# 1AC Emory R6

## 1AC

### Framework

#### I affirm the resolution resolved: The appropriation of outer space by private entities is unjust.

#### Flowing directly from the use of the word ‘unjust’ in the resolution, my value is justice.

#### Accordingly, my value criterion is maximizing well-being, commonly known as utilitarianism. Prefer my value criterion for three reasons:

#### 1] The government and their citizens join an agreement called the social contract where citizens give up certain rights and in return the government provides protection to their citizens. The government, the actor of the resolution, has to help the most people possible which means they use utilitarianism. They have to maximize the well-being of their citizens.

#### 2] Every life is equal. Imagine being put in the situation where you can save 50 lives or 1. You need to save the greatest amount of people in this situation because every life is worth the same. This means we have to maximize the well-being of the most people because we have to value every life the same. Therefore, the government has to act morally and maximize well-being.

#### 3] When creating policies that pertain to entire countries or even the entire world such as the resolution we are currently debating, we are unable to act on individual contingencies but instead must act for the greater good of society in a utilitarian manner.

#### ROBERT GOODINexplains,

Consider, first, the argument from necgooessity. Public officials are obliged to make their choices under uncertainty, and uncertainty of a very special sort at that. All choices – public and private alike – are made under some degree of uncertainty, of course. But in the nature of things, private individuals will usually have more complete information on the peculiarities of their own circumstances and on the ramifications that alternative possible choices might have for them. Public officials, in contrast, are relatively poorly informed as to what effects that their choices will have on individuals, one by one. What they typically do know are generalities: averages and aggregates. They know what will happen most often to most people as a result of their various possible choices. But that is all. That is enough to allow public policy-makers to use utilitarian calculus – if they want to use it fat all – to choose general rules of conduct. Knowing aggregates and averages, they can proceed to calculate the utility payoffs from [of] adopting each alternative possible general rule.

### Plan

#### As space and the way it is approached is already a complex topic, I will begin by explaining the affirmative’s advocated approach to legally interacting with space.

#### We must move towards space appropriation as a collective, international act under the Common Heritage Principle – this can occur through the Terran Space Agency, known as the TESA, and absolutely prohibits private appropriation of space. Aram Krekonian writes,

Kerkonian, Aram Daniel. "The Possible Regulation of Certain Space Activities through an International Orgnaization: Tutmonda Spaco Agentejo." ZLW 67 (2018): 279.

