### 1

#### Interpretation: The affirmative must defend that appropriation of outer space as a whole by private entities is unjust.

#### ‘The’ indicates reference to a noun as a whole

Merriam **Webster’s 19** Online Dictionary, https://www.merriam-webster.com/dictionary/the

4 -- **used as a function word before a noun** or a substantivized adjective **to indicate reference to a group as a whole** <the elite>

#### “Appropriation” means to take as property

**Leon 18** (Amanda M., Associate, Caplin & Drysdale, JD UVA Law) "Mining for Meaning: An Examination of the Legality of Property Rights in Space Resources." Virginia Law Review, vol. 104, no. 3, May 2018, p. 497-547. HeinOnline.

**Appropriation**. The term "appropriation" also remains ambiguous. **Webster's defines** the verb "**appropriate**" **as** "**to take to oneself in exclusion of others**; **to** claim or **use as by an exclusive or pre-eminent right**; as, let no man appropriate a common benefit."16 5 Similarly, **Black's** Law Dictionary **describes "appropriate" as an act "[t]o make a thing one's own; to make a thing the subject of property**; to exercise dominion over an object to the extent, and for the purpose, of making it subserve one's own proper use or pleasure."166 Oftentimes, **appropriation refers to the setting aside of government funds, the taking of land for public purposes, or a tort of wrongfully taking another's property as one's own**. The term appropriation is often used not only with respect to real property but also with water. According to U.S. case law, a person completes an appropriation of water by diversion of the water and an application of the water to beneficial use.167 This **common use** of the term "appropriation" with respect to water **illustrates** two key points: (1) **the term applies to natural resources-e.g., water or minerals-not just real property**, **and** (2) **mining space resources and putting them to beneficial use**-e.g., selling or manufacturing the mined resources **could reasonably be interpreted as an "appropriation" of outer space**. While **the ordinary meaning of "appropriation"** reasonably **includes the taking of natural resources as well as land**, whether the drafters and parties to the OST envisioned such a broad meaning of the term remains difficult to determine with any certainty. **The prohibition against appropriation "by any other means" supports such a reading**, though**, by expanding the prohibition to other types not explicitly described**.168

#### ‘Of’ implies we should consider appropriation as a whole

**CJS 78** Corpus Juris Secundum, 67, p. 200

Of: **The word "of"** is a preposition. It is a word of different meanings, and susceptible of numerous different connotations. It may be used in its possessive sense to denote possession or ownership. It may also be used as a word of identification and relation, rather than as a word of proprietorship or possession. "Of" may denote source, origin, existence, descent, or location, or it may denote that from which something issues, proceeds, or is derived. The term may **indicate the aggregate or whole of** **which the limited word or words denote a part**, or of which a part is referred to, thought of, affected, etc.

#### Unjust means contrary to right and justice

**Black’s Law Dictionary** (Black's Law Dictionary. “What Is Unjust? Definition of Unjust (Black's Law Dictionary).” The Law Dictionary, The Law Dictionary, 7 Nov. 2011, thelawdictionary.org/unjust/.)

What is UNJUST? **Contrary to right and justice**, or to the enjoyment of his rights by another, or to the standards of conduct furnished by the laws.

#### Violation— the word “appropriation” is only qualified by the words “outer space” – no other specification is permitted

**Ellis 53** Judge Advocate in the United States Army, “United States. v. Private Frank Taylor, Jr.”, United States Army Board of Review, 11 C.M.R. 428; 1953 CMR LEXIS 1428, 7-31, Lexis

Appellate defense counsel argued orally that many facts indicated the United States was not at war, for example: there has been no declaration of war; the Coast Guard is still under the supervision of the Treasury Department instead of the Navy Department as it usually is during war; here in the United States, Armed Forces personnel are allowed to wear civilian clothes during off-duty hours; it is not the policy to try Department of the Army civilians serving with the Army in the field in the United States by courts-martial; the various Army posts throughout the United States are still open to public visitation; many reservists and National Guard units are not on active service; and the Table of Maximum Punishments had not been suspended for offenses committed in the United States. He contended that the ratio of the cases cited in support of the war status of the United States was limited to the locale of the hostilities, Korea and its adjacent [\*\*6]  waters, and was inoperative on offenses committed in the United States. Finally, he anchored his argument on the interpretation to be given the language in Article 43f(1) (post) of the Code. He conceded arguendo that the offense at bar fell within the purview of this language, being a fraud against a United States agency, the Army, but reasoned that the subject language contemplated and embraced only "hostilities as proclaimed by the President or by a Joint Resolution of Congress." With this interpretation the board of review cannot agree. **The preposition "of" before the word "hostilities" shows plainly that the phrase "of hostilities" is adjectival, qualifying and limiting the word "termination".** The phrase "termination of hostilities" is in turn modified by the participial phrase "as proclaimed." In our interpretation it is the "termination of hostilities" that must be proclaimed, and such proclamation provides the initial date of a three-year period in which the suspension of the statute of limitations continues to operate rather than determines the date of the beginning of the original suspension (emphasis supplied).

#### Vote Neg:

#### 1] Predictable Limits – there’s hundreds of ways in which the affirmative can restrict appropriation in outer space – they can make fines, penalize companies, or make CEOs do a notes app apology on twitter. Their model also lets them selectively restrict poor forms of appropriation and shift to better forms of appropriation which allows the aff to say appropriation good and creates a bidirectional topic that is impossible to negate. PICs aren’t aff offense – a] it’s ridiculous to say that neg potential abuse justifies the aff being non-T b] There’s only a small number of pics on this topic c] PICs incentivize them to write better affs that can generate solvency deficits to PICs

#### 2] Topic ed – Bans are one of the most common and is most germane to the literature – increases the amount of ground and ability to have deep debates on the model which the majority of the literature is centered around as opposed to an irrelevant and vague model that kills critical thinking abilities.

#### No RVIs – baiting

#### Competing interps – reasonability is arbitrary

#### Precision – anything else justifies arbitrarily jettisoning words in the resolution

#### Condo is good – a] neg flex – we need to be able to test the aff from multiple different angles b] logical – counterplans establish an opportunity cost to the aff which is the neg’s burden c] real world – in the real world we have various angles of approaching policies and don’t just stick to the first one explained

### 2

#### States ought to:

#### --Announce that appropriation of outer space by private actors violates the Outer Space Treaty and that this is a settled matter of customary international law

#### --Announce that this action is taken pursuant to *opinio juris* (the belief that the action is taken pursuant to a legal obligation) and that non-compliant actors are in violation of international law

#### --Fully comply, not appropriating outer space in a manner inconsistent with these proclamations

#### Solves the Aff.

[Fabio](https://kluwerlawonline.com/journalarticle/Air+and+Space+Law/33.3/AILA2008021) **Tronchetti 8**. Dr. Fabio Tronchetti works as a Co-Director of the Institute of Space Law and Strategy and as a Zhuoyue Associate Professor at Beihang University, “The Non–Appropriation Principle as a Structural Norm of International Law: A New Way of Interpreting Article II of the Outer Space Treaty,” Air and Space Law, Volume 33, No 3, 2008, <https://kluwerlawonline.com/journalarticle/Air+and+Space+Law/33.3/AILA2008021>, RJP, **DebateDrills**.

The non–appropriation principle represents the fundamental rule of the space law system. Since the beginning of the space era, it has allowed for the safe and orderly development of space activities. Nowadays, however, the principle is under attack. Some proposals, arguing the need for abolishing it in order to promote commercial use of outer space are undermining its relevance and threatening its role as a guiding principle for present and future space activities. This paper aims at safeguarding the non–appropriative nature of outer space by suggesting a new interpretation of the non–appropriation principle that is based on the view that this principle should be regarded as a customary rule of international law of a special character, namely ‘a structural norm’ of international law.

#### That competes ---

#### 1] Widespread support for OST overhaul means a new treaty is likely---top military leaders are pushing it.

Theresa **Hitchens 21**. Theresa Hitchens is the Space and Air Force reporter at Breaking Defense. The former Defense News editor was a senior research associate at the University of Maryland’s Center for International and Security Studies at Maryland (CISSM). Before that, she spent six years in Geneva, Switzerland as director of the United Nations Institute for Disarmament Research (UNIDIR). “US Should Push New Space Treaty: Atlantic Council,” Breaking Defense, April 12, 2021, <https://breakingdefense.com/2021/04/us-should-push-new-space-treaty-atlantic-council/>, RJP, **DebateDrills**

WASHINGTON: The US should push hard to overhaul the entire international legal framework for outer space — including replacing the foundational [1967 Outer Space Treaty (OST),](https://breakingdefense.com/tag/outer-space-treaty/) a new report from the Atlantic Council says.

As it moves to do so, the US also should more aggressively court allies with an eye to establishing a “collective security alliance for space” among likeminded countries to “deter aggression” and defend “key resources and access.”

“The 1967 Treaty is dated. It was written, literally, in a different era,” said former Air Force Secretary Deborah Lee James in an Atlantic Council briefing today. “At present it is too broad, and in some cases it’s probably overly specific.”

The year-long study, [“The Future of Security In Space: A Thirty-Years US Strategy”](https://www.atlanticcouncil.org/wp-content/uploads/2021/04/TheFutureofSecurityinSpace.pdf)was co-chaired by James and retired Marine Corps Gen. Hoss Cartwright, former vice chair of the Joint Chiefs of Staff. In essence, it argues that the US needs to lead international efforts to craft a new rules-based regime

to govern all space activities — from exploration to commercial ventures to military interactions. As the two argued in a recent [op-ed in Breaking D,](https://breakingdefense.com/2021/03/the-space-rush-new-us-strategy-must-bring-order-regulation/) “Great-power competition among the United States, China, and Russia has launched into outer space without rules governing the game.”

“The international law of space, centered on the 1967 Outer Space Treaty, is outdated and insufficient for a future of space in which economic activity is primary. The international community needs a new foundational space treaty, and the United States should precipitate its negotiation,” the study argues.

James elaborated that the idea would be to craft a more expansive treaty that covers emerging issues like debris mitigation and removal and [commercial extraction of resources](https://breakingdefense.com/tag/space-resource-extraction/) from the Moon and/or asteroids. That said, she stressed that the US should not abandon the OST — which has been signed by 193 nations — unless and until something new is there to replace it.

#### 2] Space law is typically treaty-based---Russian and Chinese proposals prove.

Stephanie **Nebehay 8**. Reporter, Reuters, “China, Russia to Offer Treaty to Ban Arms in Space,” Reuters, January 26, 2008, <https://www.reuters.com/article/us-arms-space/china-russia-to-offer-treaty-to-ban-arms-in-space-idUSL2578979020080125>, RJP, **DebateDrills**

GENEVA (Reuters) - China and Russia will submit a joint proposal next month for an international treaty to ban the deployment of weapons in outer space, a senior Russian arms negotiator said on Friday.

Valery Loshchinin, Russia’s ambassador to the United Nations-sponsored Conference on Disarmament, said the draft treaty would be presented to the 65-member forum on February 12.

Russian Foreign Minister Sergei Lavrov is due to address the Geneva forum, which constitutes the world’s main disarmament negotiating body, on that day. Loshchinin gave no details on the proposal which has been circulated to some senior diplomats.

