government could even try to legally compel collectivism in the way Simberg fears.

Similar to many economic distinctions, however, it appears that many laws, both the good and the bad, will also be rendered meaningless as soon as we begin to utilize the resources within our solar system. For example, if every human being is given access to the resources that allows them to replicate anything anyone else has, or replace anything “taken” from them instantly, what would be the point of theft laws? If you had virtually infinite space in which you can build what we would now call luxurious livable quarters, all without exploiting human labor or fragile Earth ecosystems when you do it, what sense would most property, employment, or commercial law make? Again, this is not a pipe dream, no matter how much our population grows for the next several millennia, the amount of resources within our solar system can sustain such an existence for every human being.

Rather than panicking about the future, we should try embracing it, or at least meaningfully preparing for it. Currently, the Outer Space Treaty, or as some call it “the Magna Carta of Space,” is silent on the issue of whether private individuals or corporate entities can own territory in space. Regardless of whether governments allow it, however, private citizens are currently obtaining the ability to travel there, and if human history is any indicator, private homesteading will follow, flag or no flag. We Americans know this is how a Wild West starts, where most regulation becomes the impractical pipe dream. But again, this would be a Wild West where the exploitation of human labor and fragile Earth ecosystem makes no economic sense, where every single human can be granted access to resources that even the wealthiest among us now would envy, and where innovation and imagination become the only things we would recognize as currency. Only a libertarian-type system, that guarantees basic individual rights to life, liberty, and the pursuit of happiness could be valued and therefore human fidelity to a set of laws made possible, in such an existence.

#### Property rights in space can be consistent with international law

Simberg 12 [(Rand, MSE in technical management from West Coast University, recognized as an expert in space transportation by the Office of Technology Assessment) “Homesteading the Final Frontier A Practical Proposal for Securing Property Rights in Space,” Competitive Enterprise Institute, April 2012, <https://cei.org/wp-content/uploads/2012/04/Rand-Simberg-Homesteading-the-Final-Frontier.pdf>] TDI

But is it true that any recognition of off-planet property claims is de facto a violation of the Outer Space Treaty? Not necessarily. For instance, one could argue that the existence of the Moon Treaty is in and of itself a refutation of the notion that the Outer Space Treaty outlaws private property in space, or else there would be no need for another treaty that essentially explicitly does so. And there is at least one potential loophole that could be exploited by appropriately worded legislation.

There are two key assumptions in the legal argument used by opponents of off-planet property claims: 1) that the recognition by a government would only recognize claims by its own citizens; and 2) that it would defend them by force. That need not necessarily be so. Under the treaty, it would in fact be possible for a government, or group of governments, to recognize the property claims of anyone who met specified conditions, regardless of their citizenship or nationality. Such cooperation would obviate the need for physical force to defend claims. The argument that the treaty permits individual property rights was actually made from the very beginning. In 1969, two years after the treaty went into force, the late distinguished space-law professor, Stephen Gorove, noted that under it, “[A]n individual acting on his own behalf or on behalf of another individual or a private association or an international organization could lawfully appropriate any part of outer space, including the [M]oon and other celestial bodies.”32 This clearly provides support for the concept of individual claims off planet under Article II.

#### Impact calc -- prioritize negative freedoms over positive freedoms. We need to prioritize a sphere for people to be autonomous before we can make actions within that sphere.

## Case

### Framing

Our framing better – kant preserves freedoms – that solves oppression and structural violence

Their fw is consequentialist

#### 1] Consequentialism requires a heuristic to determine the probability of consequences occurring, but that means we must also calculate the probability of this heuristic to determine probability, and so on to infinity.

#### 2] Induction fails -- induction assumes that things will always happen the same way in the future as they have in the past. But this begs the question of how we know what happened in the past will happen in the future. Thus, induction is logically fallacious.

