## 1AC – KCI – Round 5

### Advocacy

#### I affirm **Resolved: The appropriation of outer space by private entities is unjust**

### Definitions

#### “Appropriation” in the context of space means claim of sovereignty, use, or occupation

**UN Outer Space Treaty ’67** (United Nation Outer Space Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies of 1967, Article II. [https://www.unoosa.org/pdf/publications/STSPACE11E.pdf Signed 27 January 1967](https://www.unoosa.org/pdf/publications/STSPACE11E.pdf%20Signed%2027%20January%201967)) // ELog

Article II Outer space, including the Moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.

#### I’ll defend that colonization of space would be an appropriation – colonizing would probably require a claim of sovereignty, and definitely require use and occupation

#### Private entities include individuals and all types of private groups, but excludes governments

**US Code ‘47** (US Code, Title 6, Chapter 6, Subchapter I, Section 1501. Definitions <https://www.law.cornell.edu/uscode/text/6/1501#15_A> Enacted by Congress 1947) // ELog

(15)Private entity (A)In general Except as otherwise provided in this paragraph, the term “[private entity](https://www.law.cornell.edu/definitions/uscode.php?width=840&height=800&iframe=true&def_id=6-USC-625312480-168358316&term_occur=1&term_src=title:6:chapter:6:subchapter:I:section:1501)” means any [person](https://www.law.cornell.edu/definitions/uscode.php?width=840&height=800&iframe=true&def_id=6-USC-991716523-125484930&term_occur=169&term_src=title:6:chapter:6:subchapter:I:section:1501) or private group, organization, proprietorship, partnership, trust, cooperative, corporation, or other commercial or nonprofit entity, including an officer, employee, or agent thereof. (B)Inclusion The term “[private entity](https://www.law.cornell.edu/definitions/uscode.php?width=840&height=800&iframe=true&def_id=6-USC-625312480-168358317&term_occur=4&term_src=title:6:chapter:6:subchapter:I:section:1501)” includes a [State,](https://www.law.cornell.edu/definitions/uscode.php?width=840&height=800&iframe=true&def_id=6-USC-80204913-794772950&term_occur=193&term_src=title:6:chapter:6:subchapter:I:section:1501) [tribal,](https://www.law.cornell.edu/definitions/uscode.php?width=840&height=800&iframe=true&def_id=6-USC-865479038-2019934296&term_occur=3&term_src=title:6:chapter:6:subchapter:I:section:1501) or [local government](https://www.law.cornell.edu/definitions/uscode.php?width=840&height=800&iframe=true&def_id=6-USC-801009210-2019934304&term_occur=3&term_src=title:6:chapter:6:subchapter:I:section:1501) performing utility services, such as electric, natural gas, or water services. (C)Exclusion The term “[private entity](https://www.law.cornell.edu/definitions/uscode.php?width=840&height=800&iframe=true&def_id=6-USC-625312480-168358317&term_occur=5&term_src=title:6:chapter:6:subchapter:I:section:1501)” does not include a [foreign](https://www.law.cornell.edu/definitions/uscode.php?width=840&height=800&iframe=true&def_id=6-USC-677674796-125484930&term_occur=133&term_src=title:6:chapter:6:subchapter:I:section:1501) power as defined in [section 1801 of title 50](https://www.law.cornell.edu/uscode/text/50/1801).

#### This means what governments can and cannot do in space is irrelevant to this debate – it is a question only of what private entities can do and how just it is

#### The resolution asks whether appropriation is unjust – that’s defined by Oxford Languages as “not based on or behaving according to what is morally right and fair.” (<https://www.google.com/search?q=unjust+definition&oq=unjust+definition&aqs=chrome..69i57j0i512l4j0i22i30l5.4449j1j4&sourceid=chrome&ie=UTF-8>)

#### This means it is not the Affirmative’s burden to prove that a world where private entities do not appropriate space is achievable, but rather, that such a world would be preferable to one where they did appropriate space

### Value/Value Criterion

#### The value is life – I’ll defend it as the biological state of being alive – prefer it

#### It’s intrinsic good – other values are subjective, being alive is objectively preferable

#### It’s a precondition to other values – we can’t have equality, justice, value to life, etc. if we are already dead

#### It’s quantifiable – we can measure whether someone is alive or not, but moral values are invisible and subjective

#### The value criterion is reverse utilitarianism – I’ll defend it as achieving the minimum amount of suffering – prefer it

#### It’s measurable – we can objectively compare body counts – that’s important for debates with a forced decision at the end, anything else necessitates judge intervention

#### It supercharges reversibility – I’ll isolate impacts of extinction, which is the ultimate irreversible impact. If we go extinct, that’s it forever

#### Your generic utilitarianism bad answer don’t apply – regular “greatest good” thought justifies sacrificing the 49% to help the 51%, but my parameters on minimizing suffering avoid sacrifice unless absolutely necessary

#### Combined, my value and value criterion means you’ll evaluate the round based on who can avoid the most death

### Advantage One: Anticolonization

#### Private space colonization coming now – Musk has feasible plans for Mars missions by 2024 and colonies by 2050

**Cosmical ’21** (The Cosmical; Blog specializing in and sharing information about extraterrestrial topics. “This is How Elon Musk Plans to Colonize Mars” <https://thecosmical.com/this-is-how-elon-musk-plans-to-colonize-mars/> 14 November 2021) // ELog

