# debateLA R1 AC

#### Plan: The appropriation of outer space through asteroid mining by private entities should be banned.

#### We’ll defend normal means as the signatories of the OST adding an optional protocol under Article II.

Tronchetti 7[Fabio Tronchetti is a professor at the International Institute of Air and Space Law, Leiden University, The Netherlands, 2007, <https://iislweb.org/docs/Diederiks2007.pdf>, 12-15-2021 amrita]

ARTICLE II OF THE OUTER SPACE TREATY: A MATTER OF DEBATE The legal content of Article II of the Outer Space Treaty is one of the most debated and analysed topic in the field of space law. Indeed, several interpretations have been put forward to explain the meaning of its provisions. Article II states that: “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”. **The text of Article II represents** the final point of a process, formally initiated with Resolution 1721, aimed at conferring to outer space the status of res communis omnium, namely a thing open for the **free exploration** and use by all States **without the possibility of being appropriated**. By prohibiting the possibility of making territorial claims over outer space or any part thereof based on use or occupation, Article II **makes clear that** the customary procedures of **i**nternational **law allowing** subjects to obtain **sovereignty rights over un-owed lands**, namely discovery, occupatio and effective possession, **do not apply to** outer **space.** This prohibition was considered by the drafters of the Outer Space Treaty the best guarantee for preserving outer space for peaceful activities only and for stimulating the exploration and use of the space environment in the name of all mankind. What has been the object of controversy among legal scholars is the question of whether both States and private individuals are subjected to the provisions of Article II. Indeed, **while Article II forbids** expressis verbis the national **appropriation by** claims of **sovereignty**, by means of use and occupation or other means of outer space, **it does not** make **a**ny explicit **mention** **to** its **private** appropriation. Relying on this consideration, some authors have argued that the private appropriation of outer space and celestial bodies is allowed. For instance, in 1968 Gorove wrote: “Thus, at present an individual acting on his own behalf or on behalf of another individual or private association or an international organisation could lawfully appropriate any parts of outer space…”6 . The same argument is used today by the enterprises selling extraterrestrial acres. They base their claim to the Moon and other celestial bodies on the consideration that Article II does not explicitly forbid private individuals and enterprises to claim, exploit or appropriate the celestial bodies for profit7 . However, it must be said, that nowadays there is a general consensus on the fact that **both national appropriation and private** property rights **are denied** under the Outer Space Treaty. Several way of reasoning have been advanced to support this view. Sters and Tennen affirm that the argument that Article II does not apply to private entities since they are not expressly mentioned fails for the reason that they do not need to be explicitly listed in Article II to be fully subject to the non-appropriation principle8 . **Private entities are allowed to carry out** space **activities but**, according to Article VI of the Outer Space Treaty, they **must be authorized** to conduct such activities **by the** appropriate **State** of nationality. But if the State is prohibited from engaging in certain conduct, then it lacks the authority to license its nationals or other entities subject to its jurisdiction to engage in that prohibited activity. Jenks argues that “States bear international responsibility for national activities in space; it follows that what is forbidden to a State is not permitted to a chartered company created by a State or to one of its nationals acting as a private adventurer”9 . It has been also suggested that **the prohibition of national** appropriation **implies prohibition of private** appropriation because the latter cannot exist independently from the former10. In order to exist, indeed, private property requires a superior authority to enforce it, be in the form of a State or some other recognised entity. In outer space, however, this practice of State endorsement is forbidden. Should a State recognise or protect the territorial acquisitions of any of its subjects, this would constitute a form of national appropriation in violation of Article II. Moreover, it is possible to use some historical elements to support the argument that both the acquisition of State sovereignty and the creation of private property rights are forbidden by the words of Article II. During the negotiations of the Outer Space Treaty, the Delegate of Belgium affirmed that his delegation “had taken note of the interpretation of the non-appropriation advanced by several delegations-apparently without contradiction-as covering both the establishment of sovereignty and the creation of titles to property in private law”11. The French Delegate stated that: “…there was reason to be satisfied that three basic principles were affirmed, namely: the prohibition of any claim of sovereignty or property rights in space…”12. The fact that the accessions to the Outer Space Treaty were not accompanied by reservations or interpretations of the meaning of Article II, it is an evidence of the fact that this issue was considered to be settled during the negotiation phase. Thus, summing up, we may say that **prohibition of appropriation of outer space** and its parts is a rule which **is valid for both private and public entity**. The theory that private operators are not subject to this rule represents a myth that is not supported by any valid legal argument. Moreover, it can be also added that if any subject was allowed to appropriate parts of outer space, the basic aim of the drafters of the Treaty, namely to prevent a colonial competition in outer space and to create the conditions and premises for an exploration and use of outer space carried out for the benefit of all States, would be betrayed. Therefore, **the need to protect the non-appropriative nature o**f outer **space emerges** in all its relevance.

## 1AC – Advantages

#### Countries and their companies are making their own rules through patchwork which creates conflict—an international body is key

Foster 16 – Craig, J.D., University of Illinois College of Law, “EXCUSE ME, YOU’RE MINING MY ASTEROID: SPACE PROPERTY RIGHTS AND THE U.S. SPACE RESOURCE EXPLORATION AND UTILIZATION ACT OF 2015”, *JOURNAL OF LAW, TECHNOLOGY & POLICY*, No. 2, page 428-430, http://illinoisjltp.com/journal/wp-content/uploads/2016/11/Foster.pdf

There are many reasons to be excited about the prospect of mining resources from space. Hopes are high that these mining efforts will provide an economic boon by producing jobs and injecting more money into the economy. 214 Additionally, the negative impact of mining natural resources on Earth is widely reported215 and might be mitigated by space mining. If mining precious resources from space can minimize the burden on Earth, then this would lend even greater support for asteroid mining. Finally, little enchants the human mind and propels innovation more than sending people and manmade objects into space. For good reason, there is much enthusiasm about the prospect of space mining. On the other hand, it is troublesome to some that private, commercial entities will be paving the way and making up many of the rules as they go. Might this lead to repeating many of the mistakes humans have made on Earth? Might there be unforeseen problems that could spell trouble if mining efforts are not properly regulated? The answer to these questions is likely “yes” as well. It will be important in the coming years to balance the former excitement against the latter caution. Space might seem limitless and impossible to affect in any significant fashion; but, history must be a major voice for the spacemining industry.216 It must be remembered that humans can make an impact that will be felt for generations to come. Thus, it will be important that lawmakers and the international community be as proactive as possible—both in outlining property rights and protecting the final frontier from being harmed by an industry that might become overzealous if left unchecked. Specifically, it will be vital for countries to enter into some sort of international agreement. One option is to create an agreement similar to UNCLOS, which would regulate how individual states and their citizens interact with resources mined from space.217 Such an agreement should recognize not only the property rights of the extracting commercial entities but also the rights of non-spacefaring countries to benefit from the minerals as well. This might include the creation of an international body, much like the ISA, that will ensure that the interests of all nations are maintained by distributing funds and technology to less wealthy or non-spacefaring nations. The U.S. would do well to help create and ratify such an agreement— something they have failed to do with UNCLOS. If the U.S. and other countries are uneasy about entering into such a restrictive agreement, they might also consider an international regulatory body and scheme much like the one used for satellites. The International Telecommunications Union (ITU) is a United Nations agency that, among other services, provides the international community with uniform satellite orbit oversight and regulatory guidance.218 Currently, 193 countries follow the ITU regulations and utilize their services, which have been likened to domain name registration.219 In the same way, spacefaring countries could form an international body that helps create and maintain a uniform space-mining legal framework.220 Without some sort of international framework as described above, the U.S. and other space-mining countries leave themselves open to great conflict and will be required to patch together a multitude of treaties between themselves as problems inevitably arise.221 V. CONCLUSION The idea of mining resources from celestial bodies is something that has always been relegated to video games and sci-fi movies. But as technology continues to progress at an exponential rate, such mining is starting to come within the realm of possibility. A number of companies are currently creating prospecting technologies that will allow them to determine exactly what an individual asteroid holds. They hope to eventually harvest these resources and sell them for lucrative profits. Fortunately for these companies, the current legal regime governing property rights to space resources is undergoing rapid change at the national level. The U.S. recently passed the Space Resource Exploration and Utilization Act of 2015, which explicitly entitles U.S. citizens to property rights over any space resources they obtain. This is certain to induce confidence in U.S. investors. The situation at the international level is different. Current international space agreements are vague, lacking in consensus, and provide little precedent for ownership of space resources. This has led the international community to move in the direction of creating a better regulatory framework, but this movement is still in discussion stages and is likely to take a while to come to fruition.

#### Current space treaties have zero authority and lack clarity—which creates ineffective regulations

MacWhorter 16 – Kevin, J.D from William and Mary College and Contributor to the William & Mary Environmental Law and Policy Review, “Sustainable Mining: Incentivizing Asteroid Mining in the Name of Environmentalism”, *William & Mary Environmental Law and Policy Review,* 2016, <https://scholarship.law.wm.edu/cgi/viewcontent.cgi?article=1653&context=wmelpr>

Although an academic debate at this point, the legal status of property in space is necessary for any future exploration and exploitation of natural resources in space. Until then, private exploration is severely disincentivized. Further, the technology behind asteroid mining is fast becoming a reality.108 The law must respond. In order to evaluate what the international community needs to accomplish to ensure future exploration, one must explore the international agreements already in place that speak to the issue of property rights. To begin, the United Nations (UN) established the UN Office of Outer Space Affairs (UNOOSA) in 1958 109 to promote international cooperation in space and promote its peaceful use.110 UNOOSA oversees the UN’s Committee on the Peaceful Uses of Outer Space (COPUOS) and implements its decisions.111 The UN founded COPUOS to avoid international rivalries in space.112 The OST, the Liability Convention,113 and the Moon Agreement114 are all within the jurisdiction of COPUOS. There are five international agreements that lay a framework of space law and, more importantly, ownership of objects and celestial bodies in space: • The Treaty on Principles Governing the Activities of Space, Including the Moon and Other Celestial Bodies (OST); 115 • The Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Space Objects Launched into Outer Space(ARRA); 116 • The Convention on International Liability for Damage Caused by Space Objects (Liability Convention); 117 • TheConvention on RegistrationofObjectsLaunched intoOuterSpace (Registration Convention); 118 and • The Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (Moon Treaty). 119 As with all international law, however, the actual authority of these treaties is debatable, because countries often ignore their precepts or disagree on the meaning of their substance.120 International custom, therefore, is the major indication of what international law exactly is.121 The Law of the Sea is an instructive analogy on that point, and as Lyall and Larsen explain, The practice need not be wholly uniform, but must be undertaken in the belief it is binding and required by law as opposed to being merely convenient or mutually beneficial. 122 Further, international law in general was conceived to deal with relations between States, not to deal with private claims of property. 123 International.

#### Disputes and misperceptions create cascading effects towards space weaponization and an arms race—an international framework solves BUT unilateral action causes escalating space wars

Mallick & Rajagopalan 19 - Law Researcher at the High Court of Delhi from 2016 to 2018 and is currently pursuing LL.M in International Law at The Fletcher School of Law and Diplomacy, USA, \*\*Distinguished Fellow and Head of the Nuclear and Space Policy Initiative at Observer Research Foundation. She is also the Technical Adviser to the UN Group of Governmental Experts (GGE) on Prevention of Arms Race in Outer Space (PAROS). (Rajeswari Pillai Rajagopalan, Senjuti Mallick, “If Space is ‘the Province of Mankind’, Who Owns its Resources? The Potential of Space Mining and its Legal Implications”, ORF Occasional Paper No. 182, January 2019, Observer Research Foundation., <https://www.orfonline.org/research/if-space-is-the-province-of-mankind-who-owns-its-resources-47561/>) NAR

