## AC – Policy

### AC – Framework

**The standard is hedonistic utilitarianism. Prefer:**

**1] Pleasure and pain are intrinsically valuable and empirically verified by neurological tests**

**Skyrms and Narens 20**

Skyrms, B., Narens, L. (2020). The Pursuit of Happiness: Philosophical and Psychological Foundations of Utility. United Kingdom: Oxford University Press. // JoshDrills

In 1953, James Olds joined Donald Hebb’s laboratory at the McGill University to study neurobiology of learning. Contemporary research had identified areas which when stimulated led to aversive behavior: Just before we began our own work, H. R. Delgado, W. W. Roberts, and N. E. Miller at Yale University had undertaken a similar study. They had located an area in the lower part of the mid-line system where stimulation caused the animal to avoid the behavior that provoked the electrical stimulus. We wished to investigate positive as well as negative effects (that is, to learn whether stimulation of some areas might be sought rather than avoided by the animal).⁴ He set out to see whether stimulation of the reticular activating system would lead to reinforcement and learning of the behavior present during the stimulation. The initial discovery was due to a lucky error: We were not at first concerned to hit very specific points in the brain, and, in fact, in our early tests the electrodes did not always go to the particular areas in the mid-line system at which they were aimed. Our lack of aim turned out to be a fortunate happening for us. In one animal, the electrode missed its target and landed not in the mid-brain reticular system but in a nerve pathway from the rhinencephalon. This led to an unexpected discovery.⁵ The **correctly placed electrodes** did not **produce** the desired effect, but the mistaken one did. This exciting discovery led to a program of investigating areas of the brain that had this property. This led to 1954 path-breaking paper with Peter Milner: “**Positive Reinforcement** Produced by Electrical Stimulation of Septal Area and Other Regions of Rat Brain.” This paper already identified more than one region involved in positive reinforcement; subsequent research expanded the list. In 1956, Olds wrote a popular account of the research in Scientific American, “**Pleasure Centers in the Brain**,” and the findings became famous. **Subsequent investigation** describing repeated self-stimulation by rats to the exclusion of all else made for an even more powerful story. One might think that such experiments could never be carried out in humans, but they were, in fact, carried out by Robert Heath at Tulane University in the 1970s. One infamous experiment was aimed at curing a subject of homosexuality, patient B-19. B-19 would self-stimulate by repeatedly pressing a button connected to implanted electrodes just as the rat did. Heath stimulated the patient in conjunction with heterosexual pornography. The “cure” was completed with the help of a young female prostitute recruited from the French Quarter.⁶ Some may have been tempted to think a hedonimeter is right around the corner, **measur**ing **activity in** the **pleasure center of** the **brain**. There are several problems with this simplistic interpretation of Olds’ experiments. The first is that the areas that he identified as pleasure centers appear not to be pleasure centers at all. They are connected to desire rather than pleasure, to “wanting” or incentive salience rather than “liking.”⁷ These centers can be blocked, and a **subject** can still **experience pleasure**. But the subject will not **desire to repeat** the **experience**. To be sure, when everything is working normally there usually is **desire for pleasure**, and pleasure engenders desire. But the two systems can come apart. Olds’ rats and Heath’s Patient B-29 kept pushing that button because the brain stimulation made them want to, not because it produced pleasure (Figure 9.1). There are areas of the brain that are implicated in pleasurable experience, but they are not the ones that Olds discovered. Furthermore, there is not just one pleasure center, but rather many areas involved forming a complicated distributed pleasure system. 9.4 The “Pleasure Chemical” The **neurological** areas that Olds investigated contained a lot of **dopamine receptors**. The popular meme made dopamine the neurotransmitter responsible for pleasure. With the discovery that activity in these areas did not induce pleasure, the neurological perspective shifted. The neurotransmitters primarily responsible for pleasure now appear to be endogenous opioids and cannabinoids. So, a better meme appears to be “dopamine **for desire**, opioids for pleasure.” This, like the “pleasure center of the brain” is a gross and misleading oversimplification. As two leading neuroscientists put it: The idea that a brain hotspot or coding apex mediates pleasure or happiness can all too easily turn into phrenology if taken as a literal truth, and unconstrained chemo-phrenology poses an equal danger. Brain function is less constant than handy anatomical or chemical labels imply. Caveats, stipulations, and often even conditional (at least) retractions are sure to be needed, and if they are forgotten the effort to understand the brain will soon come to tears.⁸ The role of opioids alone is complex. Opioids are neurotransmitters that perform many functions in the nervous system (as does dopamine). There are opioid receptors all over the brain and, in fact, throughout the nervous system. Three different types of opioid receptors have been identified, called Mu, Delta, and Kappa. All of these are widely distributed, but frequency of different types varies with the anatomical region. The function of these receptors in various regions of the rodent brain has been extensively investigated using various techniques, including pharmacological blockade or potentiation, and genetic knockouts.⁹ The Mu receptors appear to be responsible for much of the pleasure generated by food and sex. To some extent the Delta receptors may also be involved in producing pleasure. But the Kappa receptors produce aversion. Different aspects of the opioid system are thus involved in both positive and negative reinforcement. Rats are complicated, but humans are arguably more complicated. There are the higher pleasures, which Bentham and the **Utilitarians** certainly did not want to neglect. There are the pleasures of listening to music and viewing works of art, not to mention the pleasures of creating music and art for those who are so capable. There are the sympathetic pleasures of causing pleasure in others. There is evidence that these pleasures involve more of the brain than the simple sensory pleasures. They appear also to involve the neocortex,1⁰ although how they do so has not been extensively studied. This would not have come as a surprise to the philosopher Immanuel Kant. See his **Observ**ations on the Feeling of the Beautiful and the Sublime.11 Addition neurotransmitters may come into play12 The picture appears to be becoming more complicated. 9.5 Pleasure and Pain Can pleasure and pain be well-represented as positive numbers on a single continuum, separated by a natural zero, in the way presupposed by Edgeworth’s hedonimeter? Common experience raises caution flags. It appears to be possible to feel both **pleasure and pain** at the same time, as in eating food with hot peppers, or feeling the pain of intense exercise. Masochists seem to cultivate the ability. This suggests that pleasure and pain should be put on different dimensions. Some neurobiology seems to point in the opposite direction. It reveals some commonalities in pleasure and pain systems. Dopamine plays a role in **anticipation of each**. Opioids are involved in each kind of **hedonic valence**. But closer inspection reveals differences between the systems as well. Both pleasure and pain systems may be active at the same time. The hedonimeter presupposes that a little pain cancels some pleasure; a little pleasure cancels some pain. Bentham thought that pleasure and pain interact additively, like adding positive and negative numbers. If this were so, the result would be a net hedonic value, which is what the hedonimeter would read out. Despite some analgesic effect of strong pleasure, this simple additivity picture is implausible. If the masochistic chili pepper eater prefers his pleasure with a little pain to pleasure without, he contradicts Bentham. In a prelude discussion to their anthology, Pleasures of the Brain, Kringelbach and Berridge put the question directly to authors in the anthology.13 The answers differ in interesting ways. Some say that **pleasure and pain** are orthogonal dimensions; others see the single dimension **as** a sometimesuseful **heuristic**.1⁴ None support the strict one-dimensional view in the sense discussed here.

**Extinction comes first – 3 warrants:**

**1] Moral uncertainty means any risk of extinction outweighs under any framework**

**Bostrom 13**, Nick. "Existential risk prevention as global priority." Global Policy 4.1 (2013): 15-31. (Faculty of Philosophy and Oxford Martin School University of Oxford) // Elmer rc js69

These reflections on moral uncertainty suggest an alternative, complementary way of looking at existential risk; they also suggest a new way of thinking about the ideal of sustainability. Let me elaborate. Our present understanding of axiology might well be confused. **We may not now know — at least not in concrete detail — what outcomes would count as a big win for humanity**; we might not even yet be able to imagine the best ends of our journey. If we are indeed profoundly uncertain about our ultimate aims, then we should recognize that there is a great option value in preserving — and ideally improving — our ability to recognize value and to steer the future accordingly. **Ensuring that there will be a future version of humanity** with great powers and a propensity to use them wisely **is plausibly the best way available to us to increase the probability that the future will contain a lot of value. To do this, we must prevent any existential catastrophe**.