Having highlighted the seriousness of the multifaceted legal issues inherent in a num- ber of impending space activities and the **valuable role a TESA may play in addressing them**, what remains to be determined is how a TESA would address such issues, how it may be formed, what its mandate may include, how it could cultivate political buy- in without alienating national actors, how it may best meet the needs of humanity, the effect it will have on unifying the human species and how it may be used to bridge the inequality gap. The **proposed TESA may serve the function of solving today's, and preventing tomorrow's, crises in space if it is constructed in a flexible manner that allows for an a priori, immediate and effective reaction to space-based developments**; by **acting as an agent of all States**, it may do so in a manner that is **independent from national political interests** and **directed towards benefitting humanity**. Sovereignty is the bedrock of international relations. Following the Treaty of West- phalia, the concept of an independent, autonomous State emerged alongside the rec- ognition that all States are equally independent and autonomous. These twin concepts have since coloured international relations and States, as the supreme authority within a defined territory, remain the dominant players. It is for this reason that **accomplish- ing anything international is the result of cooperation**: it takes the unified effort of in- dividual States to decide and move towards any international objective. This supreme authority, however, is curtailed by certain realizations, such as the fact that **individual actions of one State may interfere with the sovereignty of another**. Underlying this realization is the fact that **all States, as individuals, are only one part of the whole**. As such, **cooperation is key** and nowhere is this truer than in outer space. The **laws of physics make it impossible to divide outer space** - particularly the Earth's orbits - **into discernible territories** with which we are familiar on Earth. Celestial bodies and space objects are in constant motion and cannot be made to simply "rest" in a particular spot in space over which a State may have authority. As a result, **every activity in space has the potential to affect every other activity in space. Determining how space is used, therefore, is one of mutual concern to all States** whether space- faring or not: to this end, **international cooperation is the key** and **the reason why the 42 space treaties place it in such high regard**. Presently, as our use and reliance on outer space continues to grow, **space actors will find that such cooperation is increasingly important**. Moving forward, **there will be a need for an international organization that can act as an agent of all States**, preserving and promoting their mutual interests in outer space. **A TESA would characterize the pinnacle of international cooperation that is nec- essary to maintain our use of outer space and would necessarily require individual States to empower it with such capabilities**. This will **require States to cede some of their sovereign decision-making powers to a TESA** for their own long-term benefit. Such authority would only come about after States agree on establishing such a TESA and outlining its mandate and expected role. While it is true that relinquishing sover- eignty is never a State's priority, it can be in its interest; **recognizing that each State is but an individual actor for humanity, creating an agency that would follow an agreed mandate to benefit all parties will be palatable**; for all the reasons outlined above, a **TESA would be a particularly suited for this task**. Critics will no doubt point to the many obstacles associated with creating a new in- ternational organization, let alone **one that would seemingly relegate national sov- 43 ereignty in space** . There is value in investigating such criticisms and determining whether they are mere hesitations to change or whether they are fatal to the creation of the proposed TESA. The author suspects that the theme of such criticisms is that political agreement is at an all-time low and creating such a system would prove ex- tremely difficult - while true, these are criticisms of a motivational rather than legal nature and can be overcome with concerted effort. 44 The **creation of a TESA**, while an ideological first in the realm of space, **would not be unprecedented**. The **United Nations system offers numerous examples** of situations demanding collective action where interests would be best served by creating an in- 45 ternational fund, programme, specialized agency or other body. The **organization bearing the most foundational resemblance to the proposed T**ESA would be the In- ternational **Telecommunications Union**. Founded in 1865 upon **realizing the need for coordination and cooperation in telegraph, telephone and later telecommunications services**, the ITU is considered one of the most successful UN agencies, having ad- dressed numerous developments over its 150-year existence. The ITU is also unique in that it allows for the participation of private industry in combination with member States (albeit in a non-voting capacity), a model that maybe replicable in a TESA.

#### There are two major areas of contention for which you should prefer our model of the TESA.

### Contention 1 – Debris

#### The first contention is space debris.

#### Private space appropriation leads to a massive increase in space junk, Holden

John Holden, July 12, 2018, The Irish Times, Why space capitalism will eat itself, https://www.irishtimes.com/business/innovation/why-space-capitalism-will-eat-itself-1.3556368