The first concern is establishing clear regulations regarding asteroid mining. With an intent to establish clear regulations with respect to asteroid mining and to legalise material extraction from the moon and other celestial bodies by private companies in the US, the US government legalised space mining in 2015 by introducing the US Commercial Space Launch Competitiveness Act, 2015.[xxvii] This move was heartily welcomed by the private companies as it provided legitimacy to their planned activities. Subsequently in 2017, Luxembourg followed suit.[xxviii] While the US has been a spacefaring nation for many decades now, Luxembourg aspires to become a global leader in the nascent race to mine resources in outer space. In the 1980s the tiny European nation arose out of almost nowhere to become a leader in the satellite communications industry; today it is looking to the skies again, hoping to be the Silicon Valley of asteroid mining.[xxix] In the backdrop of a thriving steel industry that faced trade recession during the oil crisis of 1973, Luxembourg is trying to capitalise on the potential of space mining. As Prime Minister Xavier Bettel put it, “We realized it wouldn't be forever, the steel, so we decided to do other things.”[xxx] Similarly, looking beyond oil, the UAE is framing its policy approaches to make advances in two key areas: human space exploration, and commercial activities of resource extraction through mining.[xxxi] The two formal pieces of legislation (passed by the US and Luxembourg) provide an answer to the complex question of ownership in outer space; the two-word answer appears to be, “finders, keepers”. The US Commercial Space Launch Competitiveness Act, 2015 states: “A US citizen engaged in commercial recovery of an asteroid resource or a space resource shall be entitled to any asteroid resource or space resource obtained.”[xxxii] This legislation gives US space firms the right to own, keep, use, and sell the spoils of the cosmos as they deem fit. Luxembourg’s legislation is fairly analogous to the US Act, giving mining companies the right to keep their plunder. However, unlike the US law, Luxembourg’s does not require a company’s major stakeholders to be based in the country to enjoy its safeguards; the only requirement is for that company to have an office in the country.[xxxiii] In 2017, Japan entered into a five-year agreement with Luxembourg for mining operations in celestial bodies. Japan today appears a step closer to realising its objective of asteroid mining with two Japanese rovers, Minerva II-1, of JAXA landing on the surface of the asteroid named Ryugu in September 2018.[xxxiv] Earlier, Portugal and the UAE signed similar cooperation agreements with Luxembourg.[xxxv] Meanwhile, a few other countries—which have been critical of the US and Luxembourg, at the forefront of the space mining efforts**—**have also decided to join the field. The increasingly competitive and contested nature of outer space activities is spurring major spacefaring nations to push the boundaries in their space exploration. Asteroid mining could possibly become the next big thing and is already seeing a race among the space powers. The US and Luxembourg are at the forefront in space resource extraction in terms of the policy frameworks and funding.[xxxvi] Even as the US has clarified that the US Space Act 2015 is being misunderstood and that there is no change in the US policy towards national appropriation of space, the reality is that it has already spurred a major debate**.[xxxvii]** China and Russia are among those countries that are following on the path of the US and Luxembourg in undertaking mining missions in space. According to media reports, Ye Peijian, chief commander and designer of China’s lunar exploration programme has stated that China would send the first batch of asteroid exploration spacecraft around 2020.[xxxviii] Speaking to China’s Ministry of Science and Technology-run newspaper, Science and Technology Daily, Ye said that these asteroids have a high concentration of precious metals, which could rationalise the huge cost and risks involved in these activities as their economic value could run into the trillions of US dollars. Therefore, extraction, mining and transporting them back to Earth through robotic equipment will be a significant activity. Chinese scientists are working on missions to “bring back a whole asteroid weighing several hundred tonnes, which could turn asteroids with a potential threat to Earth into usable resources**.**”[xxxix] Ye was also quoted as saying that China has plans of “using an asteroid as the base for a permanent space station.”**[xl]** Helium mining on the moon is also part of China’s goals.[xli] Russia, for its part, is also responding to the space-mining developments of the last decade. For one, it plans to have a permanent lunar base somewhere between 2015 and 2020 for possible extraction of Helium.[xlii] Even as Russia’s official position on asteroid mining is that it is forbidden under the 1967 OST—which states that space is the “province of mankind”—the Russian industry players are of the view that they must follow the lead taken by the US and Luxembourg.[xliii] In early 2018, the director of the Scientific-Educational Center for Innovative Mining Technologies of the Moscow-based National University of Science and Technology MISIS (NUST MISIS), Pavel Ananyev, spoke about the Russian ambitions and proposed activities including space drilling rigs, water extraction on the Moon and 3D printers at space stations.[xliv] Russia’s private space companies including Dauria Aerospace, one of the first Russian private space companies, also hold the opinion that they must go forward in the same direction and call for a larger space to private sector to engage in extracting space resources.[xlv] Moscow may not have yet actively pursued space mining and resource extraction, but it is likely to pick up pace in the coming years alongside global efforts. Moscow clearly has a capacity gap in terms of funding because its earlier plans to have a permanent base in the Moon by 2015 is yet to happen. India, too, has ambitions in extraterrestrial resource extraction. In fact, a year after the US legislation, Prabhat Ranjan, executive director of Technology Information, Forecasting and Assessment Council (TIFAC), a policy organisation within the Department of Science and Technology, made a case for India to push ahead with lunar and asteroid mining. He said, “Moon is already being seen as a mineral wealth and further one can go up to the asteroids and start exploiting this. This can be a big game changer and if India doesn’t do this, we will lag behind.”[xlvi] More recently, Dr. K Sivan, Chairman of the country’s civil space organisation, Indian Space Research Organisation (ISRO), talked about ISRO’s plans for helium-3 extraction and said, “the countries which have the capacity to bring that source from the moon to Earth will dictate the process. I don’t want to be just a part of them, I want to lead them.”[xlvii] However, gaining proficiency in such missions is not easy – the NASA and ESA (the European Space Agency) have been discussing these possibilities for a longer time, albeit quietly. The ISRO Chairman’s response was characterised by an Indian commentator as “aspirational” and “emotional”, clearly conceding that the country’s technological wherewithal is yet to be adequate.[xlviii] Importantly, it is not clear how the legal and regulatory aspects of space mining operations are being dealt with. There was one instance, though, when Luxembourg and Japan in a joint press statement said, “The exchange of information may cover all the issues of the exploration and commercial utilization of space resources, including legal, regulatory, technological, economic, and other aspects.”[xlix] Whether such legalisation is truly legal is arguable. Space Mining: Legal or Not? The Outer Space Treaty (OST) of 1967, considered the global foundation of the outer space legal regime, along with the other four associated international instruments have provided the fundamental basis for outer space activities by prohibiting certain activities and emphasising aspects such as the “common heritage of mankind”. These agreements have been useful in highlighting the global common nature of outer space. At the same time, however, they have been insufficient and ambiguous in providing clear regulations to newer space activities such as asteroid mining. Based on the premise of ‘res communis’, the magna carta of space law, the OST, illustrates outer space as “the province of all mankind”.[l] Under Article I, States are free to explore and use outer space and to access all celestial bodies “on the basis of equality and in accordance with international law.”[li] Although the OST does not explicitly mention “mining” activities, under Article II, outer space including the Moon and other celestial bodies are “not subject to national appropriation by claim of sovereignty” through use, occupation or any other means.[lii] Furthermore, the Moon Agreement, 1979, not only defines outer space as “common heritage of mankind” but also proscribes commercial exploitation of planets and asteroids by States unless an international regime is established to govern such activities for “rational management,” “equitable sharing” and “expansion of opportunities” in the use of these resources.[liii] Slipping conveniently through the loophole in the OST, both the US and Luxembourg have authorised companies to claim exclusive ownership over extracted resources (but not of the asteroid itself). Proponents argue that since no sovereign nation is actually asserting rights over an area of outer space, instead, it is only a private unit claiming rights over singular resources, the treaty norm, “national appropriation by claim of sovereignty”, is not being violated. In the words of renowned space lawyer, Frans von der Dunk, “In terms of the law, yes it’s true that no country can claim any part of outer space as national territory — but that doesn’t mean private industry can’t mine resources.”[liv] Quoting reference from maritime law, Luxembourg regards space resources as appropriable akin to fish and shellfish, but celestial bodies and asteroids are not, just like the high sea. It is noteworthy that out of the only 18 nations that have ratified the Moon Agreement,[lv] none are major spacefaring nations, thereby giving themselves a convenient leeway to not abide by the same. These unilateral initiatives have set off a critical response from the international community. Applying literal interpretation of the OST, there is certainly room to construe that space mining may be legal, compared to the Moon Agreement whose prohibition is absolute. However, taking into consideration the letter and spirit of the OST, strengthened by the Moon Agreement, the argument that “national appropriation” only extends to appropriation of territory and not appropriation of resources is a far reach. That resource extraction is contemplated, albeit implicitly, in the OST, is nothing but logical. Not only have such claims of possessory rights not been recognised in the past, there is also global consensus regarding its illegality.[lvi] It therefore forms a part of customary international law, despite the Moon Agreement not having been widely ratified. In this light, the legalisation of space mining is a sheer violation of the elemental principles of international space law. Yet, there is no clarity on what activity is allowed and what is prohibited in outer space under the existing law.[lvii] There is ambiguity around most issues—from “who would license and regulate asteroid mining operations” to the legality of these activities as per the existing international space law.[lviii] When comparing it to the law of the seas, resource appropriation in the high seas and deep seabed is governed by the United Nations Convention on the Law of the Sea (UNCLOS), 1982, and that in Antarctica, as per the Protocol on Environmental Protection to the Antarctic Treaty, 1991. While the former is strictly regulated under Part XI of UNCLOS, the latter is completely forbidden but for scientific purposes. The law of the sea argument—“owning the fish, not the sea”—cannot be applied to outer space primarily because fish are living resources that can reproduce and therefore are renewable. Outer space resources, on the other hand, are depletable: once harvested, they cannot be replenished. The analogy with fish and seas, therefore, is not a fair one and its transposition to outer space and celestial bodies would be inaccurate. Perhaps a more comparable regime is the deep seabed, which contemplates property rights over mineral extraction. The utilisation and ownership of the deep seabed’s resources are exclusively structured around the International Seabed Authority (ISA), which is responsible for organising, carrying out and controlling all activities in the seabed.[lix] Not only must State parties seek sanction from the ISA before beginning resource exploitation, but the fiscal benefits from seabed mining must also be shared among all.[lx] Evidently, even the UNCLOS upholds State ownership and fair distribution over individual ownership and self-centred gains.[lxi] By allowing private ownership, the US and Luxembourg are once again in contravention of the very same law they are relying on. The touchstone principle, “province of all mankind” is also being defeated. Therefore, to even reap the limited benefits as under UNCLOS, at least the derivation must be made alike. This argument too falls flat. The Way Ahead Undoubtedly, growing technological adeptness has made space mining inevitable and, therefore, the question is no longer “if” but “when”. Nevertheless, a scenario where companies can, solely based on domestic laws, steadily exploit mineral resources in outer space, would be universally unacceptable. Minus regulations, the realisation of space exploitation will create great disparity between nations and disrupt dynamics of the world economy. Regulations are particularly important in the context of the space debris problem. We definitely do not wish for a future, befittingly described by renowned engineer and inventor Graham Hawkes, thus: “Space exploration promised us alien life, lucrative planetary mining, and fabulous lunar colonies. News flash, ladies and gents: Space is nearly empty. It’s a sterile vacuum, filled mostly with the junk we put up there.”[lxii] Therefore, it is extremely important that resource appropriation is carried out in an ethical manner, without interrupting safe and secure access to outer space, simultaneously allowing all countries a share in the proceeds. Technological advances and financial readiness are pushing both, states and non-state players towards new ventures in outer space. Yet, the rules of engagement especially dealing with the new commercial activities are far from ideal. There is a clear and urgent need to debate and come up with either a new regulation or accommodate the space mining activities within the existing international legal measures. Experts have articulated that these could possibly be addressed under the existing property law principles or old mining law principles.[lxiii] However, given the scale of activities that states and non-state parties will engage in, the ability of the existing regime to address space mining could be highly inadequate. The second option would be to develop a new instrument including an institutional architecture that would set out the parameters for activities related to resource extraction and space mining. Since there are a good number of commercial players playing a formidable role in asteroid mining, there has to be space for commercial players in the new gig, which might be a big departure from the earlier era institutions that saw states being the sole authority in regulating activities in outer space. A clear role for commercial players has been articulated for some time but the global space community has yet to reach a consensus in how they can be incorporated into the global governance debates. The apprehension on the part of a number of states is driven by the fact that private sector participation is still largely a western phenomenon. This trend may be undergoing change in other parts of the world but until there is a sizeable private sector community in other major spacefaring powers, there is a fear that the western bloc of countries may stand to gain from the industry being represented in the global governance debates. A third possible option is to get a larger global endorsement of the Moon Treaty, which highlights the common heritage of mankind. The Moon Treaty is important as it addresses a “loophole” of the OST “by banning any ownership of any extraterrestrial property by any organization or private person, unless that organization is international and governmental.”[lxiv] But the fact that it has been endorsed only by a handful of countries makes it a “failure” from the international law perspective.[lxv] Nevertheless, efforts must be made to strengthen the support base for the Moon Agreement given the potential pitfalls of resource extraction and space mining activities in outer space. Signatories to the Moon Treaty can take the lead within multilateral platforms such as the UN to debate the usefulness of the treaty in the changed context of technological advancements and new geopolitical dynamics, and potentially find compromises where there are disagreements. Pursuing a collective approach is ideal. An example is UNCLOS, which demonstrates that the international society possesses the capability of regulating mining quarters deemed to be the “province of mankind”. However, a sui generis legal framework must be crafted because the difference between the marines and outer space and their resources is wide, and the regulations are too region-specific to permit a superimposition of the oceanic regime to outer space. A sound legal environment will protect both the company performing operations and its beneficiaries, while ensuring even-handed resource allocation. In addition, regulations spelling out safety standards and identifying safety zones around mining operations could be useful in ensuring safe and secure operations in outer space. It would be wrong, however, to say that the international community has not debated over this. In fact, one of the main agenda points of the fifty-seventh session of UNCOPUS Legal Committee held in April 2018, was especially devoted to “general exchange of views on potential legal models for activities in the exploration, exploitation and utilization of space resources.”[lxvi] Upon evaluation, it is clear that countries are not against space mining as such; rather the contentious points are vis-à-vis authorisation, regulation, and where to place responsibility. There also appears to be concurrence regarding the need for international coordination efforts of some sort. Over the last two years, The Hague Space Resources Governance Working Group,[lxvii] established with the purpose of “assess[ing] the need for a regulatory framework for space resource activities, has identified 19 “building blocks”,[lxviii] encompassing subject matters that could be included in such a regulatory framework. Although this leaves a lot of hope for the legitimate mining of space resources, its status is still pending. Also, several questions need to be agreed upon by the global space policy community before the establishment of a framework. First, there must be an agreement among all the space powers on the need for a global governance framework for the use of space resources. This must be followed by detailed deliberations on the scope, mandate and objectives of such a framework. Can and should there be safety zones and exclusive rights be recognised under such a framework and how one can ensure equitable sharing of the resources, and lastly, the role of industries and how the interests of the industry as pioneers in this area can be secured. These are all pertinent questions that need to be considered and debated before an international regime for extraction and use of space resources can be established.[lxix] Even legal space mining activity could have serious impacts in two ways. For instance, any technological spinoffs that a country might have could add to the space weaponisation debate. Two, the erosion of norms with regard to space mining could have a cascading effect on other norms in the same issue area such as weaponisation of space. It is imperative for nations to actively combine their efforts to ensure that this activity transpires in the most globally acceptable manner and not one which stirs anarchism. The ancient Roman maxim, ‘Quod omnes tangit ab omnibus approbatur’ (What touches all must be approved by all) gains due traction in this kind of a scenario. Therefore, a universal activity like space exploration mandates an international guideline; or else, the first haul from mining, instead of earning admiration and exultation, will only be enmeshed in litigation.

### Advantage – Astroterror

#### Unregulated mining causes asteroid deflection and astroterror

Drmola and Mareš 15 - Jakub Drmola is a PhD student and Miroslav Mareš professor, at the Divison of Security and Strategic Studies, Masaryk University, Czech Republic, "Revisiting the deflection dilemma", *Astronomy & Geophysics*, Volume 56, Issue 5, October 2015, Pages 5.15–5.18, <https://academic.oup.com/astrogeo/article/56/5/5.15/235650>