**2] Future improvement – extinction removes possibility for future innovation or allowing development of systems or evaluation**

**3] Lexical prereq – in order for an idea to be moral or immoral it must be perceivable but if life ceased to exist then no idea would be perceivable meaning to maintain evaluation extinction risk must come first**

### AC – Plan

#### I affirm Resolved: The appropriation of outer space by private entities is unjust. The aff does this through the Plan: States will ratify the 1979 MOON Treaty – 22 nations have already signed but nations like the US and Russia haven’t – the enforcement is through a resolution of the initial treaty. And for further clarification: States are private entities when acting in competition with others

#### ISA and resolution are normal means and this card explains implementation further

Koch 18

Jonathan Sydney Koch (2018) Institutional Framework for the Province of all Mankind: Lessons from the International Seabed Authority for the Governance of Commercial Space Mining, Astropolitics, 16:1, 17-18, DOI: 10.1080/14777622.2017.1381824 // js69

What should one make out of these considerations and lessons from the ISA? As mentioned before, the common heritage of mankind principle does not apply to space, since the Moon Agreement became dormant and ratification by the spacefaring states remains unlikely for the foreseeable future.110 With the practical **achievements of the ISA**, the space community holds in hand an **applicable template for** the **sustainable** and equitable **governanc**e of resources that lie beyond national jurisdiction. While surely considerations over pragmatism and feasibility remain of paramount importance, I contend that the memory of negotiations with the Moon Agreement should not **shape the path** for future action. Reflecting on my discussion with the two legal experts, Tanja Masson-Swaan and Joanne Wheeler, I suggest a resolution to the current deadlock. Considering that one of the primary concerns of industrialized countries over the Moon Agreement pertained to the uncertainty over the exact nature, mandate, and implementation of an international regime for the utilization of space resources,111 as specified in Article 11(5) of the Moon Agreement, and bearing in mind that the ISA provides a template for such undertaking, it is conceivable to amend the Moon Agreement, by way of a resolution.112 Interestingly, the historical developments of the Law of the Sea are once again comparable. Adopted in April 1982, **UNCLOS was subject to** much contention and failed to be signed by most industrialized countries.113 Inconclusive debates over Part XI, providing for a regime for the governance of the deep seabed, had led to an impasse, preventing universal participation in UNCLOS. Twelve years later, after the accord was reopened for **negotiations** and interminable consultations finally overcame political reservations, a resolution and agreement relating to the implementation of Part XI of the Convention were reached in 1994.114 **An analogous resolution** **pertaining to** the **implementation of** Article 11(5) of **the Moon Agreement** **could allow for substantive adjustments** and renegotiation of primary points of concern, while **avoiding the bureaucratic exertions** and delays of forging a novel agreement.115 It equally circumvents the potential unwillingness and resistance of those countries that did ratify the Agreement to participate anew in the drafting of a different agreement.116 More specifically, this resolution could outline the precise mandate of an international authority for the utilization of space resources, by accounting for the formerly elucidated lessons from the ISA. As became apparent, the nebulous and historically charged language of “common heritage of mankind” became the vacuous shibboleth of the failed Moon Agreement. Subject to amalgamate and hasty conclusions, the principle proved a common strand through nearly every interview conducted and led to the defensive stance of industrial leaders for whom the principle epitomized a Communist ideology incompatible with profitable undertakings.117 Often conceived as entailing primarily the sharing of financial revenues, it seems that this principle hijacks any thoughtful discussion, demoting the prospects of successful negotiations over a **resolution pertaining to the Moon Agreement**. I contend that it **is worthwhile** to replace it by a less connotative concept of similar significance and meaning, such as “sustainable development” or “sustainable use.”

### AC – Drilling – Long

#### Advantage one is Arms Racing –

#### Scenario 1 is Drilling. The trends of privatization means that the moon agreement is key as it is the ONLY one that can prevent space mining – there is no regulation on space mining means aff is infinitely better than the squo

Koch 2

Jonathan Sydney Koch (2018) Institutional Framework for the Province of all Mankind: Lessons from the International Seabed Authority for the Governance of Commercial Space Mining, Astropolitics, 16:1, 3-5, DOI: 10.1080/14777622.2017.1381824 // js69

Regulations, however, have not kept pace with the commercial developments of the last decades.13 Although the Outer Space Treaty certainly remains a powerful and visionary document laying the fundamental principles for the peaceful use and exploration of space, it did not anticipate the trends in privatization.14 This posits a problem as the issue of exploitation of natural resources from celestial bodies remains largely unresolved. While four other multilateral agreements were signed under the auspices of the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS) in the decade following the Outer Space Treaty—the Rescue Agreement, the Liability Convention, the Registration Convention, and the Moon Agreement—**only the Moon Agreement touched upon the issue of extraterrestrial mining**. **Specifying that** the Moon and its **natural resources are the “common heritage of mankind**,” it declares that an international regime should be established to govern the extraction of such resources when it is about to become feasible.15 However, as only 16 States are parties to the Treaty, none of which is a spacefaring country, the Moon Agreement is largely recognized with little to no relevancy in international law. The effective corpus juris spatialis does not encompass provisions addressing directly the extraction of resources, which has recently led to controversies. International debate was sparked in November 2015 by the United States, as President Barack **Obama signed into law the Commercial Space Launch Competitiveness Act**. While the main part of the act addresses issues of commercial space transportation and third-party liability, the “Space Resource and Utilization Act” part of the new legislation **gives right to U.S. citizens t**o own, **transport, use, and sell space resources**. Aiming at **encouraging and promoting mining ventures beyond Earth orbit**, **the act** explicitly **states** that “**any asteroid** resources **obtained in outer space are** the **property of the entity that obtained them**, which shall be entitled to all property rights to them.”16 Whereas space advocates and entrepreneurs understandably applauded this historical move, providing them with at least some legal clarification and assurance in their endeavor, it also fosters turmoil within the space community.17 Despite repeated references within the legislation that any exploration or utilization of space resources would have to comply with U.S. international obligations under the Outer Space Treaty,18 some critics assert that it might constitute a breach in international law.19 The first two articles of the Outer Space Treaty 20 specify that (emphasis added): Article I. The exploration and use of outer space, including the Moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind. Outer space, including the Moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies. There shall be freedom of scientific investigation in outer space, including the Moon and other celestial bodies, and States shall facilitate and encourage international cooperation in such investigation. 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. Thus, the first article providing the freedom of use is balanced by the second article outlawing the ownership or appropriation of any celestial body. It therefore remains under contention whether the extraction of resources falls within the prohibitive language of appropriation or whether the use encompasses the commercial use and exploitation. While scholars contend that private enterprise might be exempt from these provisions, as only national appropriation is explicitly mentioned, it is worth noting that the additional provision of Article VI serves as a juridical link to bind non-state actors within the scope of the treaty.21 It specifies that states are obligated to supervise and authorize, and are therefore liable for, all national activities in space, including by non-governmental entities. A second point of contention relates to the guiding principle of the Outer Space Treaty and the question of benefits. While the province of all mankind remains an elusive concept, open to many interpretations, it remains questionable whether the bootstrapping of a new industry through unilateral action serves the interests of all.22 In sum, the ambiguity of a treaty that was drafted in all urgency against the backdrop of a Cold War and never intended to provide for the current controversy makes it difficult to take any clear-cut position on the subject. And although the **applicability of the non-appropriation principle** on natural resources **remains in contention** within the academic literature,23 leading experts and practitioners generally agree with the position paper issued in 2015 by the International Institute of Space Law (ISSL) stating that, “in view of the absence of a clear prohibition of the taking of resources in **the Outer Space Treaty**, one **can conclude that** the use of **space resources is permitted**. Viewed from this perspective, the new U.S. act is a possible interpretation of the Outer Space Treaty.”24 Moreover, considering that **space mining ventures** are already **attracting capital**, it is argued that it might be **preferable to have some** form of **regulation** rather **than none**.25 Ultimately, it remains to be seen how the U.S. act will be implemented to stay in accordance with international law, as Tania-Masson Zwaan, president of the IISL, remarked.26

**Mining Launching now – not if, but when**

Tosar 20

[(Borja Tosar, reporter) “Asteroid Mining: A New Space Race,” OpenMind BBVA, May 18, 2020, <https://www.bbvaopenmind.com/en/science/physics/asteroid-mining-a-new-space-race/>] TDI rc js69