Tensions between Russia and the United States have deepened in recent years over U.S. plans to revive its stalled “Star Wars” program from the 1980s with a new generation of missile defense shields.

Nuclear and other weapons of mass destruction are banned from space under a 1967 international treaty. But Washington’s plans have stirred concerns about non-nuclear arms in space.

#### 3] Treaties are the foundation of space law.

Sophie **Goguichvili et. al 21**. Program Associate, the Wilson Center, “The Global Legal Landscape of Space: Who Writes the Rules on the Final Frontier?” The Wilson Center, October 1, 2021, <https://www.wilsoncenter.org/article/global-legal-landscape-space-who-writes-rules-final-frontier>, RJP, **DebateDrills**

As previously mentioned, a series of treaties adopted by the U.N. General Assembly (UNGA) form the foundation of the global space governance system. The first and most significant of these treaties is the “Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space including the Moon and Other Celestial Bodies,” more commonly known as the **Outer Space Treaty**or**OST** for short (1967). The Outer Space Treaty is considered the most comprehensive space treaty and provides the basic framework for international space law, namely: the exploration and use of outer space for peaceful purposes by all States for the benefit of mankind (Art. I); the outlaw of national appropriation or claims of sovereignty of outer space or celestial objects (Art. II); a ban on the placement of weapons of mass destruction in orbit or on celestial bodies (Art. IV); that astronauts should be regarded as the envoys of mankind (Art. V); and that States are required to supervise the activities of their national entities (Art. VI).

#### We solve better, since CIL is far superior to treaties for space AND causes follow-on.

Koplow, 9 – Professor of Law, Georgetown University Law Center.

David A. Koplow, “ASAT-isfaction: Customary International Law and the Regulation of Anti-Satellite Weapons,” Michigan Journal of International Law. Volume 30, Summer 2009. <http://scholarship.law.georgetown.edu/cgi/viewcontent.cgi?article=1452&context=facpub>

Finally, the Article concludes with some policy recommendations, suggesting mechanisms for the world community to press forward with autonomous efforts to promote stability and security in outer space, even in the face of recalcitrance from the leading space powers. I would certainly support the negotiation and implementation of a comprehensive new treaty to prevent an arms race in outer space, and a carefully drafted, widely accepted accord could accomplish much, well beyond what customary law alone could create. But the treaty process, too, has costs and disadvantages, and the world need not pursue just one of these alternatives in isolation.

If the absence of global consensus currently inhibits agreements that countries could already sign, perhaps the world community can nevertheless get some "satisfaction" via the operation of CIL, constructing a similar (although not completely equivalent) edifice of international regulation of ASATs based simply on what countries do.

### 3

#### The plan requires clarifying international space law---causes strategic bargaining to extract concessions

Alexander William Salter 16, Assistant Professor of Economics, Rawls College of Business, Texas Tech University, "SPACE DEBRIS: A LAW AND ECONOMICS ANALYSIS OF THE ORBITAL COMMONS", 19 STAN. TECH. L. REV. 221 (2016), https://law.stanford.edu/wp-content/uploads/2017/11/19-2-2-salter-final\_0.pdf

V. MITIGATION VS. REMOVAL

Relying on international law to create an environment conducive to space debris removal initially seems promising. The Virginia school of political economy has convincingly shown the importance of political-legal institutions in creating the incentives that determine whether those who act within those institutions behave cooperatively or predatorily.47 In the context of space debris, the role of nation-states, or their space agencies, would be to create an international legal framework that clearly specifies the rules that will govern space debris removal and the interactions in space more generally. The certainty afforded by clear and nondiscriminatory48 rules would enable the parties of the space debris “social contract” to use efficient strategies for coping with space debris. However, this ideal result is, in practice, far from certain. To borrow a concept from Buchanan and Tullock’s framework,49 the costs of amending the rules in the case of international space law are exceptionally high. Although a social contract is beneficial in that it prevents stronger nation-states from imposing their will on weaker nation-states, it also creates incentives for the main spacefaring nations to block reforms that are overall welfare-enhancing but that do not sufficiently or directly benefit the stronger nations.

The 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (more commonly known as the Outer Space Treaty) is the foundation for current international space law.50 All major spacefaring nations are signatories. Article VIII of this treaty is the largest legal barrier to space debris removal efforts. This article stipulates that parties to the treaty retain jurisdiction over objects they launch into space, whether in orbit or on a celestial body such as the Moon. This article means that American organizations, whether private firms or the government, cannot remove pieces of Chinese or Russian debris without the permission of their respective governments. Perhaps contrary to intuition, consent will probably not be easy to secure.

A major difficulty lies in the realization that much debris is valuable scrap material that is already in orbit. A significant fraction of the costs associated with putting spacecraft in orbit comes from escaping Earth’s gravity well. The presence of valuable material already in space can justifiably be claimed as a valuable resource for repairs to current spacecraft and eventual manufacturing in space. As an example, approximately 1,000 tons of aluminum orbit as debris from the upper stages of launch vehicles alone. Launching those materials into orbit could cost between $5 billion and $10 billion and would take several years.51 Another difficulty lies in the fact that no definition of space debris is currently accepted internationally. This could prove problematic for removal efforts, if there is disagreement as to whether a given object is useless space junk, or a potentially useful space asset. Although this ambiguity may appear purely semantic, resolving it does pose some legal difficulties. Doing so would require consensus among the spacefaring nations. The negotiation process for obtaining consent would be costly.

Less obvious, but still important, is the 1972 Convention on International Liability for Damage Caused by Space Objects, normally referred to as the Liability Convention. The Liability Convention expanded on the issue of liability in Article VII of the Outer Space Treaty. Under the Liability Convention, any government “shall be absolutely liable to pay compensation for damage caused by its space objects on the surface of the Earth or to aircraft, and liable for damage due to its faults in space.”52 In other words, if a US party attempts to remove debris and accidentally damages another nation’s space objects, the US government would be liable for damages. More generally, because launching states would bear costs associated with accidents during debris removal, those states may be unwilling to participate in or permit such efforts. In theory, insurance can partly remediate the costs, but that remediation would still make debris removal engagement less appealing.

A global effort to remediate debris would, by necessity, involve the three major spacefaring nations: the United States, Russia, and China.53 However, any effort would also require—at a minimum—a significant clarification and—at most —a complete overhaul of existing space law.54 One cannot assume that parties to the necessary political bargains would limit parleying to space-related issues. Agreements between sovereign nation-states must be self-enforcing.55 To secure consent, various parties to the change in the international legal-institutional framework may bargain strategically and may hold out for unrelated concessions as a way of maximizing private surplus. The costs, especially the decision-making costs, of changing the legal framework to secure a global response to a global commons problem are potentially quite high.

#### The US will use that opportunity to push Artemis Accords and bilateralization – undermines multilateral space law.

Wall 20 – Senior Space Writer with Space.com, former herpetologist and wildlife biologist, Ph.D. in evolutionary biology from the University of Sydney, Australia; citing Boley (Department of Physics and Astronomy, University of British Columbia, Vancouver) and Byers (Department of Political Science, University of British Columbia, Vancouver)

Mike Wall, 10-8-2020, “US policy could thwart sustainable space development, researchers say,” Space.com, https://www.space.com/us-space-policy-mining-artemis-accords DD

The United States' space policy threatens the safe and sustainable development of the final frontier, two researchers argue.

The U.S. is pushing national rather than multilateral regulation of space mining, an approach that could have serious negative consequences, astronomer Aaron Boley and political scientist Michael Byers, both of the University of British Columbia in Vancouver, write in a "Policy Forum" piece that was published online today (Oct. 8) in the journal Science.

Boley and Byers cite the 2015 passage of the Commercial Space Launch Competitiveness Act, which explicitly granted American companies and citizens the right to mine and sell space resources. That right was affirmed this past April in an executive order signed by President Donald Trump, they note.

The researchers also point to NASA's announcement last month that it intends to buy moon dirt and soil collected by private companies, and its plan to sign bilateral agreements with international partners that want to participate in the agency's Artemis program of crewed lunar exploration.

Artemis, one of NASA's highest-profile projects, aims to return astronauts to the moon in 2024 and establish a long-term, sustainable human presence on and around Earth's nearest neighbor by the end of the decade. Making all of this happen will require the extensive use of lunar resources, such as the water ice that lurks on the permanently shadowed floors of polar craters, NASA officials have said.

Boley and Byers take special aim at the planned bilateral agreements, known as the Artemis Accords. In promoting them, the U.S. "is overlooking best practice with regard to the sustainable development of space," the researchers write.

"Instead of pressing ahead unilaterally and bilaterally, the United States should support negotiations on space mining within the UN [United Nations] Committee on the Peaceful Uses of Outer Space, the same multilateral body that drafted the five major space treaties of the 1960s and '70s," they write in the Science piece. (The most important of the five is the 1967 Outer Space Treaty, which forms the basis of international space law.)

"Meanwhile, NASA’s actions must be seen for what they are — a concerted, strategic effort to redirect international space cooperation in favor of short-term U.S. commercial interests, with little regard for the risks involved," Boley and Byers add.

The researchers worry that the U.S. is setting an unfortunate precedent for other countries to follow, and that space mining and other exploration activities may therefore proceed in a somewhat careless and chaotic fashion in the not-too-distant future.

#### That returns space to might-makes-right imperial conflict.

O’Brien 20 – member of the International Institute of Space Law and founder of The Space Treaty Project, retired attorney and former member of the NASA-Hastings Law Project

Dennis O’Brien, 6-29-2020, “The Artemis Accords: repeating the mistakes of the Age of Exploration,” *The Space Review*, https://www.thespacereview.com/article/3975/1 DD

In the spring of 1493, the King and Queen of Spain sent an envoy to the Pope in Rome. Along with Portugal, Spain had just used its advanced sailing and navigation technology to reach “new worlds,” areas of the Earth that had not been previously discovered by Europeans. But they had a problem: they wanted to establish sovereign property rights in the lands they had discovered, but they weren’t sure they could do so under their own authority. So, they turned to the only international authority in Europe at that time, the Catholic Church, which held sway over governments from Portugal to Poland, from the Arctic to the Mediterranean. If the Church would establish a legal framework that granted them sovereignty, then those nations would be bound to recognize it.[2]

This is the first lesson that the current governments of the world can learn from the Age of Exploration & Empire that began five centuries ago. Even then, the most powerful nation in Europe, with the largest army and most advanced technology, realized that it could not unilaterally establish property rights or any other kind of sovereignty without the approval of an international authority. After the Church granted that authority, Spain was able to create one of the greatest empires in history. Spain and Portugal formalized the arrangement with a binding international agreement, the Treaty of Tordesillas, whose purpose was to ensure peaceful cooperation between their nations, primarily by establishing a line of demarcation that separated their areas of activity.[3]

Unfortunately, the legal framework so established was based on national dominance, not multilateral international cooperation. The grant of sovereignty was exclusive, made only to Spain and Portugal, and it required them to subjugate the “savages” in the lands they discovered by taking along Church missionaries. This exclusivity did not sit well with other nations as they also developed the technologies of exploration; it was one of the reasons many northern European nations joined the Protestant Reformation and rejected the authority of the Pope in Rome. Without a fair and equitable international agreement that honored the interests of emerging states, the Church lost its ability to act as an arbiter between nations.