There are two basic ways to go about moving the resources contained within a given asteroid to the Earth. They can be extracted from the asteroid during its natural orbit and then transported to the Earth, or the entire asteroid might be moved closer to a more convenient location before starting mining. Thus repositioned, it might even be used as a shielded habitat, once hollowed out (Ostro 1999). There are different speculative costs and benefits associated with either option, which would vary with the size, orbit and composition of the asteroid. But, crucially, the second option would entail putting asteroids into orbit around the Earth, the Moon or possibly at one of the Earth’s Lagrangian points. Indeed, NASA has already planned a mission to capture a small asteroid and place it in a high cislunar orbit, where it would serve as a destination for future manned missions and experiments. This “Asteroid Redirect Mission” is to take place in the next decade and is being pitched mainly as a stepping stone towards a future mission to Mars (see box “NASA’s Asteroid Redirect Mission”; Brophy et al. 2012, Burchell 2014, Gates et al. 2015). Programmes to redirect asteroids and, especially, plans to mine asteroids on an industrial scale essentially resurrect the deflection dilemma. But it is no longer a matter of superpowers intentionally misusing technology designed to prevent dangerous impacts. It becomes an issue of proliferation among private entities. Once private mining companies acquire the technical ability to redirect suitable NEOs (Baoyin et al. 2011) in order to extract platinum or water from them, perilous inflections become more likely. The probability of accidents will rise with the number of asteroids whose trajectories we decide to manipulate. Such accidents might be very unlikely, but even a tiny technical or human error in the execution of an inflection meant to place an asteroid into the lunar or geocentric orbit might send it crashing into the Earth with potentially devastating consequences. And while we might find solace in the low probabilities associated with such an accident, even contemporary industries which are considered very safe suffer from unlikely tragedies. Despite being dependable and reliable, airliners do crash; there are a lot of them flying and very improbable accidents do happen if the dice are rolled often enough. Undoubtedly, we will not be steering as many asteroids as we steer planes any time soon, but industries tend to be more accident-prone during their infancy. Furthermore, a single asteroid can do a lot more damage than a single plane. And who is to say how much metal or water we are going to need in space over the course of the 21st century, or the next? The second source of risk is the intentional misuse, similar to the original deflection dilemma. But the entry barrier for asteroid weaponization gets much lower if mining them and moving them around becomes a common industrial activity. This is in stark contrast to the original scenario which envisioned this technology to be used solely for planetary defence and under control of a very small number of the most powerful countries (Morrison 2010). If such a powerful technology becomes widely and commercially available, even rogue states and wellfunded terrorist groups might be tempted to use it for an unexpected and devastating attack. In addition, an active asteroid mining industry would make it more difficult to detect any hostile inflection attempts among the number of legitimate and benign ones. Policy implications Considering these possible future dangers, it seems prudent to consider what to do about them sooner rather than later. The most obvious “solution” would be a blanket ban on the development of any technology that might lead to artificially inflected asteroids crashing into the Earth. However, such a ban would be incompatible with the dream of increased presence of humans in the solar system. It would stymie both scientific exploration and economic development here on Earth, which is increasingly dependent on precious metals and spacebased technologies. Furthermore, this approach would leave us more vulnerable to natural impacts which, in the long view, seems less than desirable. Another approach might be similar to the current regime of non-proliferation of nuclear weapons, aiming to support peaceful civilian use of nuclear power while at the same time prohibiting the spread of weapons of mass destruction. The regime mostly works (with caveats, see Wood et al. 2008) because these applications require different infrastructures and fissile materials enriched to different levels of purity. This makes it possible, at least in principle, to tell apart operations meant for the production of electricity and those designed to create weapons. Unfortunately, the difference between legitimate and hostile trajectory modification would lie only in the acceleration imparted on the asteroid and not in the technical means to do it. As the spacecraft launched with the intent to cause impact with the Earth might be identical to those sent off to retrieve resources, telling them apart would be nearly impossible, until it was too late. And this approach makes no difference to the chances of an industrial accident. If monitoring equipment on Earth is unhelpful, the focus changes to space. In other words, all asteroid movement missions should be constantly monitored. For an attacker, it would make most sense to delay the final course adjustment for as long as possible in order to give the least warning and make the timeframe for reaction as short as possible. So an asteroid might head towards a safe orbit fit for resource extraction for most of its altered flight time, but be further accelerated at the last possible moment onto an impact trajectory, perhaps mere days before it hits a major city. Our current programmes cataloguing NEOs (such as CSS or Pan-STARRS), which look for new, previously unknown objects, are not ideally suited for the task of constantly tracking a number of different, already known asteroids. New instruments would be needed to track them in order to immediately detect any hazardous inflection, whether intentional or accidental. Once such a detection is made, emergency measures to evacuate the population or, preferably, to “re-deflect” the incoming object can be executed right away, regardless of the cause. Accidents and hostilities could be treated the same way and countered by the same system (initially, at least). Such a system would be more akin to an air traffic control than a non-proliferation regulation, offering security through vigilance, rather than absence. Additionally, development of a system able to deflect incoming objects at relatively short notice would be beneficial in case of an impending natural impact. Conclusion Perhaps none of these concerns will become relevant. Maybe the idea of asteroid mining will soon fizzle out because we will discover cheaper and more efficient local alternatives. Maybe humanity will lose the will or the capability to explore space any further. Or perhaps manipulating asteroid trajectories will prove impractical or too costly. Certainly, it would not be the first time that a promising and seemingly obvious future does not come about. In the 1960s it seemed almost self-evident that by the second decade of the 21st century we would have flying cars and a base on the Moon. Yet we do not. Asteroid mining might be a similar case of unfulfilled promises and misplaced visions. On the other hand, there are examples of industries that developed surprisingly fast despite being considered unrealistic, not too long ago: air travel, nuclear power generation, or commercial satellites. The spread of the internet and the accompanying digital information revolution is another example; hardly anyone anticipated having virtually the entire repository of human knowledge at our fingertips at all times (except Douglas Adams). Whether the deflection dilemma forever remains an unmaterialized threat or it becomes a palpable problem, it is something to be mindful of now, as the foundations of the prospective asteroid mining industry are being laid. In the end, the purpose of this paper is not to predict the future. Instead it aims to merely update a conscientious warning which called for our diligence more than 20 years ago. While the world has changed somewhat, the basic idea remains valid. Whether the danger comes from warring superpowers, terrorists or negligent corporations, we must be aware of the realistic risks in order to avoid being either stumped by unforeseen catastrophes or paralysed by unwarranted fear. Either extreme would be harmful for our future.●

#### Major collisions cause extinction

Baum ’19 - executive director of the Global Catastrophic Risk Institute, Ph.D in Geography

Seth Baum, “Risk-Risk Tradeoff Analysis of Nuclear Explosives for Asteroid Deflection,” SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, May 31, 2019), <https://papers.ssrn.com/abstract=3397559>.

The most severe asteroid collisions and nuclear wars can cause global environmental effects. The core mechanism is the transport of particulate matter into the stratosphere, where it can spread worldwide and remain aloft for years or decades. Large asteroid collisions create large quantities of dust and large fireballs; the fire heats the dust so that some portion of it rises into the stratosphere. The largest collisions, such as the 10km Chicxulub impactor, can also eject debris from the collision site into space; upon reentry into the atmosphere, the debris heats up enough to spark global fires (Toon, Zahnle, Morrison, Turco, & Covey, 1997). The fires are a major impact in their own right and can send additional smoke into the stratosphere. For nuclear explosions, there is also a fireball and smoke, in this case from the burning of cities or other military targets. While in the stratosphere, the particulate matter blocks sunlight and destroys ozone (Toon et al., 2007). The ozone loss increases the amount of ultraviolet radiation reaching the surface, causing skin cancer and other harms (Mills, Toon, Turco, Kinnison, & Garcia, 2008). The blocked sunlight causes abrupt cooling of Earth’s surface and in turn reduced precipitation due to a weakened hydrological cycle. The cool, dry, and dark conditions reduce plant growth. Recent studies use modern climate and crop models to examine the effects for a hypothetical IndiaPakistan nuclear war scenario with 100 weapons (50 per side) each of 15KT yield. The studies find agriculture declines in the range of approximately 2% to 50% depending on the crop and location.11 Another study compares the crop data to existing poverty and malnourishment and estimates that the crop declines could threaten starvation for two billion people (Helfand, 2013). However, the aforementioned studies do not account for new nuclear explosion fire simulations that find approximately five times less particulate matter reaching the stratosphere, and correspondingly weaker global environmental effects (Reisner et al., 2018). Note also that the 100 weapon scenario used in these studies is not the largest potential scenario. Larger nuclear wars and large asteroid collisions could cause greater harm. The largest asteroid collisions could even reduce sunlight below the minimum needed for vision (Toon et al., 1997). Asteroid risk analyses have proposed that the global environmental disruption from large collisions could cause one billion deaths (NRC, 2010) or the death of 25% of all humans (Chapman, 2004; Chapman & Morrison, 1994; Morrison, 1992), though these figures have not been rigorously justified (Baum, 2018a). The harms from asteroid collisions and nuclear wars can also include important secondary effects. The food shortages from severe global environmental disruption could lead to infectious disease outbreaks as public health conditions deteriorate (Helfand, 2013). Law and order could be lost in at least some locations as people struggle for survival (Maher & Baum, 2013). Today’s complex global political-economic system already shows fragility to shocks such as the 2007- 2008 financial crisis (Centeno, Nag, Patterson, Shaver, & Windawi, 2015); an asteroid collision or nuclear war could be an extremely large shock. The systemic consequences of a nuclear war would be further worsened by the likely loss of major world cities that serve as important hubs in the global economy. Even a single detonation in nuclear terrorism would have ripple effects across the global political-economic system (similar to, but likely larger than, the response prompted by the terrorist attacks of 11 September 2001). It is possible for asteroid collisions to cause nuclear war. An asteroid explosion could be misinterpreted as a nuclear attack, prompting nuclear attack that is believed to be retaliation. For example, the 2013 Chelyabinsk event occurred near an important Russian military installation, prompting concerns about the event’s interpretation (Harris et al., 2015). The ultimate severity of an asteroid collision or violent nuclear conflict use would depend on how human society reacts. Would the reaction be disciplined and constructive: bury the dead, heal the sick, feed the hungry, and rebuild all that has fallen? Or would the reaction be disorderly and destructive: leave the rubble in place, fight for scarce resources, and descend into minimalist tribalism or worse? Prior studies have identified some key issues, including the viability of trade (Cantor, Henry, & Rayner, 1989) and the self-sufficiency of local communities (Maher & Baum, 2013). However, the issue has received little research attention and remains poorly understood. This leaves considerable uncertainty in the total human harm from an asteroid collision or nuclear weapons use. Previously published point estimates of the human consequences of asteroid collisions12 and nuclear wars (Helfand, 2013) do not account for this uncertainty and are likely to be inaccurate. Of particular importance are the consequences for future generations, which could vastly outnumber the present generation. If an asteroid collision or nuclear war would cause human extinction, then there would be no future generations. Alternatively, if survivors fail to recover a large population and advanced technological civilization, then future generations would be permanently diminished. The largest long-term factor is whether future generations would colonize space and benefit from its astronomically large amount of resources (Tonn, 1999). However, it is not presently known which asteroid collisions or nuclear wars (if any) would cause the permanent collapse of human civilization and thus the loss of the large future benefits (Baum et al., 2019). Given the enormous stakes, prudent risk management would aim for very low probabilities of permanent collapse (Tonn, 2009). It should be noted that the severity of violent nuclear conflict could depend on more than just the effects of nuclear explosions, because the overall conflict scenario could include non-nuclear violence. Indeed, it is possible for the nuclear explosions to constitute a relatively small portion of the total severity, as was the case in World War II. 4.4 Risk of Violent Non-Nuclear Conflict Finally, it is necessary to discuss the risk of violent non-nuclear conflict. Only a small portion of violent non-nuclear conflicts are applicable, specifically the portion affected by nuclear weapons. More precisely, this section discusses non-nuclear conflicts involving one or more countries that possess nuclear weapons at some point during the lifetime of a nuclear deflection program. Nuclear deterrence theory predicts that nuclear-armed adversaries will not initiate major wars against each other because both sides could be destroyed in a nuclear war. However, the theory does permit limited, small-scale violent conflicts between nuclear-armed countries. These conflicts likely would not involve nuclear weapons. Indeed, nuclear deterrence may even make small violent conflicts more likely, because the countries know that neither side wants to escalate the conflict into major war. This idea is known as the stability-instability paradox: nuclear deterrence brings stability with respect to major wars but instability with respect to minor conflicts. Empirical support for the stability-instability paradox has been found by some research (Rauchhaus, 2009),while other research has found no significant effect of the possession of nuclear weapons on the probability of conflicts of any scale (Bell & Miller, 2015; Gartzke & Jo, 2009). If countries fully disarm their nuclear arsenals, such that they would never have nuclear weapons again, then there would be no nuclear deterrence to prevent the onset of major wars. A simple risk analysis could assume that the risk of major wars would be comparable to the risk prior to the development of nuclear weapons. The two twentieth century World Wars combined for around 100 million deaths in 50 years,13 suggesting an annualized risk of two million deaths. However, two World Wars do not make for a robust dataset. Indeed, the robustness of these two data points is called into question by historical analysis finding that both world wars might not have occurred in the reasonably plausible event that the 1914 assassination of Archduke Ferdinand had failed (Lebow, 2014). Similarly, another historical analysis finds that the U.S. and Soviet Union would probably not have waged major war against each other even in the absence of nuclear deterrence (Mueller, 1988). Furthermore, these past events are not necessarily applicable to the future conditions of a post-nuclear-disarmament world. To the best of the present author’s knowledge, no studies have analyzed the risk of major wars in a post-nucleardisarmament world.

### Advantage – US/Russia (2:51)

#### Russo-US relations suck—we’re on the brink of Putin bombing all our space tech to oblivion.

Koffler 11-17[Rebekah Koffler is a former Defense Intelligence Agency officer and author of “Putin’s Playbook: Russia’s Secret Plan to Defeat America.”, Opinion, 11-17 2021,WSJ,https://www.wsj.com/articles/space-armageddon-and-putins-threats-to-ukraine-russia-antisatellite-weapon-11637183651, 12-15-2021 amrita]

**Russia successfully conducted a test** in which a direct-ascent missile destroyed a nearly 40-year-old defunct Soviet spy satellite, U.S. Space Command announced Monday. This unsettling development is noteworthy because it coincides with Russia’s massive military buildup along the Ukrainian border. Moscow’s pre-positioning of more than 100,000 soldiers, tanks and heavy weaponry has spurred the Pentagon’s concerns about a possible Russian invasion of Ukraine. **Moscow’s posturing on what the Russians call a “space weapon” signals a rapidly escalating crisis in U.S.-Russia relations**. Washington’s foreign policy and Moscow’s view of its national interests are on a geopolitical collision course. Russia views the formerly Soviet Ukraine as part of its strategic security perimeter, on which Moscow has relied for centuries as a geographical buffer against foreign invasion. President Vladimir Putin has repeatedly said the U.S. is crossing a red line by attempting to pull Ukraine out of Russia’s orbit. In April, at his annual address to the Russian Parliament, Mr. Putin threatened a “swift, asymmetric and harsh response,” if the U.S. and the North Atlantic Treaty Organization intervene on Ukraine’s behalf. A trained intelligence operative, Mr. **Putin maintains strategic ambiguity** regarding what U.S. action precisely would constitute the crossing of Moscow’s red line with regard to former Soviet states, such as Ukraine. Ukraine’s admission into the European Union and NATO would almost certainly be unacceptable to the Kremlin. Mr. Putin is prepared to fight a war against the West to prevent this from happening. But how could Russia win a war against a much stronger adversary? That’s where Monday’s antisatellite test comes in. It’s a preview of Mr. Putin’s Space Armageddon strategy. **Russian strategists have observed** American **war fighters’ tactics in conflict zones** for nearly a quarter-century—in Kosovo, Iraq, Afghanistan, Libya and Syria. They **learned that America’s** superior **space capability is its Achilles’ heel** because of the U.S. military’s near-total dependence on it. Many civilian drivers would be lost without directions from their smartphones. **U.S. troops in war zones rely on the same constellation of 31 GPS** satellites for tasks like synchronizing operations, pinpointing targets and locating personnel. Moscow therefore seeks to deafen and blind U.S. forces in conflicts. By attacking U.S. satellites, the Russians would attempt to offset superior U.S. conventional firepower. They also hope to paralyze U.S. forces psychologically by rendering them helpless. Russian military theorists often write about the importance of targeting both the technical capabilities and the mind of an adversary, planning to disorganize its troops and weaken their will to fight. This is the essence of Mr. Putin’s asymmetric approach to warfare. Moscow believes it can win an all-out space war with America, which stands to lose a lot more since its entire society, from ATMs to home offices, is connected via satellites. Alarmingly, Washington is as unprepared for Mr. Putin’s star wars as it was for Russia’s determination to wage cyberwarfare. Monday’s test executed only a single page out of Mr. Putin’s playbook, which includes lasers, jammers and other satellite killers. Before the situation in Ukraine escalates into war, the **Pentagon** had **better develop a strategy to counter** Mr. **Putin**’s plan for Space Armageddon.

#### American private appropriation of outer space is a core issue that tanks our relations- specifically asteroid mining.