This is not science fiction. There are now **space mining companies**, such as [Planetary Resources,](https://www.consensys.space/pr) which has **already launched** several **mini-satellites** to test several of its patents. Other companies like [Asteroid Mining Corporation](https://asteroidminingcorporation.co.uk/) or [Trans Astronautica Corporation,](https://www.transastracorp.com/) although still far from their goal, are already **attracting millions of dollars of private** **investment** interested in being on the front line of a possible future space business. Is asteroid mining possible? This new space race already began back when the Hayabusa missions successfully returned a few grams of an asteroid’s regolith, so **the tech**nology to harvest asteroid material **exists,** we **just have to change the scale**. It is no longer a technological problem. Is it economically viable? We are increasingly dependent on rare elements (such as those in the palladium group), which are expensive to exploit on Earth and come with a high environmental cost, so the sum of these two factors could make it profitable to travel to the asteroids to extract these raw materials. Astrophysicist Neil deGrasse argues that [the planet’s first trillionaire will undoubtedly be a space miner.](https://www.cnbc.com/2015/05/01/build-the-economy-here-on-earth-by-exploring-space-tyson.html)

#### Space mining sparks war

Skibba 16

Skibba, Ramin. (Skibba is an astrophysicist turned science writer and freelance journalist based in San Diego. Ph.D. in Physics & Astronomy at the University of Pittsburgh in 2006, and I earned a B.S. in Physics and B.A. in Philosophy at the University of Notre Dame.) “Mining in Space Could Lead to Conflicts on Earth - Facts so Romantic.” Nautilus, 19 Apr. 2016, [https://nautil.us/blog/mining-in-space-could-lead-to-conflicts-on-earth. //](https://nautil.us/blog/mining-in-space-could-lead-to-conflicts-on-earth.%20//) js69

Space mining is no longer science fiction. By the 2020s, Planetary Resources and Deep Space Industries—**for-profit space-mining companies** cooperating with NASA—will be **sending out swarms of tiny satellites** to assess the composition of hurtling hunks of cosmic debris, identify the most lucrative ones, and harvest them. They’ve already developed prototype spacecraft to do the job. Some people—like Massachusetts Institute of Technology planetary scientist Sara Seager, former NASA deputy administrator Lori Garver, and science writer Phil Plait—argue that, to continue advancing as a space-faring species, we need to embrace this commercial space mining industry, and perhaps even facilitate it, too. But should we? This question concerns me, as both an astrophysicist and a space enthusiast. Before becoming a science communicator, I worked for 15 years researching the evolution of galaxies, the properties of dark matter, and the expansion of the universe. From that perspective, the distance from us to the asteroid belt is actually rather small, so the question of whether to mine it, and in what way, hits close to home. The Space Act of 2015, a U.S. law passed last fall, authorizes the president “to facilitate the commercial exploration and utilization of space resources to meet national needs.” It’s an exciting prospect, to be sure, but also a troubling one. For one thing, it appears to violate international law, according to Congressional testimony by Joanne Gabrynowicz, a space law expert at the University of Mississippi. Before NASA’s moon landing, the United States—along with other United Nations Security Council members and many other countries—signed the 1967 Outer Space Treaty. “Outer space, including the moon and other celestial bodies,” it states, “is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.” The 1979 **Moon Agreement** went further, declaring outer space to be the “common heritage of mankind” and explicitly **forbidding any state or organization from annexing** (non-Earth) **natural resources in** the **solar system**. Major space-faring nations are not among the 16 countries party to the treaty, but they should arguably come to some equitable agreement, since international **competition over natural resources in space** **may** very well **transform into conflict**. Take platinum-group metals. Mining companies have found about 100,000 metric tons of the stuff in deposits worldwide, mostly in South Africa and Russia, amounting to $10 billion worth of production per year, according to the U.S. Geological Survey. These supplies should last several decades if demand for them doesn’t rise dramatically. (According to Bloomberg, supply for platinum-group metals is constrained while demand is increasing.) Palladium, for example, valued for its conductive properties and chemical stability, is used in hundreds of millions of electronic devices sold annually for electrodes and connector platings, but it’s relatively scarce on Earth. A single giant, platinum-rich asteroid could contain as much platinum-group metals as all reserves on Earth, the Google-backed Planetary Resources claims. That’s a massive bounty. As Planetary Resources and other U.S. and foreign companies scramble for control over these valuable space minerals, competing “land grabs” by armed satellites may come next. Platinum-group metals in space may serve the same role as oil has on Earth, threatening to extend geopolitical struggles into astropolitical ones. **NASA’s increasing** **collaboration with space mining** companies **could distort and divert efforts** previously focused on space exploration. Moreover, the technology that might enable this free-for-all—versatile “nanosatellites,” no larger than a loaf of bread—is relatively inexpensive. In December, while reporting for a story about these tiny satellites, also known as CubeSats, I came across some missions applicable to mining asteroids. In mid-2018, NASA will launch a satellite for a mission called Near-Earth Asteroid Scout, for example. It will deploy a solar sail, propel itself with sunlight, and journey to the asteroid belt, where it will scope out a particular asteroid and analyze its properties. Last June, NASA also awarded grants to Planetary Resources to advance the designs of spectral imagers and propulsion systems for CubeSats, and other missions will develop the satellites’ abilities to communicate and network with each other. NASA also awarded Deep Space Industries contracts to assess commercial approaches for NASA’s asteroid goals, which may involve hosting DSI’s asteroid-prospecting equipment on its missions. Like all forms of mining, it will be dangerous. **If space-mining activities break up asteroids**, the resulting **debris could be hazardous for satellites**, other spacecraft, **and astronauts nearby**. On the other hand, in a best-case scenario, space mining could be environmentally safe, capture only necessary minerals and water, and, in the more distant future even lead to the construction of a far-flung space station led by NASA and other space agencies, orbiting 200 million miles from Earth and serving as both a mining depot and a pit-stop for passing spacecraft. But it’s not clear that a pact between the commercial space mining industry and NASA would align with the public’s interest. NASA’s increasing collaboration with space mining companies could distort and divert efforts previously focused on space exploration and basic research, and discourage public interest and engagement in astronomy. Last October, for example, Seager advocated for space mining at a science writing conference I attended. She’s part of a motley group of advisors for Planetary Resources, including the movie director James Cameron, a lawyer for a prominent Washington D.C. firm, and Dante Lauretta, another astronomer whom I respect. Seager seems to believe that encouraging private space mining will lead to more investments and technological innovation that would enable more scientific research. In a 2012 interview with The Atlantic, for instance, she said, “The bottom line is that NASA is not working the best that it could for space science right now, and so in order for people like me to succeed with my own research goals, the commercial space industry needs to be able to succeed independently of government contracts.” But **if** the U.S. and **U.S.-based companies** lay **claim** to the **richest and** most easily **accessible prospecting sites**, not allowing other companies and nations to share in the wealth, **economic and political relations could be damaged**. That’s why this seems to be a dangerous path for space explorers. Once you’re on board with the commercial space industry, then you as a researcher must accept, if not support, everything that comes with it. Seager and a few other researchers may be willing to take this risk, but what about the rest of the space science community? Moreover, to succeed, these businesses will seek profitable missions, while science, exploration, and discovery—goals that stimulate public interest—will inevitably have lower priority. (Other commercial spaceflight companies, like Elon Musk’s SpaceX, do generate public interest, but they’re not directly involved in mining asteroids.) NASA may have its shortcomings, but at least its missions and research goals answer to the public. It’s not exactly a welcome thought to imagine more and more of our presence and activity in space being ceded, with NASA’s help, to private industry. What should happen instead? Commercial space mining and science would both be served well by decoupling from each other. We should treat outer space like we do Antarctica. That icy landscape is humankind’s common heritage, where we encourage scientific investigations and conservation and forbid territorial claims. If some organizations want to mine asteroids, then we should take the time to develop and establish an international framework to regulate it properly. Space-mining is an exciting opportunity to articulate our species’ role in our little galactic fragment. But it’s not just about sustainably managing limited or dwindling resources. It’s about our interactions with the nature beyond our humble world. We should explore the solar system as its steward without repeating our economically rapacious past.