Even worse, the dominance model set up centuries of conflict among the major powers in Europe. Militant nationalism and economic colonialism became the principles guiding national policy. The result was centuries of war, suffering, and neglect among the major powers and the nations they subjugated. This pattern did not end until the 20th century, when the major powers fought two world wars and finally dismantled their colonial empires: sometimes peacefully, sometimes by force.

By the mid-1960s, most countries on Earth were independent or on their way to becoming so. But a new conflict had started, one that threatened to repeat the mistakes of five centuries earlier. The great powers were once again using their advanced technology to explore new worlds, and the race was on to plant their flag on the Moon first. Under the ancient traditions, the country that did so would have a claim against all others for possession and use of the territory. The Cold War was about to expand into outer space.

But then something wonderful happened. In 1967, the United Nations proposed, and the world’s space powers accepted, an international agreement known as the Outer Space Treaty.[4] The treaty was an intentional effort to avoid the mistakes of the Age of Exploration & Empire. Article I states, “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.” Article II is even more specific: “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.” Because of this treaty, the United States carried a plaque to the Moon that said, “We came in peace for all mankind.”[5] When the Apollo 11 astronauts planted the US flag, they did so out of pride, but did not establish any claim or national priority.

This legal framework worked well initially, but people soon started wondering about what to do when countries or private entities wanted to start commercial activity on the Moon, or build settlements. The solution was the Moon Treaty, proposed by the United Nations and adopted by enough nations to come into force in 1984.[6] But it has not yet been adopted by any major spacefaring nation. The United States, by a recent executive order, has specifically renounced the treaty and stated its intentions to extract materials from the Moon without any international agreement.[7]

The newly announced Artemis Accords go even further. Although the actual Accords have not been released pending consultation with possible partners, the summary provided by NASA[8] indicates that the United States will unilaterally interpret the Outer Space Treaty to allow “space resource extraction,” despite the prohibition against appropriation in Article II of the Treaty. There will also be “safety zones” to avoid “harmful interference” with such operations. The effect is to establish exclusive economic zones, especially if “harmful interference” is defined to include economic harm, not just safety. Will the new Space Force be used to protect such economic interests? Will other nations be excluded if they support the Moon Treaty?[9] Will private actors be required to follow the same rules as states, as recommended in the recently drafted Moon Village Principles?[10] This is the slippery slope of using unilateral action to establish economic rights rather than an international agreement.

The Artemis Accords acknowledge many beneficial agreements and policies: The Outer Space Treaty, Rescue Agreement, and Registration Convention (though not the Liability Convention); peace, transparency, interoperability, protecting heritage sites and sharing scientific information. But its unilateral authorization of space mining is a continuation of the Trump Administration’s underlying foreign policy strategy: unilateral dominance over international cooperation. The United States has withdrawn from the Paris Accords, the Iranian nuclear deal, and, in the middle of a pandemic, the World Health Organization. Dominance has even become the theme of the administration’s domestic policy, with President Trump recently telling governors, “If you don't dominate, you're wasting your time… You have to dominate.”[11] That core philosophy is now being applied to outer space, as Vice President Mike Pence proudly announced in 2018. Despite the lessons of history, the United States is going full speed ahead with the “dominance” model of space development rather than working with the nations of the world to develop a “cooperation” model. Outer space, which so far has been preserved for peace and cooperation, is about to be spoiled, perhaps forever.

#### Goes nuclear – space conflict is uniquely escalatory.

Farley 22 – PhD, Senior Lecturer at the Patterson School at the University of Kentucky

Robert Farley, 1-9-2022, “Does A Space War Mean A Nuclear War?” 1945, https://www.19fortyfive.com/2022/01/does-a-space-war-mean-a-nuclear-war/ DD

The recent Russian anti-satellite test didn’t tell the world anything new, but it did reaffirm the peril posed by warfare in space. Debris from explosions could make some earth orbits remarkably risky to use for both civilian and military purposes. But the test also highlighted a less visible danger; attacks on nuclear command and control satellites could rapidly produce an extremely dangerous escalatory situation in a war between nuclear powers. James Acton and Thomas Macdonald drew attention to this problem in a recent article at Inside Defense. As Acton and MacDonald point out, nuclear command and control satellites are the connective tissue of nuclear deterrence, assuring countries that they’re not being attacked and that they’ll be able to respond quickly if they are.

For a long time, these strategic early-warning satellites were akin to a center of gravity in ICBM warfare. Nuclear deterrence requires awareness that an attack is underway. Attacks on the monitoring system could easily be read as an attempt to blind an opponent in preparation for general war, and could themselves incur nuclear retaliation. Thus, the nuclear command and control satellites are critical to the maintenance of nuclear deterrence. They make it possible to distribute an order from the chief of government to the nuclear delivery systems themselves. Consequently, their destruction might lead to hesitation or delay in performing a nuclear launch order.

It was only later that the relevance of satellites for conventional warfare became clear. Satellites could reconnoiter enemy positions and, more importantly, provide communications for friendly forces. Indeed, the expansion of the role of satellites in conventional warfare has complicated the prospect of space warfare. States have a clear reason for targeting enemy satellites which support conventional warfare, as those satellites enable the most lethal part of the kill chain, the communications and recon networks that link targets with shooters. Thus, we now have a situation in which space military assets have both nuclear and conventional roles. In a conflict confusion and misperception could rapidly become lethal. If one combatant views an attack against nuclear command and control as a prelude to a general nuclear attack, it might choose to pre-empt.

Nuclear powers have dealt with problems in this general category for a good long while; would a conventional attack against tactical nuclear staging areas represent an escalation, for example? Would the use of ballistic missiles that can carry either conventional or nuclear weapons trigger a nuclear response? Do attacks against air defense networks that have both strategic and tactical responsibilities run the risk of triggering a nuclear response? There’s also the danger that damage to communications networks designated for conventional combat could force traffic onto the nuclear control systems, further confusing the issue.

No one has ever fought a nuclear war, and no two nuclear powers have engaged in a prolonged, high-intensity conventional conflict. Now that conventional systems have become implicated in space technologies for reconnaissance, targeting, and communications, leaders will have to make very difficult, very careful decisions on what enemy capabilities they want to disrupt. Acton and MacDonald propose a straightforward ban on attacks against nuclear satellite infrastructure, which would also require agreement to keep nuclear and conventional communications networks separate. This is the little ask; countries should plan to fight more carefully. The big ask is for a multilateral ban to prevent future anti-satellite weapons tests in space. This would reduce the danger that debris could close off, temporarily or permanently, human access to certain locations in earth orbit. But given that countries use satellites for the conduct of conventional military operations, it’s a lot to ask for warfighters to consider critical military infrastructure off-limits in any particular conflict.

### 4

#### The characterization of space as conflict-prone zone encourages the securitization of space – that hyperintensities conflict by driving arms races and increasing military investment.

Peoples 11 [Taylor Francis, “The Securitization of Outer Space: Challenges for Arms Control”, Columba Peoples holds a BA in History, Politics and Social Studies from the University of Limerick, Ireland, and MScEcon & PhD qualifications in International Politics, URL: <https://www.tandfonline.com/doi/full/10.1080/13523260.2011.556846?scroll=top&needAccess=true>, KR]