Taichman 21 [Elya Taichman is currently obtaining his J.D. at Temple University Beasley School of Law where he is a Beasley Scholar, a Law and Public Policy Scholar, and a Staff Editor on the Temple Law Review. Elya Taichman is the former Legislative Director for Congresswoman Michelle Lujan Grisham (current Governor of New Mexico). Elya advised the Congresswoman on foreign policy, national security, space, and economic issues., 2021, The Artemis Accords: Employing Space Diplomacy to De-Escalate a National Security Threat and Promote Space Commercialization,https://digitalcommons.wcl.american.edu/cgi/viewcontent.cgi?article=1131&context=nslb, 12-15-2021 amrita]

U.S. Commercial Space Launch Competitiveness Act of 2015 (“Space Act”): The Dawn of the Second Space Age **Until recently, it did not matter that the OST was unclear**, and the Moon Treaty failed to garner support. Space exploration remained the province of state actors like NASA because the sheer expense of rocketry and other technologies remained beyond the reach of private corporations and investors throughout the twentieth century.61 However, over the last two decades the industry has changed rapidly. **In the U**nited **S**tates alone, several of the most **innovative companies have invested in space exploration tech**nology.62 As the research accelerates, costs have decreased, and the potential for profits is tremendous – in 2018 the space economy was $360 billion.63 By 2040, its estimated worth is anywhere between $1.1 trillion and $1.7 trillion.64 However, investors demand certainty, and the uncertainty surrounding OST interpretation was reason to pause.65 After all, no investor or company wanted to pour millions, or even billions, into a company designed to mine liquid ice on the Moon only to discover that this violated international law and that the United States had decided to stop licensing such ventures. Just as President Eisenhower feared, the military-industrial complex, augmented by private industry, lobbied Congress heavily to reduce regulatory hurdles and legal uncertainty in space investment.66 In 2015, their efforts bore fruit **when Congress passed the Space Act**, which President Obama signed into law.67 Chapter 513 of Subtitle V – “Space Resource Commercial Exploration and Utilization” – was the shift **that enabled the** American **private** space **industry to flourish**. This **affirmed tha**t American **citizens could own and sell any “space resources”** that were **obtained through “commercial recovery**.”68 In one stroke, **Congress guaranteed property rights to American** citizens and **companies on a “first come, first served basis.”**69 Moreover, American courts would not permit foreign lawsuits accusing entrepreneurs and businesses of violating the OST.70 The law also required the executive branch to “discourage government barriers” to development and for regulation to “facilitate commercial utilization” in space.71 Finally, it required the President to promote the interest of the American space industry.72 Ever wary of the ambiguities of the OST, and likely out of concern that the Space Act might violate the treaty, the law included a disclaimer that it was the sense of Congress that nothing in the Space Act asserted American sovereignty over any celestial body.73 This disclaimer should be read as opinio juris of American interpretation of the OST. In 1967, the United States and the Soviet Union shared a concern that other nations would challenge their technological preeminence in space.74 In 2015, this proved no different, except, this time, the United States was alone in its preeminence. **Russia**, in fact, **strongly objected and claimed that the Space Act violated i**nternational **law.**75 Russia **submit**ted **an objection to** the United Nations Committee on the Peaceful Uses of Outer Space (“**COPUOS**”), claiming the Space Act demonstrated “total disrespect for international law order [sic].”76 **Russia** went on to **declare that this law manifested a “doctrine of domination in outer space**.”77 Nonetheless, a careful reading of Russia’s complaint to COPUOS elucidates that Russia never actually asserted that the United States violated the OST.78 To be sure, **Russia came as close as possible** to this, but never outright said it.79 Indeed, the Russians lag behind in investment in outer space and technology and fear American exploitation of space’s vast resources in space without their participation.80 American private investment has accelerated this gap with NASA paying companies like SpaceX $55 million per seat to ferry astronauts to the ISS instead paying the Russians more than $90 million to do the same.81 In fact, in its objection to the Space Act, **Russia stated that the U**nited **S**tates “**could propose** discussing the possibility to reach **uniform understanding** of the status of resources and set forth the structure of the doctrine that would include safety and security aspects.”82 It seems Russia is pining for its prior role of crafting space law with the United States. This also suggests that if Russia had the same capabilities as the United States, its policy would likely be comparable.83

#### US asteroid mining pushes Russia to do the same despite it violating international law- increases the likelihood for tensions to escalate.

Mallick and Rajagopalan 19 [Senjuti Mallick and Rajeswari Pillai Rajagopalan, If space is ‘the province of mankind’, who owns its resources?, 1-24-2019,ORF,https://www.orfonline.org/research/if-space-is-the-province-of-mankind-who-owns-its-resources-47561/, 12-16-2021 amrita]

Meanwhile, **a few other countries**—**which have been critical of the US and** Luxembourg, **at the forefront of** the **space mining** efforts—**have** also **decided to join** the field. **The increasingly competitive and contested nature** of outer space activities is spurring major spacefaring nations to **push the boundaries in** their **space exploration**. **Asteroid mining** could possibly become the next big thing and **is** already **seeing a race** among the space powers. The US and Luxembourg are at the forefront in space resource extraction in terms of the policy frameworks and funding.[xxxvi] **Even as the US has clarified that the** US Space **Act** 2015 **is** being **misunderstood** and that there is no change in the US policy towards national appropriation of space, **the reality** is that it has already **spurred a** major **debate**.[xxxvii] China and Russia are among those countries that are following on the path of the US and Luxembourg in undertaking mining missions in space. According to media reports, Ye Peijian, chief commander and designer of China’s lunar exploration programme has stated that China would send the first batch of asteroid exploration spacecraft around 2020.[xxxviii] Speaking to China’s Ministry of Science and Technology-run newspaper, Science and Technology Daily, Ye said that these asteroids have a high concentration of precious metals, which could rationalise the huge cost and risks involved in these activities as their economic value could run into the trillions of US dollars. Therefore, extraction, mining and transporting them back to Earth through robotic equipment will be a significant activity. Chinese scientists are working on missions to “bring back a whole asteroid weighing several hundred tonnes, which could turn asteroids with a potential threat to Earth into usable resources.”[xxxix] Ye was also quoted as saying that China has plans of “using an asteroid as the base for a permanent space station.”[xl] Helium mining on the moon is also part of China’s goals.[xli] **Russia,** for its part, **is** also **responding to the space-mining developments** of the last decade. For one, it plans to have a permanent lunar base somewhere between 2015 and 2020 for possible extraction of Helium.[xlii] **Even as** Russia’s **official position** on asteroid mining **is that it is forbidden** under the 1967 OST—which states that space is the “province of mankind”—the Russian **industry players** are of the view that they **must follow the** lead taken by the **US** and Luxembourg.[xliii] In early 2018, the director of the Scientific-Educational Center for Innovative Mining Technologies of the Moscow-based National University of Science and Technology MISIS (NUST MISIS), Pavel Ananyev, spoke about the Russian ambitions and proposed activities including space drilling rigs, water extraction on the Moon and 3D printers at space stations.[xliv] **Russia’s private space companies** including Dauria Aerospace, one of the first Russian private space companies, also **hold the opinion that they must go forward** in the same direction and call for a larger space to private sector to engage in extracting space resources.[xlv] **Moscow may not have** yet **actively pursued space mining** and resource extraction, **but it is likely to pick up pace** in the coming years alongside global efforts. Moscow clearly has a capacity gap in terms of funding because its earlier plans to have a permanent base in the Moon by 2015 is yet to happen.

#### Rocky relations with Russia on space issues cause China-Russian alliances—a recommitment is needed.

Taichman 21 [Elya Taichman is currently obtaining his J.D. at Temple University Beasley School of Law where he is a Beasley Scholar, a Law and Public Policy Scholar, and a Staff Editor on the Temple Law Review. Elya Taichman is the former Legislative Director for Congresswoman Michelle Lujan Grisham (current Governor of New Mexico). Elya advised the Congresswoman on foreign policy, national security, space, and economic issues., 2021, The Artemis Accords: Employing Space Diplomacy to De-Escalate a National Security Threat and Promote Space Commercialization,https://digitalcommons.wcl.american.edu/cgi/viewcontent.cgi?article=1131&context=nslb, 12-15-2021 amrita]

The Artemis **Accords are a culmination of American space policy to enable commercialization** of outer space. However, they pose a variety of problems. To start, any future agreements under the accords **may violate** international law – both **the OST** and the VCLT. While the Trump Administration appears willing to ignore this issue, violating international law **is a dangerous precedent and should be avoided**.118 Further, the dual nature of all space technology means that **any commercial activity in space** that the Artemis Accords enable **could** readily **be converted for belligerent purposes**.119 This would both violate international law and threaten national security. Despite these inherent dangers, the **Trump** Administration has **maintained a bellicose rhetoric** on its space policy.120 Although American technology and investments surpass those of Russia and China, such rhetoric serves **to inflame** already **tense relations.** **Russia and China are** each **pursuing** their own space **programs which threaten national security** interests, but the United States has engaged neither in Artemis Accords diplomacy.121 A. Violations of International Law? **At best**, future Artemis Accords agreements **exist in a gray area** of international law. After all, the Moon Treaty failed to update and clarify the gaps in the OST on space exploration and resource exploitation by non-state actors. The Space Act and the Artemis Accords together represent American state practice and opinio juris as to the meaning of the OST. At worst, the Trump Administration would be blatantly and knowingly violating international law, in particular the ban on national appropriation. Certainly, the Artemis Accords **signal a willingness to push i**nternational **law to the limit**, if not to step over the line. In addition to potentially violating the OST, the Artemis Accords may also violate the VCLT. Though the United States has not ratified the VCLT, the “treaty on treaties” is customary international law and thus binding on all states. Article 41 of the VCLT permits two or more parties to a treaty to make bilateral, inter-se agreements or to modify a treaty among themselves.122 Yet, if these side deals are “incompatible with the effective execution of the object and purpose of the treaty as a whole” then the VCLT forbids them.123 NASA made clear that bilateral Artemis Accords agreements with other nations will be “grounded in the Outer Space Treaty” and that resource utilization will be conducted under the “auspices of the Outer Space Treaty.”124 Therefore, the United States appears ready to create bilateral, inter-se agreements every time it signs an Artemis Accords agreement. **Because Article II** of the OST clearly **bans national appropriation, licensing non-state actors** to create mining colonies on the Moon in safety zones **verges on appropriation**, especially when coupled with Article VI’s responsibility clause based on national activity.125 Overall, the Administration advances on very uneven legal footing, which is further **compounded by** the fact that **space tech**nologies **are** inherently **dual purpose**. B. Dual Purpose Any technology – from rocketry, to satellites, to mining equipment – introduced into space is inherently dual purpose. That is, it may readily be converted to military uses. The OST makes clear that nuclear weapons are prohibited in space. It also completely demilitarizes the Moon, under Article IV.126 However, military **personal may** **participate in** scientific research or other peaceful purposes – i.e., **commercial ones**.127 Hence, from a national security standpoint it would be legal for other rival nations, namely Russia and China, to create lunar bases or asteroid mines. But **should conflict arise, such tech**nology and infrastructure could readily **be turned hostile** and harnessed against American infrastructure in space. **This is troubling because for** a country like **China there is no** obvious **distinction between public and private** industry.128 And from China’s perspective, NASA is still teaming up with SpaceX in public-private partnerships and the DoD has many of similar agreements as well. In fact, in its 2020 Defense Space Strategy, the DoD proclaimed its eagerness to “[l]everage commercial technological advancements and acquisition processes.”129 An incident with Russia highlights the dangers of dual-purpose space technologies. On November 26, 2019, Russia launched what appeared to be a single satellite.130 Eleven days later the single satellite “birthed” a second.131 In mid-January the pair floated near KH-11, a multi-billion- dollar U.S. military reconnaissance satellite. The United States complained to Moscow, which moved the satellites away from KH-11. However, on July 15, 2020, the “birthed” satellite launched a missile into outer space. This is the first time the United States has alleged a space-based anti-satellite missile test.132 Although Russia claimed that the satellites are peaceful, it proved that even a so-called peaceful satellite could be secretly armed with military capabilities. Ironically, in a speech that same day to his counterparts in Brazil, India, China, and South Africa, Dmitry Rogozin, head of Russia’s space program, called for a “space free of weapons of any type, to keep it fit for long-term and sustainable use as it is today.”133 It requires little imagination to envision a Chinese or Russian base on the Moon doubling as a commercial mining post and as a secret military garrison. After all, when the Soviets feared American ICBM superiority and a first-strike capability in the early 1960s they chose to place missiles in Cuba.134 Nowadays, a similar dynamic exists, with the US enjoying a comparable advantage. C. Bellicose American Rhetoric The Trump Administration has provided mixed signals to rivals about American intentions in outer space. In 2017, Vice President Mike Pence declared that “America must be as dominant in the heavens as it is on Earth.”135 Citing the fear that Sputnik instilled in Americans, Pence later warned that Russia and China were racing to pass the United States in space technology, especially with respect to the military.136 In its 2020 Defense Space Strategy, the DoD pronounced, “China and Russia present the greatest strategic threat due to their development, testing, and deployment of counterspace capabilities and their associated military doctrine for employment in conflict extending to space.”137 More modestly, however, Stephen Kitay, Deputy Assistant Secretary of Defense for Space Policy, made clear that the United States is still superior in space capabilities; however, the gap is rapidly diminishing.138 Still, this rhetoric is somewhat misleading. American public investment in space dwarfs Russian and Chinese investments combined: in 2018, the United States invested $41 billion whereas China invested $5.8 billion, and Russia invested $4.2 billion.139 Moreover, this spending does not account for private investment in space. Unfortunately, this author has been unable to procure aggregate data on total U.S. private investment. However, for reference, Jeff Bezos has claimed he invests $1 billion each year of Amazon stock to finance Blue Origins.140 Elon Musk spent $100 million to found SpaceX in 2002.141 In 2019, the company raised $1.33 billion in three rounds of funding.142 Additionally, SpaceX has estimated its broadband satellite project, Starlink, will cost at least $10 billion to build and deploy.143 Finally, Bryce Technology reported that start up space ventures raised $5.7 billion in funding in 2019.144 Whatever the total number is, it is quite large and likely in the tens of billions a year. Russia and China simply do not have the same level of private investment. This is not to say that the Administration is wrong for taking foreign threats in outer space seriously. It should, precisely **because the Russians and Chinese take these threats seriously**. The **U**nited **S**tates **should not**, however, **start a space race** when it is already light years ahead of its rivals, **as this would** repeat the mistake of the first space race – **permit**ting **private industry**, which Eisenhower warned against, **to dictate** American **policy and** thereby **create a technocracy**.145 Naturally, this talk of competition begs the question, what do the Russians and Chinese actually want in outer space? D. Engagement with Russia and China? i. Russia **Russia has** strongly **rejected the** Artemis **Accords as a violation of** **i**nternational **law**.146 After the United States excluded Russia from the Artemis Accords, Dmitry Rogozin, Chief of Roscosmos, fumed, “The principle of invasion is the same, whether it be the Moon or Iraq. The creation of a ‘coalition of the willing’ is initiated. Only Iraq or Afghanistan will come out of this.”147 More recently, he called the Artemis Accords a “political project,” and compared it to NATO.148 When asked if Russia would partner with NASA on Artemis, Rogozin answered, “Frankly speaking, we are not interested in participating in such a project.”149 **Ominously**, Rogozin signaled **a Russian shift towards partnering with the Chinese**, “We respect their results…[China] is definitely our partner.”150 In a sign **of how quickly this partnership is forming**, just a few weeks later, Rogozin announced that he and the Director of the China National Space Administration, Zhang Kejian, had agreed to “probably” build a lunar research base together.151 On March 9, 2021, **Russia and China** signed an agreement to **build** **this base** together.152 This partnership is dripping with irony. Recall that, in 2016, Russia issued a complaint about the Space Act before COPUOS.153 But that complaint walked a fine line and never directly claimed that American resource exploitation in space violated the OST.154 Indeed, the Russians appeared more interested in signaling to the United States their interest in “discussing the possibility to reach uniform understanding of the status of resources and set forth the structure of the doctrine that would include safety and security aspects.”155 As discussed, the Russians care less about complying with international law than being able to shape it to suit their own interests. Though they may lack the level of investment and advanced technologies of the United States, they appear willing to join the Chinese who have a long-term plan to achieve space supremacy. Of course, **the creation of Russo-Chinese partnership** and system in space to challenge the Artemis Accords **would render** Rogozin’s **fear of NATO a self-fulfilling** prophecy.