The power of ‘why’ and the power of serving a strong purpose has always made it possible for mankind to achieve the improbable. This reason for being must not be underestimated as it lends way to innovating the ‘how’. Unmistakingly, Elon Musk knows his why. So, how does he plan to colonize Mars? Would it even be possible? Farfetched as it may seem – after all, humans are still clueless about roughly 65% of the Earth’s surface underwater – how are we to know the rule book for surviving on Mars? Well, look no further. Musk has on several occasions proposed possible scenarios for the colonization of Mars. I have compiled a list of these occasions to make a one-stop-shop for everything you need to know about surviving on the Red Planet. 1. Transportation Self-evident as it may be, transportation is the lifeline of any project to transform Mars into our second home. It literally makes or breaks the plausibility of colonizing Mars. As mentioned previously, Musk plans to drastically reduce the cost for launching rockets down to US$10 per kilogram of weight, which is essential to making the trip to Mars possible. So, what does it exactly take for us to reach that level of cost-efficiency? The answer is reusable rockets. Unlike NASA’s old inefficient single-use rockets, SpaceX stresses the importance of reusability. Not only will this be more environmentally friendly, cause you know, we aren’t throwing around space debris and all, but it enables SpaceX rockets to become more efficient in terms of cost and time. Elon Musk aims to launch at least three reusable Starship space shuttles per day, with each shuttle carrying at least 100 tons of payload each flight. This establishes an estimate of transporting 100,000 tons of cargo with the help of 1000 Starships on a yearly basis. Elon Musk has also noted that 1000 Starships will allow for the transport of approximately 100,000 people every 26 months. 26 months serves as the length of the Earth-Mars orbital sync, which suggests the amount of time it takes for the Earth and Martian orbits to align best for transportation. (1) But why exactly does a fleet of starships need to carry at least 100,000 people every 26 months? These numbers seem a little too specific to be a coincidence. As it turns out, Musk has formulated that in order for the Mars Colony to be self-sustainable, there must at least be one million people present. The number one million exists as the population wherein people can build, manufacture, and produce anything to survive without the reliance on supplies from Earth. (4) Currently, SpaceX is developing the BFR, also known as the Big Falcon Rocket(or the Big F\*\*king Rocket, as per the internet), which is a 25-story monster that can support loads up to 1000 tons. The Raptor engine has been developed and manufactured by SpaceX to power the BFR. While one Raptor is already capable of lifting 172 cars, which equates to an entire Boeing 747, one can only imagine the amount of thrust from the BFR that houses 42 powerful Raptors. This design has been brought to life the BFR is expected to house not only the crew and life support, but also theatres, restaurants, lecture halls, and zero gravity game centers. (4) Payload is one thing, but without fuel or energy, the BFR isn’t going anywhere. Elon Musk and SpaceX have collectively presented their support for utilizing the frozen polar ice caps on Mars to refuel the Starships, which enables them to travel to the Red Planet without carrying the fuel required for the trip back to Earth. This would be made possible by converting water and carbon dioxide in the polar ice caps to liquid methane and liquid oxygen, which act as proponents of fuel for the Starship’s engines. (7) Although promising, it has been noted that the aforementioned are only sketches of the future for now. In the present, SpaceX has only been focused on developing interplanetary transportation that is both safe and cost-efficient. Projects for creating human habitats on Mars have been given lower precedence. However, SpaceX has confirmed they are without a doubt on the right trajectory towards that inevitable possibility. 2. Supplies All things considered, humans will not be the only passengers of the starships. Cargo is also an integral part of any mission. From the bare necessities to the movie theatres, and let’s not forget Vitamin C… which is all considered to require additional space and money for transport! Vitamin C was provided by Musk as a stark example for what might not be as significant when compared to necessities like food, water, oxygen, and shelter, but is still essential nonetheless. As a resource that’s not readily available, Vitamin C is required if the inhabitants of Mars do not want to die a sailor’s death (scurvy). Elon Musk has more than once emphasized that one of the keys to unlocking the colonization of Mars is the ability for the colony to achieve self-sustainability. The reason behind this obsession lies in the eventuality that if supply ships were not able to reach Mars due to unforeseen circumstances, the colony must be able to provide enough sustenance for its citizens. How much time it will take a colony to achieve full self-sustainability is still very much up in the wind. As such, it’s of utmost importance to map out what resources are needed before every expedition. In terms of Vitamin C, Musk estimates that it will take a thousand starships to transport approximately one million tons of Vitamin C to ensure that no one dies a slow, painful death. (1) For the first few runs, SpaceX has planned two uncrewed missions to send cargo such as life-support systems and power generators, which are essential for human habitation. After the initial missions, SpaceX plans to send two additional cargo ships to set up a propellant production plant, but this time with a crew. This propellant production plant will ultimately be used to transform water and carbon dioxide into rocket fuel, which maximizes cargo space by reducing the amount of fuel each starship has to carry for the return trip. 3. Terraforming Mars, as we know it, is a planet with harsh and uninhabitable terrain. There is barely any oxygen or water, and did I mention the crazy dust storms? Mars may be uninhabitable for now, but scientists, and yes, Elon Musk, believes that through the process of terraforming, humanity just might have a second home in space. Musk has formulated many methods for terraforming Mars, but there was one that unfortunately stood out from the rest. If you haven’t guessed it, this boisterous plan of his was to NUKE Mars. Now, comical as it seems, it does hold its own water in the scientific domain. Before you complain about my wonderful sense of humour, hear me out first. ‘Water’ was not a typo. Musk hopes the nuking of Mars’ polar caps would release both water vapour and carbon dioxide into the Martian atmosphere, which by emulating a greenhouse-like effect that would slowly increase Mars’ surface temperature. (5) Nonetheless, scientists considered this plan to be quite infeasible. As, for one, the number of nukes needed would exhaust all nuclear warheads on Earth today. Another issue was the concern of there not being sufficient carbon dioxide present in the Martian atmosphere, even after the polar ice caps get absolutely obliterated to emulate a greenhouse-like effect effectively. Many brains later, a conclusion was reached that terraforming Mars was just not possible with the technology of today. (8) But with everything considered, this has not stopped SpaceX from attempting to formulate new ideas on terraforming Mars. For example, one possible solution that has been very popular even beyond niche groups is the implementation of glass domes on the surface of Mars. Glass domes are the supposed self-sustaining domes with their own source of water, oxygen, and food. These domes were also expected to act as neighbourhoods and contain centres for leisure and work. And to quote Musk, the domes would “have an outdoorsy, fun atmosphere,” having the perks of not requiring space suits. Food in this habitat would also be grown on solar-powered hydroponic farms located underground or within enclosed spaces. (1) However, like most things relating to Mars, experts believe that this is hardly possible with our current technology. Ultimately, Elon Musk has acknowledged the impossibility that we would be able to experience the terraforming of Mars in our lifetime. However, Musk has assured the public that even without terraforming, human colonies on Mars can and will be established within this generation, which is also his current and final goal. (8) 4. The Legal Side of Things Like all things, the very concept of colonizing Mars does not escape the normality of ethics. Given the establishment of space law concerning the [Agreement Governing the Activities of States on the Moon and Other Celestial Bodies](https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/intromoon-agreement.html), SpaceX Mars has also deemed Mars a free planet and, therefore, has rules and legislations of its own, disparate from Earth. Elon Musk has openly proposed that there will be no Earth-based government asserting its authority and sovereignty of Martian activities. However, he has also stated that the government on Mars would be a “direct democracy” and would have less complex laws than Earth. Beyond Imagination: Is It Profitable? Beyond the lack thereof technology and volunteer participants, there will always be one thing at the back of our human brains: Is the colonization of Mars profitable? No matter how self-sustaining the Martian colonies will be, as long as it requires more money than it will make us, the whole idea is inevitably moot without investors. Arguments have been made that not only is Mars distant, has a hostile environment, and is difficult to access, but it also has no apparent valuable export, thus making it highly unprofitable. Elon Musk has also confirmed that trading mined minerals to Earth is not profitable enough to justify the transportation costs. (6) On the flip side, Musk has also made efforts to propose intellectual property as Mars’ primary export. But even still, without having total cost estimates for the process of colonization, this would mean that we and any investors could only hope for the best: a profitable and sustainable Martian colony. Unless a Martian colony can create its own value, governments and enthusiasts would need to pay out of pocket for this advancement in human civilization. The Internal Monologue: Why Do We Need To Go? Why do we need to go to Mars? Why can’t we stay on Earth and live our lifetimes to the fullest? Why must we seek a challenging, dreary, and frankly very costly path? In an interview with The Guardian, Elon Musk has revealed some of his reasons for showing such a deep interest in colonizing Mars; one of which is the preservation of the human species. (9) With ever-present nuclear tensions, Musk explained that due to distance, in the event of a third world war or nuclear warfare, humans on Mars can continue to live and reproduce, even without help from Earthlings. (9) Musk has also been alarmed by the lack of regulations regarding artificial intelligence, which can lead to a possible war between and within the superpowers of the world. Morbid situations aside, the increasing interest of rich Earthern populations for interstellar tourism, especially with the advances made by SpaceX to the Starship’s cost-efficiency, the creation of a Mars colony becomes a lot more attractive. Curiosity for Innovation: Three Frequently Asked Questions about the Colonization of Mars 1. When can we expect missions to Mars by SpaceX? Elon Musk and SpaceX have revealed their rough timeline with plans for a cargo-only mission in 2022, a cargo and crew mission in 2024, and then a million people to Mars by 2050. However, doubts cast upon these plans as SpaceX has yet to prove that it can land and launch Starship missions to Mars safely. (1, 7)

#### The 1967 Outer Space Treaty restricts lunar development for states, but doesn’t apply to corporations – private entities are the only route to space colonization

**Stockwell ’20** (Samuel Stockwell; Research assistant at RAND Europe working in defense, security and infrastructure. “Legal ‘Black Holes’ in Outer Space: the Regulation of Private Space Companies” <https://www.e-ir.info/2020/07/20/legal-black-holes-in-outer-space-the-regulation-of-private-space-companies/> 20 July 2020) // ELog