#### Scenario 2 is Aggression. Russia and China are developing satellite destroyers – decks US econ and military response threatening aggression

Lauder et al 20

Lauder, John, et al. “How to Avoid a Space Arms Race.” RAND Corporation, 26 Oct. 2020, [https://www.rand.org/blog/2020/10/how-to-avoid-a-space-arms-race.html. //](https://www.rand.org/blog/2020/10/how-to-avoid-a-space-arms-race.html.%20//) js69

On September 22, **Russia**n President Vladimir Putin proposed that leading space powers agree to [prohibit](http://en.kremlin.ru/events/president/news/64074) the “stationing” of weapons in space and the “threat or use of force” against space objects. There's hardly anything new in Putin's pronouncement. As far back as 1985, the USSR called for a ban on [“space strike weapons.”](https://www.nytimes.com/1985/08/17/world/soviet-proposes-un-space-talks.html) Moscow has sounded variations on the same theme, often aided **and** abetted by **China**, ever since. **Both nations share a common desire to curb** the **U.S. tech**nological prowess **in** developing advanced **space** capabilities, especially those that might be **applied to missile** defense **or anti-satellite operations**. Ironically, both [Russia](https://www.space.com/russia-anti-satellite-missile-test-2020.html) and [China](https://spacenews.com/pentagon-report-china-amassing-arsenal-of-anti-satellite-weapons/) are actively developing and testing a variety of technical approaches to threaten U.S. and allied space assets in the event of a crisis or conflict. Twice this year, **Russia has tested** different **systems capable of destroying U.S. satellites**. **These developments** are **worrying. U.S. economic and national security** have grown increasingly **dependent on the global communications, precision navigation**, weather forecasting, **and overhead imagery** provided by on-orbit systems. It is difficult to imagine, for example, how the U.S. military could operate as effectively as it has over the past two decades without unfettered access to the information derived from and transmitted through space. America's newest independent military service—the U.S. Space Force—was created in large part to deal with the threats posed by Russia and China to U.S. and allied space capabilities. According to its first [statement on doctrine](https://www.spaceforce.mil/News/Article/2306828/space-force-releases-1st-doctrine-defines-spacepower-as-distinct-form-of-milita/), the primary purpose of military space forces is “to secure U.S. interests through deterrence and, when necessary, the application of force.” This is familiar language. Deterrence, and the capability to **respond with overwhelming** force to **aggression**, have long been **centra**l elements **of U.S**. national security policy, especially in the **nuclear domain**. So too has been the pursuit of arms control agreements as a complementary approach to enhancing stability, bolstering deterrence, and avoiding costly arms races. Thus, it is worth asking whether arms control can play a useful role in mitigating potential threats to U.S and allied interests in space. There has been some success. The 1967 multilateral [Outer Space Treaty](https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/introouterspacetreaty.html) prohibited the stationing of weapons of mass destruction in orbit. The 2010 U.S.-Russian [New START](https://www.state.gov/new-start/) nuclear arms control agreement prohibited either country from interfering with the other side's [“National Technical Means”](https://fas.org/blogs/secrecy/2019/11/ntm-obe/) for monitoring compliance, which is understood to include satellite reconnaissance systems as well as other intelligence collection methods But **negotiating legally binding limits on** weapons or activities that threaten use of space by all nations **has so far proven elusive**, for several reasons. In the first place, defining what constitutes a space weapon can be daunting. Terrestrial-based missile defense interceptors can and have been adapted to also destroy satellites. **Lasers, electronic jamming**, directed **energy weapons**, and **offensive cyber tools** designed for a wide range of other national security missions **can also threaten satellites**. It is highly unlikely that the United States or others would agree to ban capabilities that they believe are essential to protect their military operations on land, at sea, in the air, or in space. In the future, the problem of defining an anti-satellite weapon (ASAT) is likely to get even more complicated. Several space-faring countries are planning to develop a capability to service and refuel satellites on orbit to extend their service lives. However, any system that can maneuver close enough to another satellite for this purpose can pose an ASAT threat. In July [Russia](https://www.theverge.com/2020/7/23/21335506/russia-anti-satellite-weapon-test-kosmos-2543) used a close approach to conduct a non-destructive test against one of its satellites.

#### Weapons in space inevitably would cause a space war with space miscalc and debris – nukes even more powerful in space

David 21

David, Leonard. “Is War in Space Inevitable?” Space.com, Space, 11 May 2021, [https://www.space.com/is-space-war-inevitable-anti-satellite-technoloy. //](https://www.space.com/is-space-war-inevitable-anti-satellite-technoloy.%20//) js69

"First, **the U**nited **S**tates **could preemptively destroy** the space stalkers to save the targeted **satellites** so as **to maintain** space support to **military operations** during crisis and war," Chow said. "However, without discussing and resolving these two ambiguities with the international community in peacetime, **the U**nited **S**tates **could** be condemned as the aggressor who **fire**d the **first shot**, which **led to a war** in space possibly spreading to Earth — something both sides tried to avoid," Chow said. Secondly, Chow said that the United **States may not be able to fight effectively without** the support of some **critical satellites**. "Facing these two bad choices, the United States might end up not intervening at all. This would be the perfect outcome for China, as it prevented U.S. intervention without firing a single shot," Chow said. "If we keep using the current space policy without necessary and needed changes, the U.S. and other nations could 'stumble into' such conflicts." Lose-lose proposition "I'm not a huge believer in inevitability," said Wendy Whitman Cobb, an associate professor of Strategy and Security Studies at the U.S. Air Force School of Advanced Air and Space Studies at Maxwell Air Force Base in Montgomery, Alabama. "Analysts have constantly been saying that attacks and weapons in space are inevitable and right around the corner since the 1960s." It has long been recognized, said Whitman Cobb, that one country attacking a satellite of another is a lose-lose proposition for those concerned. "**Not only would the space environment be** [**cluttered with debris**](https://www.space.com/16518-space-junk.html) making it harder to operate there**, but it would be open season on** all **satellites** including their own," she said. "**Because of the stability that monitoring** from space **gave to the nuclear arms race**, it was just better **to allow satellites** to freely operate **rather than threaten your own strategic position**." The flourishing commercialization of space and the global economy's reliance on space-based systems makes open conflict in space very costly, as Whitman Cobb points out in her recent book, "Privatizing Peace: How Commerce Can Reduce Conflict in Space" (Routledge, 2020). "It only takes **one piece of debris to take down a satellite through which** financial transactions and **key communications are routed**. The wrong satellite could have significant **economic repercussions** that would **not** be **isolated to one country alone**," Whitman Cobb said. "Thus there should be both strategic and economic considerations that restrain countries in their use of weapons in space." That said, Whitman Cobb added that it is still possible for states either to stumble into conflict or to have conflict be initiated by rogue states like [North Korea](https://www.space.com/north-korea-missile-test-satellite-photo.html) or Iran. The **electromag**netic **pulse from** a detonating **nuclear device**, for example, would quite quickly and easily **take out all satellites in the vicinity**. "It's certainly a non-discriminatory weapon, but, backed into a corner, it's not far out of the realm of possibility for North Korea or Iran," she said. Because of the dual nature of space technology and the inherent secrecy involved, there's a **significant chance of misperception**, Whitman Cobb said, **stressing** that **misunderstandings** of not just technology but also intent **could easily lead to conflict**. (Her views are her own, based on open source, unclassified information and are not representative of the Department of the Defense or the Air Force.)

#### US is dependent on space infrastructure for econ and military

Lamrani 16

Lamrani, Omar. “Avoiding a War in Space.” Stratfor, 17 May 2016, [https://worldview.stratfor.com/article/avoiding-war-space. //](https://worldview.stratfor.com/article/avoiding-war-space.%20//) js69