#### A strong Sino-Russian alliance sets the stage for the replacement of the ILO and a new hegemonic era.

Kevin 3-25 [Tony Kevin, Russia and China are sending Biden a message: don't judge us or try to change us. Those days are over, 3-25-2021,Conversation,https://theconversation.com/russia-and-china-are-sending-biden-a-message-dont-judge-us-or-try-to-change-us-those-days-are-over-157771, 12-15-2021 amrita]

Putin’s message to the new US president The tense test of strength began when Biden was asked about Putin in an interview with ABC News’ George Stephanopoulos and agreed he was “a killer” and didn’t have a soul. He also said Putin will “pay a price” for his actions. Putin then took the unusual step of going on the state broadcaster VGTRK with a prepared five-minute statement in response to Biden**. In an unusually pointed manner, Puti**n recalled the US history of genocide of its Indigenous people, the cruel experience of slavery, the continuing repression of Black Americans today and the unprovoked US nuclear bombing of Hiroshima and Nagasaki in the second world war. He **suggested states should not judge others by their own standards:** Whatever you say about others is what you are yourself. Some American journalists and observers have reacted to this as “trolling”. It was not. It was the preamble to Putin’s most important message in years to what he called the American “establishment, the ruling class”. He said the US leadership is determined to have relations with Russia, but only “on its own terms”. Although they think that we are the same as they are, we are different people. We have a different genetic, cultural and moral code. But we know how to defend our own interests. And we will work with them, but in those areas in which we ourselves are interested, and on those conditions that we consider beneficial for ourselves. And they will have to reckon with it. They will have to reckon with this, despite all attempts to stop our development. Despite the sanctions, insults, they will have to reckon with this. **This is new** for Putin. He has **for years made the point**, always politely, **that Western powers need to deal with Russia on a basis of correct diplomatic protocols and mutual respect** for national sovereignty, if they want to ease tensions. But never before has he been as blunt as this, saying in effect: do not dare try to judge us or punish us for not meeting what you say are universal standards, because we are different from you. Those days are now over. **China pushing back against the US**, too Putin’s forceful statement is remarkably similar to the equally firm public statements made by senior Chinese diplomats to US Secretary of State Antony Blinken in Alaska last week. Blinken opened the meeting by lambasting China’s increasing authoritarianism and aggressiveness at home and abroad - in Tibet, Xinjiang, Hong Kong and the South China Sea. He **claimed** such **conduct was threatening “the rules-based order that maintains global stability**”. Yang Jiechi, Chinese Communist Party foreign affairs chief, responded by denouncing American hypocrisy. He said The US does not have the qualification to say that it wants to speak to China from a position of strength. The US uses its military force and financial hegemony to carry out long-arm jurisdiction and suppress other countries. It abuses so-called notions of national security to obstruct normal trade exchanges, and to incite some countries to attack China. He said the US had no right to push its own version of democracy when it was dealing with so much discontent and human rights problems at home. **Russia and China drawing closer together** Putin’s statement was given added weight by two diplomatic actions: Russia’s recalling of its ambassador in the US, and Foreign Minister Sergey Lavrov’s meeting in China with his counterpart, Wang Yi. Beijing and Moscow agreed at the summit to stand firm against Western sanctions **and boost ties between their countries to reduce** their **dependence on the US** dollar in international trade and settlements. Lavrov also said, We both believe the US has a destabilising role. It relies on Cold War military alliances and is trying to set up new alliances to undermine the world order. Though Biden’s undiplomatic comments about Putin may have been unscripted, the impact has nonetheless been profound. Together with the harsh tone of the US-China foreign ministers meeting in Alaska — also provoked by the US side — **it is** clear there has been **a major change** in the atmosphere of US-China-Russia relations. What will this mean in practice? Both Russia and China are signalling they will only deal with the West where and when it suits them. Sanctions no longer worry them. The two powers are also showing they are increasingly comfortable working together as close partners, if not yet military allies. They will step up their cooperation in areas where they have mutual interests and the development of alternatives to the Western-dominated trade and payments systems.**Countries** in Asia and further afield **are closely watching** the development of **this alternative international order**, led by Moscow and Beijing. And they **can also recognise** the **signs of increasing US econ**omic and political **decline**. It is a new kind of Cold War, but not one based on ideology like the first incarnation. It is **a war for international legitimacy**, a struggle for hearts and minds and money in the **very large part** of the world **not aligned to the US** or NATO. The US and its allies will continue to operate under their narrative, while Russia and China will push their competing narrative. This was made crystal clear over these past few dramatic days of major power diplomacy. **The global balance of power is shifting**, and for many nations, the smart money might be on Russia and China now.

#### That causes draw-in through great power wars—goes nuclear.

Forsyth and Mezzell 19 [Jim Forsyth is a Forsyth is the Dean of Air Command and Staff College Maxwell AFB and has a PhD in International Studies from the University of Denver, Ann Mezzell is an Assistant Professor in the Department of International Security, Through the Glass—Darker, Strategic Studies Quarterly , Vol. 13, No. 4, (WINTER 2019), pg. 24-26]

As the article argued in 2007, “technological shifts have continuously altered the methods of war,” but in the end, “political arrangements matter, and the deterrent effect of any weapon should be evaluated within the context of the structure of the international system.”20 This claim is as true now as it was then. Indeed, one might conclude that structure matters even more now than it did 10 years ago, given the shift to multipolarity.21 Under “lopsided” multipolarity—where the United States outweighs both China and Russia militarily—it will maintain power advantages on some fronts, but at smaller margins than it did during the unipolar moment when it reigned supreme. Power diffusion, and related great power competition concerns, will be governed by the continued growth of Asian economic and military clout predominantly from China and India and the relative decline of Western economic influence.22 As China continues to translate economic gains into military modernization, the US will “focus mainly on countering China.”23 Avoiding the perils of security competition will require that the US be more cautious about exercising its power abroad.24 Yet exercising diplomacy and restraint could prove to be challenging. Even scholars who adopt a more circumspect view of emerging multipolarity, and the implications of growing military-technological parity, acknowledge its underlying risks. Barry Posen, who questions the assumption that multipolarity is inherently unstable, nonetheless acknowledges that growing parity will only “mute” great power competition. The diffusion of power will not eradicate “great power adventures.”25 China’s rise is apt to entail alliance reconfigurations and temptations to employ conventional military power.26 In fact, just as the original article predicted, the United States and India, Russia and China, and France and Germany have taken steps toward tightening their security relationships. China’s progress toward narrowing its power gap with the US has already met with a return to US defense budget growth and the establishment of new US defense cooperation commitments—notably with India. In parallel, China and Russia have grown closer, with Presidents Xi Jinping and Vladimir Putin meeting three times in 2018 and China sending a “strong supporting contingent” to Russia’s Vostok-2018 military exercises.27 Given the complexities and uncertainties of multipolarity, the US arsenal of advanced conventional weapons (and those of other great powers) may not only prove ill suited to deterring great power war but also provide occasion for its inadvertent onset. The stealth, speed, and lethality of advanced conventional technologies—allowing for quick and decisive US victories in the Persian Gulf (1991), Kosovo (1999), and Afghanistan (2001)—have proven increasingly enticing to other great powers. Russia and China drew similar lessons from these conflicts, each embarking on military modernization programs geared toward antiaccess/area-denial (A2/AD) and grey zone strategies.28 Advanced conventional weapons already undergird Russia’s and China’s respective salami-slicing campaigns in Eastern Europe and the South China Sea. Russia began modernizing its military following its 2008 war with Georgia, enhancing its ground force readiness and updating its integrated air defense system. The improvements have allowed for significant defensive and force-projection gains (against border states).29 Though Russia has since dialed back modernization efforts in the wake of its economic downturn, China continues to seek avenues for undermining the United States’ conventional weapons edge. The People’s Liberation Army (PLA) still trails the United States in the areas of innovation and operational proficiency. Its modernization achievements, though—especially the development of intermediate-range missiles that threaten US forward bases and carrier strike groups—have substantially augmented China’s “advantage of proximity in most plausible conflict scenarios.”30 As great power rivals continue to chip away at the United States’ once considerable smart-weapons advantage, national security experts are reevaluating the viability of deterrence. On this front, the diffusion of capabilities, as well as the expansion of competition to the space and cyber domains, do more than complicate appraisals of the balance of power; they threaten to upend the foundations of deterrence.31 The arrival of dualcapable hypersonic weapons (and delivery systems)—currently being designed and tested by the US, China, and Russia—will arguably risk jeopardizing strategic stability. Their ultrahigh velocity could reduce warning time to the extent that “a response would be required on first signal of attack”; likewise, their deployment in ready-to-launch mode could trigger preemptive strikes, as others might perceive it as a sign of impending attack.32 Further, cyber weapons’ potential for disabling an opponent’s “early warning and command systems” may diminish the expected costs of first strike under crisis conditions.33 Autonomous weapons also have the potential to fundamentally alter the psychological underpinnings of strategy. And, as Kenneth Payne notes, there is no “a priori reason” to expect that substituting artificial intelligence (AI) for human intelligence—that rapid, accurate, and unbiased information processing and responses—“will necessarily be safer.” Because AI limits the risks of using force, it could make conflict more acceptable to risk-averse states; because its speed and precision favor the offense, it could prove more conducive to aggression than deterrence; and because it shapes a host of processes and technologies rather than a single weapon or system, its effects on strategy (and the challenges of its regulation) could prove counter to deterrence.34 As noted in the original article, nuclear weapons helped sustain the “cold peace” during the Cold War—not because of their awesome destructive power but because that awesome destructive power helped buttress bipolarity.35 The simplicity of bipolarity and superpower balancing, in turn, limited “the dangers of miscalculation and overreaction.”36 Multipolarity, though, makes for complexity; additional great power players provide additional opportunities for miscalculation and overreaction. Given these conditions and the perceived “usability” of advanced conventional weapons relative to nuclear weapons, it seems likely that they will fall short of yielding “the kinds of political structures necessary to enhance deterrence.”37 To counter Posen, the diffusion of advanced conventional technology may well have cheapened the near-term costs and risks of going to war, and particularly engaging in hybrid warfare. Even if the US manages to avoid a direct confrontation with Russia or China, it seems increasingly plausible that it could be dragged into a conflict involving one or more of their allies.

## Util

#### The standard is maximizing expected wellbeing.

#### Prefer it:

#### [1] Extinction comes first!

**Pummer 15** [Theron, Junior Research Fellow in Philosophy at St. Anne's College, University of Oxford. “Moral Agreement on Saving the World” Practical Ethics, University of Oxford. May 18, 2015] AT

**There appears to be lot of disagreement in moral philosophy. Whether these many apparent disagreements are deep and irresolvable, I believe there is at least one thing it is reasonable to agree on right now**, whatever general moral view we adopt**: that it is very important to reduce the risk that all intelligent beings on this planet are eliminated by an enormous catastrophe, such as a nuclear war.** How we might in fact try to reduce such existential risks is discussed elsewhere. My claim here is only that **we – whether we’re consequentialists, deontologists, or virtue ethicists – should all agree that we should try to save the world.** According to consequentialism, we should maximize the good, where this is taken to be the goodness, from an impartial perspective, of outcomes. **Clearly one thing that makes an outcome good is that the people in it are doing well. There is little disagreement here.** If the happiness or well-being of possible future people is just as important as that of people who already exist, and if they would have good lives, it is not hard to see how **reducing existential risk is easily the most important thing in the whole world. This is for the familiar reason that there are so many people who could exist in the future – there are trillions upon trillions… upon trillions. There are so many possible future people that reducing existential risk is arguably the most important thing in the world, even if the well-being of these possible people were given only 0.001% as much weight as that of existing people.** Even on a wholly person-affecting view – according to which there’s nothing (apart from effects on existing people) to be said in favor of creating happy people – the case for reducing existential risk is very strong. As noted in this seminal paper, **this case is strengthened by the fact that there’s a good chance that many existing people will, with the aid of life-extension technology, live very long and very high quality lives. You might think what I have just argued applies to consequentialists only. There is a tendency to assume that, if an argument appeals to consequentialist considerations (the goodness of outcomes), it is irrelevant to non-consequentialists. But that is a huge mistake.** **Non-consequentialism is the view that there’s more that determines rightness than the goodness of consequences or outcomes; it is not the view that the latter don’t matter.** Even John Rawls wrote, “**All ethical doctrines worth our attention take consequences into account in judging rightness. One which did not would simply be irrational, crazy.**” **Minimally plausible versions of deontology and virtue ethics must be concerned in part with promoting the good, from an impartial point of view.** **They’d thus imply very strong reasons to reduce existential risk**, at least when this doesn’t significantly involve doing harm to others or damaging one’s character. What’s even more surprising, perhaps, is that even if our own good (or that of those near and dear to us) has much greater weight than goodness from the impartial “point of view of the universe,” indeed even if the latter is entirely morally irrelevant, we may nonetheless have very strong reasons to reduce existential risk. **Even egoism, the view that each agent should maximize her own good, might imply strong reasons to reduce existential risk.** It will depend, among other things, on what one’s own good consists in. If well-being consisted in pleasure only, it is somewhat harder to argue that egoism would imply strong reasons to reduce existential risk – perhaps we could argue that one would maximize her expected hedonic well-being by funding life extension technology or by having herself cryogenically frozen at the time of her bodily death as well as giving money to reduce existential risk (so that there is a world for her to live in!). I am not sure, however, how strong the reasons to do this would be. But views which imply that, if I don’t care about other people, I have no or very little reason to help them are not even minimally plausible views (in addition to hedonistic egoism, I here have in mind views that imply that one has no reason to perform an act unless one actually desires to do that act). **To be minimally plausible, egoism will need to be paired with a more sophisticated account of well-being.** To see this, it is enough to consider, as Plato did, the possibility of a ring of invisibility – **suppose that, while wearing it, Ayn could derive some pleasure by helping the poor, but instead could derive just a bit more by severely harming them. Hedonistic egoism would absurdly imply she should do the latter. To avoid this implication, egoists would need to build something like the meaningfulness of a life into well-being**, in some robust way, where this would to a significant extent be a function of other-regarding concerns (see chapter 12 of this classic intro to ethics). But **once these elements are included, we can (roughly, as above) argue that this sort of egoism will imply strong reasons to reduce existential risk.** Add to all of this Samuel Scheffler’s recent intriguing arguments (quick podcast version available here) that most of what makes our lives go well would be undermined if there were no future generations of intelligent persons. On his view, my life would contain vastly less well-being if (say) a year after my death the world came to an end. So obviously if Scheffler were right I’d have very strong reason to reduce existential risk. **We should also take into account moral uncertainty.** **What is it reasonable for one to do, when one is uncertain not (only) about the empirical facts, but also about the moral facts?** I’ve just argued that **there’s agreement among minimally plausible ethical views that we have strong reason to reduce existential risk – not only consequentialists, but also deontologists, virtue ethicists, and sophisticated egoists should agree.** But **even those (hedonistic egoists) who disagree should have a significant level of confidence that they are mistaken, and that one of the above views is correct. Even if they were 90% sure that their view is the correct one** (and 10% sure that one of these other ones is correct), **they would have pretty strong reason, from the standpoint of moral uncertainty, to reduce existential risk.** Perhaps most disturbingly still, **even if we are only 1% sure that the well-being of possible future people matters, it is at least arguable that, from the standpoint of moral uncertainty, reducing existential risk is the most important thing in the world.** Again, this is largely for the reason that there are so many people who could exist in the future – there are trillions upon trillions… upon trillions. (For more on this and other related issues, see this excellent dissertation). Of course, it is uncertain whether these untold trillions would, in general, have good lives. It’s possible they’ll be miserable. **It is enough for my claim that there is moral agreement in the relevant sense if**, at least given certain empirical claims about what future lives would most likely be like, **all minimally plausible moral views would converge on the conclusion that we should try to save the world.** While there are some non-crazy **views that place significantly greater moral weight on avoiding suffering than on promoting happiness**, for reasons others have offered (and for independent reasons I won’t get into here unless requested to), they nonetheless **seem to be fairly implausible views.** And **even if things did not go well for our ancestors, I am optimistic that they will overall go fantastically well for our descendants, if we allow them to. I suspect that most of us alive today – at least those of us not suffering from extreme illness or poverty – have lives that are well worth living, and that things will continue to improve.** Derek Parfit, whose work has emphasized future generations as well as agreement in ethics, described our situation clearly and accurately: “We live during the hinge of history. **Given the scientific and technological discoveries of the last two centuries, the world has never changed as fast.** We shall soon have even greater powers to transform, not only our surroundings, but ourselves and our successors. **If we act wisely in the next few centuries, humanity will survive its most dangerous and decisive period.** Our descendants could, if necessary, go elsewhere, spreading through this galaxy…. **Our descendants might, I believe, make the further future very good. But that good future may also depend in part on us. If our selfish recklessness ends human history, we would be acting very wrongly.**” (From chapter 36 of On What Matters)