It is worth noting that the securitization of outer space – in terms of the identification of space with security – is, in itself, not a novel phenomenon or development. The extent to which ostensibly civil uses of outer space have been linked implicitly and explicitly to national security functions historically – or, as in the case of the space race between the United States and Soviet Union, have acted as a surrogate for direct military engagement – is well documented.50 Similarly, the characteriz- ation of the Sputnik launch in 1957 as placing the United States ‘in the greatest danger in its history’ suggests that the representation of space technologies as poten- tial existential threats is not entirely new either.51 What is of significance, though, is the intensification, expansion and entrenchment of securitizing moves as features of national space policies. The Space Security Index report Space Security 2009, in its overview of national policies, explicitly noted that, on the one hand, ‘National space policies consistently emphasize international cooperation and the peaceful uses of outer space’, but on the other hand that there is a ‘Growing focus within national policies on the security uses of outer space’.52 The report cited as evidence: Japan’s 2008 space law framework, which lifted its previous ban on national security and military space activities; China’s 2006 National Defense White Paper, which identifies national security as principle of China’s emerging space programme; France’s White Paper on Defense and National Security, which calls for an overhaul of its national space strategy; and the renewed priority on ‘space for security’ within EU policy.53 Within recent United States space policy securitization has been most noticeably prevalent and institutionalized, which is significant given the continued preeminence of the United States as a space power. As is noted in one recent assessment, around 50 countries, intergovernmental consortia, and nongovernmental organizations have at least one satellite in space, ‘mostly for reasons that have more to do with economic performance and Earth monitoring than with military applications.’54 However, in spite of the increasing diversity of interests in space and the increased range of func- tions space-based technologies now fulfil, the United States defence budget still remains the single largest source of investment in space technologies. In part this sus- tained investment arises out of American deployment and development of missile defence systems. Space and missile defences have been intimately connected issues historically and there are obvious technological overlaps between the two. Missile defence systems, including the ground-based system (Ground-Based Mid- course Defence or GMD) currently deployed by the United States at sites in Alaska and California, are dependent on satellite and space-based tracking technol- ogies to detect and track incoming missiles, and there is a possibility that the future connection between missile defence and space will be even stronger if current plans for missile defence are pursued to their fullest extent. Two such systems are already in the early stage of their development: the Space-Based Laser (SBL), which, like the Strategic Defence Initiative or Star Wars proposals of the 1980s, envisages using lasers to shoot down missiles in flight;55 and the ‘NFIRE’ or Near Field Infrared Experiment, a proposal to launch interceptor missiles not from the ground, as in the currently deployed GMD, but from space.56 Even if the developmental status of space-based missile defence interceptors remains uncertain (not least due to the budgetary constraints involved), the currently deployed ground-based system also poses a complex issue in terms of arms control. Though ostensibly intended for defensive purposes, ground and sea-based com- ponents of American missile defence could theoretically be employed as an ASAT – Anti-Satellite attack – device, and the use of sea-based Aegis ballistic missile defence capabilities and its Standard Missile 3 (SM3) to shoot down the malfunction- ing USA-193 spy satellite in February 2008 has done little to dispel concerns over the offensive applications of current missile defence capabilities.57 In addition, the United States also conducts research into more exotic forms of space weaponry, and funds a variety of technologies aimed at creating a force application capacity from space. The Department of Defense has reportedly explored several high- concept space weapons systems such as Hypervelocity Rod Bundles (tungsten rods dropped on targets from space that would theoretically use gravity as accelerant in a manner akin to a meteor, or Rods from God as they are also colloquially known), the Experimental Spacecraft System (XSS) (a manoeuvrable microsatellite weighing only 100 kilograms which could prospectively be used to attack other satellites), and the Common Aerospace Vehicle or CAV (this so-called Spaceplane would be unmanned and would orbit the earth, entering the atmosphere when needed to deploy precision guided munitions against selected targets). 58 Such programmes with possible space weapons applications (beyond ground-to- space ASAT capabilities) are still in their relative infancy, and the technical prospects for such technologies, as with the more exotic missile defence proposals outlined above, are far from certain.59 Yet much of the rhetoric emanating from the United States in recent years has made expansive claims to space dominance far beyond existing capabilities. In short, rather than seeking to control the means of violence in and from space, much of the military discourse on space has generally cast the United States as a trailblazer in this regard, with exotic systems cited as a necessity for future military dominance in and from space.60 Historically these claims have tended to emanate primarily from the Air Force and Air Force Space Command. In 1998, Space Command defined the control of space (‘space control’) as ‘The ability to assure access to space, freedom of operations within the space medium, and an ability to deny others use of space, if required’61, and space was also con- sidered as part of the remit for ‘full spectrum dominance’ in Joint Vision 2020.62 Space warriors within and beyond the United States military also make frequent reference to the ‘. . .importance of dominating space in peace and war’.63 Yet, ‘The decision to weaponize space does not lie within the military (seeking short-term military advantage in support of national security) but at the higher- level of national policy (seeking long-term national security, economic well-being, and worldwide legitimacy of US constitutional values).’64 Instances of the securitiza- tion of outer space within military circles are hardly surprising, given vested interests and the perceived utility of space support for American forces; what is more signifi- cant though is the extent to which national policy, though stopping short of explicit advocating of space weapons, has tended to similarly maintain the centrality of space for national security. 65 As Moore’s ‘biography’ of the idea of unilateral space dom- inance in the United States attests to, this school of thought has long held a prominent place in American strategic circles.66 Of significance, though, is the extent to which this type of thinking has migrated into official policy, portraying American access to, and dominance of, outer space as key to national survival in the process. The tenure of the George W. Bush administration in particular saw military and policy discourse move much closer in terms of goals and language used, entrenching securitization within United States space policy as a whole. In the terms used above, the views of space warriors made much greater inroads under the Bush administration, and this has had a significant bearing on how the United States has positioned itself in terms of arms control and how other states – particularly China and Russia – have subsequently defined their own positions.67 The evolution of official American discourse on outer space over the past decade attests to this subtle shift. In 2001, the Commission to Assess United States National Security Space Management and Organization (or Rumsfeld Space Commission as it is often referred to owing to Donald Rumsfeld’s position as chair) pointed out that a number of states hostile to the United States could attain ASAT capabilities, and, infamously, warned that if the United States did not secure space it would face a Space Pearl Harbor. Members of the Bush administration subsequently went on to effectively endorse the space control concept, asserting the primacy of space for security by openly linking its potential civil and military uses (and thus suggesting only a minimal distinction between the two). Then Deputy Secretary of Defense Paul Wolfowitz argued in a 2002 speech on missile defence that ‘as we look ahead we need to think about areas that would provide higher leverage. Nowhere is that more true than in space. Space offers attractive options not only for missile defense but for a broad range of interrelated civil and military missions. It truly is the ultimate highground.’68 The culmination of this line of thinking in policy terms came with the release of the National Space Policy (NSP) in August 2006, which stated that: The United States considers space capabilities – including the ground and space segments and supporting links – vital to its national interests. Consistent with this policy, the United States will: preserve its rights, capabilities, and freedom of action in space; dissuade or deter others from either those rights or developing capabilities intended to so; take those actions necessary to protect its space capabilities; respond to interference; and deny, if necessary, adversaries the use of space capabilities hostile to US national interests.69 The framing of the arguments from those within the Bush administration thus clearly aligns with the dynamics of securitization as identified by Buzan et al. The idea of a Pearl Harbor from Space invokes the nightmare scenario of a surprise attack on American interests in or from space, and was accompanied in the Rumsfeld Commission’s report by the sense of urgency characteristic of securitizing moves: ‘the present extent of US dependence on space [and] the rapid pace at which this dependence is increasing and the vulnerabilities it creates, all demand that US national security space interests be recognized as a top national security priority’.70 The Pearl Harbor analogy implied a focus on a surprise attack itself, but the rest of the report stressed the radical implications of such an attack, suggesting a potential existential threat to American commerce, society and, ultimately, way of life. As the report noted, ‘Space enters homes, businesses, schools, hospitals and government offices through its applications for transportation, health, the environment, telecom- munications, education, agriculture and energy. Much like highways and airways, water lines and electric grids, services supplied from space are already an important part of the US and global infrastructures.’71 In turn, the NSP of 2006 repeated many of these same securitizing moves. It elev- ated national security functions of United States space policy, declaring these as vital to national interests, and national security as ‘critically dependent upon space capabilities... this dependence will grow.’ Similarly, the NSP described United States space systems as critical to ‘. . .a wide range of civil, commercial, and national security users’, identifying the wider security implications of space as well as its more direct military uses.72 Crucially, this securitization of space was then used to justify exceptional measures with regards to arms control and the previous era of multilateral space agreements. Among the ‘actions necessary’ to protect space capabilities the NSP declared that: The United States will oppose the development of new legal regimes or other restrictions that seek to prohibit or limit US access to or use of space. Proposed arms control agreements or restrictions must not impair the rights of the United States to conduct research, development, testing, and operations of other activities in space for US national interests.73 This sentiment had effectively been put into practice even before its formalization in the NSP 2006, with the United States abstaining from votes on the UN General Assembly PAROS (Prevention of an Arms Race in Outer Space) resolution in 2000 and an amended version in 2003, and then voting against it in 2005.74 In this sense the 2006 NSP functioned as a kind of retrospective justification of the exceptional stance adopted – on security grounds – by the Bush administration in relation to space law and arms control. In addition, and moving away from a purely textualist understanding of securitization, the destruction of the USA-193 satellite in 2008 might be seen to constitute an extra-discursive instance of securitization. Although this action was not defined explicitly in terms of a military security rationale (government agencies stressed the rationale for the shoot-down in terms of preventing the malfunctioning satellite from crashing to Earth), it left clear room for interpretation, intended or not, of American willingness to display military space capabilities and further embellished the connection between space and (military) security.75

#### The result is an escalating and never-ending cycle of rivalry and competition- it is the desire for *control* that makes the aff’s impacts inevitable. When the 1AR says “vote aff to [INSERT AFF IMPACT HERE] they have doomed us all to die—this card is FIRE and turns case.

Northcott 15**.** Michael, Professor of Ethics at the University of Edinburgh, Scotland. Chapter 15 in Pierpaolo Antonello and Paul Gifford (Eds.), Can We Survive Our Origins? Readings in Rene Girard’s Theory of Violence and the Sacred Michigan State University Press, 2015 EE

In his latest book, Battling to the End, René Girard undertakes a series of culture-readings centered on an account of modernity and apocalypse. The book represents the culmination of the thesis, maturing throughout his work, that the twentieth century marked a phase change in the history of the age-old problem of human attempts to control and manage the threat of mimetic rivalry and violence. According to Girard, the mechanism that deflects the perils of collective violence also confers sacral authority on the apparatus of moral codes, social institutions, and ritual practices designed to protect the social community against its own negative reciprocities. By the twentieth century of the Common Era, however, that same cloud cover had, he thinks, been burned away as never before by secular reason, technological power, and other forces and processes of modernity—all set in train, structurally speaking, by the secularizing tendencies imminent in Christianity (Berger, 1967). Modern violence may be still “sacrificial” and “victimizing,” and it may still generate selfjustifying sacralities; but, for Girard, moderns do not believe in these new forms of the sacred implicitly enough or unanimously enough for them to have either much repressive-protective force or, certainly, any salvific virtue in respect of the runaway dynamic of negative reciprocity that first elicits and secretly drives them. The consequence is that rivalry and violence are becoming increasingly global in reach with weakening mediating codes, institutions and practices between individuals and families and the social forces of competition and coercion. Hence we are observing direct economic rivalry between corporations and peasants for land in Africa; rivalry for energy and food on world commodity markets, and for water supplies within and between nations. This reflects the increasingly borderless character of global economistic competition for natural resources and profit, and the economistic refusal that the human economy is earthbound, on a finite planet, in a universe which is otherwise a hostile and death-dealing vacuum outside of the fragile envelope of the earth’s atmosphere (Northcott, 2014). Girard argues that the contemporary escalation of mimetic rivalry into global economic competition for the remaining land and water resources of the planet, and for planetary sinks for human waste including the atmosphere, involves a growing level of planetary “sacrifice,” increasingly unlimited in its scale and effects (Girard 2010). These effects include the growing extinction of species, the emptying of the oceans of most of their fish stocks, and most recently, the growth of extreme weather events fueled by anthropogenic climate change. The gravity of this phase change is registered overall in the fact that the “innocent victim” is now, for the first time, our nurturing and sustaining mother-earth, the very basis and condition of the survival of all biological life. The modern Prometheus, as Girard situates him, is consequently “apocalyptic”: that is, he is delivered up to the law of his own intrinsic dynamic, as it is expressed in the model of the “mimetic crisis”

