## AC

### 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.

#### 2] Actor specificity -

#### a) Actor/Observer Bias – other calculations rely on intuitions and arbitrary evaluation which actor-observer bias takes out as the actor tends to reflect on other intuitions poorly as the actor will always blame other people for their internal selves rather than external factors – means external evaluation key as otherwise it devolves to opinions on actions rather than calculation

#### b) External Attribution – external causes are reasons for actors to act and it is an innate part of human evolution meaning no evaluation is complete without external evaluation

**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**

#### Impact calc: Harm outweighs pleasure a) people would always avoid pain rather than gain pleasure on an aggregate field b) resolvability – when faced with a choice of either pleasure or pain people default towards less pain as it is more measurable c)

#### Implications: This means reject indicts like util racist as suffering would always outweigh the pleasure from a masochist

#### Use epistemic modesty – this means evaluate the strength of probabilility under a framework times the magnitude under each framework ie Kant defending the right to life at 100% probability would o/w low risk 50 lives impact of utilitarianism. Prefer:

#### A] Strat Skew – the affirmative can spend 6 minutes on an advantage for the negative to read a framework it negates under or that the offense doesn’t apply to.

#### B] Materialism good – it allows focus on events that impact the lives of debaters outside of this round teaching real solutions and letting debate have spillover into lives and politics.

#### C] Real world – policymakers must debate with competing frames of knowledge and ideas of morality but the debate is about whether or not you can convince your opponent how much an issue means to you.

#### Reject metaphysics including meta-ethics – they cannot be evaluated and ignore material issues

Beller 21

Beller, J. (January 22, 2021). The World Computer: Derivative Conditions of Racial Capitalism. United States: Duke University Press. Pages 49 to 51. // js69 --- Ask me for the PDF!