#### [2] Existential threats outweigh – all life has infinite value and extinction eliminates the possibility for future generations – err aff, because of innate cognitive biases

**GPP 17** (Global Priorities Project, Future of Humanity Institute at the University of Oxford, Ministry for Foreign Affairs of Finland, “Existential Risk: Diplomacy and Governance,” Global Priorities Project, 2017, <https://www.fhi.ox.ac.uk/wp-content/uploads/Existential-Risks-2017-01-23.pdf>,

1.2. THE ETHICS OF EXISTENTIAL RISK In his book Reasons and Persons, Oxford philosopher Derek Parfit advanced an influential argument about the importance of avoiding extinction: I believe that if we destroy mankind, as we now can, this outcome will be much worse than most people think. **Compare three outcomes: (1) Peace. (2) A nuclear war that kills 99% of the world’s existing population. (3) A nuclear war that kills 100%.** (2) would be worse than (1), and (3) would be worse than (2). Which is the greater of these two differences? **Most people believe that the greater difference is between (1) and (2).** **I believe that the difference between (2) and (3) is very much greater**. ... **The Earth will remain habitable for at least another billion years.** **Civilization began only a few thousand years ago.** **If we do not destroy mankind, these few thousand years may be only a tiny fraction of the whole of civilized human history.** **The difference between (2) and (3) may thus be the difference between this tiny fraction and all of the rest of this history.** **If we compare this possible history to a day, what has occurred so far is only a fraction of a second.65** In this argument, it seems that Parfit is assuming that the survivors of a nuclear war that kills 99% of the population would eventually be able to recover civilisation without long-term effect. As we have seen, this may not be a safe assumption – but for the purposes of this thought experiment, the point stands. **What makes existential catastrophes especially bad is that they would “destroy the future,” as** another Oxford philosopher, Nick **Bostrom, puts it.**66 **This future could potentially be extremely long and full of flourishing, and would therefore have extremely large value.** In standard risk analysis, when working out how to respond to risk, we work out the expected value of risk reduction, by weighing the probability that an action will prevent an adverse event against the severity of the event. **Because the value of preventing existential catastrophe is so vast, even a tiny probability of prevention has huge expected value.**67 Of course, there is persisting reasonable disagreement about ethics and there are a number of ways one might resist this conclusion.68 Therefore, it would be unjustified to be overconfident in Parfit and Bostrom’s argument. **In some areas, government policy does give significant weight to future generations.** For example, in assessing the risks of nuclear waste storage, governments have considered timeframes of thousands, hundreds of thousands, and even a million years.69 Justifications for this policy usually appeal to principles of intergenerational equity according to which future generations ought to get as much protection as current generations.70 Similarly, widely accepted norms of sustainable development require development that meets the needs of the current generation without compromising the ability of future generations to meet their own needs.71 **However, when it comes to existential risk, it would seem that we fail to live up to principles of intergenerational equity.** **Existential catastrophe would not only give future generations less than the current generations; it would give them nothing.** Indeed, **reducing existential risk plausibly has a quite low cost for us in comparison with the huge expected value it has for future generations.** In spite of this, relatively little is done to reduce existential risk. **Unless we give up on norms of intergenerational equity, they give us a strong case for significantly increasing our efforts to reduce existential risks.** 1.3. WHY EXISTENTIAL RISKS MAY BE SYSTEMATICALLY UNDERINVESTED IN, AND THE ROLE OF THE INTERNATIONAL COMMUNITY **In spite of the importance of existential risk reduction, it probably receives less attention than is warranted.** As a result, concerted international cooperation is required if we are to receive adequate protection from existential risks. 1.3.1. Why existential risks are likely to be underinvested in **There are several reasons why existential risk reduction is likely to be underinvested in.** **Firstly, it is a global public good.** **Economic theory predicts that such goods tend to be underprovided.** **The benefits of existential risk reduction are widely and indivisibly dispersed around the globe from the countries responsible for taking action.** Consequently, a country which reduces existential risk gains only a small portion of the benefits but bears the full brunt of the costs. Countries thus have strong incentives to free ride, receiving the benefits of risk reduction without contributing. As a result, too few do what is in the common interest. **Secondly**, as already suggested above, **existential risk reduction is an intergenerational public good: most of the benefits are enjoyed by future generations who have no say in the political process.** **For these goods, the problem is temporal free riding: the current generation enjoys the benefits of inaction while future generations bear the costs. Thirdly**, many **existential risks**, such as machine superintelligence, engineered pandemics, and solar geoengineering, **pose an unprecedented and uncertain future threat.** Consequently, it is hard to develop a sati sfactory governance regime for them: there are few existing governance instruments which can be applied to these risks, and it is unclear what shape new instruments should take. In this way, our position with regard to these emerging risks is comparable to the one we faced when nuclear weapons first became available. **Cognitive biases also lead people to underestimate existential risks.** **Since there have not been any catastrophes of this magnitude, these risks are not salient to politicians and the public.**72 This is an example of the misapplication of the availability heuristic, a mental shortcut which assumes that something is important only if it can be readily recalled. **Another cognitive bias affecting perceptions of existential risk is scope neglect.** In a seminal 1992 study, three groups were asked how much they would be willing to pay to save 2,000, 20,000 or 200,000 birds from drowning in uncovered oil ponds. The groups answered $80, $78, and $88, respectively.73 In this case, the size of the benefits had little effect on the scale of the preferred response. **People become numbed to the effect of saving lives when the numbers get too large.** 74 **Scope neglect is a particularly acute problem for existential risk because the numbers at stake are so large.** **Due to scope neglect, decision-makers are prone to treat existential risks in a similar way to problems which are less severe by many orders of magnitude.** A wide range of other cognitive biases are likely to affect the evaluation of existential risks.75

#### [3] Realism structures global politics and is inevitable---other states won’t change

de Araujo 14 – professor for Ethics at Universidade do Estado do Rio de Janeiro **,** (Marcelo, “Moral Enhancement and Political Realism,” Journal of Evolution and Technology 24(2): 29-43)