—Girard’s famous “montée aux extrêmes.” Often translated as “the trend towards extremes,” this expression is, as we shall have occasion to observe, better and more tellingly translated in most contexts of application as a “crescendo towards paroxysm.” Girard usually expounds the apocalyptic context and climate of our times by referring to the “mini-apocalypses” (as they are sometimes called) of the synoptic gospels. These are prophetic, in his view, of the fact that human violence interacts, as never before, with the natural world, engaging cosmic nature in its own spirit-driven crescendo toward a destructive paroxysm, and suffering in return the effects of a human disordering of cosmic nature: Violence is today unleashed at a global and planetary level, bringing about something heralded by the gospel texts on this theme: a fusing of natural and man-made disasters, a confusion of the natural and the artificial orders: global warming and the rising of oceans are today no longer just metaphors [of human violence]. The violence which once generated the sacred, no longer produces anything but itself. (Girard 2007, 11 [2010, x]) This “ultra-modern theme of the contamination of nature by the works of man” (205 [114]) is described by a number of natural scientists as a ‘second Copernican revolution’ (Scellnhuber 1999) and a new geological era, known as the Anthropocene (Crutzen, 2006). The Anthropocene is the first era in which human mimetic rivalry has extended in power to such an extent that human agency has overtaken other geologic and geospatial forces in determining its climate and the future direction of evolution. The declaration of this new height of human agency over the earth is visibly close to the nerve of “that apocalyptic feeling” in Girard. But he insists: This is not me repeating myself, but reality catching up with a truth not of my invention, since it was declared two thousand years ago. Our unhealthy obsession with contradiction and innovation will not and cannot hear this. But the paradox is that, drawing ever closer to the alpha point, we are making our way ever closer to point omega. As we understand better and better where we have come from, we realize a little better each day that this origin is coming towards us: the bolt holding in the founding murder has been drawn back by the Passion, and is today letting loose a planetary violence; and there is no way of closing the stable door. (Girard 2007, 12 [2010, x–xi] It is from this observational standpoint that Girard speaks to the troubled and troubling contemporary debate on anthropogenic climate change, i.e., the ecologically motivated concern to explore the nature and effects, direct and collateral, of human action in relation to our planetary environment and its ecosystems. What follows here is an attempt to discern and assess his contribution to understanding in this field. Apocalyptic Scenarios of Anthropogenic Climate Change Apocalyptic language and scenarios in relation to “anthropogenic” (human-induced) climate change (ACC) are instantly recognizable as a feature of popular and media representations of this phenomenon. Two films illustrate particularly powerfully this form of modern apocalypticism. The first film, The Day After Tomorrow, envisages a catastrophic and extremely sudden cooling of the Northeast Atlantic as the Gulf Stream, which draws heat from the tropics into the North and East Atlantic, ceases to function. The extreme cooling and winter storm that then engulfs the U.S. Eastern Seaboard is unscientific as is the sudden turning off of the Gulf Stream. But nonetheless the Gulf Stream is currently weakening, because of the extent of ice melt from a warming Arctic: together with related changes in the Atlantic Jet Stream polar ice melt was responsible for the ‘polar vortex’ that engulfed the Midwestern United States and Canada in the winter of 2013-14, and for the weeks long blanketing of the whole of the UK in ice and snow in the winter of 2009-10. The power of the film however is to turn ACC into a sudden life-threatening apocalyptic scenario that reduces life in the center of one of the world’s largest and richest cities—New York—into a desperate and violent struggle for survival against the elements. The second film, Age of Stupid, depicts a man in early old age who is ensconced on a technological Noah’s Ark somewhere in the ice-free Arctic Ocean. He takes the viewer back through a series of flashbacks on a transparent screen on which he manipulates video clips that depict the prehistory of the ‘end of history’, including climate protest marches, failed international conferences, wars for the remaining fossil fuels under the earth’s crust, and growing extreme weather events that ultimately see the seas rise as the polar icecaps melt and engulf the land and the cities whose metropolitan elites had brought the earth to this final cataclysm. The language of scientific discourse on ACC and its likely future effects is generally more measured. However, a number of recent examples of science writing by established climate scientists reveal a similar apocalyptic turn. James Hansen, NASA’s foremost climate scientist, has written Storms of My Grandchildren. James Lovelock, the inventor of the Gaia hypothesis, and who discovered the ozone hole over the Antarctic, entitled his penultimate book The Revenge of Gaia. Two Australian scientists entitled their collaborative book Climate Code Red. Each title indicates a different apocalyptic theme. The first points to growing natural catastrophes affecting our children and children’s children. The second indicates that the earth itself manifests, in the extreme conditions brought on by future climate change, the same cycle of violent retaliation that for Girard is the universal pattern of human interaction across cultures. The third adopts a technological metaphor for the earth as a machine—analogous to a nuclear power station that is about to go critical and into meltdown. Marshall Burke et al. (2009, 20670–74) demonstrate a link between climate change and increasing human conflict in Africa, something that is not a rhetorical device but a statistical fact. They find that a single degree Centigrade of warming in Africa correlates, over the last thirty years, with an increase of 49 percent in the incidence of civil war in the continent, as compared to years when the temperature returns to pre-crisis norms. They account for this dramatic result by the fact that the economic welfare of the majority of African households is directly related to agricultural crop production. Temperature increases create heightened water stress for crops while reducing the rate of crop growth. Together these effects result in declines in yields of 10 to 30 percent. And because “economic welfare is the single factor most consistently associated with conflict incidence,” they conclude that “it appears likely that the variation in agriculture performance is the central mechanism linking warming to conflict in Africa” (Ragnhild and Gleditsch 2007, 627–38). Others have also observed a link between climate change and conflict: in Africa, including civil war in the Darfur region of Sudan, and in the Middle East where conflict and civil war was sparked by food price rises in Tunisia, Egypt and Lybia in 2009-10, and by drought and declining water sources in Mali, Syria and elsewhere (Hendrix and Salehyan 2012). The link between climate change and conflict is also made in a range of reports emanating from the United States military and from institutes of strategic studies. One such report cites Admiral Lopez, the former NATO commander from Bosnia, as follows: Climate change will provide the conditions that will extend the war on terror. You have very real changes in natural systems that are most likely to happen in regions of the world that are already fertile ground for extremism. Droughts, violent weather, ruined agricultural lands— those are the kinds of stresses we’ll see more of under climate change. ‘The result of such changes’, the general continues, ‘will be more poverty, more forced migrations, higher unemployment. These conditions are ripe for extremists and terrorists’ (Sullivan et al. 2007). The link between climate change and violent conflict may be readily observed also in the media and political rhetoric generated around the science of climate change in the United States and beyond. For many years, media in the United States have given prominence to the small number of physical scientists, and the much larger number of political commentators, who express skepticism concerning the claims that present changes in the earth’s climate are human-induced. Boykoff shows that journalistic norms and standards require the imposition of the frame of conflict on their reporting of climate science, even though the scientific community itself is largely of one mind on the matter, as evidenced by contributions to peerreviewed journals on ACC (Boykoff 2007, 477–89). This frame of conflict arises ironically from the idea that responsible public media have a duty to represent a balance of views. Although the number of physical scientists who take a contrarian stance on ACC is very small relative to the mainstream scientific view, journalistic norms require that this very small minority of “contrarians” be given equal prominence. In the public mind, the view therefore emerges that there is no scientific consensus about ACC, and no basis for collective action in response to the problem. The framing of disagreement around ACC in the United States and beyond has itself turned increasingly violent in the context of the “Climategate” allegations arising from media interpretations of a set of e-mails stolen from the University of East Anglia’s Climate Research Unit. Individual scientists caught up in the story—such as Michael Mann and Phil Jones—received hate e-mails and even death threats. This turn to violent rhetoric on the part of believers in climate-change denialism reveals a growing tendency to treat scientific claims as reflecting personal commitments and worldviews, rather than the collective process of data collection and analysis and peer review that represents scientific judgment. Thus it is now common in discourse about climate change to hear it said that scientists promote ACC because ACC provides the funding for their research, and that ACC is a set of false claims that are adopted by those whose principal intent is to grow the power of the State over the individual. 1 Another and potentially far more grievous occasion of conflict is that the nations of the earth are unable to agree to restrain fossil fuel extraction and burning so as to prevent dangerous climate change (Northcott, 2014, 143-4). The atmosphere is a commons that cannot be easily divided according to territory, since greenhouse gases emitted in one terrain infect all other terrains through atmospheric circulation. Therefore, absent an agreement to limit extraction of the resource which is toxic to the atmosphere, nations simply burn what they will in pursuit of fossil-fueled growth. In so doing they endanger the terrains of other nations by the kinds of destabilizing climatic effects observed in the papers and reports cited above on climate-related conflicts. The inability of the nations to agree to restrain climate damaging fossil fuel extraction and use through an effective international legal treaty is a classic Hobbesian dilemma. The capacity of the atmosphere to absorb emissions from fossil-fueled economic activity, without change to the historic heat-exchange relationship between the earth and the sun, is limited. Conflict between nations arises because they all want greater access to the limited object of atmospheric “sinks” for fossil-fuel emissions. This is a classic example of what Girard characterizes as the egocentric and object-centered nature of desire, turbocharged by its accompanying quality of Other-referred mimetism. Defenders of their “right to pollute” the atmosphere resist the need either to limit energy consumption or to reduce other kinds of consumption in order to pay for the costs of moving energy sources from cheap fossil fuels such as coal and gas to more technically complex and expensive renewables such as solar and wind (Northcott, 2014, 173-6). Defenders of the status quo of excessive fossil-fueled consumption in the United States, Australia, and other developed countries scapegoat climate scientists as the inventors of a false scenario, and hence the legitimate objects of hate, persecution, and violence. Others who deny that the science is wrong, but also deny that there are limits to consumption, turn to the rhetoric of failed states, political extremism, mass migration, and terrorism to indicate the way in which the coming climate crisis will turn out*.* On this account, the cause of climate-change-related conflict is not excessive consumption by the rich, but the existence of resource-poor or poorly governed nations located in areas that will experience greater climate threats from ACC. Such scapegoating rhetoric justifies attempts by the United States—and now Europe—to prevent environmental refugees from crossing international borders (Feng, Krueger and Oppenheimer 2010). And it justifies military interventions, using drones or other ‘sub-formal war’ interventions, in countries where climate change and extreme weather may be destabilizing. The context and ethos of the debate around ACC (anthropogenic climate change) has, it will be seen, gathered all the classic makings of mimetic crisis—albeit a crisis at a now globalized level, interactive-with-nature and for unlimited stakes. And so far we have only envisaged the question of human agency in the changes proceeding; we have hardly at all considered the disputes occasioned directly by mimetic rivalry over the resources themselves that are being put at risk (e.g., minerals and oil in the polar regions, tropical forests in Central Africa and Southeast Asia, or water sources in Turkey and Syria). We have, if anything, understated therefore the conformity of this ethos and context with the Girardian analysis. Apocalyptic Sacralities: A Late-Modern Return of the Religious? As Brigitte Nerlich notes, one of the more striking effects of the Climategate controversy was to reveal that beliefs about climate change—whether mainstream or contrarian—have acquired the status of myth.

#### The alternative is to reject securitization – this opens up space for emancipatory political engagement.

Neocleous**:** [Mark Neocleous, Professor of the Critique of Political Economy; Head of Department of Politics & History Brunel Univ, Critique of Security, 185-6]

The only way out of such a dilemma, to escape the fetish, is perhaps to eschew the logic of securityaltogether **-** to reject it as so ideologically loaded in favour of the state that any real political thought other than the authoritarian and reactionary should be pressed to give it up. That is clearly something that can not be achieved within the limits of bourgeois thought and thus could never even begin to be imagined by the security intellectual. It is also something that the constant iteration of the refrain 'this is an insecure world'and reiteration of one fear**,** anxiety and insecurity after **another** will also make it hard to do**.** But it is something that the critique of security suggests we may have to consider if we want a political way out of the impasse of security. This impasse exists because security has now become so all-encompassing that it marginalises all else, most notably the constructive conflicts, debates and discussions that animate political life. The constant prioritising of a mythical security as a political end - as the political end constitutes a rejection of politics in any meaningful sense of the term. That is, as a mode of action in which differences can be articulated, in which the conflicts and struggles **t**hat arise from such differences can be fought for and negotiated, in which people might come to believe that another world is possible - that they might transform the world and in turn be transformed. Security politics simply removes this; worse, it remoeves it while purportedly addressing it. In so doing it suppresses all issues of power and turns political questions into debates about the most efficient way to achieve 'security', despite the fact that we are never quite told - never could be told - what might count as having achieved it. Security politics is, in this sense, an anti-politics,"' dominating political discourse in much the same manner as the security state tries to dominate human beings, reinforcing security fetishism and the monopolistic character ofsecurity on the political imagination. We therefore need to get beyond security politics, not add yet more 'sectors' to it in a way that simply expands the scope of the state and legitimises state intervention in yet more and more areas of our lives. Simon Dalby reports a personal communication with Michael Williams, co-editor of the important text Critical Security Studies, in which the latter asks: if you take away security, what do you put in the hole that's left behind? But I'm inclined to agree with Dalby: maybe there is no hole**."**' The mistake has been to think that there is a hole and that this hole needs to be filled with a new vision or revision of security in which it is re-mapped or civilised or gendered or humanised or expanded or whatever. All of these ultimately remain within the statist political imaginary, and consequently end up reaffirming the state as the terrain of modern politics, the grounds of security. The real task is not to fill the supposed hole with yet another vision of security, but to fight for an alternative

political language which takes us beyond the narrow horizon of bourgeois security and which therefore does not constantly throw us into the arms of the state. That's the point of critical politics: to develop a new political language more adequate to the kind of society we want. Thus while much of what I have said here has been of a negative order, part of the tradition of critical theory is that the negative may be as significant as the positive in setting thought on new paths. For if security really is the supreme concept of bourgeois society and the fundamental thematic of liberalism, then to keep harping on about insecurity and to keep demanding 'more security' (while meekly hoping that this increased security doesn't damage our liberty) is to blind ourselves to the possibility of building real alternatives to the authoritarian tendencies in contemporary politics. To situate ourselves against security politics would allow us to circumvent the debilitating effect achieved through the constant securitising of social and political issues, debilitating in the sense that 'security' helps consolidate the power of the existing forms of social domination and justifies the short-circuiting of even the most democratic forms. It would also allow us to forge another kind of politics centred on a different conception of the good. We need a new way of thinking and talking about social being and politics that moves us beyond security. This would perhaps be emancipatory in the true sense of the word.What this might mean**,** precisely, must be open to debate. But it certainly requires recognising that security is an illusion that has forgotten it is an illusion; it requires recognising that security is not the same as solidarity; it requires accepting that insecurity is part of the human condition, and thus giving up the search for the certainty of security and instead learning to tolerate the uncertainties, ambiguities and 'insecurities' that come with being human; it requires accepting that 'securitizing' an issue does not mean dealing with it politically, but bracketing it out and handing it to the state;it requires us to be brave enough to return the gift."'