### Case

### AT – Launches

#### AT – Pollution

#### Warming is nonunique – launches wont uniquely worsen it but private appropriation can solve

#### Turn –

#### Mining is now – multiple companies are competing in mineral exploitation to obtain rare earth metals.

Gilbert 4-26 [Alex Gilbert is a complex systems researcher and a PhD student in space resources at the Colorado School of Mines. Milken Institute, “Mining in Space Is Coming”; <https://www.milkenreview.org/articles/mining-in-space-is-coming>] kelvin

Space exploration is back. after decades of disappointment, a combination of better technology, falling costs and a rush of competitive energy from the private sector has put space travel front and center. indeed, many analysts (even some with their feet on the ground) believe that commercial developments in the space industry may be on the cusp of starting the largest resource rush in history: mining on the Moon, Mars and asteroids.

While this may sound fantastical, some baby steps toward the goal have already been taken. Last year, NASA awarded contracts to four companies to extract small amounts of lunar regolith by 2024, effectively beginning the era of commercial space mining. Whether this proves to be the dawn of a gigantic adjunct to mining on earth — and more immediately, a key to unlocking cost-effective space travel — will turn on the answers to a host of questions ranging from what resources can be efficiently.

As every fan of science fiction knows, the resources of the solar system appear virtually unlimited compared to those on Earth. There are whole other planets, dozens of moons, thousands of massive asteroids and millions of small ones that doubtless contain humungous quantities of materials that are scarce and very valuable (back on Earth). Visionaries including Jeff Bezos imagine heavy industry moving to space and Earth becoming a residential area. However, as entrepreneurs look to harness the riches beyond the atmosphere, access to space resources remains tangled in the realities of economics and governance.

Start with the fact that space belongs to no country, complicating traditional methods of resource allocation, property rights and trade. With limited demand for materials in space itself and the need for huge amounts of energy to return materials to Earth, creating a viable industry will turn on major advances in technology, finance and business models.

That said, there’s no grass growing under potential pioneers’ feet. Potential economic, scientific and even security benefits underlie an emerging geopolitical competition to pursue space mining. The United States is rapidly emerging as a front-runner, in part due to its ambitious Artemis Program to lead a multinational consortium back to the Moon. But it is also a leader in creating a legal infrastructure for mineral exploitation. The United States has adopted the world’s first space resources law, recognizing the property rights of private companies and individuals to materials gathered in space.

However, the United States is hardly alone. Luxembourg and the United Arab Emirates (you read those right) are racing to codify space-resources laws of their own, hoping to attract investment to their entrepot nations with business-friendly legal frameworks. China reportedly views space-resource development as a national priority, part of a strategy to challenge U.S. economic and security primacy in space. Meanwhile, Russia, Japan, India and the European Space Agency all harbor space-mining ambitions of their own. Governing these emerging interests is an outdated treaty framework from the Cold War. Sooner rather than later, we’ll need new agreements to facilitate private investment and ensure international cooperation.

What’s Out There

Back up for a moment. For the record, space is already being heavily exploited, because space resources include non-material assets such as orbital locations and abundant sunlight that enable satellites to provide services to Earth. Indeed, satellite-based telecommunications and global positioning systems have become indispensable infrastructure underpinning the modern economy. Mining space for materials, of course, is another matter.

In the past several decades, planetary science has confirmed what has long been suspected: celestial bodies are potential sources for dozens of natural materials that, in the right time and place, are incredibly valuable. Of these, water may be the most attractive in the near-term, because — with assistance from solar energy or nuclear fission — H2O can be split into hydrogen and oxygen to make rocket propellant, facilitating in-space refueling. So-called “rare earth” metals are also potential targets of asteroid miners intending to service Earth markets. Consisting of 17 elements, including lanthanum, neodymium, and yttrium, these critical materials (most of which are today mined in China at great environmental cost) are required for electronics. And they loom as bottlenecks in making the transition from fossil fuels to renewables backed up by battery storage.