On 30th April 2020, NASA – the US government’s space agency – awarded three private space companies a jointcontract worth $967m to complete a lunar mission by 2024, in what was celebrated as “the last piece that [America] need[s] in order to get to the moon” by NASA administrator Jim Brindestine (The Telegraph, 2020). Yet, whilst this development was widely covered in the media, less coverage has focused on the extent to which existing international legislation surrounding outer space endeavours appropriately applies to private entities. Indeed, the prospect of a corporate foothold within the extra-terrestrial domain has thrown up both a mixture of optimism and concern regarding the potential benefits of expanding capital projects into space (Adolph, 2006; Dickens & Ormrod, 2007). By adopting the 1967 UN Outer Space Treaty (OST) as an analytical framework in relation to the rise of the so-called US ‘NewSpace’ actors, this essay argues that there are significant legal ambiguities regarding the status of private space companies in orbital space. Such loopholes allow the US government to circumvent its own obligations to the OST, whilst simultaneously undermining the notion of space as a ‘global commons’ through a commodification process. The lack of specificity within the OST surrounding private property rights over extra-terrestrial resources risks the prospect of reinforcing Earth-bound wealth inequalities and US dominance in space, by restricting the potential economic benefits for the broader global citizenry in favour of a narrow class of wealthy American investors. Moreover, the OST’s weak clause regarding the regulation of space surveillance risks the incentivisation of a ‘global panopticon’ network of US satellites. The rise of dual-use technology is blurring the boundaries between military and civilian observations, raising serious ethical concerns over the nature of US space-based data collection. Finally, the increasing number of private satellite constellations is facilitating the possibility of cataclysmic space debris collisions which could exacerbate geopolitical tensions. Such developments are also contributing towards the contamination of the broader space environment in ways that the OST had never envisioned. The UN Outer Space Treaty and Rise of the ‘NewSpace’ Actors Although ratified into international law in 1967, the UN Outer Space Treaty (OST) is perhaps still the most relevant piece of legislation for analysing state and non-state entity activity in outer space. Designed to prevent both the militarisation of space and national appropriation of celestial bodies at the height of Cold War tensions, the UN OST holds significant influence as a form of customary international law (Hebert, 2014: 6). Ratified by over 100 nations – including major spacefaring nations such as the United States, Russia and China – the treaty is widely accepted as an authoritative document and has formed the basis for all other space treaties that have succeeded it (Kramer, 2017: 129). This is in contrast to more recent legislation such as the 1972 Moon Treaty designed to promote cooperation in Moon exploration and development, which the US and other major space superpowers have refrained from signing (Adolph, 2006: 968-969). The type of American actors becoming involved in the realm of outer space has undergone significant diversification. Despite working alongside NASA since the 1950s, commercial enterprises were largely confined to the manufacturing of parts utilised in rockets and other equipment for space activities (Lal, 2016: 63-66). However, the continuous sharp decline in NASA’s overall budget that has occurred since the Apollo 11 moon landing, and the increasing trends towards the privatisation of government functions has drastically altered both the capabilities and the outlooks of private space companies. Indeed, although the space economy is growing overall, global government spending decreased by 1.3% between 2012 and 2013 while commercial-sector growth increased by roughly 7% (Conklin, 2017: 33). Central to the impetus behind this private sector space boom has been the emergence of the socalled ‘NewSpace’ actors – “a broad range of primarily US-based entrepreneurs… who, for more than 30 years, have aimed to commercialise space” (Valentine, 2012: 1046). Driven by a libertarian outlook of economics, and critical of NASA’s historical grip on space exploration, these individuals portray themselves as the pioneers of the ‘final frontier’ who will save humanity from extinction through privately-funded extra-terrestrial missions (Kearnes & van Dooren, 2017: 182). Near-Earth Object and Lunar Resource Mining: US Private Property in Space Lunar rock samples from the Apollo missions containing rare Earth resources, such as Helium-3 which produces more power and less waste than traditional nuclear reactors on Earth, have since fuelled incentives for extraterrestrial resource mining (Brearley, 2006: 44-46). This was further facilitated by suggestions that near-earth objects (NEOs) like the so-called ‘Anteros asteroid’ could comprise of over five trillion dollars’ worth of magnesium silicate and aluminium (Kramer, 2017: 131). Envisaging appropriation concerns that might arise from the future extraction of space assets by spacefaring nations, Article II of the UN OST declared that: “Outer space is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means” (UN, 1967). The emphasis on claims of national sovereignty were intimately tied to the Cold War context at the time, where space activities were under the exclusive monopoly of governmental agencies and initiated for goals of military dominance or national prestige (Sachdeva, 2017: 210). However, the privatisation of the space industry that has occurred since the 1980s has meant that the legislation leaves an enormous amount of legal ambiguity and interpretation regarding the regulation of private resource mining in space. As Shaer (2016) demonstrates, the Article II provision fails to address either the exploitation of space for financial gain or the property claims of commercial enterprises (Shaer, 2016: 47). Nevertheless, Article VI of the UN OST asserts that: “States shall be responsible for national space activities whether carried out by governmental or non-governmental entities” (UN, 1967; own emphasis). Some scholars have suggested that this clause significantly restrains the activities of private space corporations by incentivising states to regulate their domestic organisations for fear of liability concerns (Abeyratne, 1998: 168). However, the US government recently enacted a piece of legislation which exploited this clause, in order to circumvent its own restrictions and strengthen US economic influence in space. The passage of the 2015 SPACE Act enabled US citizens to privately “possess, own, transport, use, and sell the resources” they obtain in outer space, whilst making careful consideration to deny national sovereign claims over such materials (Leon, 2018: 500). Yet, regardless of whether it is an American private company or public venture, the US is still satisfying its geopolitical interests; by exclusively siphoning off extra-terrestrial resources for American gain, the nation’s soft power is thereby extended at the expense of spacefaring adversaries such as China (Basu & Kurlekar, 2016: 65). Indeed NewSpace actors cleverly played on these strategic concerns prior to the bill’s passage, with billionaire space entrepreneur Robert Bigelow asserting that the biggest danger wasn’t private enterprises on the Moon, but that “America is asleep and does nothing, while China comes along… surveying and laying claim [to the Moon]” (Klinger, 2017: 222). The US government’s support for private space companies is also likely to lead to the reinforcement of Earth-bound wealth inequalities in space. Many NewSpace actors frame their long-term ambitions in space with strong anthropogenic undertones, by offering the salvation of the human race from impending extinction through off-world colonial developments (Kearnes & Dooren: 2017: 182). Yet, this type of discourse disguises the highly exclusive nature of these missions. Whilst they seem to suggest that there is a stake for ordinary citizens in the vast space frontier, the reality is that these self-described space pioneers are a member of a narrow ‘cosmic elite’ – “founders of Amazon.com, Microsoft, Pay Pal… and a smattering of games designers and hotel magnates” (Parker, 2009: 91). Indeed, private space enterprises have themselves suggested that they have no obligation to share mineral resources extracted in space with the global community (Klinger, 2017: 208). This is reflected in the speeches of individuals such as Nathan Ingraham, a senior editor at the tech site EngadAsteroid mining, who claimed that asteroid mining was “how [America is] going to move into space and develop the next Vegas Strip” (Shaer, 2016: 50). Such comments highlight a form of what Beery (2016) defines as ‘scalar politics’. In similar ways to the ‘scaling’ of unequal international relations that has constituted our relationship with outer space under the guise of the ‘global commons’ (Beery, 2016: 99), private companies – through their anthropogenic discourse – are scaling existing Earthbound wealth inequalities and social relations into space by siphoning off extra-terrestrial resources. By constructing their endeavours in ways that appeal to the common good, NewSpace actors are therefore concealing the reality of how commercial resource extraction serves the exclusive interests of their private shareholders at the expense of the vast majority of the global population.