### 5

#### Interpretation – appropriation means taking possession of something

**Dictionary ND**, Dictionary.com, “appropriation”, <https://www.dictionary.com/browse/appropriation>, DD AG

**the act of** appropriating or **taking possession of something**, often without permission or consent.

#### Appropriation of outer space is the exercise of exclusive control.

**Trapp 13** (TIMOTHY JUSTIN TRAPP, JD Candidate @ UIUC Law, ‘13, TAKING UP SPACE BY ANY OTHER MEANS: COMING TO TERMS WITH THE NONAPPROPRIATION ARTICLE OF THE OUTER SPACE TREATY UNIVERSITY OF ILLINOIS LAW REVIEW [Vol. 2013 No. 4])//DebateDrills AY

The issues presented in relation to the nonappropriation article of the Outer Space Treaty should be clear.214 The ITU has, quite blatantly, created something akin to “property interests in outer space.”215 It allows nations to exclude others from their orbital slots, even when the nation is not currently using that slot.216 This is directly in line with at least one definition of outer-space appropriation.217 [\*\*Start Footnote 217\*\*Id. at 236 (“**Appropriation of outer space**, **therefore, is ‘the exercise of exclusive control or exclusive use’ with a sense of permanence, which limits other nations’ access to it.**”) (quoting Milton L. Smith, The Role of the ITU in the Development of Space Law, 17 ANNALS AIR & SPACE L. 157, 165 (1992)). \*\*End Footnote 217\*\*]The ITU even allows nations with unused slots to devise them to other entities, creating a market for the property rights set up by this regulation.218 In some aspects, this seems to effect exactly what those signatory nations of the Bogotá Declaration were trying to accomplish, albeit through different means.219 Though the legitimacy of such a regime may be questionable, it remains in effect, showing that it is at least tolerable under the edict of the nonappropriation article of the Outer Space Treaty.220 There must, therefore, be something about the ITU that differentiates it from something like the Bogotá Declaration.221 The most immediate difference is the character of the body promulgating the regulation. The Bogotá Declaration is an agreement between eight countries claiming rights to all space above them.222 The ITU’s regulations are promulgated under the auspices of the U.N.223 While the Bogotá Declaration is an international agreement, it is still a very limited cooperation.224 The ITU, through the U.N., comprises the largest possible cooperation of international actors, giving it an international character as opposed to simply a multinational character.225 Furthermore, the allocation of orbital slots by the ITU is a response to the limited character of geostationary orbits.226 While the Bogotá Declaration was probably promulgated in response to a few nations’ fears that they may be excluded from the space arena,227 **the allocation system of the ITU is a measure to make sure that the GEO resource is efficiently managed for the use of all mankind**.228

#### Violation: they defend debris, which is not about possession

#### Standards:

#### Limits: there are infinitely many combinations that entities could send into space AND resources they can use. That explodes neg prep – it’s impossible for me to research every possible technology and resource, from type of satellite to type of mineral.

#### TVA solves – just read your aff as an advantage to the whole rez. We aren’t stopping them from reading new FWs, mechanisms, or advantages. PICs don’t solve – it’s ridiculous to say that neg potential abuse justifies the aff making it impossible for me to win

### Case

#### 1] Timeframe deficit – takes too long for build up of debris to trigger things like Kessler which means impact takes a long time and should be assigned low probability

#### 2] Empirically denied – debris has been floating around for years but it hasn’t triggered war – means low risk and low probability

#### Private entities circumvent – no dispute resolution means fiat CAN’T entirely replace how international space law works AND doesn’t mean private entities can’t escape with little liability

Isnardi, 20, “Problems with Enforcing International Space Law on Private Actors”, Columbia Law, Christina: Juris Doctor Candidate, Columbia Law School., URL: <https://static1.squarespace.com/static/5daf8b1ab45413657badbc03/t/5ed6c19ec930145149b92f2f/1591132576033/%28i%29+Isnardi+%2858-2%29.pdf>, KR

Lack of Enforcement Mechanisms in International Space Law

Even if private actors did fall under the purview of interna- tional space law, international space law has inadequate enforcement mechanisms to actually implement these laws. Much like how the treaties generally were intended to outline a framework for the rights and obligations of States Parties specifically, the enforcement mecha- nisms of these treaties also intend that states be the only entities al- lowed to submit or defend claims. The five international space treaties for the most part lack any sort of dispute resolution organ at all. The two treaties that do have these organs are riddled with inadequacies that allow private actors to avoid being subject to these dispute resolu- tion frameworks.

Part B.1 discusses the dispute resolution framework within the international space law treaties themselves. Part B.2 analyzes the reg- ulatory enforcement mechanisms established outside the treaties, with a focus on UNCOPUOS and other key intergovernmental organiza- tions.

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2020] ENFORCING INT’L SPACE LAW 513 1. Enforcement Infrastructure within the Space Treaties

Only two of the five treaties explicitly list enforcement author- ities provided for by the treaty: the Liability Convention and the Reg- istration Convention. The remaining three treaties (the Outer Space Treaty, the Rescue Convention, and the Moon Agreement) provide that states retain legal authority over persons and objects launched into space from their territory and provide jurisdiction to the respective states.135 It is the responsibility of the states to provide courts or tribu- nals to adjudicate any matters that arise from violations of these trea- ties. The Liability Convention and the Registration Convention’s en- forcement capabilities, or their lack thereof, are described in turn below.

a. The Liability Convention’s Claims Commission

The Liability Convention’s Claims Commission provides for the only outer-space specific means of alternative dispute resolu- tion.136 Articles IX through XX establish the dispute settlement sys- tem. The system mandates a diplomatic stage before providing for an arbitration stage before the Claims Commission, which is the body that makes decisions regarding the merits of the claim and the compensa- tion awarded.137 Since the Convention entered into force in 1972, this conflict resolution procedure has only been invoked once (in the Soviet Cosmos 954 crash, explained supra). This case was resolved in the mandatory diplomatic phase, so the Claims Commission has yet to pre- side over any conflicts.138

However, even if the Claims Commission does have the oppor- tunity to hear claims, the conflict resolution system is inhibited by ma- jor shortcomings. First, the Convention does not provide the Claims

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Commission with the same authority of a judicial court.139 One effect of this quasi-judicial structure is that the Commission’s decisions are not binding unless both parties haveagreed other wise.140 Withoutsuch an agreement, the decision is only advisory.141 This allows the launch- ing state that is hostile to the victim state a simple way to avoid reper- cussions for injuries caused by its space object.142 Second, the dispute resolution system provided in the Convention only allows for the par- ticipation of states.143 Consequently,thedisputeresolutionframework has been “highly criticized and rendered useless”144 as it provides no direct enforcement authority over private actors.

b. The Registration Convention’s International Registry

The Registration Convention does provide some international involvement in enforcement, but it is not nearly as robust as in the Li- ability Convention. The Registration Convention requires that “[t]he Secretary-General of the United Nations . . . maintain[s] a Register in which the information furnished [by the launching States] shall be rec- orded.”145 However, this register is compiled based on records pro- vided by states, so state involvement in enforcement is crucial to this international registry. The ability to enforce the provisions of the Reg- istration Convention on a private actor is therefore only as strong as the enforcement efforts of the state t

hat holds jurisdiction over that private actor. Even if these state enforcement efforts were strong, only sixty-four states have ratified the Registration Convention (as of De- cember 2017), making it the second least ratified treaty of the space treaties.146 Because this Convention has not solidified its regulations

(i) Isnardi (58-2) (Do Not Delete)

into customary international law, its lack of widespread ratification un- doubtedly reduces the ability to enforce its provisions even if it had the requisite enforcement mechanisms.

Looking at all of the international space treaties collectively, there is a notable absence of regulatory and licensing provisions that states must follow to enforce law domestically. As the Outer Space Treaty requires that states retain responsibility over all activity launched from their state, it is peculiar that the treaty does not explic- itly designate how states should authorize and supervise these activi- ties.147 Allowing states to take complete control over the manner in which they authorize and supervise the launch of space activities has allowed a wide range of enforcement levels between states. For in- stance, some states issue a single license for all space activities while other states issue a single license for only specific space activities.148 National laws regarding the scope of jurisdiction have also varied across states. Some states assert jurisdiction over where an object is launched, while other states assert jurisdiction over the nationality of the private actor that launched the space object.149 This lack of uni- formity in national space law may incentivize private actors to choose a state to launch their space objects from based on the enforcement policies that are most beneficial to it.

#### Satellite loss shuts down global fracking

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Energy, environment, farming, mining, land use. All of these areas and more are now inextricably linked to satellite data and would be devastated should that flow of data stop.

Environmental Monitoring

Oh how complacent we've become. We take for granted that we will have instant images from space showing a volcanic eruption somewhere in the South Pacific within hours of learning that it happened. When the BP oll spill happened in the Gulf of Mexico in 2010, satellite images were used in conjunction with aircraft and ships to monitor the extent and evolving nature of the spill (Figures 10.1 and 10.2).

The data were also used to direct the ships that were attempting to clean up the spill, to warn fishermen of areas in which it would be dangerous to fish, and to generally monitor the extent of the disaster. This is the type of data we get from space in a field known as remote sensing.

Remote sensing is, well, exactly what its name implies. With it, you gather data, or sense, usually in the form of electromagnetic radiation (light), remotely - that is, you are not physically touching what you are looking at. Satellite remote sensing began shortly after we began launching satellites and many industries are now totally dependent upon having the capability.

We use satellites, like the venerable Landsat series, to study the Earth m unprecedented detail. Since 1972, Landsat satellites have taken millions of high resolution images of the Earth's surface, allowing comprehensive studies of how the land has changed due to human intervention (deforestation, agriculture, settlement, etc.) and natural processes (desertification, floods, etc.).

The best way to understand how useful Landsat and similar data can be to governments at all levels is best illustrated by looking at 14then and now" photographs. For example, Africa's Lake Chad has been shrinking for 40 years, as the desert has encroached on this once plentiful inland freshwater lake. Forty years ago, there were about 15,000 square miles of water within the lake. Now, it is less than 500 square miles (Figure 10.3) [1].