The Moon is a prime space mining target. Boosted by NASA’s mining solicitation, it is likely the first location for commercial mining. The Moon has several advantages. It is relatively close, requiring a journey of only several days by rocket and creating communication lags of only a couple seconds — a delay small enough to allow remote operation of robots from Earth. Its low gravity implies that relatively little energy expenditure will be needed to deliver mined resources to Earth orbit.

The Moon may look parched — and by comparison to Earth, it is. But recent probes have confirmed substantial amounts of water ice lurking in permanently shadowed craters at the lunar poles. Further, it seems that solar winds have implanted significant deposits of helium-3 (a light stable isotope of helium) across the equatorial regions of the Moon. Helium-3 is a potential fuel source for second and third-generation fusion reactors that one hopes will be in service later in the century. The isotope is packed with energy (admittedly hard to unleash in a controlled manner) that might augment sunlight as a source of clean, safe energy on Earth or to power fast spaceships in this century. Between its water and helium-3 deposits, the Moon could be the resource stepping-stone for further solar system exploration.

Asteroids are another near-term mining target. There are all sorts of space rocks hurtling through the solar system, with varying amounts of water, rare earth metals and other materials on board. The asteroid belt between the orbits of Mars and Jupiter contains most of them, many of which are greater than a kilometer in diameter. Although the potential water and mineral wealth of the asteroid belt is vast, the long distance from Earth and requisite travel times and energy consumption rule them out as targets in the near term.

Even the surface of celestial bodies pose a challenge to mining machinery since they consist of unconsolidated rocky materials called regolith instead of more familiar soil.

Wannabe asteroid miners will thus be looking at smaller near-Earth asteroids. While they are much further away than the Moon, many of them could be reached using less energy — and some are even small enough to make it technically possible to tow them to Earth orbit for mining.

Space mining may be essential to crewed exploration missions to Mars. Given the distance and relatively high gravity of Mars (twice that of the Moon), extraction and export of minerals to Earth seems highly unlikely. Rather, most resource extraction on Mars will focus on providing materials to supply exploration missions, refuel spacecraft and enable settlement.

Technology Is the Difference

The prospects for space mining are being driven by technological advances across the space industry. The rise of reusable rocket components and the now-widespread use of off-the-shelf parts are lowering both launch and operations costs. Once limited to government contract missions and the delivery of telecom satellites to orbit, private firms are now emerging as leaders in developing “NewSpace” activities — a catch-all term for endeavors including orbital tourism, orbital manufacturing and mini-satellites providing specialized services. The space sector, with a market capitalization of $400 billion, could grow to as much as $1 trillion by 2040 as private investment soars.

But despite the high-profile commercial advances, governments still call the shots on the leading edge of space resource technologies. The United States extracted the first extraterrestrial materials in space from the Moon during the Apollo missions, followed by the Soviet Union’s recoveries from crewless Luna missions. President Biden recently borrowed one of the Apollo lunar rocks for display in the Oval Office, highlighting the awe that deep space can still summon.

For the time being, scientific samples remain the goal of mining. Last October, NASA’s OSIRIS-REx mission — due to return to Earth in 2023 — collected a small amount of material from the asteroid Bennu. In December, Japan returned a sample of the asteroid Ryugu with the Hayabusa2 spacecraft. And several weeks later, China’s Chang’e 5 mission returned the first lunar samples since the 1970s.

Sample collection is accelerating, with recent missions targeting Mars. Japan is planning to visit the two moons of Mars and extract a sample from one. NASA’s robotic Perseverance rover will collect and cache drilled samples on Mars that could later be returned to Earth. Perseverance also carries gear for the unique MOXIE experiment on Mars — an attempt to produce oxygen on the planet with technologies that could eventually extract oxygen for astronauts to breath and refuel spacecraft.It’s about as wide as the Eiffel Tower is tall and it could be where we obtain the elements needed to power bases on the moon, Mars or in orbit one day.