#### Space colonization is bad:

#### Scenario one is disease:

#### Space creates stronger diseases, weaker immune systems, and doesn’t have medical support – disease is a guarantee

Maynard ‘20 (James Maynard, is the editor of 2 publications, Cosmic Companion and Alexandria Science, March 20 2020, “Disease in Space — What Will We Do?”, Medium, <https://medium.com/the-cosmic-companion/disease-in-space-what-will-we-do-830639acfffd>, accessed 7/17/2021) TK

Influenzaandmicrobes like coronavirus couldquickly work their way throughacrew isolated together in the depths of space. “The absence of gravity precludes particles settling down, so they stay suspended in the air, and could be more easily transmitted. To prevent this, compartments are ventilated and the air HEPA filters would remove particles,” Jonathan Clark, a former six-time crew surgeon for NASA’s Space Shuttle program, stated. A 2012 study examining health records of 742 astronauts who flew on 106 flights revealed 29 cases of disease transmission, including fungal, urinary tract, and skin infections, as well as the flu. “For reasons scientists have not quite figured out, the immune system can go on the fritz in space: wounds heal more slowly; infection-fighting T-cells send signals less efficiently; bone marrow replenishes itself less effectively; killer cells — another key immune system player — fight less energetically. At the same time, the pathogens grow stronger, developing thicker cell walls, greater resistance to antimicrobial agents and a greater ability to form so-called biofilms that cling to surfaces,” Jeffrey Kluger reported in Time Magazine. Physical changes caused by radiation may present problems keeping astronauts and space colonists healthy. Another challenge for space travelers is that dormant viruses, like herpes simplex, can reawaken during space travel. Visitors have spent a year or more aboard the International Space Station. Colonists on the Moon or Mars would stay even longer, increasing health issues including sleep deprivation, even without an epidemic. Without proper sleep, and suffering from high stress levels, space travelers could be even more susceptible to infections their bodies may have fought off at home. “The types of problems you may encounter are a decline in mood, cognition, morale, or interpersonal interaction. You could also develop a sleep disorder because your circadian rhythm might be thrown off due to the 38 extra minutes each day on Mars, or by a small, noisy environment, or the stress of prolonged isolation and confinement,” NASA’s Human Research Program suggests.

Just as on Earth, isolation and containment of those potentially infected by a disease. The International Space Station is equipped with high-efficiency particulate air (HEPA) filters, and containment masks are available for infected residents of the ISS. Following any sort of infection, space travelers could be quarantined after returning to Earth, as they were in the early days of human space travel. Future colonies on the Moon or Mars will, almost certainly, have similar facilities for lessening the reach of outbreaks like the one currently engulfing our planet. Answers to the challenges of epidemics on Earth — much less on lunar or Martian colonies — remains unanswered. And, viruses are more likely to spread, and be harder to treat, in space than they are on Earth. But, many of the same treatments and procedures that we employ on Earth to limit the spread of disease and to flatten the curve of infections would also likely play significant roles in protecting colonists exploring the Solar System. As we expand out into the solar system, epidemics are bound to follow us. But, even today, we are already protecting the explorers who are pioneering our quest to reach beyond the confines of our planet.

#### Space disease risks extinction

Seth D. Baum, ‘11, PhD student at Pennsylvania State University NASA Planetary Science Division, “Would contact with extraterrestrials benefit or harm humanity? A scenario analysis”, <https://arxiv.org/abs/1104.4462v1> //RS

If humanity comes into direct physical contact with either ETI themselves or some ETI artifact, then it may be possible for humanity to be unintentionally harmed. One of the most prominent scenarios of this kind is the transmission of disease to humanity. This scenario is inspired by the many instances in which humans and other species on Earth have suffered severely from diseases introduced from other regions of the planet. Such diseases are spread via the global travels of humans and our cargo and also through certain other disease vectors. Introduced diseases have been extremely potent because the population receiving the disease has no prior exposure to it and thus no build-up of immunity. Indeed, disease introductions are blamed for loss of human life so widespread as to have altered the broadest contours of human history [83]. If ETI could introduce disease to humanity, then the impacts could be – but would not necessarily be – devastating. The disease could quite easily be significantly different from anything our immune systems have ever encountered before. The disease could also be entirely unfamiliar to our medical knowledge, and it could potentially be highly contagious and highly lethal. This combination of contagiousness (i.e. high R0 [84]) and lethality (i.e. high mortality rate) is unlikely in existing pathogens because such pathogens would quickly kill their host population and then die out themselves. Furthermore, if we had already encountered such a disease on Earth, then we likely would not be here anymore. However, a disease from ETI would be new to us. It presumably would not be highly contagious and lethal to the ETI themselves or to the other organisms in their biosphere, but it could be devastating to humans and the Earth system. Then again, ETI biology may be so vastly different from Earth biology that no significant interactions between organisms occur. ETI may have their own contagious diseases that are unable to infect humans or Earth-life because we are not useful hosts for ETI pathogens. After all, the ETI diseases would have evolved separately from Earth biota and thus be incompatible. So while there are reasons to believe that an ETI disease which affected humanity would be devastating, there are also reasons to believe that an ETI disease would not affect humanity. It is worth noting that a disease brought by an ETI could harm us without infecting us. This would occur if the disease infects other organisms of interest to us. For example, ETI could infect organisms important to our food supply, such as crop plants or livestock animals. A non-human infection would be less likely to destroy humanity and more likely to only harm us by wiping out some potentially significant portion of our food supply. In a more extreme case, ETI disease could cause widespread extinction of multiple species on Earth, even if humans remain uninfected.

#### Scenario two is debris:

#### Private space ventures lead to tons of new debris

**McCoustra ’20** (Martin McCoustra; Chair in Chemical Physics at Heriot-Watt University. “Space junk: Astronomers worry as private companies push ahead with satellite launches” [https://theconversation.com/space-junk-astronomers-worry-as-private-companies-push-ahead-with-satellite-launches-137572 13 May 2020](https://theconversation.com/space-junk-astronomers-worry-as-private-companies-push-ahead-with-satellite-launches-137572%2013%20May%202020)) // ELog

Since the launch of Sputnik 1 in 1957, the lower orbit around the Earth has become an increasingly congested environment with more than 2,200 satellite launches to date. Those satellites – along with launch vehicle components and debris from mechanical disintegration, collisions and explosions – now fill this region with a “fog” of space debris. And it’s getting busier. In the last few weeks, SpaceX [has launched 60 new satellites](https://www.space.com/space-starlink-satellites-launch-rocket-landing-success-april-2020.html) as part of its Starlink programme. This brings the total to currently around 400 Starlink satellites in low Earth orbit as part of a programme that aims to bring cheap, satellite-based internet access to everyone. Eventually, this programme could place nearly 12,000 satellites in orbit around the Earth. With Amazon, Canada’s [Telesat](https://www.telesat.com/services/leo/phase-1) and others [planning satellite constellations](https://www.cnbc.com/2019/12/14/spacex-oneweb-and-amazon-to-launch-thousands-more-satellites-in-2020s.html) of similar scale, low Earth orbit is becoming ever more crowded. The debris ranges in size from a few microns to many metres. [Stuart Grey](https://www.stugrey.com/), an aerospace engineer at the University of Strathclyde, has produced a stunning visualisation that highlights the more than 20,000 objects over 10cm in size now orbiting the Earth (see video above). But there are many millions of particles 1mm in size and smaller. Closing our window on the universe? Amateur astronomers are [already expressing concern](https://edition.cnn.com/2020/04/21/tech/starlink-satellites-stargazers-complaints-scli-intl-gbr/index.html) over the increasing number of bright, moving objects in the night sky. But the worry is perhaps much greater for the professionals. Crowding in low Earth orbit has inevitable consequences for ground-based astronomers. Bright surfaces on satellites can reflect rays from the sun – giving rise to a burst of sunlight directed towards the surface of the Earth. Such intense bursts of light are much stronger than the weak light sources typically being observed by astronomers and will impede observations of distant objects in space. Billions have already been spent on existing optical telescopes, and many more billions will be poured into new platforms in the next decade, such as the [European Extremely Large Telescope](https://www.eso.org/sci/facilities/eelt/) being built on the Atacama plateau in Chile. There is intense competition for observing time on such resources, so any potential threat from satellite reflections must be taken seriously as they may make some of the observations driving our understanding of the evolution of the universe impossible. SpaceX has assured the public that Starlink will not contribute to this problem and says it [has been taking steps](https://time.com/5225670/spacex-space-junk-cleaner-launch/) to mitigate the impacts of its satellites on observational astronomy – even to the extent of testing whether a black coating on its satellites can reduce visibility, and adjusting some of the satellites’ orbits if necessary. With some 3% of its planned constellation launched, SpaceX is at least responding to the concerns raised by astronomers. Hopefully other agencies planning satellite constellation launches will also be upfront with their plans to reduce this serious problem to astronomical observation. But crowding in low Earth orbit also has consequences for satellites and other space vehicles, including those designed to carry humans. To achieve orbit, satellites seek a balance between their speed and the effect of Earth’s gravity on them. The speed with which a satellite must travel to achieve this balance depends on its altitude above Earth. The nearer to Earth, then the faster the required orbital speed. At an altitude of 124 miles (200km), the required orbital velocity is a little more than 17,000 miles per hour (about 7.4 km/s). Any object shed by a satellite or other vehicle in orbit will maintain the same orbital speed. Collisions between such objects can therefore occur at combined speeds of potentially up to 34,000 mph at 124 miles (if it is head-on). The effects of such impacts can be serious for astronauts and space stations – as the dramatic opening scenes of the 2013 movie Gravity depict. There is impact shielding on satellites and space vehicles which is designed to stop objects smaller than 1cm crashing into them. At best, the shielding will do so – though the electromagnetic impulse created may interfere with electronic systems. At worst, larger pieces of space junk could penetrate the vehicles. This could result in internal damage and disintegration that threaten the safety of the mission. Space agencies such as NASA and ESA have therefore established [orbital debris research programmes](https://www.orbitaldebris.jsc.nasa.gov/) to observe such debris and develop strategies to control its effects. There is little doubt that, with the increasing use and commercialisation of space, we boost the risk of catastrophic events associated with orbital debris. Agencies, both state and commercial, must recognise this and support efforts to reduce the likelihood of such events by taking steps to remove existing debris and reduce the potential for further debris by removing redundant satellites and other space vehicles. For example the [RemoveDEBRIS satellite](https://www.surrey.ac.uk/news/harpoon-successfully-captures-space-debris) uses an on-board harpoon to capture junk. Only when we resolve the problem of space junk will our window on, and pathway to, space be truly fully open.