But are fascists really people? We demand the right to won der if anyone is left in there after being fully colonized by computational racial capital’s AI. Capital’s realization and generalization of simulation by digital logic—as, for example, with spectacle in **the aesthetic register**, or by means **of statistical modeling** **in** the computational register, and with multiple grids of intelligibility and evaluation (**algorithmic governance**) in vari ous other academic and social disciplines— **allows for the machine**-(re)thinking **of ontologies** **in** general in terms of the effects of **pro cesses of** instrumental inscription and **codification. Metaphysics itself is under siege**. Is there any remainder in the fascist? Thus, when considering the recent interest in ontology, Fredric Jameson’s “Always historicize!” comes to mind (1981: 9). **Machine- thinking**, which is one with execution, **entails a reconfiguration of ontologies.** As Alex Galloway (2012) taught us, **the medium of computing**, which instantiates its objects via programming, **is metaphysics**. And as Allen Feldman (2015) brilliantly demonstrates in analy sis ranging from South Africa to Guantánamo to drone warfare, **metaphysics is a medium of war**. However, in a classic disappearing act of the medium, this fact of the instantiation of executable **ontologies by computation**, as well as their ascription to physical forms, most often goes unremarked— despite the fact that the reformatting is “the message.” **The question is whether or not** **it is possible to critique** this computational, cap i talist ordination of phenomena and thought— and the stakes here are far higher than what is generally meant by “academic.” **Ontological claims**, such as “x is y,” always have an addressee**.** **The ontological layer**, what something is, **is an artifact of data visualization**—in short, an inscription, an act of writing, and a speech- act— and never a neutral endeavor. Simulation deconstructs objects into distribution patterns; **it makes us skeptical about** who or **what is pre sent**, both objectively (as we regard the perceptible) and subjectively (**in ourselves** as consciousness). It ordains “a tremendous shattering of tradition” (Benjamin: 236). Fake news! Data teaches us that we, as subjects, may not be the privileged addressee. The reign of simulation is everywhere imposed as antecedent forms of subjectivity are garbled, shattered, reformatted, and placed on a continuum with informatic throughput. **Through an inversion of** the **priority between world and data** visualization, the digital simulation of the world by concepts **encoded in apparatuses** at once **reveals the stakes of** intervention in **the protocol layer of computation** and raises the pointed and possibly still politi cal question of what may remain of so- called humanity beyond the purview of a now fully financialized knowing that is a kind of doing— and here again, we glimpse the remainder. It does so **by posing the** question of the **possibility of** a “**beyond**” to (con temporary) simulation, particularly **in a world**— and in keeping with current physics, a cosmos—in which simulation has overtaken the place of truth as ground, and has done so in a way that both implies and corroborates the insight that number, deeper than matter or energy, is the fundamental component of All. I’m not sure, but it seems that some of us have an awareness of remaindered life and its pos si ble alternative futures, and others not at all. It is no won der the oppressed called Pinochet’s brutal fascist supporters “mummies.” **This appeal**, in the face of foreclosure, to alternate strategies of account—**to ontology**, other wise— would be the place to reflect for a moment on the fact that a marginal strand of thought, namely, deconstruction, **has** today **become** **the dominant mode of state power**, practiced on a massive scale by what Feldman (2017) calls “the deconstructive state.” Ironic that this intervention in the protocol layer of language function was introduced by phi los o phers, but then again, none of us really know whose thinking we are doing. The incredible grammatical and conceptual innovation that Derrida used to dramatize differánce was first developed and utilized to intervene in the axiology of the extant colonial, imperial, and patriarchal epistemes. **These knowledge formations support**ed the **hegemony of** vari ous **Western regimes**, sustaining a broadband governance that functioned by producing and mobilizing a contiguous, per sis tent, dominant real ity, along with its attendant objects and subjects. Derrida’s technique of shattering these state- supported knowledge formations ostensibly grounded on axiology with a kind of accuracy that combined the skills of diamond cutter and watchmaker, disassembled seemingly— inviolable metaphysical first princi ples such as the superiority of Western civilization, or of men over women, and other forms of “truth” like “God” or “Man” or Truth. At the time deconstruction was a highly specialized strategy and toolkit developed by certain forms of feminist and postcolonial theory: Hélène Cixous, Luce Irigaray, Judith Butler, Gayatri Spivak, and Homi Bhabha, to name only a few. The appropriation and inversion of these strategies of deconstruction for the disruption of ontology by hegemonic actors who now deploy it tactically, if without subtlety or study ( there is an analogy to be made with a hatchet somewhere), to scramble marginal ontologies is shocking, yet it must be seen as another example of the right- wing appropriation of left political techniques. **Deconstruction has been financialized**— it’s a volatility inducing accumulation strategy. When the United States and Israel defend freedom of speech and democracy, when pinkwashing enables embarking on the repre sen ta tional and practical deconstruction of the individuals, families, homes, organ izations, and nations which are their targets and victims, we must observe that there has been a sea change in both the calculus of dominant repre sen ta tion and the status of its objects. The discursive overturning of local real ity now occurs by means of an executable language backed by media platforms and military power, by a formalization and calculus of what, almost twenty years ago, Sarah Ahmed (2004) **called “affective economies**.” By a strange inversion, “real ity” has gone from an in de pen dent variable to a dependent variable. It has become **dependent upon the information that produces it** and that allows stakeholders to bet on its outcomes. It is information itself that is now the in de pen dent fact and has the status previously held by “real ity.” It, information, is now the necessary condition, ground and medium for any wager on the future. Google’s and Facebook’s recent forays as defenders of privacy against the state’s encroachments on our information is a similar result illustrating the priority of information over any specific real ity: it is not a defense of “us” but only a proprietary strategy, a narrative and datalogical exploit for control over the means of production of on- demand realities. The organ ization of affect driven by the profit motive, depends upon the deconstruction and recomposition of read- write ontologies.

### 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 – Short

#### The Advantage 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 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, 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

#### 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.

#### 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

### 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