Which is great because when it comes to exploring space the end justifies the means. But now we must deal with the fallout from turning our galaxy into another market. Wild West It would be trite to compare the commercial space sector to the American Wild West. But with no one policing the burgeoning industry, **businesses operate untethered in a market where there are n**o rules and no open channels of communication**. It means satellites are launched unchecked every day by anyone** – from the amateur enthusiast in her back garden to major international space co-operatives. **It’s nearly impossible to know what’s really going on up there**. US officials believe there are about half a million man-made objects floating around in orbit. But that’s about as specific as they can get. Not very scientific. The only thing more predictable than tired Wild West analogies is the human species itself. We are a predictable bunch, prone to making the same mistakes over and over. As such, we enter a new era where space pollution is an issue. What could be a more iconic symbol of our wretched love for creating waste than flying devices designed never to return? Earlier this year, India broke all previous records by launching 104 satellites at once into orbit. Cool. Except those 104 satellites are destined to become 104 (or more) pieces of trash floating around in space. That’s right. Satellite technology, in its current state, is the new “lightbulb” of planned obsolescence. What could be a more iconic symbol of our wretched love for creating waste than flying devices designed never to return? When a satellite’s mission is complete, or it malfunctions, it’s gone. Girl, bye. **“Space junk” makes up a significant proportion of the guesstimated 500,000 plus objects floating around in orbit. About 23,000 of these objects are currently being tracked and maintained by the US Strategic Command. These so-called resident space objects are either satellites still in use or are known objects no longer fit for purpose. They could be as small as a tennis ball or the size of a double decker bus. I**n addition, however, **there are hundreds of thousands of other objects – bolts, exploded satellite pieces, large rockets and other space debris – that are unaccounted for. Efforts have been made to try to consolidate public with private data on what is up there but, for various reasons, the space community does not openly share information on where all objects are located.** Lack of regulation For the entrepreneurially inclined, it is probably not that surprising to hear **many are taking advantage of the severe lack of regulation in space**. Sure why wouldn’t you? Moreover why would anyone publicly disclose how and where their interests lie in a given market, intergalacticor otherwise, if they weren’t obliged to? But space isn’t just another market. Thinking one can apply the same rules up there as we use on earth is shortsighted for so many reasons. Down here the economic “unknowns” are known. Space is replete with unknown unknowns. If a satellite that is used to collect data to sell on to business customers one day stops sending data, and you haven’t the foggiest notion why, what do you tell the customers? How do you attribute cause? How does a company predict the likelihood of loss or damage to its equipment in space or perform other prudent exercises before getting into the space game? One of the chief concerns for any new business is risk and how to mitigate it. There couldn’t be a much riskier bet than entering a market with no regulation, patchy knowledge of your competitors’ location or size, and to top it all off, little understanding of the physical environment within which the business will operate. Until everyone is economically incentivised to behave responsibly in space, the chaos will continue. With aplomb. It won’t last forever though. The current lack of regulation is, in itself, the mother of all gaps in the biggest market civilization may ever exploit. And the Trump administration is the first to corner it. Suddenly the decision to give responsibility for space traffic management issues to the commerce department, and not the FAA, begins to make sense.

#### Asteroid mining spikes the risk of satellite-dust collisions – it’s statistically proven, Scoles in 2015:

Scoles 15 [(Sarah Scoles, freelance science writer, contributor at Wired and Popular Science, author of the books Making Contact and They Are Already Here) “Dust from asteroid mining spells danger for satellites,” New Scientist, May 27, 2015, <https://www.newscientist.com/article/mg22630235-100-dust-from-asteroid-mining-spells-danger-for-satellites/>] TDI

* Study this is citing – Javier Roa, Space Dynamic Group, Applied Physics Department, Technical University of Madrid. Casey J Handmer, Theoretical Astrophysics, California Institute of Technology. Both PhD Candidates. “Quantifying hazards: asteroid disruption in lunar distant retrograde orbits,” arXiv, Cornell University, May 14, 2015, <https://arxiv.org/pdf/1505.03800.pdf>

NASA chose the second option for its [Asteroid Redirect Mission](http://www.nasa.gov/content/what-is-nasa-s-asteroid-redirect-mission/), which aims to [pluck a boulder from an asteroid’s surface](https://www.newscientist.com/article/dn27243-rock-grab-from-asteroid-will-aid-human-mission-to-mars) and relocate it to a stable orbit around the moon. But an asteroid’s gravity is so weak that it’s not hard for surface particles to escape into space. Now a new model warns that debris shed by such transplanted rocks could intrude where many defence and communication satellites live – in geosynchronous orbit. According to [Casey Handmer](http://www.caseyhandmer.com/) of the California Institute of Technology in Pasadena and Javier Roa of the Technical University of Madrid in Spain, 5 per cent of the escaped debris will end up in regions traversed by satellites. Over 10 years, it would cross geosynchronous orbit 63 times on average. A satellite in the wrong spot at the wrong time will suffer a damaging high-speed collision with that dust. The study also looks at the “catastrophic disruption” of an asteroid 5 metres across or bigger. Its total break-up into a pile of rubble would increase the risk to satellites by more than 30 per cent ([arxiv.org/abs/1505.03800](http://arxiv.org/abs/1505.03800)).