#### Debris turns space travel, causes radioactivity on Earth, and risks extinction

**Kaineg ’20** (Sophie Kaineg; J.D Candidate at the UC Hastings College of Law and Executive Production Editor for the Hastings Environmental Law Journal. “The Growing Problem of Space Debris” <https://repository.uchastings.edu/cgi/viewcontent.cgi?article=1588&context=hastings_environmental_law_journal> Published Summer 2020) // ELog

Now that we have a better picture of what creates the problem of space junk, we can examine the consequences. For one, collisions are more likely as more objects accumulate in space.53 These collisions create more debris, meaning operational satellites are in a more dangerous environment, putting valuable property at greater risk of destruction.54 Space debris may also interfere with signals coming from satellites.55 These collisions create more debris, which further increases the likelihood of more collisions.56 As the cycle continues, it becomes “self-generating and thus uncontrollable.”57 Ultimately, if the debris around Earth continues to grow, humans may limit our ability to use outer space for satellites or space travel in the future.58 This situation is known as the Cascade Effect or the Kessler Effect.59 The Cascade Effect is one of the most dangerous threats posed by orbital debris because it represents an existential threat to space travel and utilization of satellites and space in general.60 The fear of the cascade effect results from its conclusion: “collisions will eventually produce an impenetrable debris that will encase Earth.”61 Even small fragments in space can cause substantial damage due to the high speeds of orbit.62 Hugh Lewis, a space debris researcher at the University of Southampton’s School of Engineering Science, noted “you only need something the size of a marble to completely destroy a spacecraft.”63 Because of the long lifespan of space fragments, the Cascade Effect would result in centuries of uninhabitable space.64 Today, space is a rich platform for a plethora of technologies from cell phones, GPS, and weather monitoring, including tracking greenhouse gases, to military strategy and scientific studies, like the ISS.65 If collisions result in an impenetrable debris cloud, these activities and space exploration of any form would be shut down.66 In addition to collisions and the Cascade Effect, space debris may also reenter Earth’s atmosphere and cause damage.67 Debris will eventually return to Earth, usually breaking up into harmlessly miniscule pieces during reentry.68 As larger pieces of debris return to Earth however, there’s a greater danger factor.69 In November 2018, two large objects dropped onto a Myanmar mining facility and destroyed a home.70 One object was barrel-like and about fifteen feet long.71 This incident is a reminder that what goes into space does not just disappear. However, some debris is inherently dangerous regardless of size because it contains radioactive material.72 During the Cold War era, many satellites were built with radioactive components.73 Today, there is an estimated 1,500 kilograms of radioactive material in orbit, which mostly rests in LEO.74 As these materials make their way back onto Earth, the impact sites are at risk for radioactive contamination.75 In fact, this scenario occurred in 1978, when a Soviet satellite reentering Earth’s atmosphere dispersed radioactive debris across Canada’s Northwest Territory.76 Luckily, specialists detected no radioactivity in the surrounding area.77 However, the risk increases as the Cold War era satellites continue to age and reentry to Earth becomes more likely.78

#### Scenario three is asteroid tech:

#### Colonization necessarily develops asteroid slinging tech that risks extinction

Clifford **Singer ‘01**. Professor of nuclear engineering and director of the Program in Arms Control, Disarmament, and International Security at the University of Illinois, Spring 2001. “Swords and Ploughshares.” <http://www.acdis.uiuc.edu/homepage_docs/pubs_docs/S&P_docs/S&P_XIII/Singer.htm> //RS

However, the technology to build isolated extraterrestrial settlements naturally brings along with it another potentially powerful technology–the ability to move sizeable asteroids. Back in 1979 it was shown that this is not as difficult as one might at first think. The requisite technique is to land a spacecraft on one asteroid, dig up material and throw it the path of another asteroid that will approach nearby, and perturb the orbit of that asteroid until it passes nearby another large object. Once an asteroid or comet makes a controlled approach near any planet but Mercury or Pluto, then it can easily be directed near or at the earth at enormous velocity. Fortunately for our hypothetical descendants here destroying all human life on earth by asteroid impact would likely require moving objects with a diameter in excess of ten kilometers. While there are many of these, the required orbit perturbation would require a lot of lead-time and work and could be very difficult to motivate and conceal. Nevertheless with contributions from this technology a dispute between the earth and a handful of its fragile far-flung offspring in space that is carried to the extreme could conceivably lead to human extinction. Only when settlements in space are sufficiently numerous or far flung would such a possibility effectively be ruled out, primarily by physical considerations.

### Advantage Two: Capitalism

#### Private space development shields impacts of Earthly capitalism and exports them universally

**Temmen ’21** (Jens Temmen; Assistant Professor of American Studies at Heinrich-Heine-University Dusseldorf. “WHY BILLIONAIRES IN SPACE ARE NOT GOING TO MAKE THE WORLD A BETTER PLACE” <https://blog.degruyter.com/today-space-is-virgin-territory-why-billionaires-in-space-are-not-going-to-make-the-world-a-better-place/> 14 July 2021) // ELog