Some moral enhancement theorists argue that a society of morally enhanced individuals would be in a better position to cope with important problems that humankind is likely to face in the future such as, for instance, the threats posed by climate change, grand scale terrorist attacks, or the risk of catastrophic wars. The assumption here is quite simple: our inability to cope successfully with these problems stems mainly from a sort of deficit in human beings’ moral motivation. If human beings were morally better – if we had enhanced moral dispositions – there would be fewer wars, less terrorism, and more willingness to save our environment. Although simple and attractive, this assumption is, as I intend to show, false. At the root of threats to the survival of humankind in the future is not a deficit in our moral dispositions, but the endurance of an old political arrangement that prevents the pursuit of shared goals on a collective basis. The political arrangement I have in mind here is the international system of states. In my analysis of the political implications of moral enhancement, I intend to concentrate my attention only on the supposition that we could avoid major wars in the future by making individuals morally better. I do not intend to discuss the threats posed by climate change, or by terrorism, although some human enhancement theorists also seek to cover these topics. I will explain, in the course of my analysis, a conceptual distinction between “human nature realism” and “structural realism,” well-known in the field of international relations theory. Thomas Douglas seems to have been among the first to explore the idea of “moral enhancement” as a new form of human enhancement. He certainly helped to kick off the current phase of the debate. In a paper published in 2008, Douglas suggests that in the “future people might use biomedical technology to morally enhance themselves.” Douglas characterizes moral enhancement in terms of the acquisition of “morally better motives” (Douglas 2008, 229). Mark Walker, in a paper published in 2009, suggests a similar idea. He characterizes moral enhancement in terms of improved moral dispositions or “genetic virtues”: The Genetic Virtue Program (GVP) is a proposal for influencing our moral nature through biology, that is, it is an alternate yet complementary means by which ethics and ethicists might contribute to the task of making our lives and world a better place. The basic idea is simple enough: genes influence human behavior, so altering the genes of individuals may alter the influence genes exert on behavior. (Walker 2009, 27–28) Walker does not argue in favor of any specific moral theory, such as, for instance, virtue ethics. Whether one endorses a deontological or a utilitarian approach to ethics, he argues, the concept of virtue is relevant to the extent that virtues motivate us either to do the right thing or to maximize the good (Walker 2009, 35). Moral enhancement theory, however, does not reduce the ethical debate to the problem of moral dispositions. Morality also concerns, to a large extent, questions about reasons for action. And moral enhancement, most certainly, will not improve our moral beliefs; neither could it be used to settle moral disagreements. This seems to have led some authors to criticize the moral enhancement idea on the ground that it neglects the cognitive side of our moral behavior. Robert Sparrow, for instance, argues that, from a Kantian point of view, moral enhancement would have to provide us with better moral beliefs rather than enhanced moral motivation (Sparrow 2014, 25; see also Agar 2010, 74). Yet, it seems to me that this objection misses the point of the moral enhancement idea. Many people, across different countries, already share moral beliefs relating, for instance, to the wrongness of harming or killing other people arbitrarily, or to the moral requirement to help people in need. They may share moral beliefs while not sharing the same reasons for these beliefs, or perhaps even not being able to articulate the beliefs in the conceptual framework of a moral theory (Blackford 2010, 83). But although they share some moral beliefs, in some circumstances they may lack the appropriate motivation to act accordingly. Moral enhancement, thus, aims at improving moral motivation, and leaves open the question as to how to improve our moral judgments. In a recent paper, published in The Journal of Medical Ethics, neuroscientist Molly Crockett reports the state of the art in the still very embryonic field of moral enhancement. She points out, for example, that the selective serotonin reuptake inhibitor (SSRI) citalopram seems to increase harm aversion. There is, moreover, some evidence that this substance may be effective in the treatment of specific types of aggressive behavior. Like Douglas, Crockett emphasizes that moral enhancement should aim at individuals’ moral motives (Crockett 2014; see also Spence 2008; Terbeck et al. 2013). Another substance that is frequently mentioned in the moral enhancement literature is oxytocin. Some studies suggest that willingness to cooperate with other people,and to trust unknown prospective cooperators, may be enhanced by an increase in the levels of oxytocin in the organism (Zak 2008, 2011; Zak and Kugler 2011; Persson and Savulescu 2012, 118–119). Oxytocin has also been reported to be “associated with the subjective experience of empathy” (Zak 2011, 55; Zak and Kugler 2011, 144). The question I would like to examine now concerns the supposition that moral enhancement – comprehended in these terms and assuming for the sake of argument that, some day, it might become effective and safe – may also help us in coping with the threat of devastating wars in the future. The assumption that there is a relationship between, on the one hand, threats to the survival of humankind and, on the other, a sort of “deficit” in our moral dispositions is clearly made by some moral enhancements theorists. Douglas, for instance, argues that “according to many plausible theories, some of the world’s most important problems — such as developing world poverty, climate change and war — can be attributed to these moral deficits” (2008, 230). Walker, in a similar vein, writes about the possibility of “using biotechnology to alter our biological natures in an effort to reduce evil in the world” (2009, 29). And Julian Savulescu and Ingmar Persson go as far as to defend the “the need for moral enhancement” of humankind in a series of articles, and in a book published in 2012. One of the reasons Savulescu and Persson advance for the moral enhancement of humankind is that our moral dispositions seem to have remained basically unchanged over the last millennia (Persson and Savulescu 2012, 2). These dispositions have proved thus far quite useful for the survival of human beings as a species. They have enabled us to cooperate with each other in the collective production of things such as food, shelter, tools, and farming. They have also played a crucial role in the creation and refinement of a variety of human institutions such as settlements, villages, and laws. Although the possibility of free-riding has never been fully eradicated, the benefits provided by cooperation have largely exceeded the disadvantages of our having to deal with occasional uncooperative or untrustworthy individuals (Persson and Savulescu 2012, 39). The problem, however, is that the same dispositions that have enabled human beings in the past to engage in the collective production of so many artifacts and institutions now seem powerless in the face of the human capacity to destroy other human beings on a grand scale, or perhaps even to annihilate the entire human species. There is, according to Savulescu and Persson, a “mismatch” between our cognitive faculties and our evolved moral attitudes: “[…] as we have repeatedly stressed, owing to the progress of science, the range of our powers of action has widely outgrown the range of our spontaneous moral attitudes, and created a dangerous mismatch” (Persson and Savulescu 2012, 103; see also Persson and Savulescu 2010, 660; Persson and Savulescu 2011b; DeGrazie 2012, 2; Rakić 2014, 2). This worry about the mismatch between, on the one hand, the modern technological capacity to destroy and, on the other, our limited moral commitments is not new. The political philosopher Hans Morgenthau, best known for his defense of political realism, called attention to the same problem nearly fifty years ago. In the wake of the first successful tests with thermonuclear bombs, conducted by the USA and the former Soviet Union, Morgenthau referred to the “contrast” between the technological progress of our age and our feeble moral attitudes as one of the most disturbing dilemmas of our time: The first dilemma consists in the contrast between the technological unification of the world and the parochial moral commitments and political institutions of the age. Moral commitments and political institutions, dating from an age which modern technology has left behind, have not kept pace with technological achievements and, hence, are incapable of controlling their destructive potentialities. (Morgenthau 1962, 174) Moral enhancement theorists and political realists like Morgenthau, therefore, share the thesis that our natural moral dispositions are not strong enough to prevent human beings from endangering their own existence as a species. But they differ as to the best way out of this quandary: moral enhancement theorists argue for the re-engineering of our moral dispositions, whereas Morgenthau accepted the immutability of human nature and argued, instead, for the re-engineering of world politics. Both positions, as I intend to show, are wrong in assuming that the “dilemma” results from the weakness of our spontaneous moral dispositions in the face of the unprecedented technological achievements of our time. On the other hand, both positions are correct in recognizing the real possibility of global catastrophes resulting from the malevolent use of, for instance, biotechnology or nuclear capabilities. The supposition that individuals’ unwillingness to cooperate with each other, even when they would be better-off by choosing to cooperate, results from a sort of deficit of dispositions such as altruism, empathy, and benevolence has been at the core of some important political theories. This idea is an important assumption in the works of early modern political realists such as Machiavelli and Thomas Hobbes. It was also later endorsed by some well-known authors writing about the origins of war in the first half of the twentieth century. It was then believed, as Sigmund Freud suggested in a text from 1932, that the main cause of wars is a human tendency to “hatred and destruction” (in German: ein Trieb zum Hassen und Vernichtung). Freud went as far as to suggest that human beings have an ingrained “inclination” to “aggression” and “destruction” (Aggressionstrieb, Aggressionsneigung, and Destruktionstrieb), and that this inclination has a “good biological basis” (biologisch wohl begründet) (Freud 1999, 20–24; see also Freud 1950; Forbes 1984; Pick 1993, 211–227; Medoff 2009). The attempt to employ Freud’s conception of human nature in understanding international relations has recently been resumed, for instance by Kurt Jacobsen in a paper entitled “Why Freud Matters: Psychoanalysis and International Relations Revisited,” published in 2013. Morgenthau himself was deeply influenced by Freud’s speculations on the origins of war.1 Early in the 1930s, Morgenthau wrote an essay called “On the Origin of the Political from the Nature of Human Beings” (Über die Herkunft des Politischen aus dem Wesen des Menschen), which contains several references to Freud’s theory about the human propensity to aggression.2 Morgenthau’s most influential book, Politics among Nations: The Struggle for Power and Peace, first published in 1948 and then successively revised and edited, is still considered a landmark work in the tradition of political realism. According to Morgenthau, politics is governed by laws that have their origin in human nature: “Political realism believes that politics, like society in general, is governed by objective laws that have their roots in human nature” (Morgenthau 2006, 4). Just like human enhancement theorists, Morgenthau also takes for granted that human nature has not changed over recent millennia: “Human nature, in which the laws of politics have their roots, has not changed since the classical philosophies of China, India, and Greece endeavored to discover these laws” (Morgenthau 2006, 4). And since, for Morgenthau, human nature prompts human beings to act selfishly, rather than cooperatively, political leaders will sometimes favor conflict over cooperation, unless some superior power compels them to act otherwise. Now, this is exactly what happens in the domain of international relations. For in the international sphere there is not a supranational institution with the real power to prevent states from pursuing means of self-defense. The acquisition of means of self-defense, however, is frequently perceived by other states as a threat to their own security. This leads to the security dilemma and the possibility of war. As Morgenthau put the problem in an article published in 1967: “The actions of states are determined not by moral principles and legal commitments but by considerations of interest and power” (1967, 3). Because Morgenthau and early modern political philosophers such as Machiavelli and Hobbes defended political realism on the grounds provided by a specific conception human nature, their version of political realism has been frequently called “human nature realism.” The literature on human nature realism has become quite extensive (Speer 1968; Booth 1991; Freyberg-Inan 2003; Kaufman 2006; Molloy 2006, 82–85; Craig 2007; Scheuerman 2007, 2010, 2012; Schuett 2007; Neascu 2009; Behr 2010, 210–225; Brown 2011; Jütersonke 2012). It is not my intention here to present a fully-fledged account of the tradition of human nature realism, but rather to emphasize the extent to which some moral enhancement theorists, in their description of some of the gloomy scenarios humankind is likely to face in the future, implicitly endorse this kind of political realism. Indeed, like human nature realists, moral enhancement theorists assume that human nature has not changed over the last millennia, and that violence and lack of cooperation in the international sphere result chiefly from human nature’s limited inclination to pursue morally desirable goals. One may, of course, criticize the human enhancement project by rejecting the assumption that conflict and violence in the international domain should be explained by means of a theory about human nature. In a reply to Savulescu and Persson, Sparrow correctly argues that “structural issues,” rather than human nature, constitute the main factor underlying political conflicts (Sparrow 2014, 29). But he does not explain what exactly these “structural issues” are, as I intend to do later. Sparrow is right in rejecting the human nature theory underlying the human enhancement project. But this underlying assumption, in my view, is not trivially false or simply “ludicrous,” as he suggests. Human nature realism has been implicitly or explicitly endorsed by leading political philosophers ever since Thucydides speculated on the origins of war in antiquity (Freyberg-Inan 2003, 23–36). True, it might be objected that “human nature realism,” as it was defended by Morgenthau and earlier political philosophers, relied upon a metaphysical or psychoanalytical conception of human nature, a conception that, actually, did not have the support of any serious scientific investigation (Smith 1983, 167). Yet, over the last few years there has been much empirical research in fields such as developmental psychology and evolutionary biology that apparently gives some support to the realist claim. Some of these studies suggest that an inclination to aggression and conflict has its origins in our evolutionary history. This idea, then, has recently led some authors to resume “human nature realism” on new foundations, devoid of the metaphysical assumptions of the early realists, and entirely grounded in empirical research. Indeed, some recent works in the field of international relations theory already seek to call attention to evolutionary biology as a possible new start for political realism. This point is clearly made, for instance, by Bradley Thayer, who published in 2004 a book called Darwin and International Relations: On the Evolutionary Origins of War and Ethnic Conflict. And in a paper published in 2000, he affirms the following: Evolutionary theory provides a stronger foundation for realism because it is based on science, not on theology or metaphysics. I use the theory to explain two human traits: egoism and domination. I submit that the egoistic and dominating behavior of individuals, which is commonly described as “realist,” is a product of the evolutionary process. I focus on these two traits because they are critical components of any realist argument in explaining international politics. (Thayer 2000, 125; see also Thayer 2004) Thayer basically argues that a tendency to egoism and domination stems from human evolutionary history. The predominance of conflict and competition in the domain of international politics, he argues, is a reflex of dispositions that can now be proved to be part of our evolved human nature in a way that Morgenthau and other earlier political philosophers could not have established in their own time. Now, what some moral enhancement theorists propose is a direct intervention in our “evolved limited moral psychology” as a means to make us “fit” to cope with some possible devastating consequences from the predominance of conflict and competition in the domain of international politics (Persson and Savulescu 2010, 664). Moral enhancement theorists comprehend the nature of war and conflicts, especially those conflicts that humankind is likely to face in the future, as the result of human beings’ limited moral motivations. Compared to supporters of human nature realism, however, moral enhancement theorists are less skeptical about the prospect of our taming human beings’ proclivity to do evil. For our knowledge in fields such as neurology and pharmacology does already enable us to enhance people’s performance in a variety of activities, and there seems to be no reason to assume it will not enable us to enhance people morally in the future. But the question, of course, is whether moral enhancement will also improve the prospect of our coping successfully with some major threats to the survival of humankind, as Savulescu and Persson propose, or to reduce evil in the world, as proposed by Walker. V. The point to which I would next like to call attention is that “human nature realism” – which is implicitly presupposed by some moral enhancement theorists – has been much criticized over the last decades within the tradition of political realism itself. “Structural realism,” unlike “human nature realism,” does not seek to derive a theory about conflicts and violence in the context of international relations from a theory of the moral shortcomings of human nature. Structural realism was originally proposed by Kenneth Waltz in Man, the State and War, published in 1959, and then later in another book called Theory of International Politics, published in 1979. In both works, Waltz seeks to avoid committing himself to any specific conception of human nature (Waltz 2001, x–xi). Waltz’s thesis is that the thrust of the political realism doctrine can be retained without our having to commit ourselves to any theory about the shortcomings of human nature. What is relevant for our understanding of international politics is, instead, our understanding of the “structure” of the international system of states (Waltz 1986). John Mearsheimer, too, is an important contemporary advocate of political realism. Although he seeks to distance himself from some ideas defended by Waltz, he also rejects human nature realism and, like Waltz, refers to himself as a supporter of “structural realism” (Mearsheimer 2001, 20). One of the basic tenets of political realism (whether “human nature realism” or “structural realism”) is, first, that the states are the main, if not the only, relevant actors in the context of international relations; and second, that states compete for power in the international arena. Moral considerations in international affairs, according to realists, are secondary when set against the state’s primary goal, namely its own security and survival. But while human nature realists such as Morgenthau explain the struggle for power as a result of human beings’ natural inclinations, structural realists like Waltz and Mearsheimer argue that conflicts in the international arena do not stem from human nature, but from the very “structure” of the international system of states (Mearsheimer 2001, 18). According to Waltz and Mearsheimer, it is this structure that compels individuals to act as they do in the domain of international affairs. And one distinguishing feature of the international system of states is its “anarchical structure,” i.e. the lack of a central government analogous to the central governments that exist in the context of domestic politics. It means that each individual state is responsible for its own integrity and survival. In the absence of a superior authority, over and above the power of each sovereign state, political leaders often feel compelled to favor security over morality, even if, all other things being considered, they would naturally be more inclined to trust and to cooperate with political leaders of other states. On the other hand, when political leaders do trust and cooperate with other states, it is not necessarily their benevolent nature that motivates them to be cooperative and trustworthy, but, again, it is the structure of the system of states that compels them. The concept of human nature, as we can see, does not play a decisive role here. Because Waltz and Mearsheimer depart from “human nature realism,” their version of political realism has also sometimes been called “neo-realism” (Booth 1991, 533). Thus, even if human beings turn out to become morally enhanced in the future, humankind may still have to face the same scary scenarios described by some moral enhancement theorists. This is likely to happen if, indeed, human beings remain compelled to cooperate within the present structure of the system of states. Consider, for instance, the incident with a Norwegian weather rocket in January 1995. Russian radars detected a missile that was initially suspected of being on its way to reach Moscow in five minutes. All levels of Russian military defense were immediately put on alert for a possible imminent attack and massive retaliation. It is reported that for the first time in history a Russian president had before him, ready to be used, the “nuclear briefcase” from which the permission to launch nuclear weapons is issued. And that happened when the Cold War was already supposed to be over! In the event, it was realized that the rocket was leaving Russian territory and Boris Yeltsin did not have to enter the history books as the man who started the third world war by mistake (Cirincione 2008, 382).3 But under the crushing pressure of having to decide in such a short time, and on the basis of unreliable information, whether or not to retaliate, even a morally enhanced Yeltsin might have given orders to launch a devastating nuclear response – and that in spite of strong moral dispositions to the contrary. Writing for The Guardian on the basis of recently declassified documents, Rupert Myers reports further incidents similar to the one of 1995. He suggests that as more states strive to acquire nuclear capability, the danger of a major nuclear accident is likely to increase (Myers 2014). What has to be changed, therefore, is not human moral dispositions, but the very structure of the political international system of states within which we currently live. As far as major threats to the survival of humankind are concerned, moral enhancement might play an important role in the future only to the extent that it will help humankind to change the structure of the system of states. While moral enhancement may possibly have desirable results in some areas of human cooperation that do not badly threaten our security – such as donating food, medicine, and money to poorer countries – it will not motivate political leaders to dismantle their nuclear weapons. Neither will it deter other political leaders from pursuing nuclear capability, at any rate not as long as the structure of international politics compels them to see prospective cooperators in the present as possible enemies in the future. The idea of a “structure” should not be understood here in metaphysical terms, as though it mysteriously existed in a transcendent world and had the magical power of determining leaders’ decisions in this world. The word “structure” denotes merely a political arrangement in which there are no powerful law-enforcing institutions. And in the absence of the kind of security that law-enforcing institutions have the force to create, political leaders will often fail to cooperate, and occasionally engage in conflicts and wars, in those areas that are critical to their security and survival. Given the structure of international politics and the basic goal of survival, this is likely to continue to happen, even if, in the future, political leaders become less egoistic and power-seeking through moral enhancement. On the other hand, since the structure of the international system of states is itself another human institution, there is no reason to suppose that it cannot ever be changed. If people become morally enhanced in the future they may possibly feel more strongly motivated to change the structure of the system of states, or perhaps even feel inclined to abolish it altogether. In my view, however, addressing major threats to the survival of humankind in the future by means of bioengineering is unlikely to yield the expected results, so long as moral enhancement is pursued within the present framework of the international system of states.

## Underview

#### 1AR theory – a) AFF gets it because otherwise the neg can engage in infinite abuse, making debate impossible, b) drop the debater – the 1AR is too short for theory and substance so ballot implications are key to check abuse, c) no RVIs – they can stick me with 6min of answers to a short arg and make the 2AR impossible, d) competing interps – 1AR interps aren’t bidirectional and the neg should have to defend their norm since they have more time. e) Fairness because debate’s a game that needs rules to evaluate it and education since it gives us portable skills for life like research and thinking. f) comes first – it’s a bigger percentage of the 1AR than 1NC which means there’s more abuse if I’m devoting a larger fraction of time and only the 2N has time to win multiple layers

# 1ar

#### Counterinterp: “Appropriation” means to take as property which includes mining

This definition is 100x better than any neg evidence – it’s contextual to space mining and the OST. It also conducts a common-use analysis of the word and a historical analysis of the OST’s writing and concludes that both support that appropriation includes mining

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

As illustrated by this analysis, considerable ambiguity remains after this ordinary-meaning analysis and thus, the question of Treaty obligations and property rights remains unresolved. In order to resolve these ambiguities, an analysis of preparatory materials, historical context, and state practice follows.