Space is becoming more [congested, contested and competitive](https://worldview.stratfor.com/article/space-increasingly-crowded-frontier). Since the Soviet Union put the first satellite, Sputnik I, into space in 1957, no nation has deliberately destroyed another's satellite in orbit. But there is a growing possibility that **battles may soon be waged in space**. Although the militarization of space started long ago, a number of **technological developments** and tests over the past decade **show that** the race toward its [**weaponization**](https://worldview.stratfor.com/article/real-danger-space-weapons) **is accelerating**. Driven by Washington's dominance of and strategic dependence on space, U.S. rivals are working to develop and deploy anti-satellite weapons (widely known as ASATs). The technology, which began to be developed during the Cold War, has become an area of intense competition for the [world's most capable militaries](https://worldview.stratfor.com/article/battle-militarize-space-has-begun) over the past decade. For the **U**nited **S**tates, being the leader in military space technologies provides immense advantages. At the same time, its outsize **reliance on** those **tech**nologies **entails risks**. The current unequal **dependence on space**, the United States fears, **could give adversaries incentive to attack** its **infrastructure in orbit**. Washington is therefore pushing to bolster its capabilities and is preparing for the possibility that a future conflict could escalate into space. As the militarized space race continues, the United States will stay focused on deterrence. A war in space would be devastating to all, and preventing it, rather than finding ways to fight it, will likely remain the goalc. An Unequal Dependence Washington's dependence on space infrastructure reflects the United States' dominance in space. The tyranny of time and distance inherently hinders the United States' ability to deploy its military across the globe. But the space domain effectively helps the country to overcome the limitations, allowing for enhanced for e projection. As a result, **the U.S. military relies** heavily **on** its **orbital assets for navigation**, intelligence collection, **precision targeting**, communication, **early warnin**g and several other crucial activities. The great advantages that space assets afford the United States have not gone unnoticed by its potential rivals. Though China and Russia, for instance, also rely on space, they are less dependent on their space assets than the United States is. First, neither nation has as much in orbit. In addition, because both put greater focus on their immediate geographic regions, they can use more conventional tools to achieve their objectives. For instance, Beijing, by virtue of geographic proximity, could rely on its ground-based radars and sensors in a conflict in the Taiwan Strait. The United States, on the other hand, would have to lean on its satellites to support a response in the same area. Despite the United States' superior ability to strike at enemy space constellations — groups of similar kinds of satellites — **competitors may determine** that the resulting **loss of space access would** be worthwhile if they could severely **degrade U.S.** space access. And while the United States is the most proficient nation in space-based warfare, there are limits to its abilities. **Satellites** in orbit **follow predictable movements**, have restricted maneuverability **and are difficult to defend from an attack**.

#### Two main impacts: Arms race destroys the economy and possibility of access to space through destroying satellites and extra debris

Skibba 20

Skibba, Ramin. (Skibba is an astrophysicist turned science writer and freelance journalist based in San Diego. Ph.D. in Physics & Astronomy at the University of Pittsburgh in 2006, and I earned a B.S. in Physics and B.A. in Philosophy at the University of Notre Dame.) “The Ripple Effects of a Space Skirmish.” The Atlantic, Atlantic Media Company, 12 July 2020, https://www.theatlantic.com/technology/archive/2020/07/space-warfare-unregulated/614059/. // js69 [brackets in original document]

On April 22, after several failed attempts, Iran’s Islamic Revolutionary Guard Corps announced a successful launch of what it described as a military reconnaissance satellite. That satellite joined a growing list of weapons and military systems in orbit, including those from Russia (which in April tested a missile program designed to destroy satellites) and India (which launched an anti-satellite weapon in March 2019). Experts like Brian Weeden, director of program planning at the Secure World Foundation (SWF), a nonpartisan think tank based in Broomfield, Colorado, worry that these developments—all confirmed by the newly rebranded United States Space Force—**threaten to lift earthly conflicts** to new heights and put all space activities, **peaceful and military alike, at risk**. Researchers at SWF and at the Center for Strategic and International Studies (CSIS), a nonpartisan think tank in Washington, D.C., both [released](https://swfound.org/counterspace/) [reports](https://aerospace.csis.org/wp-content/uploads/2020/03/Harrison_SpaceThreatAssessment20_WEB_FINAL-min.pdf) this year on the rapidly evolving state of affairs. The reports suggest that the biggest players in space have **upgraded** their **military abilities, including satellite-destroying weapons** and technologies that **disrupt spacecraft**, by, for instance, blocking **data collection or transmission**. Many of these technologies, **if deployed, could** ratchet up an **arms race** and even spark a skirmish in space, the SWF and CSIS researchers caution. **Blowing up a single satellite scatters debris throughout** the **atmosphere**, said Weeden, co-editor of the SWF report. Such an **explosion could hurl projectiles** in the paths of other spacecraft and **threaten** the **accessibility of space** for everyone. “Those are absolutely the two best reports to be looking at to get a sense of what’s going on in the space community,” said David Burbach, a national security affairs expert at the U.S. Naval War College in Newport, Rhode Island, who was not involved in the new research. Today, Burbach added, the world is very different compared with the Cold War era, when access to space was essentially limited to the United States and the Soviet Union. Many more countries now have space programs, including India, Iran, North Korea, France, Japan, and Israel. Despite this expansion—and the array of new space weapons—**relevant policies** and regulatory bodies **have remained stagnant**. “What worries us in the international community is that there aren’t necessarily any guardrails for how people are going to start interfering with others’ space systems,” said Daniel Porras, a space security fellow at the United Nations Institute for Disarmament Research in Geneva. “There are no rules of engagement.” The new reports use available evidence and intelligence to explore a range of weapons that various **countries’ militaries are developing** or testing—or already have operational. (Notably, CSIS’s report doesn’t include the American military.) Each nation has unique abilities and characteristics. **For example**, **India has invested** heavily **in space infrastructure** and capabilities, while Japan’s post–World War II space activities were limited until a recent change to its constitution. For Israel’s space program, Weeden said, little good data is available. Potential missile attacks on military satellites “tend to get most of the attention, but that is not all that we see happening around the world,” said Todd Harrison, director of the Aerospace Security Project at CSIS and a principal author of its report, during an April 6 livestream. For example, the **thousands of everyday satellites** that already circle low-Earth orbit, below an altitude of 1,200 miles, **could potentially suffer collateral damage**. More than half of those satellites are from the U.S.; many of the rest are from China and Russia. **They provide** key services like **internet access**, GPS signals, long-distance **communications**, and weather information. **Any missile** that smashes into a satellite—either as an attack or during a test—**would disperse thousands of bits of debris**. **Any one of those pieces**, still hurtling at orbital speeds, **could take out another** spacecraft and create yet more debris. “It’s very easy to pollute space,” Burbach said. “The debris doesn’t discriminate. If you create debris, it might just as well come back and hit one of your own satellites. So I think we’re pretty unlikely to see countries actually use those capabilities.” Still, he said, “it would be worrying to see countries showing off that [they] can do it and start testing.”

#### Earth extinction is inevitable – its try or die – our evidence is best over 15,000 studies

* Climate brink coming
* BioD bring coming – 1/10 pollinators which r essential
* Biomass down by 82%

Watts 19

Watts, Jonathan. “Human Society under Urgent Threat from Loss of Earth's Natural Life.” The Guardian, Guardian News and Media, 6 May 2019, [https://www.theguardian.com/environment/2019/may/06/human-society-under-urgent-threat-loss-earth-natural-life-un-report. //](https://www.theguardian.com/environment/2019/may/06/human-society-under-urgent-threat-loss-earth-natural-life-un-report.%20//) js69