On July 11th 2021, Virgin Galactic founder, billionaire and self-declared new space tourism pioneer Richard Branson staged the first commercial flight of his company’s supersonic space-plane Unity – with Branson aboard himself and thus upstaging Amazon founder Jeff Bezos‘ own flight by just a few days. Virgin Galactic lauded the perfectly orchestrated performance as following the path of the Apollo missions, while also heralding a new and invigorated phase of space exploration – this time with commercial flights and space tourism leading the way. Branson and the other so-called New Space Entrepreneurs, Elon Musk and Jeff Bezos, might be competitors in their private race to space, yet all of them are deeply invested in surrounding their private enterprises with a shared narrative of a utopian future for humanity in outer space, and even as much as humanity‘s survival in face of climate change on Earth, by way of becoming a multiplanetary species. For the most part that story isn’t new, of course. The idea that entering and colonizing outer space provides a unifying experience for humanity has been popularized by science-fiction for quite a while now – a tune that many planetary scientists, by the way, have happily sung along with. What has changed is that in the latest version of that popular narrative, the only path leading towards utopia goes through a privatized space industry. Yet in spite of allegedly pointing the way into a better, more just, and more sustainable future for humanity, most of these imaginaries tend to wrap their visions into the rather stale and very earthly language of discovery and exploration, of new frontiers, terra nullius (“nobody’s land“), and of colonization – imageries and terms which have and continue to justify removal, extraction, exploitation and genocide. The billionaires’ space race is no exception to that rule: the quote that marked Branson’s entry into sub-orbital height – “Today space is Virgin territory“ – is not just a clever pun on the company’s name, but also revealingly invokes the misogynist and colonial notions of “untouched“ land and people that are ready for the taking. These notions have served Euro-American empires for centuries as justification for brutally claiming new territories and racially hierarchizing their population. But what’s the harm, one might ask, in rehashing these concepts in context of the exploration of outer space? With no Indigenous population (that we know of) that can be removed, no pre-colonial civilization in the way of Earth’s future colonies on Moon and Mars, isn’t space colonialism something truly new, completely divorced from the history of terrestrial colonialism? Branson, Musk and Bezos would most certainly agree. “Contrary to what the private space industry (and national space agencies, for that matter) wants us to believe, the exploration and colonization of outer space is a very terrestrial undertaking.” The question ignores the fact that contrary to what the private space industry (and national space agencies, for that matter) wants us to believe, the exploration and colonization of outer space is a very terrestrial undertaking. Steeped in capitalism – a system that Branson, Musk and Bezos have mastered and thrived in – and the geopolitical stratagems of Earth’s nation-states, space exploration today is not so much driven by changing humanity as it goes into space, but rather by changing outer space to make it fit into the logics of profit and territorial control on Earth. And we are in the thick of it: Branson’s latest attempt to establish space travel as a new branch of the tourism industry is just one of many recent steps – including the establishment of US Space Force, the ratification of the Artemis Accords, and the signing on of Musk’s SpaceX as a contractor for NASA – to make outer space safe for capitalism. The point of the performative character of the billionaires’ space race, the images of grandeur and individualism, the bells and whistles, its alleged subscription to a more just future for humanity, is to distract, then. It is a shiny packaging that wraps-up and obscures the mundane fact that if colonizing outer space is allegedly about fundamentally changing societally structures that govern Earth and humanity, the New Space Entrepreneurs are certainly not the ones to bring about that change – it would simply be against their self-interest. In Earth’s past and present, the colonial language of virgin land and terra nullius served to obscure the human cost of colonization by dehumanizing colonized peoples. Space exploration, as imagined by Branson, Musk and Bezos, also has a cost. The wealth that all three of them have acquired through their business ventures, which puts them into the position to reach for the stars (and greater profits), builds on unleashed neoliberalism, capitalist exploitation, and, overall, less-than altruistic business models. Their vision of humanity in space is likewise designed for the few and wealthy, and built on the back of the many. And the cost could increase even further. While all of humanity is facing the unprecedented threat of climate change, which urges us to find sustainable solutions fast, Elon Musk and others offer us the seemingly quick fix of abandoning Earth altogether and to weather out the storm on Mars. In spite of being completely unfeasible from a scientific standpoint, the idea has still gained traction among technoliberalists, and is thus withdrawing attention and resources from communities mostly in the Global South for whom climate change is not a threat in the distant future. In addition, the noise and smoke created by the hyper-masculine performances of Branson, Musk and Bezos block our view of the tangible benefits that space exploration has to offer and that we should readily invest in. Current Mars exploration projects, for example, offer insights into how atmospheric changes impact planetary climates – information that could prove invaluable in our battle against climate change on Earth. All of this is a reminder that we should not abandon the idea altogether that space exploration can offer us new and vital insights. Space exploration is, however, not going to magically change humanity or how we live. If we want to continue to hope that space exploration will fulfill the promise of a better future for humanity, changing our perspectives on life on Earth must come first.

**Capitalism is terminally unsustainable and makes extinction inevitable**

**Foster ‘19** (John Bellamy; Professor of Sociology @ the University of Oregon, Ph.D. in Political Science @ York University, editor of the Monthly Review, former Critical Essay Editor/Archives Editor, Organization & Environment, editor and author of numerous books and articles about economics, environment, and capitalism [John, “Capitalism Has Failed—What Next?” 2/1/2019, <https://monthlyreview.org/2019/02/01/capitalism-has-failed-what-next/>, DKP)