#### Private companies are key to space mining – investors, profitability, and market demand.

Krishnan 20 [C A Krishnan, 8-6-2020, "Space mining: Just around the corner?," Week, <https://www.theweek.in/news/sci-tech/2020/08/06/Space-mining-Just-around-the-corner.html> [accessed 12-6-21] lydia

A Mars mission carrying 100 metric tons cargo in 2022 followed by a manned mission by 2024 are the immediate milestones of Elon Musk’s SpaceX plan which aims to create a self sustaining Mars city by 2050. Just a few decades back this would have sounded as fantasy, but today it looks as if this time frame may actually be bettered. Space missions are set to undergo revolutionary changes and Elon Musk’s vision and timelines are indicators of this. Space is increasingly being seen as a treasure trove of precious minerals and also a place for future human habitation beyond the earth. Global private space industry investors believe that space mining has the potential to shape and define the 21st Century. NASA estimates that the 'Asteroid belt’ holds minerals worth quintillion of dollars. American astrophysicist Neil Degrasse Tyson believes, “The first trillioners will be those who mine asteroids”. The “Main Asteroid Belt” is located between the orbits of Mars and Jupiter, about 450 to 650 million Kilometers from earth, with million asteroids in it. Over the decades, apart from Moon and Mars, governments and private agencies have been carrying out extensive research and studying asteroids for their composition, possibility of mining them and their mining value —Asteriod ‘Bennu’ has been assessed at $670 million and asteroid ‘2011 UW158’ at $ 5.7 trillion. Transportation of the mined resources for utilisation, however, poses major hurdles. A ‘BBC Future’ report by Sarah Cruddas puts the cost of shipping a ton of water into space at about $ 50 million. As per Chris Lewicki, president of Planetary Resources, an asteroid mining company, it takes more energy to escape the first 300 kilometers from the Earth than the next 300 million kilometers. Similarly, bringing back anything more than a few kilograms of samples from space to the Earth would be even more complex in terms of logistics. To start with, therefore, global space industry investors are focusing on keeping mined space resources in space itself for ‘in situ resource utilisation’. Availability of water on the Moon, Mars and asteroids offer very attractive prospects; apart from being crucial for supporting life and growing food, it also opens the possibility of using its constituents, hydrogen and oxygen, for making rocket fuel. Today, the possibility of manufacturing tools and even building habitats on Moon or Mars with the help of 3D printers using iron, nickel, cobalt, gold, platinum, and iridium etc which are available on the Moon, Mars and asteroids seem within reach. Researchers are working on using regolith, the weathered rock particles found on lunar surface for making moon bricks using 3D printers. These bricks will form the basic construction material for the first moon station and even the first moon hotel. Space industry players believe that an investment of $ 4 billion in water mining in space can generate annual revenue worth about $2.4 billion. Similarly, there is a new community of customers who are already looking for buying propellant in space. American space launch provider, United Launch Alliance (ULA), a Lockheed Martin and Boeing joint venture that provides launch rockets, has made it known that, ULA is willing to pay about $ 3000 a Kg for propellant in low earth orbit. Fast paced developments are taking place in the field of space mining technology with private players in the lead. Optical mining using concentrated sunlight, robotics, automated mining applications, advanced drilling machines etc are just a few examples. Participation of private players has reduced the investment burden and greatly enhanced the width and pace of innovation. It is believed that launch of the first asteroid mining vehicle as well as setting up of the first fuelling stations on the Moon and in low earth orbit could become a reality within a decade. Japanese mission ‘Hayabusa’ was the first to bring samples from an asteroid to earth in 2010. ‘Hayabusa - 2’ made its rendezvous with the near earth asteroid ‘162173 RYUGU’ in June 2018, left the asteroid after collecting samples in November 2019 and will be back on earth on December 6, 2020. Similarly the NASA mission OSIRIS-REx, costing about $ 1 billion, launched in 2016 is due to return to earth with samples of asteroid ‘101955 Bennu’ on September 24, 2023. The latest US space mission, ‘Perseverance’ launched on July 30, 2020 will land on Mars on February 18, 2021. It will be using a helicopter on Mars, set to be the first use of a helicopter outside the earth. Apart from collecting samples from Mars and search for signs of habitable conditions on Mars, it will also test the possibility of manufacturing molecular oxygen from the carbon dioxide-rich Mars atmosphere. Beyond the technological capability, there are, however, complex legal issues. While making fuel and water in space and its ‘in situ resource utilisation’ may pass the scrutiny, commercial exploitation of space through minerals mining, tourism, real estate etc may prove hugely contentious in terms of international legal framework for space. The current legal frameworks were adopted when space activities were entirely within the domain of national governments and were confined to research alone. But with the nature of space activities moving from purely research activities to military applications to commercial activities and with the entry of private players and a new community of consumers in space, the vintage outer space treaty has been rendered grossly inadequate; vagueness of the treaty does not cater for the ‘new types of uses’ or the ‘new users’ of space. Louis de Gouyon Matignon, in a thesis on the subject observed that “some states have already taken the absence of express prohibition as a sign that the utilisation of space resources is permissible, and both the USA and Luxembourg recently adopted national legislations expressly allowing it”. This has, however, triggered a response from the international community denouncing such unilateral initiatives and recommending a collective approach on the lines of the laws for high seas and deep sea bed. Whether a widely acceptable new space treaty comes through or not, Space mining is a reality and the early entrants are likely to retain monopoly and huge economic advantages for a very long time.