And what is the practical side of this particular bit of information?

Governments use this type of satellite imagery to avoid human tragedy. Hundreds of thousands of people, if not millions, depend upon the waters of Lake Chad for agriculture, industry, and personal hygiene. With the lake going dry, how has this impacted on their livelihoods, their families, and their very lives?

The European Space Agency (ESA) is freely providing satellite data to developing countries as they search for new sources of drinking water. For example, ESA assessed data obtained from space over Nigeria to find over 90 new freshwater sources within that country. After ground teams visited the new sites, all were confirmed to contain fresh water. This was no accident. These were satellites with sensors developed for just such purposes in mind [2].

Desertification is but one example of changing climates affecting people's everyday lives. What about more direct observations of our impact on the planet? Figures 10.4 and 10.5 show the scarring of the Earth's surface as a result of surface mining in West Virginia. This is not a polemic against mining; rather, it is an observation that we can use satellite imagery to monitor such mining and be mindful of its impact on the environment.

Other than taking pictures of surface features, like lakes and open pit mines, how are satellites monitoring the Earth's changing climate? In just about every way, by: monitoring global land, sea, and atmospheric temperatures; measuring yearly average rainfall amounts just about everywhere on the globe; measuring glaciation rates; measuring sea surface heights; and more. Remote sensing is more than taking pictures of the Earth in the visible part of the spectrum. We can learn a great deal from looking at part of the spectrum that our eyes cannot see - but our instruments can.

Shown in Figure 10.6 is a composite image of the Earth's surface showing the average land-surface temperature at night. The data came from two NASA satellites, Terra and Aqua, as they orbit the Earth in a polar orbit. (This means that they circle the Earth from top to bottom, passing over both the North and South Poles with each complete orbit.) Terra's orbit is such that it passes from the north to the south across the equator in the morning; Aqua passes south to north over the equator in the afternoon. Taken together, they observe the Earth's surface in its entirety every two days. Data sets such as this exist for just about any day of the year and can show either night-time lows or daytime highs.

By looking in different parts of the spectrum, like the infrared light discussed above, we can make observations as described in Table 10.1.

Pollution Monitoring

As emerging countries industrialize, they also become polluters. Many of these countries are not exactly forthright about releasing air-pollution details to the media, so much of our awareness of the rising pollution there is anecdotal - typically m the form of stories told by people who have visited these countries and seen the extreme pollution at first hand. This, by the way, is not exactly scientific.

Using satellites, and not relying on either the governments in question or second-hand stories, we can accurately assess the pollution levels there and elsewhere. Using satellite images to measure the amount of light absorbed or blocked by fine particulates in the atmosphere, otherwise known as air pollution, you can determine not only what the airborne pollutant might be, but also its size. And, by looking at the overall light blockage, an accurate estimate of the amount of pollution in the air can also be made. Recent studies show that many of these countries are covered in a pollution cloud that countries in the developed world would deem extremely harmful. And how do we know this with scientific certainty? From satellite measurements.

Energy Production

The recent boom in the production of shale oil in the United States and elsewhere is due in large part to the identification and geolocation of promising geologic formations for test drilling and fracking. "Fracking" is a somewhat new term that comes from the phrase "hydraulic fracturing". In fracking, massive amounts of previously unusable reservoirs of oil and natural gas are released for capture, sale, and transport from deposits deep within the Earth - many located at least a mile below the surface. In the United States alone, there may be as much as 750 trillion cubic feet of natural gas within shale deposits releasable by fracking [3]. How do energy companies know where to look for these deposits? In large part, by analyzing satellite imagery.

According to Science Daily (26 February 2009), a new map of the Earth's gravitational field based on satellite measurements makes it much less resource intensive to find new oil deposits

. The map will be particularly useful as the ice melts in the oil-rich Arctic regions. The easy-to-find oilfields have already been found. To fuel the growing world economy, those harder-to-find deposits must be located and tapped - which is why satellite imagery is so important. Take away this and other satellite-dependent techniques of oil and gas exploration and the world economy will feel the impact through higher oil and natural gas prices.

#### Fracking makes extinction inevitable---try-or die to shut it off

Rev. Mac Legerton 18, Co-Founder and Executive Director of the Center for Community Action, Member of the Board of Directors of the NC Climate Solutions Coalition, Member of the Board of Directors of the Windcall Institute, “Will The U.S. Blaze A Trail To Mass Extinction?”, APPPL News, 1/15/2018, https://www.apppl.org/news/will-the-u-s-blaze-a-trail-to-mass-extinction/

As an elder, I now realize that there is even a greater threat to humanity and life on Earth than nuclear war—though, unlike a nuclear exchange, this threat is a slow-motion catastrophe. Can you guess what it is? Here’s a clue: it is something with which most people don’t have a personal relationship. Tragically, some persons remain in total denial of its validity, much less its present danger. And that’s the problem – that’s why this threat needs to be more seriously addressed on the local, state, national, and international level.

What is it? It’s the slow-motion but rapidly growing catastrophe of climate change. There’s now good news amidst this seemingly overwhelming challenge. But the answer may surprise you. Today we know what is the #1 preventable cause of climate change. It’s not coal, it’s not nuclear, and it’s not oil and gasoline. It’s actually the use of the very fuel that is touted as being cleaner, greener, and cheaper than all the rest. This fuel is called “Natural Gas”.

Let’s start with its name – “Natural Gas”. What is “natural gas”? There’s actually nothing “natural” about it when it is forcibly extracted from the ground through hydraulic fracturing, commonly known as “fracking”. When something is forcibly ruptured from deep within the earth with the use of toxic chemicals, the last name you would use for it is “natural”.

Fracking disrupts the geologic fault lines causing earthquakes, uses millions of gallons of fresh water that becomes permanently poisoned by unknown, cancer-producing chemicals added to it, creates air pollution during the drilling process, increases the risk of injury and explosions, raises major health risks to both people and place in close proximity to it, and changes the nature of both neighborhoods and landscapes. Fracking also leaves a massive carbon footprint of drilling wells as deep as 8,000 feet and then drilling horizontally over 10,000 feet; On top of all this, it leaks major amounts of gas into the environment.

So, what is this gas? It is 90-95% methane gas which is a hydrocarbon compound made up of one carbon atom and four hydrogen atoms (CH4). It releases carbon into the atmosphere and produces carbon dioxide (C02) just like coal does when it is burned. Methane is not its trace element–it is its undisputed compound of this fossil fuel product. If a compound is 90-95% of a product, it makes sense to call it by that name. Doesn’t it? Well, actually not if you want people to believe and think that it is something that it is not. It is un-natural methane gas produced under massive and highly toxic pressure and hazardous conditions.

Now that we know what this gas is, what does it do to the atmosphere and climate that is so dangerous? This hydrocarbon has properties that block the radiation of heat from Earth’s surface 100 times more effectively than CO2 (released from burning coal) during its first 10 years of release and 86 times more effectively in its first 20 years. Because of the climate emergency underway, the first 10 or 20 years matter most.

When utility companies and the larger fossil fuel companies state that they are committed to lowering carbon emissions, this just isn’t true. They are radically escalating the most dangerous and worst of all fossil fuels in relation to its impact on the climate. Now the industry wants to expand production of methane gas all over the world by calling it “the most environmentally friendly fossil fuel”and a “bridge fuel” that we can safely use until we transition to 100% renewable energy sources.

Why would a major business industry want to call its product by another name? Perhaps for the same reason that the tobacco industry did not like the term “coffin nails” or “cancer sticks” for cigarettes. Honestly, there’s a striking similarity between what are called cigarettes and natural gas. When both were produced and named, their harm was not fully known. Once the industries promoting them learned of their significant harm, they did everything they could to hide this knowledge from the public. They even hired scientists to deny their dangers. The tobacco industry was eventually sued, the truth was acknowledged, and billions of dollars were paid out in the tobacco settlement.

This same scenario that occurred with the tobacco industry needs to occur with methane gas and the fossil fuel industry. The major difference in these two scenarios is that that this fossil fuel product doesn’t just threaten the lives of individuals who voluntarily breathe it in – it threatens the lives of not only every human being, but also all life on the planet.

The outcome of this scenario needs to be a moratorium and eventual end to all use of methane gas as an energy source. For the sake of all of us, our communities, and world, the sooner the better. This abomination is different. There is no time to waste.

#### Debris offers the chance to secure and recycle tons of resources, but plan blocks the tech from ever being built

Galeon 18 Dom Galeon [Dom Galeon is a writer for Futurism.], Nasa, 2/8/18, "Reconsidering space debris: Can space junk be useful?," Futurism, https://futurism.com/reconsidering-space-debris-space-junk-useful

At present, there are more than 500,000 pieces of debris floating or orbiting around Earth. These come from various sources, though most originated as parts of satellites and rockets we’ve been sending out to space for the past seven decades or so.

Around 20,000 of these are detectable objects, or those bigger than 10 cm, according to Stuart Grey, a mechanical and aerospace engineering teaching fellow at Scotland’s University of Strathclyde.

Among the detectable objects, “just over half are fragmentation debris resulting from collisions. About a quarter are spacecraft (of which about 1500 are active) and the rest is made up of rocket bodies and mission debris,” Grey told Futurism. The overall picture these fragments paint seems even more distressing: “If instead we look at the mass of the objects in orbit we find that there are about 8000 metric tons of man-made material in orbit around the Earth,” Grey added.

A RECYCLING PROGRAM

In short, there’s just too much litter floating around the planet to be safe in the long term. But what if we could look at space debris in a different light? After all, most of space junk is comprised of the quite-expensive materials that are used to build rockets and satellites. Could space junk therefore be a floating resource that remains un-utilized?

“These objects are made out of very specific materials that are very expensive to produce, and it is tempting to think of them as a resource just waiting to be used,” Grey explained. “The problem with this idea comes from the effort needed to catch and utilize these “resources.””

Grey explained that objects in low Earth orbit move extremely fast, around 7 kilometers (4.3 miles) per second. That makes them difficult to catch; building rockets designed to run down such speedy debris would be too costly for the effort.

This doesn’t mean that these pieces of space junk should just be left floating out there. In fact, various efforts to clean space debris are already in the works. “The mechanisms that are being developed at the moment focus on very simple techniques and echo the techniques used for centuries to catch large wild animals such as harpoons and nets,” Grey explained. “These have still to be tested in orbit but a number of missions are planned in the near future, such as ESA’s e.Deorbit.”

Scientists and engineers from the NASA Innovative Advanced Concepts (NIAC) Program suggest something similar: using a spacecraft thinner than human hair that can wrap around space debris like a net. Other consider zapping space debris with laser. All of these concepts, as Grey noted, remain largely on the drawing board.

Fortunately, or perhaps unfortunately, we’ve got time. Space debris in higher Earth orbit will stay there for quite a while. “While objects in low Earth orbit will de-orbit in a matter of months or years, objects in higher orbits such as [Global Navigation Satellite System] satellites in medium Earth orbit, and satellites in geostationary orbits, will still be in orbit hundreds and even thousands of years into the future,” Grey explained.