Human society is in jeopardy from the accelerating decline of the Earth’s natural life-support systems, the world’s leading scientists have warned, as they announced the results of the most thorough planetary health check ever undertaken. From coral reefs [flickering out](https://www.theguardian.com/environment/2018/nov/11/next-generation-may-never-see-coral-reefs) beneath the oceans to [rainforests desiccating](https://www.theguardian.com/environment/2014/oct/31/amazon-rainforest-deforestation-weather-droughts-report) into savannahs, nature is being destroyed at a rate tens to hundreds of times higher than the average over the past 10m years, [according to the UN global assessment report](https://www.dropbox.com/sh/yd8l2v0u4jqptp3/AACpraYjOYWpTxAFv5H-2vrKa/1%20Global%20Assessment%20Summary%20for%20Policymakers?dl=0&subfolder_nav_tracking=1). The **biomass of wild mammals** has **fallen by 82%,** natural ecosystems have lost about half their area and a million species are at **risk of extinction** – all largely as a result of human actions, said the study, compiled over three years by more than 450 scientists and diplomats. **Two in five amphibian** species are at risk of extinction, as are **one-third** of **reef**-forming corals, and close to one-third of other marine species. The picture for **insects** – which are crucial to plant pollination – is less clear, but conservative estimates suggest at least **one in 10 are threatened** with extinction and, in some regions, [populations have crashed](https://www.theguardian.com/environment/2017/oct/18/warning-of-ecological-armageddon-after-dramatic-plunge-in-insect-numbers). In economic terms, the losses are jaw-dropping. **Pollinator loss** has put up to $577bn (£440bn) of crop output at risk, while land degradation has **reduced the productivity** of 23% of global land. The knock-on impacts on humankind, including **freshwater shortages and** **climate instability**, **are** already “**ominous**” **and will worsen** without drastic remedial action, the authors said. “The health of the ecosystems on which we and other species depend is deteriorating more rapidly than ever. We are eroding the very foundations of economies, livelihoods, food security, health and quality of life worldwide,” said Robert Watson, the chair of the Intergovernmental Science-Policy Platform on [Biodiversity](https://www.theguardian.com/environment/biodiversity) and Ecosystem Services (Ibpes). “We have lost time. We must act now.” The warning was unusually stark for a UN report that has to be agreed by consensus across all nations. **Hundreds of scientists** have compiled **15,000 academic studies** and reports from indigenous communities living on the frontline of change. They build on the millennium ecosystem assessment of 2005, but go much further by looking not just at an inventory of species, but the web of interactions between biodiversity, climate and human wellbeing. Over the past week, representatives from the world’s governments have fine-tuned the summary for policymakers, which includes remedial scenarios, such as “transformative change” across all areas of government, revised trade rules, massive investments in forests and other green infrastructure, and changes in individual behaviour such as lower [consumption of meat](https://www.theguardian.com/environment/2018/oct/10/huge-reduction-in-meat-eating-essential-to-avoid-climate-breakdown) and material goods. Following [school strikes](https://www.theguardian.com/environment/2019/mar/19/school-climate-strikes-more-than-1-million-took-part-say-campaigners-greta-thunberg), [Extinction Rebellion protests](https://www.theguardian.com/environment/2019/apr/25/extinction-rebellion-assessing-the-impact), the UK parliament’s declaration of a [climate emergency](https://www.theguardian.com/environment/2019/may/01/declare-formal-climate-emergency-before-its-too-late-corbyn-warns) and Green New Deal debates in the US and Spain, the authors hope the **1,800-page assessment** of **biodiversity will push** the nature crisis into the [global spotlight](https://www.theguardian.com/environment/2019/may/03/climate-crisis-is-about-to-put-humanity-at-risk-un-scientists-warn) in the same way **climate breakdown** has surged up the political agenda since the [1.5C report](https://www.theguardian.com/environment/2018/oct/08/global-warming-must-not-exceed-15c-warns-landmark-un-report) last year by the UN Intergovernmental Panel on Climate Change. David Obura, one of the main authors on the report and a global authority on corals, said: “We tried to document how far in trouble we are to focus people’s minds, but also to say it is not too late if we put a huge amount into transformational behavioural change. This is fundamental to humanity. We are not just talking about nice species out there; this is our life-support system.” The report shows a planet in which the human footprint is so large it leaves little space for anything else. Three-quarters of all land has been turned into farm fields, covered by concrete, swallowed up by dam reservoirs or otherwise significantly altered. Two-thirds of the marine environment has also been changed by fish farms, shipping routes, subsea mines and other projects. Three-quarters of rivers and lakes are used for crop or livestock cultivation. As a result, more than 500,000 species have insufficient habitats for long-term survival. Many are on course to **disappear within decades**.

**Sustainable space practices are the only solution to every extinction impact**

**Becker ‘17** William Becker 2-6-2017 “Who Wants to Live on Mars?” [www.huffingtonpost.com/william-s-becker/who-wants-to-live-on-mars\_b\_14632700.html](http://www.huffingtonpost.com/william-s-becker/who-wants-to-live-on-mars_b_14632700.html) (Presidential Climate Action Project for Obama, 15 years at the U.S. Department of Energy)//Elmer recut by js69

Some of the most intelligent people alive - among them,, billionaire Elon Musk, fellow billionaire Sir Richard Branson and theoretical physicist Stephen Hawking - want us to colonize Mars. Hawking predicts **unless we prepare another celestial body** to be our lifeboat, **humanity is destined to suffer mass extinction due in part to our unsustainable squandering of Earth’s resources**. “Although the chance of a disaster to planet Earth in a given year may be quite low, it adds up over time, and becomes a **near certainty** in the next thousand or ten thousand years,” Hawking says. “By that time we should have spread out into space, and to other stars, so a disaster on Earth would not mean the **end of the human race**.” Musk has less patience. He’s **working with NASA on** an **interplanetary transport** that will take take the first astronauts to Mars in the 2030s. Later, regular people could make the trip for $200,000 per ticket (checked baggage fees not included) in one of Musk’s interplanetary space buses. “I really think there are two fundamental paths,” Musk says. “One path is we stay on Earth forever**, and some eventual extinction event wipes us out**.” The other path: Traveling 19,000 miles over three months to get to a barren planet of rocks, dust and deadly radiation. “**It will be like, really fun to go, you’ll have a great time**,” Musk says.

**Economic decline overcomes every deterrence factor – US China War**

* Breeds nationalism
* Allies means that it isn’t bilateral but any country to be the brink needed

Stein **Tønnesson 15**, Research Professor, Peace Research Institute Oslo; Leader of East Asia Peace program, Uppsala University, 2015, “Deterrence, interdependence and Sino–US peace,” International Area Studies Review, Vol. 18, No. 3, p. 297-311 // rc js69

Several recent works on China and Sino–US relations have made substantial contributions to the current understanding of how and under what circumstances a combination of nuclear deterrence and **econ**omic interdependence **may reduce** the **risk of war** between major powers. At least four conclusions can be drawn from the review above: first, those who say that interdependence may both inhibit and drive conflict are right. **Interdependence raises** the **cost of conflict** for all sides but asymmetrical or unbalanced dependencies and negative trade expectations may generate tensions leading to **trade wars** among inter-dependent states that in turn increase the **risk** of **military conflict** (Copeland, 2015: 1, 14, 437; Roach, 2014). The risk may increase if one of the interdependent countries is governed by an inward-looking socio-economic coalition (Solingen, 2015); second, the **risk of war** between China and the US should not just be analysed bilaterally but **include their allies and partners**. Third party countries **could drag** China or the US **into confrontation**; third, in this context it is of some comfort that the three main economic powers in Northeast Asia (China, Japan and South Korea) are all deeply **integrated economically** through production networks within a global system of trade and finance (Ravenhill, 2014; Yoshimatsu, 2014: 576); and fourth, decisions for war and peace are taken by very few people, who act on the basis of their future expectations. International relations theory must be supplemented by foreign policy analysis in order to assess the value attributed by national decision-makers to economic development and their assessments of risks and opportunities. If leaders on either side of the Atlantic begin to seriously **fear** or anticipate their **own nation’s decline** then they may **blame this on external dependence**, appeal to anti-foreign sentiments, contemplate the use of force to gain respect or credibility, adopt protectionist policies, and ultimately refuse to be deterred by either nuclear arms or prospects of socioeconomic calamities. Such a dangerous shift could happen abruptly, i.e. under the instigation of actions by a third party – or against a third party. Yet as long as there is both nuclear deterrence and interdependence, the tensions in East Asia are unlikely to escalate to war. As Chan (2013) says, all states in the region are aware that they cannot count on support from either China or the US if they make provocative moves. The greatest risk is not that a territorial dispute leads to war under present circumstances but that changes in the world economy alter those circumstances in ways that render inter-state peace more precarious. If China and the US fail to rebalance their financial and trading relations (Roach, 2014) then a **trade war** could result, interrupting transnational production networks, **provok**ing **social distress**, and exacerbating **nationalist emotions**. This could have unforeseen consequences in the field of security, with nuclear deterrence remaining the only factor to protect the world from Armageddon, and unreliably so. **Deterrence could lose** its **credibility**: one of the two great powers might gamble that the other **yield in a** cyber-**war** or conventional limited war, or third party countries might **engage in conflict** with each other, with a view to obliging Washington or Beijing to intervene.