#### Reliance on earth mining kills the environment AND causes resource shortages

Williams 19 [Matthew S. writer at Universe Today; Aug 1 2019, "Asteroid Mining: What Will It Involve and Is This the Future of Wealth?", Interessting Engineering, <https://interestingengineering.com/asteroid-mining-what-will-it-involve-and-is-this-the-future-of-wealth>] brett

Of course, this raises the obvious question: wouldn't it be really expensive to do all this mining? Why not simply continue to rely on Earth for sources of precious metals and resources and simply learn to use them better?

To put it simply, we are running out of resources. To be clear, learning to use our resources better and more sustainably is always a great idea. And while it is certainly true than Earth-based mining is far cheaper than going to space would be, that may not be the case indefinitely.

Aside from the fact that off-world minerals and ices would be of considerable value to Earth's economy, there is also the way that growing consumption is leading our reserves to become slowly exhausted.

In fact, according to some estimates, it is possible that our planet will run out of key elements that are needed for modern industry and food production within the next 50 to 60 years. This alone is a pretty good incentive to tap the virtually inexhaustible supply of elements located off-world.

Plus, there are a lot of benefits to expanding humanity's resource base beyond Earth. Here on Earth, mining takes a considerable toll on the natural environment. In fact, depending on the methods used, it can result in erosion, sinkholes, habitat destruction, and the destruction of native animal and plant life.

There's also the dangers of toxic runoff and the contamination of soil, groundwater, and surface water, which is a danger to humans, as well as to wildlife and the natural environment.

As for smelting, machining, and manufacturing, the environmental damage that results is well-documented. Combined with power generation, these industrial processes are one of the leading contributors to air, water, and pollution.

By shifting these burdens off-world, humanity could dramatically-reduce the impact it has on the natural environment.

#### Commercial mining solves extinction from scarcity, climate, terror, war, and disease.

Pelton 17—(Director Emeritus of the Space and Advanced Communications Research Institute at George Washington University, PHD in IR from Georgetown). Pelton, Joseph N. 2017. The New Gold Rush: The Riches of Space Beckon! Springer. Accessed 8/30/19.