#### Space dust wrecks satellites and debris exponentially spirals

Intagliata 17 [(Christopher Intagliata, MA Journalism from NYU, Editor for NPRs All Things Considered, Reporter/Host for Scientific American’s 60 Second Science) “The Sneaky Danger of Space Dust,” Scientific American, May 11, 2017, <https://www.scientificamerican.com/podcast/episode/the-sneaky-danger-of-space-dust/>] TDI

When tiny particles of space debris slam into satellites, the collision could cause the emission of hardware-frying radiation, Christopher Intagliata reports. Aside from all the satellites, and the space station orbiting the Earth, there's a lot of trash circling the planet, too. Twenty-one thousand [baseball-sized chunks](https://www.scientificamerican.com/article/orbital-debris-space-fence/) of debris, [according to NASA](https://www.orbitaldebris.jsc.nasa.gov/faq.html). But that number's dwarfed by the number of small particles. There's hundreds of millions of those. "And those smaller particles tend to be going fast. Think of picking up a grain of sand at the beach, and that would be on the large side. But they're going 60 kilometers per second." Sigrid Close, an applied physicist and astronautical engineer at Stanford University. Close says that whereas mechanical damage—like punctures—is the worry with the bigger chunks, the dust-sized stuff might leave more insidious, invisible marks on satellites—by causing electrical damage. "We also think this phenomenon can be attributed to some of the failures and anomalies we see on orbit, that right now are basically tagged as 'unknown cause.'" Close and her colleague Alex Fletcher modeled this phenomenon mathematically, based on plasma physics behavior. And here's what they think happens. First, the dust slams into the spacecraft. Incredibly fast. It vaporizes and ionizes a bit of the ship—and itself. Which generates a cloud of ions and electrons, traveling at different speeds. And then: "It's like a spring action, the electrons are pulled back to the ions, ions are being pushed ahead a little bit. And then the electrons overshoot the ions, so they oscillate, and then they go back out again.” That movement of electrons creates a pulse of electromagnetic radiation, which Close says could be the culprit for some of that electrical damage to satellites. The study is in the journal Physics of Plasmas. [Alex C. Fletcher and Sigrid Close, [Particle-in-cell simulations of an RF emission mechanism associated with hypervelocity impact plasmas](http://aip.scitation.org/doi/full/10.1063/1.4980833)]

#### Approval of technology to clean up and prevent space debris is impossible if private entities can claim things in space, only using the TESA exclusively solves, Krekonian writes,

Kerkonian, Aram Daniel. "The Possible Regulation of Certain Space Activities through an International Orgnaization: Tutmonda Spaco Agentejo." ZLW 67 (2018): 279.

**Every actor engaged in space activities realizes that space debris continues to increase 4 unabated and poses a threat to current and future space operations**. 5 Avoiding a Kes- sler runoff' (which would make space inaccessible for hundreds of years) is to ev- eryone's benefit and yet **we have made no progress in remedying the situation since realizing it in 1978**. While some efforts have slowed the intentional creation of new debris, the more **serious challenge of removing existing debris remains unaddressed**. **Although viable technological solutions have been proposed** for decades, the **legal realities of space prevent the implementation of such** promising solutions. 8 19 The **established legal regime carefully assigns responsibility , liability and juris- 20 diction and control on the basis of particular factors, often designating different States to each legal characteristic**. Since **every debris remediation attempt requires the consent of the State that has jurisdiction on a case-by-case basis** (regardless of whether we are considering a functioning satellite, a spent fuel tank or a dislodged paint chip), **approval is complicated and sometimes impossible** (for example, with unidentifiable debris ). To make matters worse, since **liability attaches to a launching State** (whose consent is not necessary unless they are also the State of registry) **if dam- age occurs during a remediation they did not consent to, the determination of fault becomes highly convoluted**. Further, the **current political climate makes it unlikely for major space faring nations to enter remediation efforts with each other over fear of having their on-board data hacked or having their protected technologies reverse- engineered**. Could a **TESA serve as a platform upon which to refine debris remediation technologies and capabilities, establish a fund to insure against damage caused by remediation efforts or acquire waivers from all space faring nations consenting to the remediation of unidentified debris**? Equally importantly, would the **international and non-partial character of a TESA instill confidence** in individual States that **remediated objects would not be used for nefarious purposes**? Could a TESA **act on behalf of humanity** to preserve access to near-space for generations to come? If space is to be used to benefit all people, cleaning-up and maintaining the space environment is of monumental importance and a TESA would be well placed to ensure its sustainability.