**Nuclear war is existential – prefer our studies as they were made and verified by leading scientists**

**Starr 14** [Steven, Senior Scientist for Physicians for Social Responsibility (www.psr.org) and Director of the Clinical Laboratory Science Program at the University of Missouri. Starr has published in the Bulletin of the Atomic Scientists and the Strategic Arms Reduction (STAR) website of the Moscow Institute of Physics and Technology, June 5, “The Lethality of Nuclear Weapons: Nuclear War has No Winner,” <http://www.globalresearch.ca/the-lethality-of-nuclear-weapons-nuclear-war-has-no-winner/5385611>] //rc js69

Nuclear war has no winner. Beginning in 2006, **several of the world’s leading climatologists** (at Rutgers, UCLA, John Hopkins University, and the University of Colorado-Boulder) **published a series of studies that evaluated the long-term environmental consequences of a nuclear war**, **including baseline scenarios fought with merely 1% of the explosive power in the US and/or Russian launch-ready nuclear arsenals**. They concluded that the consequences of **even a “small” nuclear war would include catastrophic disruptions of global climate**[i] and massive **destruction of Earth’s protective ozone layer**[ii]. These and more recent studies predict that global agriculture would be so negatively affected by such a war**, a global famine would result, which** **would cause up to 2 billion people to starve to death**. [iii] **These peer-reviewed studies** – which were **analyzed by the best scientists in the world and found to be without error – also predict that a war fought with less than half of US or Russian strategic nuclear weapons would destroy the human race**.[iv] In other words, a US-Russian nuclear war would create such extreme long-term damage to the global environment that it would leave the Earth uninhabitable for humans and most animal forms of life. A recent article in the Bulletin of the Atomic Scientists, “Self-assured destruction: The climate impacts of nuclear war”,[v] begins by stating: “**A nuclear war between Russia and the United States, even after the arsenal reductions planned under New START, could produce a nuclear winter.** Hence, an attack by either side could be suicidal, resulting in self-assured destruction.” In 2009, I wrote an article[vi] for the International Commission on Nuclear Non-proliferation and Disarmament that summarizes the findings of these studies. It explains that nuclear firestorms would produce millions of tons of smoke, which would rise above cloud level and form a global stratospheric smoke layer that would rapidly encircle the Earth. The smoke layer would remain for at least a decade, and it would act to destroy the protective ozone layer (vastly increasing the UV-B reaching Earth[vii]) as well as block warming sunlight, thus creating Ice Age weather conditions that would last 10 years or longer. Following a US-Russian nuclear war, temperatures in the central US and Eurasia would fall below freezing every day for one to three years; the intense cold would completely eliminate growing seasons for a decade or longer. **No crops could be grown, leading to a famine that would kill most humans and large animal populations**. Electromagnetic pulse from high-altitude nuclear detonations would destroy the integrated circuits in all modern electronic devices[viii], including those in commercial nuclear power plants. Every nuclear reactor would almost instantly meltdown; every nuclear spent fuel pool (which contain many times more radioactivity than found in the reactors) would boil-off, releasing vast amounts of long-lived radioactivity. The fallout would make most of the US and Europe uninhabitable. Of course, the survivors of the nuclear war would be starving to death anyway. Once nuclear weapons were introduced into a US-Russian conflict, there would be little chance that a nuclear holocaust could be avoided. Theories of “limited nuclear war” and “nuclear de-escalation” are unrealistic.[ix] In 2002 the Bush administration modified US strategic doctrine from a retaliatory role to permit preemptive nuclear attack; in 2010, the Obama administration made only incremental and miniscule changes to this doctrine, leaving it essentially unchanged. Furthermore, Counterforce doctrine – used by both the **US and Russian military – emphasizes the need for preemptive strikes** once nuclear war begins**.** Both sides would be under immense pressure to launch a preemptive nuclear first-strike once military hostilities had commenced, especially if nuclear weapons had already been used on the battlefield. Both the US and Russia each have 400 to 500 launch-ready ballistic missiles armed with a total of at least 1800 strategic nuclear warheads,[xi] which can be launched with only a few minutes warning.[xii] Both the US and Russian Presidents are accompanied 24/7 by military officers carrying a “nuclear briefcase”, which allows them to transmit the permission order to launch in a matter of seconds.

### AC – Solvency

#### Plan prevents arms race and appropriation by private entities

NTI 21

NTI. “Moon Agreement.” The Nuclear Threat Initiative, 19 Jan. 2021, https://www.nti.org/education-center/treaties-and-regimes/agreement-governing-activities-states-moon-and-other-celestial-bodies-moon-agreement/. // js69

**The Moon Agreement supplements the** [**Outer Space Treaty**](https://www.nti.org/learn/treaties-and-regimes/treaty-principles-governing-activities-states-exploration-and-use-outer-space-including-moon-and-other-celestial-bodies-outer-space-treaty/) and confirmed the demilitarization of the Moon and other celestial bodies as provided for in that **treaty**. The Agreement also **prohibit**s the use or threat of **use of force**, or any other hostile action or threat of hostile action on the Moon, which is reserved exclusively for peaceful activities. It prohibits the use of the Moon in order to commit any hostile act or to engage in any such threat in relation to the Earth, the Moon, spacecraft, the personnel of spacecraft, or man-made space objects. States **Parties shall not place** in orbit around or other trajectory to or around the Moon objects carrying nuclear **weapons or** any other kinds of **weapons of mass destruction** or place or use such weapons on or in the Moon. **The agreement forbids** the establishment of **military bases**, installations **and** fortifications on the Moon and, the **testing of** any type of **weapons,** and the conduct of military maneuvers on the Moon. But the use of military personnel for scientific research or for any other peaceful purposes is not prohibited. The use of any equipment or facility necessary for peaceful exploration and use of the Moon is not prohibited. States Parties are committed to inform the UN Secretary-General as well as the public and the international scientific community, to the greatest extent feasible and practicable, of their activities concerned with the exploration and use of the Moon. Information on the time, purposes, locations, orbital parameters, and duration is to be given in respect of each mission to the Moon as soon as possible after launching, while information on the results of each mission, including scientific results, shall be furnished upon completion of the mission. In the case of a mission lasting more than 60 days, information on conduct of the mission, including any scientific results, is to be given periodically, at 30-day intervals. For missions lasting more than six months, only significant additions to such information need be reported thereafter. As reflected in the provisions of this Agreement the Moon and its natural resources are the common heritage of mankind. **The Moon is not subject to** national **appropriation by** any **claim of sovereignty**, by means of use **or occupation**, or by any other means. Neither the surface nor the subsurface of the Moon, nor any part thereof or its natural resources, can become the property of any State, international intergovernmental or non-governmental organization, national organization or non-governmental entity, or of any natural person. **The placement of** personnel, space vehicles, **equipment, facilities**, stations **and installations** on or below the surface of the Moon, including structures connected with its surface or subsurface, **shall not create** a right of **ownership over the surface** or the subsurface of the Moon or any areas thereof.

#### Plan solves space mining – precedent for the plan is seen in UNICLOS

Listner 11

Listner, Michael. “The Moon Treaty: Failed International Law or Waiting in the Shadows?” The Space Review: The Moon Treaty: Failed International Law or Waiting in the Shadows?, 24 Oct. 2011, [https://www.thespacereview.com/article/1954/1. //](https://www.thespacereview.com/article/1954/1.%20//) js69

The Moon Treaty is the fourth child of the Outer Space Treaty. It was deliberated and developed by the Legal Subcommittee for the Committee on the Peaceful Uses of Outer Space (COPUOS) from 1972 to 1979. It was adopted by the United Nations General Assembly in Resolution 34/68 and opened for signature in 1979, but was not placed in force until June 1984 when the fifth country, Austria, ratified it. Presently, the Moon Treaty has been ratified by six countries. Four countries, including France and India, are signatories, and seven countries have acceded to the Moon Treaty, including Australia. **The United States**, the **Russia**n Federation (former Soviet Union), **and** the People’s Republic of **China have neither signed**, acceded, **nor ratified the** Moon **Treaty**, which has led to the conclusion that it is a failure from the standpoint of international law.2 **The** Moon **Treaty provides that the** Moon and its **natural resources are** the **common heritage of mankind and** the **harvesting** of those **resources is forbidden** except through an international regime established to govern the exploitation of such resources when it becomes feasible to do so. Like the three other children of the Outer Space Treaty, the Moon Treaty upholds and elaborates on many of the provisions of its parent. Specifically, the Moon Treaty applies to the Moon and other celestial bodies in the solar system excluding the Earth. It provides that these bodies should be used exclusively for peaceful purposes, that their environments should not be disrupted, and that the United Nations should be informed of the location and purpose of any station established on those bodies. **The Moon Treaty** also **closes a loophole in the Outer Space Treaty by banning** any **ownership of any extraterrestrial property** by any organization or private person, unless that organization is international and governmental. The most controversial section of the Moon Treaty deals with natural resources on the Moon. The Moon Treaty provides that the Moon and its natural resources are the common heritage of mankind and the harvesting of those resources is forbidden except through an international regime established to govern the exploitation of such resources when it becomes feasible to do so. The exact nature of this regime is not detailed, nor is the term “resources” defined. It is reasonable to presume that the term “resources” would include recently discovered mineral deposits including titanium, the substantial water ice discovered at the Moon’s south pole, and the helium-3 within the lunar regolith that entrepreneurs such as Apollo 17 astronaut Harrison Schmidt have proposed to extract to power future fusion reactors. **The form** of the form of the international regime introduced in the Moon Treaty has yet to fleshed out, but it is probable that it **would be similar** in form **to the** international regime called “The **Enterprise**”, which was **proposed in** Part XI of the 1994 Agreement of the Law of the **Sea Convention** to oversee the mining of mineral resources in the world’s oceans, including poly-metallic nodules. The nature of the Enterprise was envisioned to oversee developed nations and private companies operating under their jurisdiction and would have required a portion of the mineral wealth mined from the ocean floor to be allocated to the Enterprise for distribution among the developing countries. More worrisome for countries such as the United States was that the Enterprise as envisioned also required that developed nations transfer technology to the Enterprise so the non-developed could also participate in the extraction of resources from the ocean floor. If the international regime envisioned by **the Moon Treaty** takes a form similar to that of the Enterprise, developed nations would be required to relinquish a portion of the resources extracted from the Moon and other celestial bodies. They **would** also be **require**d **to surrender tech**nology developed **by private industries** under their jurisdiction **for extracting** extraterrestrial resources **so that developing nations could** participate in the activity of **acquir**ing those **resources** as well. This implies that the Moon Treaty’s common heritage view applies not only to extraterrestrial real property and resources but to intellectual property rights as well.3