Are We Humans Doomed to Extinction? What will we do when Earth’s resources are used up by humanity? The world is now hugely over populated, with billions and billions crammed into our overcrowded cities. By 2050, we may be 9 billion strong, and by 2100 well over 11 billion people on Planet Earth. Some at the United Nations say we might even be an amazing 12 billion crawling around this small globe. And over 80 % of us will be living in congested cities. These cities will be ever more vulnerable to terrorist attack, natural disaster, and other plights that come with overcrowding and a dearth of jobs that will be fueled by rapid automation and the rise of artifi cial intelligence across the global economy. We are already rapidly running out of water and minerals. Climate change is threatening our very existence. Political leaders and even the Pope have cautioned us against inaction. Perhaps the naysayers are right. All humanity is at tremendous risk. Is there no hope for the future? This book is about hope. We think that there is literally heavenly hope for humanity. But we are not talking here about divine intervention. We are envisioning a new space economy that recognizes that there is more water in the skies that all our oceans. Th ere is a new wealth of natural resources and clean energy in the reaches of outer space—more than most of us could ever dream possible. There are those that say why waste money on outer space when we have severe problems here at home? Going into space is not a waste of money. It is our future. It is our hope for new jobs and resources. The great challenge of our times is to reverse public thinking to see space not as a resource drain but as the doorway to opportunity. The new space frontier can literally open up a “gold rush in the skies.” In brief, we think there is new hope for humanity. We see a new a pathway to the future via new ventures in space. For too long, space programs have been seen as a money pit. In the process, we have overlooked the great abundance available to us in the skies above. It is important to recognize there is already the beginning of a new gold rush in space—a pathway to astral abundance. “New Space” is a term increasingly used to describe radical new commercial space initiatives—many of which have come from Silicon Valley and often with backing from the group of entrepreneurs known popularly as the “space billionaires.” New space is revolutionizing the space industry with lower cost space transportation and space systems that represent significant cost savings and new technological breakthroughs. “New Commercial Space” and the “New Space Economy” represent more than a new way of looking at outer space. These new pathways to the stars could prove vital to human survival. If one does not believe in spending money to probe the mysteries of the universe then perhaps we can try what might be called “calibrated greed” on for size. One only needs to go to a cubesat workshop, or to Silicon Valley or one of many conferences like the “Disrupt Space” event in Bremen, Germany, held in April 2016 to recognize that entrepreneurial New Space initiatives are changing everything [ 1 ]. In fact, the very nature and dimensions of what outer space activities are today have changed forever. It is no longer your grandfather’s concept of outer space that was once dominated by the big national space agencies. The entrepreneurs are taking over. The hopeful statements in this book and the hard economic and technical data that backs them up are more than a minority opinion. It is a topic of growing interest at the World Economic Forum, where business and political heavyweights meet in Davos, Switzerland, to discuss how to stimulate new patterns of global economic growth. It is even the growing view of a group that call themselves “space ethicists.” Here is how Christopher J. Newman, at the University of Sunderland in the United Kingdom has put it: Space ethicists have offered the view that space exploration is not only desirable; it is a duty that we, as a species, must undertake in order to secure the survival of humanity over the longer term. Expanding both the resource base and, eventually, the habitats available for humanity means that any expenditure on space exploration, far from being viewed as frivolous, can legitimately be rationalized as an ethical investment choice. (Newman) On the other hand there are space ethicists and space exobiologists who argue that humans have created ecological ruin on the planet—and now space debris is starting to pollute space. Th ese countervailing thoughts by the “no growth” camp of space ethicists say we have no right to colonize other planets or to mine the Moon and asteroids—or at least no right to do so until we can prove we can sustain life here on Earth for the longer term. However, for most who are planning for the new space economy the opinion of space philosophers doesn’t really fl oat their boat. Legislators, bankers, and aspiring space entrepreneurs are far more interested in the views of the super-rich capitalists called the space billionaires. A number of these billionaires and space executives have already put some very serious money into enterprises intent on creating a new pathway to the stars. No