2. Preparatory Materials

A review of meeting reports of the Committee on the Peaceful Uses of Outer Space and its Legal Sub-Committee regarding the Treaty reveals little to clear up the ambiguities of Articles I and II of the OST. In fact, the reports indicate that, despite several negotiating states expressing concern about the lack of clarity with respect to the meaning of "use" and the scope of the non-appropriation principle, no meaningful discussion occurred and no consensus was reached.16 9 Some commentators still conclude that the preparatory work does in fact confirm the drafters' intent for "use" to include exploitation. 170 These commentators do admit, however, that discussions of the term "exploitation" supporting their conclusion focused on remote sensing and communications satellites rather than on resource extraction.17 1 Further skepticism about such an intent for "use" to include "exploitation" also arises given the uncertainty amongst negotiating states about the meaning of these terms. A mere few months before the Treaty opened for signature in January 1967, negotiators were still asking questions about the meaning of "use" during the last few Legal Sub-Committee meetings. For example, in July 1966, the representative of France inquired: "Did the latter term ["use"] imply use for exploration purposes, such as the launching of satellites, or did it mean use in the sense of exploitation, which would involve far more complex issues?" 172 The representative noted that while some activities such as extraction of minerals were difficult to imagine presently, "[i]t was important for all States, and not only those engaged in space exploration, to know exactly what was meant by the term 'use.'173 In the same meeting, the representative from the USSR offered an interesting response to the question posed by the representative of France:

[A]dequate clarification was to be found in article II of the USSR draft, which specified that outer space and celestial bodies should not be subject to national appropriation by means of use or occupation, or by any other means. In other words no human activity on the moon or any other celestial body could be taken as justification for national appropriation. 174

This response implies that Article II acts as a qualification on Article I's broad provision for free exploration and use of outer space by all. Activity such as resource extraction would be viewed as national appropriation and such activity cannot be justified given Article II's prohibition, not even by falling within the ordinary meaning of "use." Despite this clarification, uncertainty appears to have remained, as lingering concerns were communicated in subsequent meetings by several other states, including Australia, Austria, and France."' Nevertheless, the committee put the Treaty in front of the General Assembly two months later without final resolution of the ambiguities regarding property rights arising from Articles I and II176 The preparatory materials ultimately fail to fully clarify the ambiguities of the meanings of "use" and "appropriation." The statement of the representative of the Soviet Union, one of the two main drafting parties, does, however, help push back on the interpretation of some academics that the nonappropriation principle fails to overcome the presumption of freedom of use.7

3. Historical Context

Two interrelated, major historical events cannot be ignored when considering the meaning of the OST: (1) the Cold War and (2) the Space Race. The success of Sputnik I in 1957 showed space travel and exploration no longer to be a dream, but a reality.7 While exciting, this news also brought fear in light of the world's fragile balance of power and tensions between the United States and the Soviet Union. 17 9 What if the Soviet Union managed to launch a nuclear weapon into space? What if the United States greedily claimed the Moon as the fifty-first state? To many, the combination of the Cold War and Space Race made the late 1950s and the 1960s a perilous time.so When viewed as a response to this perilous era, the OST begins to look much more like a nuclear arms treaty and an attempt to ease Cold War tensions than a treaty concerned with the issue of property rights in space."' The Treaty's emphasis on "peaceful purposes" supports this contextual interpretation. 1 82

On the one hand, as many suggest, this context leads to the conclusion that the vague nonappropriation principle of Article II does not prevent private property rights in space resources and the presumption of broad "use" prevails.1 83 Private property rights were simply not a concern of the Treaty drafters and therefore, the Treaty does not address-nor prohibit-such claims. On the other hand, the context surrounding the treaty's drafting does not necessarily lead to this conclusion. In fact, the emphasis on "peaceful purposes" and reducing international tension might instead suggest a stricter reading of Articles I and II. If things were so unstable and tense on Earth, the drafters may have instead intended Article II as a qualification on the general right to explore and use outer space in Article I, recognizing the simple fact that disputes over property, both land and minerals, have sparked some of history's bloodiest conflicts.

The Antarctic treaty experience evidences Cold War concern over potential resource rights disputes. Leading up to the finalization of the Antarctic Treaty of 1959,184 seven nations had already made official territorial claims over varying portions of the frozen landscape in hopes of laying claim to the plethora of resources thought to be located within the subsurface."' Although the Treaty itself did not directly address rights to mineral resources in the Antarctic,186 the treaty is interpreted to have frozen these claims in the interest of "[f]reedom of scientific investigation in Antarctica and cooperation toward that end.""' In a manner notably similar to the terms of Articles XI and XII of the OST, the Treaty promotes scientific exploration by encouraging information sharing of scientific program plans, personnel, and observations' and inspection of stations on a reciprocal basis.189 This Treaty along with several later treaties and protocols constitute the "Antarctic Treaty System," which as a whole manages the governance of Antarctica.1 9 0 In 1991, the Protocol on Environmental Protection to the Antarctic Treaty 91 ("Madrid Protocol") settled the question of property rights for the fifty years following the Protocol's entry into force. 192 The Madrid Protocol provides for "the comprehensive protection of the Antarctic environment ... [and] designate[s] Antarctica as a natural reserve, devoted to peace and science."193 Article 7 explicitly-and simplystates "[a]ny activity relating to mineral resources, other than scientific research, shall be prohibited."1 94 Though Article 25 allows for the creation of a binding legal regime to determine whether and under what conditions mineral resource activity be allowed, no such international legal regime has been created to date. 195 The ban on mineral resource exploitation may only be amended by unanimous consent of the parties. 19 6 The United States signed and ratified both the Antarctic Treaty of 1959 and the Madrid Protocol. 197

The freezing of territorial claims in the Antarctic 98 by the Antarctica Treaty of 1959199 illustrates the existence of true concern over potential resource dispute and conflict during the Cold War, in addition to the major concerns posed by nuclear weapons.2 00 The drafting states also recognized the potential for conflict over property in outer space and drew on the language of the Antarctic Treaty of 1959 to draft the OST.2 01 Given these driving concerns, Article II could be reasonably read as qualifying Article I's general rule. Under this reading, Article II serves the same qualifying purpose as Article IV regarding military and nuclear weapon use in space. Some might push back on this interpretation by claiming that the drafters could have used language such as that in the Madrid Protocol to explicitly prohibit mining in space. However, this argument is flawed. The Madrid Protocol was not written until well after both the original Antarctic Treaty of 1959 and the OST. Furthermore, the timing of the Madrid Protocol perhaps provides further evidence that resources in space are not to be harvested until a subsequent agreement regarding rights over them can be agreed upon internationally. While the historical context does leave some ambiguity as to whether the OST permits property rights over space resources, the Antarctic experience provides a compelling analogy and suggests that the OST does not allow for property rights in space resources.

4. State Practice

In its Frequently Asked Questions released about the SREU Act, the House Committee on Science, Space, and Technology forcefully asserted that the Act does not violate international law.20 2 in fact, according to the committee, the Act's provision of property rights "is affirmed by State practice and by the U.S. State Department in [c]ongressional testimony and written correspondence."2 03 Proponents of this view base their beliefs on several examples. One, "no serious objection" arose to the United States and the Soviet Union bringing samples of rocks and other materials from the Moon back by manned and robotic missions in the late 1960s, nor to Japan successfully collecting a small asteroid sample in 2010.204 Two, a practice of respecting ownership over such retrieved samples and a terrestrial market for such items exists, as illustrated by the fact that no one doubts that the American Museum of Natural History "owns" three asteroids found in Greenland by arctic explorer Robert E. Peary that are now part of the museum's Arthur Ross Hall of Meteorites. 205 Three, Congressmen also cite to a federal district court case, United States v. One Lucite Ball Containing Lunar Material,2 06 to illustrate state practice in favor of ownership over spaces resources. The case involved an Apollo lunar sample gifted to Honduras by the United States. The sample was stolen and sold to an individual in the United States.2 07 When caught during a sting operation intended to uncover illegal sales of imposter samples, the buyer was forced to forfeit the lunar sample after the court concluded the moon rocks had in fact been stolen, basing its decision in part on its recognition of Honduras having national property ownership over the sample. 208

These examples appear overwhelming, but they are not actually examples of activities of the same "form and content" that the SREU Act approves. 2 09 These examples all involve collection of samples in limited amounts and for scientific purposes, while the SREU Act approves large-scale collection and for commercial exploitation. The OST explicitly emphasizes a "freedom of scientific investigation in outer space," and the collection of scientific samples reasonably fall under this enumerated right. 2 10 Alternatively, the OST says nothing with respect to commercial exploitation, only discussing "benefits" of space in terms of sharing those benefits with all mankind.211 Furthermore, the American Museum of Natural History and Lucite Ball examples relied upon are misleading because they suggest that types of celestial artifacts found or gifted on Earth are subject to the same legal regime as resources mined or collected in space, which may not necessarily be true. The analogy of ownership over fish extracted from the high seas is also often cited in response to this pushback. Much like outer space, the high seas are open to all participants, yet the law of the seas still recognizes the right to title over fish extracted on the high seas by fishermen, who can then sell the fish.212 But again, this analogy has limited import because both the 1958 Geneva Convention on the High Seas and the United Nations Convention on the Law of the Sea ("UNCLOS") explicitly recognize the right to fish, while the OST grants no such right to exploit space resources. 2 1 3

Furthermore, state practice relevant to the question of property rights under the OST goes beyond these examples and analogies of ownership of resources taken from commons. State practice regarding property rights in general must be considered. For example, Professor Fabio Tronchetti disagrees with the oft-cited notion that state practice affirms the SREU Act.2 14 According to the professor, "under international law, property rights require a superior authority, a State, entitled to attribute and enforce them." 2 15 By granting property rights in the SREU Act, the United States impliedly claims that it has the authority to confer property rights over space resources-an authority traditionally reserved for the owner of a resource. This notion clashes with the nonappropriation principles of the OST. Though there is no consensus regarding whether the nonappropriation principle prohibits claims of sovereignty over resources, a strong consensus at least exists that the principle prohibits states from claiming sovereignty over real property in space.216 In some traditional systems of mineral ownership, however, ownership over resources ran with ownership over land.217 For example, under Roman law, property rights over subsurface minerals belonged to the landowner. 2 18 Thus, if the United States cannot have title in space lands under the nonappropriation principle, it cannot have title to the space resources in those lands either. Without title to the resources, the United States cannot bestow such title to its citizens under traditional international property law; by claiming that it can bestow such title, the United States is abrogating Article II of the OST. One could also argue that the in situ resources the Act grants rights in are actually still part of the celestial bodies; thus, the resources are real property prior to their removal, and are off limits under the Treaty.2 19 Given the limited import of the cited examples of state practice (limited quantity and scientific versus large-scale and commercial), the traditional practice of property rights being conferred from a sovereign to a citizen become incredibly compelling and suggest the SREU Act may abrogate the United States' treaty obligations.

A final piece of evidence, however, again inserts ambiguity into the interpretation: the sweeping rejection of the Moon Agreement and its limitations on property rights by the international community discussed supra Part JJJ.A.2. On the one hand, the rejection may imply that the international community approved of property rights. On the other hand, however, there were other reasons for the sweeping rejection. For example, Professors Francis Lyall and Paul B. Larsen claim the "main area of controversy"2 2 0 actually surrounded the Agreement's proclamation of the Moon and celestial bodies and their natural resources as the "common heritage of mankind" in Article 11.1,221 rather than the Agreement's general property-right provisions. Many believed the invocation of the "common heritage of mankind" language would impart actual obligations upon parties to share extracted resources, whereas the "province of all mankind" and "for the benefit and interest of all" language of the OST did not.222 As with ordinary meaning, preparatory materials, and historical context, state practice leaves some ambiguities and state interpretations should also be considered.

5. State Interpretations

Much like the preparatory materials discussed supra Part IV.A.1, subsequent state interpretation of the OST fails to fully address the question of the legality of property rights in space resources. On the one hand, the Senate Committee on Foreign Relations found that the drafters intended Articles I, II, and III of the Treaty to be general in nature when reviewing the Treaty,223 which perhaps suggests Article II's nonappropriation principle does not qualify Article I's general right to use or act as an exception. Yet, the committee also found the Treaty to be in response to the "potential for international competition and conflict in outer space." 2 24 To the committee, Articles I, II, and III stressed the importance of free scientific investigation, guaranteed free access to all areas of celestial bodies, and prohibited claims of sovereignty.225 Not only would property rights in natural resources potentially ignite and exacerbate conflict in space, but they also seemed somewhat incompatible with scientific investigation, free access, and the prohibition on sovereignty. During its hearing on the Treaty, the Senate Committee on Foreign Relations focused a majority of its discussion of Article I on whether or not the language "province of all mankind" imparted strict obligations, while devoting little to no time to the issue of the meaning of "use." 22 6 Former Justice Arthur Goldberg, then U.S. ambassador to the United Nations, did note the goal of the article was to "cnot subject space to exclusive appropriation by any particular power." 227 Nevertheless, this statement fails to resolve whether natural resources may be exploited, as such exploitation could be carried out in an inclusive manner.

The committee's review of Article II consumes only eight lines of the hearing transcript, merely adding that the Article is complementary to Article I and that space cannot be claimed for the country (likely referring to land rather than resources).2 28 A different exchange between Ambassador Goldberg, Senator Lausche, and the Chairman leaves further ambiguity regarding the use of natural resources in space: Mr. Goldberg: We wanted to establish our right to explore and use outer space. Senator Lausche: Yes. That is, any one of the signatory nations shall have the right to the use of whatever might be found in one of the space bodies. Mr. Goldberg: No, no. It doesn't mean that. It means that they shall be free on their own to explore outer space. The Chairman: Or to use it. Mr. Goldberg: To use it. The Chairman: But not on an exclusive basis. Mr. Goldberg: Everyone is free.229

At first, Ambassador Goldberg appears to have refuted the notion that a signatory could simply "use" anything found in one of the space bodies, such as a mineral, implying Senator Lausche's example exceeded the scope of Article I. He then went on to emphasize exploratory activities. But then, Ambassador Goldberg backtracked and reasserted the right to use without clarifying his initial qualification.

This sense of ambiguity remains today despite Congress signing off on the SREU Act. While sponsors of the bill and statements from resource extraction companies emphasized the broad scope of the right to "use" outer space and state practice in support of the legality of 230 property rights, several expert witnesses expressed genuine concern that obligations under the Treaty remain unclear and require additional analysis.231

B. Compatibility

Employing the treaty interpretation tools of ordinary meaning, preparatory materials, historical context, state practice, and state interpretation offers many possible understandings of the obligations imparted by Articles I and II of the OST. For example, while the ordinary meaning of "use" could reasonably include the exploitation of materials, the meeting summaries of the Fifth Session of the U.N. Committee on the Peaceful Uses of Outer Space Legal Sub-Committee make clear that no consensus was ever reached regarding whether "use" includes large-scale exploitation of space resources, let alone fee-simple ownership and the ability to sell commercially. State practice dealing with extraterrestrial samples also sheds little light on the confusion, as the examples cited all deal instead with scientific samples of limited quantity. The international community's rejection of the Moon Agreement also fails to bring clarity. While on the one hand the rejection could be read as a rejection of the idea that the OST prohibits private property rights, it could also be read as a rejection of the common heritage of mankind doctrine. Finally, the prospect of privateventure space mining and extraterrestrial resource extraction remained far off and futuristic at the time of the Treaty's negotiation, making drawing legal conclusions about the legality of these revolutionary activities extremely difficult.

Overall, however, the Treaty's structure and its purposes (preserving peace and avoiding international conflict in outer space) ultimately indicate that private property rights in space resources are prohibited by Article II's non-appropriation principle, at least until future international delegation determines otherwise (like in the Antarctic). The Treaty's structure confirms this interpretation. Article I lays down a general rule for activity in space. Subsequent articles of the Treaty then lay out more specific requirements of and qualifications to this general rule. Much like Article IV restricts the use of nuclear weapons in space, Article II restricts the use of space in ways that might result in potentially controversial property claims. Historically, claims to mineral rights have resulted in just as contentious conflict as those over sovereign lands. Treaty efforts to avoid conflicts in Antarctica and the high seas reflect similar sentiments. The Soviet Union's representative even hinted at this structural relationship between Articles I and II during Treaty S1 232 negotiations.22 In light of the imminent need to ease Cold War tensions, the potential for conflict over property, and the final structure of the Treaty, this Note concludes that the large-scale extraction of space resources is incompatible with the non-appropriation principle of Article II of the OST.23 3 As a result, the United States' provision of property rights to its citizens to possess, own, transport, use, and sell space and asteroid resources extracted through the SREU Act contravenes its international obligations established by the OST.