#### There’s no space debris impact

Park 18

Ye Joo Park, citing NASA studies on orbital debris, How Dangerous is Space Debris?, Research Association for Interdisciplinary Studies, RAIS Conference Proceedings, November 19-20, 2018, DOI: 10.5281/zenodo.1572516, <https://ssrn.com/abstract=3303541>

Other factors to consider concerning collisions in Space

While it’s true that there are thousands of space objects directly above Earth in an 800-kilometer band, space is so vast that it’s helpful to pause for a moment and reflect... in the area directly above the entire continental U.S., there are typically only three or four items orbiting above 3.1 million square miles. Therefore, the likelihood of collisions between satellites, spacecraft and orbiting objects is very small (NASA 2018).

In fact, in 2013 it was reported that the probability of a collision between an orbiting asset and space debris larger than 1 cm (0.4in.) will be once every 1.5-2 years, according to the Head of the Russian Hall/ History of Space Debris 8 Figure 5 [NASA] Space Agency. This compares with a 2010 estimate giving the likelihood of once every 5 years (Sorokin 2013).

The Feasibility of Practically Reducing Space Debris

Reducing orbital debris is incredibly difficult. Therefore, the most important action that space experts and policy makers currently recommend is to prevent the unnecessary creation of additional orbital debris. This can be done through prudent vehicle design and operations ((UNOOSA 2014).

The International Academy of Astronautics or IAA is a significant, global organization of scientists and space experts from many countries who meet regularly to discuss the importance of space debris as a policy issue. The subject-matter experts of the IAA published their fifth update Situation Report on Space Debris in August 2017 (Bonnal and McKnight 2017). In the executive summary, the IAA reported that if an orbiting satellite impacts with small bits of debris - even as small as 5 mm - the result will be grave, e.g. the collision would likely disrupt or terminate a satellite’s operations (Bonnal and McKnight 2017, 5).

The serious warnings expressed in this conclusion are offset by the positive findings of the IAA that there has been a reduction of the space debris created from the two extraordinary satellite destruction events (2007 and 2009) cited earlier in this paper. According to the IAF report, a large amount of debris from the satellite explosions were frictionally burned when reaching the Earth’s atmosphere after gradually sinking due to the scientific principle of atmospheric drag (in the science of Physics), which is a deterioration in the strength of an orbit because of an object hitting gas molecules in space. Small bits of space junk sink as the orbit gets weaker... then they burn. This is a positive trend “for keeping the short-term collision hazard under control at the lower altitudes (i.e., less than 650 km)” (Bonnal and McKnight 2017, 7).

#### Kessler’s Syndrome wrong and super long timeframe---he’s adjusted it recently

Kurt 15 – JD-William & Mary

Joseph Kurt, JD- William & Mary School of Law, BA-Marquette University, NOTE: TRIUMPH OF THE SPACE COMMONS: ADDRESSING THE IMPENDING SPACE DEBRIS CRISIS WITHOUT AN INTERNATIONAL TREATY, 40 Wm. & Mary Envtl. L. & Pol'y Rev. 305 (2015)

A. Practical Considerations: Feasible Solutions to the Space Debris Problem Are on Their Way

One key question in assessing whether an international treaty is a requisite for solving the space debris problem is just how difficult it will be to fashion a remedy. The more complex and costly are feasible solutions, the more likely it is that a comprehensive regime is necessary to bind the various actors together. 93Link to the text of the note

A good place to begin is to determine just how imminent is the onset of the cascade of exponentially more frequent debris-creating collisions, known as the Kessler Syndrome. 94Link to the text of the note To be certain, no one can be sure--this phenomenon being subject to highly complex probabilities. 95Link to the text of the note Indeed, experts' estimates of when such a cascade will become irreversible vary [\*316] widely. 96Link to the text of the note The National Research Council produced a report in 2011 that suggested that "space might be just 10 or 20 years away from severe problems." 97Link to the text of the note In fact, the cascading effect has already begun, albeit at a modest pace. 98Link to the text of the note However, Donald Kessler, who first described the eponymous effect in 1978, has significantly recalibrated his own outlook over the years. 99Link to the text of the note Originally, Kessler predicted that catastrophe would result by the year 2000. 100Link to the text of the note That date long passed, Kessler now speaks of a century-long process that "we have time to deal with." 101Link to the text of the note

#### Squo tracking, shielding, and removal plans solve

Dr. Brian Koberlein 16, Professor of Physics at the Rochester Institute of Technology and PhD in Astrophysics from the University of Connecticut, “Cascade Effect”, 5-4, https://archive.briankoberlein.com/2016/05/04/cascade-effect/index.html

In the movie Gravity the driving force of the plot is a catastrophic cascade of space debris. An exploding satellite sends high speed debris into the path of other satellites, and the resulting collisions create more space debris until everything from a space shuttle to the International Space Station faces an eminent threat of destruction. Not unexpectedly, the movie portrayal of such a situation is not particularly accurate, but the risk of a debris cascade is very real.

It’s known as the Kessler syndrome, after Donald Kessler, who first imagined the scenario in the 1970s. The problem comes down to the fact that small objects in Earth orbit can stay in orbit for a very long time. If an astronaut drops a bolt, it can stay in orbit for decades or centuries. Because the relative speed of two objects in orbit can be quite large, it doesn’t take a big object to pose a real threat to your spacecraft. On the highway a small pebble can chip your car windshield. In space it can be done by a chip of paint traveling at thousands of kilometers per hour. In the history of the space shuttle missions, there were more than 1,600 debris strikes. Because of such strikes, more than 90 space shuttle windows had to be replaced over the lifetime of shuttle missions.

While that might sound alarming, it’s actually quite manageable. Upgrades and maintenance were quite common on the shuttle missions, and we tend to err on the side of caution when it comes to replacing parts. Modern spacecraft also have ways to mitigate the risk of small impacts, such as Whipple shields made of thin layers of material spaced apart so that objects disintegrate when hitting the shield rather than the spacecraft itself. We also have a tracking system that currently tracks more than 300,000 objects bigger than 1 cm, so we can make sure that most spacecraft avoid these objects.

But the risk of big collisions isn’t negligible. In 2009 the Iridium 33 and Kosmos-2251 satellites collided at high speed, destroying both spacecraft and creating more dangerous debris. It wouldn’t take many collisions like this for the debris numbers to rise dramatically, and more debris means a greater risk of collisions. In Gravity the cascade happens very quickly, triggered by a single event. The reality is not quite so grave. Instead of happening overnight, Kessler syndrome would occur gradually, raising collision risks to the point where certain orbits become logistically impractical. It could occur so gradually that we might not notice it early on, and there are some that argue it’s already underway.

The good news is that we’re aware of the threat. And, as the old saying goes, knowing is half the battle. Already we take steps to limit the amount of debris

created. New spacecraft include end of life plans to remove them from orbit, either by sending them into Earths atmosphere to burn up, or sending them to a “graveyard orbit” that poses little risk to other spacecraft. There are also plans on the drawing board to clear orbits of debris, particularly in low-Earth orbit where the risk is greatest. The cascade effect is a real risk, but it’s also one we can likely manage with a bit of ingenuity.

#### **Military space satellites have already been broken up by space debris – their escalation scenario is absurd**

Wall 21’ Home News Spaceflight Space collision: Chinese satellite got whacked by hunk of Russian rocket in March By Mike Wall published August 17, 2021 We may see more and more of these orbital smashups in the coming years. //RD Debatedrills

Yunhai 1-02's wounds are not self-inflicted. In March, the U.S. Space Force's 18th Space Control Squadron (18SPCS) reported the breakup of Yunhai 1-02, a Chinese military satellite that launched in September 2019. It was unclear at the time whether the spacecraft had suffered some sort of failure — an explosion in its propulsion system, perhaps — or if it had collided with something in orbit. We now know that the latter explanation is correct, thanks to some sleuthing by astrophysicist and satellite tracker Jonathan McDowell, who's based at the Harvard-Smithsonian Center for Astrophysics in Cambridge, Massachusetts. Sponsored Links Cupertino: Startup Is Changing the Way People Retire SmartAsset Related: The worst space debris events of all time Click here for more Space.com videos... CLOSE On Saturday (Aug. 14), McDowell spotted an update in the Space-Track.org catalog, which the 18SPCS makes available to registered users. The update included "a note for object 48078, 1996-051Q: 'Collided with satellite.' This is a new kind of comment entry — haven't seen such a comment for any other satellites before," McDowell tweeted on Saturday. He dove into the tracking data to learn more. McDowell found that Object 48078 is a small piece of space junk — likely a piece of debris between 4 inches and 20 inches wide (10 to 50 centimeters) — from the Zenit-2 rocket that launched Russia's Tselina-2 spy satellite in September 1996. Eight pieces of debris originating from that rocket have been tracked over the years, he said, but Object 48078 has just a single set of orbital data, which was collected in March of this year. "I conclude that they probably only spotted it in the data after it collided with something, and that's why there's only one set of orbital data. So the collision probably happened shortly after the epoch of the orbit. What did it hit?" McDowell wrote in another Saturday tweet. Yunhai 1-02, which broke up on March 18, was "the obvious candidate," he added — and the data showed that it was indeed the victim. Yunhai 1-02 and Object 48078 passed within 0.6 miles (1 kilometer) of each other — within the margin of error of the tracking system — at 3:41 a.m. EDT (0741 GMT) on March 18, "exactly when 18SPCS reports Yunhai broke up," McDowell wrote in another tweet. Thirty-seven debris objects spawned by the smashup have been detected to date, and there are likely others that remain untracked, he added. Despite the damage, Yunhai 1-02 apparently survived the violent encounter, which occurred at an altitude of 485 miles (780 kilometers). Amateur radio trackers have continued to detect signals from the satellite, McDowell said, though it's unclear if Yunhai 1-02 can still do the job it was built to perform (whatever that may be). Space Junk Clean Up: 7 Wild Ways to Destroy Orbital Debris Click here for more Space.com videos... McDowell described the incident as the first major confirmed orbital collision since February 2009, when the defunct Russian military spacecraft Kosmos-2251 slammed into Iridium 33, an operational communications satellite. That smashup generated a whopping 1,800 pieces of trackable debris by the following October. However, we may be entering an era of increasingly frequent space collisions — especially smashups like the Yunhai incident, in which a relatively small piece of debris wounds but doesn't kill a satellite. Humanity keeps launching more and more spacecraft, after all, at an ever-increasing pace. "Collisions are proportional to the square of the number of things in orbit," McDowell told Space.com. "That is to say, if you have 10 times as many satellites, you're going to get 100 times as many collisions. So, as the traffic density goes up, collisions are going to go from being a minor constituent of the space junk problem to being the major constituent. That's just math." We may reach that point in just a few years, he added. The nightmare scenario that satellite operators and exploration advocates want to avoid is the Kessler syndrome — a cascading series of collisions that could clutter Earth orbit with so much debris that our use of, and travel through, the final frontier is significantly hampered. RELATED STORIES — Who's going to fix the space junk problem? — Space junk removal is not going smoothly — The world needs space junk standards, G7 nations agree Our current space junk problem is not that severe, but the Yunhai event could be a warning sign of sorts. It's possible, McDowell said, that Object 48078 was knocked off the Zenit-2 rocket by a collision, so the March smashup may be part of a cascade. "That's all very worrying and is an additional reason why you want to remove these big objects from orbit,"