less than five billionaires with established space ventures—Elon Musk, Paul Allen, Jeff Bezos, Sir Richard Branson, and Robert Bigelow—have invested millions if not billions of dollars into commercializing space. They are developing new technologies and establishing space enterprises that can bring the wealth of outer space down to Earth. This is not a pipe dream, but will increasingly be the economic reality of the 2020s. These wealthy space entrepreneurs see major new economic opportunities. To them space represents the last great frontier for enterprising pioneers. Th us they see an ever-expanding space frontier that offers opportunities in low-cost space transportation, satellite solar power satellites to produce clean energy 24h a day, space mining, space manufacturing and production, and eventually space habitats and colonies as a trajectory to a better human future. Some even more visionary thinkers envision the possibility of terraforming Mars, or creating new structures in space to protect our planet from cosmic hazards and even raising Earth’s orbit to escape the rising heat levels of the Sun in millennia to come. Some, of course, will say this is sci-fi hogwash. It can’t be done. We say that this is what people would have said in 1900 about airplanes, rocket ships, cell phones and nuclear devices. The skeptics laughed at Columbus and his plan to sail across the oceans to discover new worlds. When Thomas Jefferson bought the Louisiana Purchase from France or Seward bought Alaska, there were plenty of naysayers that said such investment in the unknown was an extravagant waste of money. A healthy skepticism is useful and can play a role in economic and business success. Before one dismisses the idea of an impending major new space economy and a new gold rush, it might useful to see what has already transpired in space development in just the past five decades. The world’s first geosynchronous communications satellite had a throughput capability of about 500 kb / s. In contrast, today’s state of the art Viasat 2 —a half century later— has an impressive throughput of some 140 Gb/s. Th is means that the relative throughput is nearly 300,000 greater, while its lifetime is some ten times longer (Figs. 1.1 and 1.2 ). Each new generation of communications satellite has had more power, better antenna systems, improved pointing and stabilization, and an extended lifetime. And the capabilities represented by remote sensing satellites , meteorological satellites , and navigation and timing satellites have also expanded their capabilities and performance in an impressive manner. When satellite applications first started, the market was measured in millions of dollars. Today commercial satellite services exceed a quarter of a billion dollars. Vital services such as the Internet, aircraft traffi c control and management, international banking, search and rescue and much, much more depend on application satellites. Th ose that would doubt the importance of satellites to the global economy might wish to view on You Tube the video “If Th ere Were a Day Without Satellites?” [ 2 ]. Let’s check in on what some of those very rich and smart guys think about the new space economy and its potential. (We are sorry to say that so far there are no female space billionaires, but surely this, too, will come someday soon.) Of course this twenty-fi rst century breakthrough that we call the New Space economy will not come just from new space commerce. It will also come from the amazing new technologies here on Earth. Vital new terrestrial technologies will accompany this cosmic journey into tomorrow. Information technology, robotics, artificial intelligence and commercial space travel systems have now set us on a course to allow us humans to harvest the amazing riches in the skies—new natural resources, new energy, and even totally new ways of looking at the purpose of human existence. If we pursue this course steadfastly, it can be the beginning of a New Space renaissance. But if we don’t seek to realize our ultimate destiny in space, Homo sapiens can end up in the dustbin of history—just like literally millions of already failed species. In each and every one of the five mass extinction events that have occurred over the last 1.5 billion years on Earth, some 50–80 % of all species have gone the way of the T. Rex, the woolly mammoth, and the Dodo bird along with extinct ferns, grasses and cacti. On the other hand, the best days of the human race could be just beginning. If we are smart about how we go about discovering and using these riches in the skies and applying the best of our new technologies, it could be the start of a new beginning for humanity. Konstantin Tsiokovsky, the Russian astronautics pioneer, who fi rst conceived of practical designs for spaceships, famously said: “A planet is the cradle of mankind, but one cannot live in a cradle forever.” Well before Tsiokovsky another genius, Leonardo da Vinci, said, quite poetically: “Once you have tasted flight, you will forever walk the earth with your eyes turned skyward, for there you have been, and there you will always long to return.” The founder of the X-Prize and of Planetary Resources, Inc., Dr. Peter Diamandis, has much more brashly