#### Nations are held accountable for their own missions in space – checks circumvention

Rossen 19

Rossen, Jake. “Who Has Jurisdiction for Crimes Committed in Space?” Mental Floss, 24 June 2019, [https://www.mentalfloss.com/article/584985/who-has-jurisdiction-for-crimes-committed-in-space. //](https://www.mentalfloss.com/article/584985/who-has-jurisdiction-for-crimes-committed-in-space.%20//) js69

To date, no one has been victim of a space crime. But because **no one nation can lay claim to ownership of space**, the idea of a criminal offense committed outside of our atmosphere is something people have already given some thought to. [According](https://www.businessinsider.com/heres-what-happens-if-you-commit-a-crime-in-outer-space-2014-1) to NASA engineer and instructor Robert Frost, the language of law for galactic felonies would be the **Outer Space Treaty of 1967**. In **Article VIII** of the treaty, **nations engaging in space exploration** agree that they will **bear responsibility for** the actions of **personnel** aboard their craft. In other words, if a privatized shuttle from China sees a fight break out among crew members, leaving one injured, China would be the entity responsible for handling legal repercussions. That varies slightly with the International Space Station, or **ISS**, which is home to a number of personnel from different nations. In the case of the ISS, an intergovernmental agreement signed in 1998 **mandates** that the **home country of the offender will handle** any **investigation or prosecution**. If the victim is a national of another country, that country will have the right to inquire as to the criminal status of the offender and seek to have jurisdiction over the matter if they feel justice isn't being meted out. In most cases, space crime sprees would be [treated](https://www.inverse.com/article/11249-space-crime) the same as if an offender was traveling in a foreign country or in [international waters](https://www.mentalfloss.com/article/51708/are-high-seas-criminal-paradise). If you're a U.S. citizen and decide to bludgeon someone at sea or on the Moon, the various international agreements and national laws would determine how you get prosecuted. (Assuming, of course, you returned to Earth to answer the charges.)

### AC – Underview

#### 1] Aff gets 1ar theory to deter infinite abuse. 1ar theory comes first a) the time allocation is heavier for the 1ar b) time skew – neg can do 13-7 on theory and aff can never engage.

#### 2] 1ar theory is drop the debater to deter infinite abuse. Counter interpretations as a 6 minute 2nr on reasonability shuts out 1ar theory as the reasonability debate will be a 6-3 skew. No RVI on 1ar theory as the neg can allocate more time on 1ar theory than aff can use against it – necessitates a complete redirection from substance

#### 3] Broad scenario planning --- the future is uncertain, but scenario planning allows better analysis to create more effective policy in given conditions

**Schühly and Klein 20**

Schühly, A., Becker, F. and Klein, F. (2020), "The validity of traditional scenario planning", Real Time Strategy: When Strategic Foresight Meets Artificial Intelligence, Emerald Publishing Limited, pp. 23-66. [https://doi.org/10.1108/978-1-78756-811-220201004 //](https://doi.org/10.1108/978-1-78756-811-220201004%20//) JoshDrills

Key **decision makers**, regardless if in private life, corporations or the public sphere, **shoulder major responsibiliti**es when making crucial decisions. Many are therefore aware of the need to be dynamic and prepared to break with the status quo if they want to be future winners. However, they face an **environ-ment** that is so **fast-changing** that it is difficult for them to steer away ahead with confidence. Individually, **decision makers are only able to observe and interpret a few** of the **signposts** and indicators that can help anticipate change. Often, once they do recognise the forces at play, it is already too late for them to act and shape their playing field. They can only react on a playing field dic-tated by external conditions out of direct control. One could argue that this is quite a narrow field. However, it is not only C-level executives or high rank-ing politicians who have to make high impact decisions in conditions of **high uncertainty** caused by various factors such as **new tech**nologies and **chang-ing market**places. We all face those decisions in our everyday lives. Just think about your decision regarding a job and a career path. While some **cultural environments** are used to flexibility allowing for bold career changes, this is in many cultures a life-shaping decision, impacting a professional career of around 40 years. How can we be sure that a particular career is the best choice to reach personal and professional goals throughout our life? Our assumption is that hardly anyone can be sure that the choices they made are the best. Thus,t he decisions of a CEO to acquire another firm or invest in a plant are similar to many decisions every one of us makes. The one kind is shaping the future of a firm; the other kind is shaping the future of a person. Yet, **we have to make** some judgement **calls despite** **we don’t know how our decisions play out**. One way **to ease the burden** of our decisions is to use scenarios, or rather **apply a scenario mind-set**. Scenarios are an indispensable **strategic tool for decisionmakers** in the public, private, and non-profit spheres. They support C-level executives taking tough strategic decisions as well as anyone in a real-life situation, to cope with this dynamism and uncertainty. Strong **decisions** often **have** a **long-term impact**. Therefore, we like to avoid them and struggle from day to day, focussing on the immediate, short-term. Because of this, we are often living on the substance of the past, not laying out the harvest of the future. **Scenarios** help us **avoid** the mistake of **focussing only on immediate problems** and responses. With our focus on today’s issues, we often underes-timate the change on the horizon. It is not the question whether we want to buy a DVD with or without bonus material. The question is whether we will buy DVDs at all. For now, Netflix has answered the question with its stream-ing offering. It changed the industry landscape and paved the way for many competitors in the streaming business. This problem is famously framed by Bill Gates: We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten. Don’t let yourself be lulled into inaction.1 Therefore, decision makers need to pose the right questions and look through the right time lenses into the future. **While** the **future** is **uncertain**, **scenarios** help to **gain** an **insight** into a poten-tial future. They **enable decision makers to** set sails and **travel** **through** a storm of **uncertainty** and turbulence. Through this journey, scenarios help open the eyes of any organisation or individual to the possible ways that the future could play out and to the forces that will shape it. In this way they help to change our mental maps. Our mind is organized like a map, guiding our decisions. However, we are often rather like the early explorers relying on maps based on assumptions of people who have never seen a geography than being modern tourists equipped with a GPS navigator. Just imagine an explorer in the 16thor 17th century on the shores of the Americas, only equipped with a map of a Dutch mapmaker who has never seen the Americas and is basing the entire map on hearsay. Inaccurate maps are not a problem in and of itself, but it is what we do with the map that becomes the problem. As explorer this could have severe consequences, e.g., running out of water as the map would expect a river where there is no river in reality. The same happens in decision making. We base our decision making on our mental maps, and never challenge our assumptions. Yet, if we get the facts that are the basis of the map wrong, we end up with a wrong map that leads us in the wrong direction or triggers the wrong decisions and actions. And as soon as we believe the map is correct, it is really hard to change our mindset. This is the starting point of scenario planning, that challenges your mental maps. In addition, the scenario development process can bring future order to present chaos and ultimately contribute to the decisions made with confidence about the future. They help **break down** complex phenomena **into subsystems** that are **easier to analyse** and are, consequently, the tools of choice **for dynamic strategic planning**. In this way, the immediate concerns and the game changers at the horizon are both taken care of.