Less than two decades into the twenty-first century, it is evident that **capitalism has failed** as a social system. The world is mired in economic stagnation, financialization, and the most extreme inequality in human history, accompanied by mass unemployment and underemployment, precariousness, poverty, hunger, wasted output and lives, and what at this point can only be called a planetary ecological “death spiral.”1 The digital revolution, the greatest technological advance of our time, has rapidly mutated from a promise of free communication and liberated production into new means of surveillance, control, and displacement of the working population. The institutions of liberal democracy **are at the point of collapse**, while fascism, the rear guard of the capitalist system, is again on the march, along with patriarchy, racism, imperialism, and war. To say that capitalism is a failed system is not, of course, to suggest that its breakdown and disintegration is imminent.2 It does, however, mean that it has passed from being a historically necessary and creative system at its inception to being a historically unnecessary and destructive one in the present century. Today, more than ever, the world is faced with the epochal choice between “the revolutionary reconstitution of society at large and the common ruin of the contending classes.”3 Indications of this failure of capitalism are everywhere. Stagnation of investment punctuated by bubbles of financial expansion, which then inevitably burst, now characterizes the so-called free market.4 Soaring inequality in income and wealth has its counterpart in the declining material circumstances of a majority of the population. Real wages for most workers in the United States have barely budged in forty years despite steadily rising productivity.5 Work intensity has increased, while work and safety protections on the job have been systematically jettisoned. Unemployment data has become more and more meaningless due to a new institutionalized underemployment in the form of contract labor in the gig economy.6 Unions have been reduced to mere shadows of their former glory as capitalism has asserted totalitarian control over workplaces. With the demise of Soviet-type societies, social democracy in Europe has perished in the new atmosphere of “liberated capitalism.”7 The capture of the surplus value produced by overexploited populations in the poorest regions of the world, via the global labor arbitrage instituted by multinational corporations, is leading to an unprecedented amassing of financial wealth at the center of the world economy and relative poverty in the periphery.8 Around $21 trillion of offshore funds are currently lodged in tax havens on islands mostly in the Caribbean, constituting “the fortified refuge of Big Finance.”9 Technologically driven monopolies resulting from the global-communications revolution, together with the rise to dominance of Wall Street-based financial capital geared to speculative asset creation, have further contributed to the riches of today’s “1 percent.” Forty-two billionaires now enjoy as much wealth as half the world’s population, while the three richest men in the United States—Jeff Bezos, Bill Gates, and Warren Buffett—have more wealth than half the U.S. population.10 In every region of the world, inequality has increased sharply in recent decades.11 The gap in per capita income and wealth between the richest and poorest nations, which has been the dominant trend for centuries, is rapidly widening once again.12 More than 60 percent of the world’s employed population, some **two billion people**, now work in the impoverished informal sector, forming a massive global proletariat. The global reserve army of labor is some 70 percent larger than the active labor army of formally employed workers.13 Adequate **health care**, **housing**, **education**, and **clean water** and **air** are increasingly out of reach for large sections of the population, even in wealthy countries in North America and Europe, while transportation is becoming more difficult in the United States and many other countries due to irrationally high levels of dependency on the automobile and disinvestment in public transportation. Urban structures are more and more characterized by **gentrification** and **segregation**, with cities becoming the playthings of the well-to-do while marginalized populations are shunted aside. About half a million people, most of them children, are homeless on any given night in the United States.14 New York City is experiencing a major rat infestation, attributed to warming temperatures, mirroring trends around the world.15 In the United States and other high-income countries, life expectancy is in decline, with a remarkable resurgence of Victorian illnesses related to poverty and exploitation. In Britain, gout, scarlet fever, whooping cough, and even scurvy are now resurgent, along with tuberculosis. With inadequate enforcement of work health and safety regulations, black lung disease has returned with a vengeance in U.S. coal country.16 Overuse of antibiotics, particularly by capitalist agribusiness, is leading to an **antibiotic-resistance crisis**, with the dangerous growth of superbugs generating increasing numbers of deaths, which by mid–century could surpass annual cancer deaths, prompting the World Health Organization to declare a “global health emergency.”17 These dire conditions, arising from the workings of the system, are consistent with what Frederick Engels, in the Condition of the Working Class in England, called “social murder.”18 At the instigation of giant corporations, philanthrocapitalist foundations, and neoliberal governments, public education has been restructured around corporate-designed testing based on the implementation of robotic common-core standards. This is generating massive databases on the student population, much of which are now being surreptitiously marketed and sold.19 The corporatization and privatization of education is feeding the progressive subordination of children’s needs to the cash nexus of the commodity market. We are thus seeing a dramatic return of Thomas Gradgrind’s and Mr. M’Choakumchild’s crass utilitarian philosophy dramatized in Charles Dickens’s Hard Times: “Facts are alone wanted in life” and “You are never to fancy.”20 Having been reduced to intellectual dungeons, many of the poorest, most racially segregated schools in the United States are mere **pipelines for prisons or the military.**21 More than two million people in the United States are behind bars, a higher rate of incarceration than any other country in the world, **constituting a new Jim Crow.** The total population in prison is nearly equal to the number of people in Houston, Texas, the fourth largest U.S. city. African Americans and Latinos make up 56 percent of those incarcerated, while constituting only about 32 percent of the U.S. population. Nearly 50 percent of American adults, and a much higher percentage among African Americans and Native Americans, have an immediate family member who has spent or is currently spending time behind bars. Both black men and Native American men in the United States are nearly three times, Hispanic men nearly two times, more likely to die of police shootings than white men.22 Racial divides are now widening across the entire planet. Violence against women and the expropriation of their unpaid labor, as well as the higher level of exploitation of their paid labor, are integral to the way in which power is organized in capitalist society—and how it seeks to divide rather than unify the population. More than a third of women worldwide have experienced physical/sexual violence. Women’s bodies, in particular, are objectified, reified, and commodified as part of the normal workings of monopoly-capitalist marketing.23 The mass media-propaganda system, part of the larger corporate matrix, is now merging into a social media-based propaganda system that is more porous and seemingly anarchic, but more universal and more than ever favoring money and power. Utilizing modern marketing and surveillance techniques, which now dominate all digital interactions, vested interests are able to tailor their messages, largely unchecked, to individuals and their social networks, creating concerns about “fake news” on all sides.24 Numerous business entities promising technological manipulation of voters in countries across the world have now surfaced, auctioning off their services to the highest bidders.25 The elimination of net neutrality in the United States means further concentration, centralization, and control over the entire Internet by monopolistic service providers. Elections are increasingly prey to unregulated “dark money” emanating from the coffers of corporations and the billionaire class. Although presenting itself as the world’s leading democracy, the United States, as Paul Baran and Paul Sweezy stated in Monopoly Capital in 1966, “is democratic in form and plutocratic in content.”26 In the Trump administration, following a long-established tradition, 72 percent of those appointed to the cabinet have come from the higher corporate echelons, while others have been drawn from the military.27 War, engineered by the United States and other major powers at the apex of the system, has become perpetual in strategic oil regions such as the Middle East, and threatens to escalate into a global thermonuclear exchange. During the Obama administration, the United States was engaged in wars/bombings in seven different countries—Afghanistan, Iraq, Syria, Libya, Yemen, Somalia, and Pakistan.28 Torture and assassinations have been reinstituted by Washington as acceptable instruments of war against those now innumerable individuals, group networks, and whole societies that are branded as terrorist. A new Cold War and nuclear arms race is in the making between the United States and Russia, while Washington is seeking to place road blocks to the continued rise of China. The Trump administration has created a new space force as a separate branch of the military in an attempt to ensure U.S. dominance in the militarization of space. Sounding the alarm on the increasing dangers of a nuclear war and of climate destabilization, the distinguished Bulletin of Atomic Scientists moved its doomsday clock in 2018 to two minutes to midnight, the closest since 1953, when it marked the advent of thermonuclear weapons.29 Increasingly severe economic sanctions are being imposed by the United States on countries like Venezuela and Nicaragua, despite their democratic elections—or because of them. Trade and currency wars are being actively promoted by core states, while racist barriers against immigration continue to be erected in Europe and the United States as some 60 million refugees and internally displaced peoples flee devastated environments. Migrant populations worldwide have risen to 250 million, with those residing in high-income countries constituting more than 14 percent of the populations of those countries, up from less than 10 percent in 2000. Meanwhile, ruling circles and wealthy countries seek to wall off islands of power and privilege from the mass of humanity, who are to be left to their fate.30 More than three-quarters of a billion people, over 10 percent of the world population, are chronically malnourished.31 Food stress in the United States keeps climbing, leading to the rapid growth of cheap dollar stores selling poor quality and toxic food. Around forty million Americans, representing one out of eight households, including nearly thirteen million children, are food insecure.32 Subsistence farmers are being pushed off their lands by agribusiness, private capital, and sovereign wealth funds in a global depeasantization process that constitutes the greatest movement of people in history.33 Urban overcrowding and poverty across much of the globe is so severe that one can now reasonably refer to a “planet of slums.”34 Meanwhile, the world housing market is estimated to be worth up to $163 trillion (as compared to the value of gold mined over all recorded history, estimated at $7.5 trillion).35 The Anthropocene epoch, first ushered in by the Great Acceleration of the world economy immediately after the Second World War, has generated enormous rifts in planetary boundaries, extending from climate change to ocean acidification, to the sixth extinction, to disruption of the global nitrogen and phosphorus cycles, to the loss of freshwater, to the disappearance of forests, to widespread toxic-chemical and radioactive pollution.36 It is now estimated that 60 percent of the world’s wildlife vertebrate population (including mammals, reptiles, amphibians, birds, and fish) have been wiped out since 1970, while the worldwide abundance of invertebrates has declined by 45 percent in recent decades.37 What climatologist James Hansen calls the “species exterminations” resulting from accelerating climate change and rapidly shifting climate zones are only compounding this general process of biodiversity loss. Biologists expect that half of all species will be facing extinction by the end of the century.38 If present climate-change trends continue, the “global carbon budget” associated with a 2°C increase in average global temperature will be broken in sixteen years (while a 1.5°C increase in global average temperature—staying beneath which is the key to long-term stabilization of the climate—will be reached in a decade). Earth System scientists warn that the world is now perilously close to a Hothouse Earth, in which catastrophic climate change will be locked in and irreversible.39 The ecological, social, and economic costs to humanity of continuing to increase carbon emissions by 2.0 percent a year as in recent decades (rising in 2018 by 2.7 percent—3.4 percent in the United States), and failing to meet the minimal 3.0 percent annual reductions in emissions currently needed to avoid a catastrophic destabilization of the earth’s energy balance, are simply incalculable.40 Nevertheless, major energy corporations continue to lie about climate change, promoting and bankrolling climate denialism—while admitting the truth in their internal documents. These corporations are working to accelerate the extraction and production of fossil fuels, including the dirtiest, most greenhouse gas-generating varieties, reaping enormous profits in the process. The melting of the Arctic ice from global warming is seen by capital as a new El Dorado, opening up massive additional oil and gas reserves to be exploited without regard to the consequences for the earth’s climate. In response to scientific reports on climate change, Exxon Mobil declared that it intends to extract and sell all of the fossil-fuel reserves at its disposal.41 Energy corporations continue to intervene in climate negotiations to ensure that any agreements to limit carbon emissions are defanged. Capitalist countries across the board are putting the accumulation of wealth for a few above combatting climate destabilization, threatening the very future of humanity. Capitalism is best understood as a competitive class-based mode of production and exchange geared to the accumulation of capital through the exploitation of workers’ labor power and the private appropriation of surplus value (value generated beyond the costs of the workers’ own reproduction). The mode of economic accounting intrinsic to capitalism designates as a value-generating good or service anything that passes through the market and therefore produces income. It follows that the greater part of the social and environmental costs of production outside the market are excluded in this form of valuation and are treated as mere negative “externalities,” unrelated to the capitalist economy itself—whether in terms of the shortening and degradation of human life or the destruction of the natural environment. As environmental economist K. William Kapp stated, “capitalism must be regarded as an economy of unpaid costs.”42 We have now reached a point in the twenty-first century in which the externalities of this irrational system, such as the costs of war, the depletion of natural resources, the waste of human lives, and the disruption of the planetary environment, now far exceed any future economic benefits that capitalism offers to society as a whole. The accumulation of capital and the amassing of wealth are increasingly occurring at the expense of an irrevocable rift in the social and environmental conditions governing human life on earth.43