#### Mass amounts of space debris is a ticking time bomb. Destruction of satellites is bound to happen and cascades into something known as the ‘kessler effect’, destroying many important things we have in orbit causing various issues on earth and even triggering war. Les Johnson, deputy manager for NASA’s advanced concepts office, writes,

Les Johnson 13, Deputy Manager for NASA's Advanced Concepts Office at the Marshall Space Flight Center, Co-Investigator for the JAXA T-Rex Space Tether Experiment and PI of NASA's ProSEDS Experiment, Master's Degree in Physics from Vanderbilt University, Popular Science Writer, and NASA Technologist, Frequent Contributor to the Journal of the British Interplanetary Sodety and Member of the American Institute of Aeronautics and Astronautics, National Space Society, the World Future Society, and MENSA, Sky Alert!: When Satellites Fail, p. 9-12 [language modified]

Whatever the initial cause, the result may be the same. A satellite destroyed in orbit will break apart into thousands of pieces, each traveling at over 8 km/sec. This virtual shotgun blast, with pellets traveling 20 times faster than a bullet, will quickly spread out, with each pellet now following its own orbit around the Earth. With over 300,000 other pieces of junk already there, the tipping point is crossed and a runaway series of collisions begins. A few orbits later, two of the new debris pieces strike other satellites, causing them to explode into thousands more pieces of debris. The rate of collisions increases, now with more spacecraft being destroyed. Called the "Kessler Effect", after the NASA scientist who first warned of its dangers, these debris objects, now numbering in the millions, cascade around the Earth, destroying every satellite in low Earth orbit. Without an atmosphere to slow them down, thus allowing debris pieces to bum up, most debris (perhaps numbering in the millions) will remain in space for hundreds or thousands of years. Any new satellite will be threatened by destruction as soon as it enters space, effectively rendering many Earth orbits unusable. But what about us on the ground? How will this affect us? Imagine a world that suddenly loses all of its space technology. If you are like most people, then you would probably have a few fleeting thoughts about the Apollo-era missions to the Moon, perhaps a vision of the Space Shuttle launching astronauts into space for a visit to the International Space Station (ISS), or you might fondly recall the "wow" images taken by the orbiting Hubble Space Telescope. In short, you would know that things important to science would be lost, but you would likely not assume that their loss would have any impact on your daily life. Now imagine a world that suddenly loses network and cable television, accurate weather forecasts, Global Positioning System (GPS) navigation, some cellular phone networks, on-time delivery of food and medical supplies via truck and train to stores and hospitals in virtually every community in America, as well as science useful in monitoring such things as climate change and agricultural sustainability. Add to this the [destruction] ~~crippling~~ of the US military who now depend upon spy satellites, space-based communications systems, and GPS to know where their troops and supplies are located at all times and anywhere in the world. The result is a nightmarish world, one step away from nuclear war, economic disaster, and potential mass starvation. This is the world in which we are now perilously close to living. Space satellites now touch our lives in many ways. And, unfortunately, these satellites are extremely vulnerable to risks arising from a half-century of carelessness regarding protecting the space environment around the Earth as well as from potential adversaries such as China, North Korea, and Iran. No government policy has put us at risk. It has not been the result of a conspiracy. No, we are dependent upon them simply because they offer capabilities that are simply unavailable any other way. Individuals, corporations, and governments found ways to use the unique environment of space to provide services, make money, and better defend the country. In fact, only a few space visionaries and futurists could have foreseen where the advent of rocketry and space technology would take us a mere 50 years since those first satellites orbited the Earth. It was the slow progression of capability followed by dependence that puts us at risk. The exploration and use of space began in 1957 with the launch of Sputnik 1 by the Soviet Union. The United States soon followed with Explorer 1. Since then, the nations of the world have launched over 8,000 spacecraft. Of these, several hundred are still providing information and services to the global economy and the world's governments. Over time, nations, corporations, and individuals have grown accustomed to the services these spacecraft provide and many are dependent upon them. Commercial aviation, shipping, emergency services, vehicle fleet tracking, financial transactions, and agriculture are areas of the economy that are increasingly reliant on space. Telestar 1, launched into space in the year of my birth, 1962, relayed