said much the same thing in quite diff erent words when he said: “The meek shall inherit the Earth. The rest of us will go to Mars.” The New Space Billionaires Peter Diamandis is not alone in his thinking. From the list of “visionaries” quoted earlier, Elon Musk, the founder of SpaceX; Sir Richard Branson, the founder of Virgin Galactic; and Paul Allen, the co-founder of Microsoft and the man who financed SpaceShipOne, the world’s first successful spaceplane have all said the future will include a vibrant new space economy. Th ey, and others, have said that we can, we should and we soon shall go into space and realize the bounty that it can offer to us. Th e New Space enterprise is today indeed being led by those so-called space billionaires , who have an exciting vision of the future. They and others in the commercial space economy believe that the exploitation of outer space may open up a new golden age of astral abundance. They see outer space as a new frontier that can be a great source of new materials, energy and various forms of new wealth that might even save us from excesses of the past. Th is gold rush in the skies represents a new beginning. We are not talking about expensive new space ventures funded by NASA or other space agencies in Europe, Japan, China or India. No, these eff orts which we and others call New Space are today being forged by imaginative and resourceful commercial entrepreneurs. Th ese twenty-fi rst century visionaries have the fortitude and zeal to look to the abundance above. New breakthroughs in technology and New Space enterprises may be able to create an “astral life raft” for humanity. Just as Columbus and the Vikings had the imaginative drive that led them to discover the riches of a new world, we now have a cadre of space billionaires that are now leading us into this New Space era of tomorrow. These bold leaders, such as Paul Allen and Sir Richard Branson, plus other space entrepreneurs including Jeff Bezos of Amazon and Blue Origin, and Robert Bigelow, Chairman of Budget Suites and Bigelow Aerospace, not only dream of their future in the space industry but also have billions of dollars in assets. These are the bright stars of an entirely new industry that are leading us into the age of New Space commerce. These space billionaires, each in their own way, are proponents of a new age of astral abundance. Each of them is launching new commercial space industries. They are literally transforming our vision of tomorrow. These new types of entrepreneurial aerospace companies—the New Space enterprises—give new hope and new promise of transforming our world as we know it today. The New Space Frontier What happens in space in the next few decades, plus corresponding new information technologies and advanced robotics, will change our world forever. These changes will redefi ne wealth, change our views of work and employment and upend almost everything we think we know about economics, wealth, jobs, and politics. Th ese changes are about truly disruptive technologies of the most fundamental kinds. If you thought the Internet, smart phones, and spandex were disruptive technologies, just hang on. You have not seen anything yet. In short, if you want to understand a transition more fundamental than the changes brought to the twentieth century world by computers, communications and the Internet, then read this book. There are truly riches in the skies. Near-Earth asteroids largely composed of platinum and rare earth metals have an incredible value. Helium-3 isotopes accessible in outer space could provide clean and abundant energy. There is far more water in outer space than is in our oceans. In the pages that follow we will explain the potential for a cosmic shift in our global economy, our ecology, and our commercial and legal systems. These can take place by the end of this century. And if these changes do not take place we will be in trouble. Our conventional petro-chemical energy systems will fail us economically and eventually blanket us with a hydrocarbon haze of smog that will threaten our health and our very survival. Our rare precious metals that we need for modern electronic appliances will skyrocket in price, and the struggle between “haves” and “have nots” will grow increasingly ugly. A lack of affordable and readily available water, natural resources, food, health care and medical supplies, plus systematic threats to urban security and systemic warfare are the alternatives to astral abundance. The choices between astral abundance and a downward spiral in global standards of living are stark. Within the next few decades these problems will be increasingly real. By then the world may almost be begging for new, out of- the-box thinking. International peace and security will be an indispensable prerequisite for exploitation of astral abundance, as will good government for all. No one nation can be rich and secure when everyone else is poor and insecure. In short, global space security and strategic space defense, mediated by global space agreements, are part of this new pathway to the future.

### AT – Exploitation

#### Can’t solve – exploitation NU, all their args abt labor exploitation happens on earth means they cant solve – negate on presumption