#### Outer space acts as a spatial fix to preserve capital – preventing these temporary solutions forces capital to end

**Shammas/Holen ’19** (Victor Shammas; Associate Professor of Sociology at the University of Agder. Tomas Holen; Independent scholar with an emphasis on Political Science, Economics, and Engineering. “One giant leap for capitalistkind: private enterprise in outer space” <https://www.nature.com/articles/s41599-019-0218-9#Abs1> 29 January 2019) // ELog

No longer terra nullius, space is now the new terra firma of capitalistkind: its naturalized terroir, its next necessary terrain. The logic of capitalism dictates that capital should seek to expand outwards into the vastness of space, a point recognized by a recent ethnography of NewSpace actors (Valentine, [2016](https://www.nature.com/articles/s41599-019-0218-9#ref-CR66), p. 1050). The operations of capitalistkind serve to resolve a series of (potential) crises of capitalism, revolving around the slow, steady decline of spatial fixes (see e.g., Harvey, [1985](https://www.nature.com/articles/s41599-019-0218-9#ref-CR21), p. 51–66) as they come crashing up against the quickly vanishing blank spaces remaining on earthly maps and declining (terrestrial) opportunities for profitable investment of surplus capital (Dickens and Ormrod, [2007a](https://www.nature.com/articles/s41599-019-0218-9#ref-CR12), p. 49–78). A ‘spatial fix' involves the geographic modulation of capital accumulation, consisting in the outward expansion of capital onto new geographic terrains, or into new spaces, with the aim of filling a gap in the home terrains of capital. Jessop ([2006](https://www.nature.com/articles/s41599-019-0218-9#ref-CR34), p. 149) notes that spatial fixes may involve a number of strategies, including the creation of new markets within the capitalist world, engaging in trade with non-capitalist economies, and exporting surplus capital to undeveloped or underdeveloped regions. The first two address the problem of insufficient demand and the latter option creates a productive (or valorizing) outlet for excess capital. Capitalism must regularly discover, develop, and appropriate such new spaces because of its inherent tendency to generate surplus capital, i.e., capital bereft of profitable purpose. In Harvey’s ([2006](https://www.nature.com/articles/s41599-019-0218-9#ref-CR23), p. xviii) terms, a spatial fix revolves around ‘geographical expansions and restructuring…as a temporary solution to crises understood…in terms of the overaccumulation of capital'. It is a temporary solution because these newly appropriated spaces will in turn become exhausted of profitable potential and are likely to produce their own stocks of surplus capital; while ‘capital surpluses that otherwise stood to be devalued, could be absorbed through geographical expansions and spatio-temporal displacements' (Harvey, [2006](https://www.nature.com/articles/s41599-019-0218-9#ref-CR23), p. xviii), this outwards drive of capitalism is inherently limitless: there is no end point or final destination for capitalism. Instead, capitalism must continuously propel itself onwards in search of pristine sites of renewed capital accumulation. In this way, Harvey writes, society constantly ‘creates fresh productive powers elsewhere to absorb its overaccumulated capital' (Harvey, [1981](https://www.nature.com/articles/s41599-019-0218-9#ref-CR24), p. 8). Historically, spatial fixes have played an important role in conserving the capitalist system. As Jessop ([2006](https://www.nature.com/articles/s41599-019-0218-9#ref-CR34), p. 149) points out, ‘The export of surplus money capital, surplus commodities, and/or surplus labour-power outside the space(s) where they originate enabled capital to avoid, at least for a period, the threat of devaluation'. But these new spaces for capital are not necessarily limited to physical terrains, as with colonial expansion in the nineteenth century; as Greene and Joseph ([2015](https://www.nature.com/articles/s41599-019-0218-9#ref-CR19)) note, various digital spaces, such as the Internet, can also be considered as spatial fixes: the Web absorbs overaccumulated capital, heightens consumption of virtual and physical goods, and makes inexpensive, flexible sources of labor available to employers. Greene and Joseph offer the example of online high-speed frequency trading as a digital spatial fix that furthers the ‘annihilation of space by time' first noted by Marx in his Grundrisse (see Marx, [1973](https://www.nature.com/articles/s41599-019-0218-9#ref-CR40), p. 524). Outer space serves at least two purposes in this regard. In the short-to medium-term, it allows for the export of surplus capital into emerging industries, such as satellite imaging and communication. These are significant sites of capital accumulation: global revenues in the worldwide satellite market in 2016 amounted to $260 billion (SIA, [2017](https://www.nature.com/articles/s41599-019-0218-9#ref-CR55), p. 4). Clearly, much of this activity is taking place ‘on the ground'; it is occurring in the ‘terrestrial economy'. But all that capital would have to find some other meaningful or productive outlet were it not for the expansion of capital into space. Second, outer space serves as an arena of technological innovation, which feeds back into the terrestrial economy, helping to avert crisis by pushing capital out of technological stagnation and innovation shortfalls. In short, outer space serves as a spatial fix. It swallows up surplus capital, promising to deliver valuable resources, technological innovations, and communication services to capitalists back on Earth. This places outer space on the same level as traditional colonization, analyzed in Hegel’s Philosophy of Right, which Hegel thought of as a product of the ‘inner dialectic of civil society', which drives the market to ‘push beyond its own limits and seek markets, and so its necessary means of subsistence, in other lands which are either deficient in the goods it has overproduced, or else generally backward in creative industry, etc.' (Hegel, [2008](https://www.nature.com/articles/s41599-019-0218-9#ref-CR26), p. 222). In this regard, SpaceX and related ventures are not so very different from maritime colonialists and the trader-exploiters of the British East India Company. But there is something new at stake. As the Silicon Valley entrepreneur Peter Diamandis has gleefully noted: ‘There are twenty-trillion-dollar checks up there, waiting to be cashed!' (Seaney and Glendenning, [2016](https://www.nature.com/articles/s41599-019-0218-9#ref-CR54)). Capitalistkind consists in the naturalization of capitalist consciousness and practice, the (false) universalization of a particular mode of political economy as inherent to the human condition, followed by the projection of this naturalized universality into space—capitalist humanity as a Fukuyamite ‘end of history', the end-point of (earthly) historical unfolding, but the starting point of humanity’s first serious advances in space.

### Underview

#### The role of the ballot is to evaluate whether the resolutional claim is true or false – anything else is arbitrary and moots half of the Affs speech time – the 1AR is too short to readjust – if you wanted to debate policy go down the hall

#### I get new 1AR theory – anything else allows infinite unchecked abuse in the NC and the NR is long enough to answer any theory

#### I get RVI interps of T and theory – anything else makes voting issues unfair – they’re zero risk for the Neg but if I undercover it I lose the round