the world's first live transatlantic news feed and showed that space satellites can be used to relay television signals, telephone calls, and data. The modern telecommunications age was born. We've come a long way since Telstar; most television networks now distribute most, if not ali, of their programming via satellite. Cable television signals are received by local providers from satellite relays before being sent to our homes and businesses using cables. With 65% of US households relying on cable television and a growing percentage using satellite dishes to receive signals from direct-to-home satellite television providers, a large number of people would be cut off from vital information in an emergency should these satellites be destroyed. And communications satellites relay more than television signals. They serve as hosts to corporate video conferences and convey business, banking, and other commercial information to and from all areas of the planet. The first successful weather satellite was TIROS. Launched in 1960, TIROS operated for only 78 days but it served as the precursor for today's much more long-lived weather satellites, which provide continuous monitoring of weather conditions around the world. Without them, providing accurate weather forecasts for virtually any place on the globe more than a day in advance would be nearly impossible. Figure !.1 shows a satellite image of Hurricane Ivan approaching the Alabama Gulf coast in 2004. Without this type of information, evacuation warnings would have to be given more generally, resulting in needless evacuations and lost economic activity (from areas that avoid landfall) and potentially increasing loss of life in areas that may be unexpectedly hit. The formerly top-secret Corona spy satellites began operation in 1959 and provided critical information about the Soviet Union's military and industrial capabilities to a nervous West in a time of unprecedented paranoia and nuclear risk. With these satellites, US military planners were able to understand and assess the real military threat posed by the Soviet Union. They used information provided by spy satellites to help avert potential military confrontations on numerous occasions. Conversely, the Soviet Union's spy satellites were able to observe the United States and its allies, with similar results. It is nearly impossible to move an army and hide it from multiple eyes in the sky. Satellite information is critical to all aspects of US intelligence and military planning. Spy satellites are used to monitor compliance with international arms treaties and to assess the military activities of countries such as China, Russia, Iran, and North Korea. Figure 1.2 shows the capability of modem unclassified space-based imaging. The capability of the classified systems is presumed to be significantly better, providing much more detail. Losing these satellites would place global militaries on high alert and have them operating, literally, in the blind. Our military would suddenly become vulnerable in other areas as well. GPS, a network of 24-32 satellites in medium-Earth orbit, was developed to provide precise position information to the military, and it is now in common use by individuals and industry. The network, which became fully operational in 1993, allows our armed forces to know their exact locations anywhere in the world. It is used to guide bombs to their targets with unprecedented accuracy, requiring that only one bomb be used to destroy a target that would have previously required perhaps hundreds of bombs to destroy in the pre-GPS world (which, incidentally, has resulted in us reducing our stockpile of non-GPS-guided munitions dramatically). It allows soldiers to navigate in the dark or in adverse weather or sandstorms. Without GPS, our military advantage over potential adversaries would be dramatically reduced or eliminated.

### Contention 2 – Inequality

#### Private appropriation of space instead of treating it as a global commons re-entrenches inequality on Earth. Stockwell 20

Samuel Stockwell, 7-20-2020, "Legal ‘Black Holes’ in Outer Space: The Regulation of Private Space Companies," E-International Relations, <https://www.e-ir.info/2020/07/20/legal-black-holes-in-outer-space-the-regulation-of-private-space-companies/> //marlborough JH

On 30th April 2020, NASA – the US government’s space agency ­– awarded three private space companies a joint-contract 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 [Outer Space Treaty] 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 treatyis widely accepted as an authoritative document and has formed the basis for all other space treaties that have succeeded it (Kramer, 2017: 129). This is in contrast to more recent legislation such as the 1972 Moon Treaty designed to promote cooperation in Moon exploration and development, which the US and other major space superpowers have refrained from signing (Adolph, 2006: 968-969).  ¶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 so-called ‘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 extra-terrestrial 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 Earth-bound 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.