# 1NC

## 1

**Interpretation: Debaters may not say that the negative does not get arguments**

**Standard: infinite abuse (extemped)**

**Fairness is a voter because**

**a. The only way a judge can determine who’s better is if we enter the debate on an even playing field.**

**b. People quit if they lose to unfair arguments so fairness is a prereq to debate’s existence.**

**Theory is drop the debater:**

1. **Only DTD enables theory to deter bad behavior and be a tool for norm setting.**
2. **Dropping the arg can’t rectify past abuse. The 1AC was uniquely bad, so there should be a consequence.**

**No RVI’s:**

1. **they’re illogical – it doesn’t make sense to reward someone for not doing anything bad.**
2. **RVI’s chill legitimate theory, justifying even more abuse.**

**Competing Interps: Reasonability lets them arbitrarily choose a brightline that favors their arguments – skews fairness.**

## 2

**Interpretation: All cards must be cut to form complete sentences.**

Cleveland State Univesity Writing Center, No Date.

The Writing Center, Cleveland State University. “A definition of a complete sentence.” No date. https://www.csuohio.edu/writing-center/definition-complete-sentence

A complete sentence has to have a subject and a verb, and the verb has to be a "finite":

A sentence with its main verb in an -ing form will not be a complete sentence

\*Marge swimming.

A sentence with its main verb in an infinitive form ("to" + verb) will not be a complete sentence.

\*Homer to swim.

Complete sentences must be combined correctly if they are to continue to be complete sentences. The following methods will make two or more complete sentences into another complete sentence:

Use the coordinating conjunctions (connecting words) listed below with a comma.

Use a semicolon between two complete sentences. Use the conjunctive adverbs (connecting words) listed below with a semicolon and a comma.

Use subordinating conjunctions (connecting words) listed below, but remember, subordinating conjunction + Complete Sentence = Dependent Clause/Incomplete Sentence

**The violation is the 1AC Dunk 11 evidence:**

4. Interpreting Article VI of the Outer Space Treaty One main novel feature of Article VI stood out with reference to the role of private enterprise in this context. Contrary to the version of the concept applicable under general international law, where “direct state responsibility” only pertained to acts somehow directly attributable to a state and states could only be addressed for acts by private actors under “indirect,” “due care”/“due diligence” responsibility,18 Article VI made no difference as to whether the activities at issue were the state’s own (“whether such activities are carried on by governmental agencies” . . .) or those of private actors (. . . “or by non-governmental entities”).

**The phrase private actors non-governmental entities lacks a verb**

**There are 3 Standards:**

1. **Academic success: learning to use correct grammar is necessary to succeed in higher education. Even if grammar is bad, we need to learn how to use it so we can experience personal success.**
2. **Accessibility: Reading large blocks of text is already hard for people with dyslexia, making them jump around makes it way harder.**
3. **Engagement: Choppy cards sound like word salad, so I can’t fully understand what you’re saying. This lowers the quality of clash, which results in less education.**

**Education is voter because:**

1. **It’s the only portable benefit of debate.**
2. **It’s the only reason we get funding.**

**Inclusion is a voter: it’s a prerequisite to any benefit of debate because people need to participate to reap the benefits.**

**Same paradigm issues as the last shell**

## 3

#### The reason morality exists in the first place is to regulate our actions towards others. If any moral code is not motivational then there is no reason to do what is right and that code merely fails to escape the skeptical conclusion. Motivational externalism collapses into internalism.

**Joyce 1**, Richard (Professor of Philosophy at Victoria University Wellington, New Zealand). The Myth of Morality. 2001. [Bracketed for grammatical clarity] //Park City NL

Back to the [Suppose] external reason[s]. Suppose it were claimed, instead, that I have a reason to refrain from drinking the coffee because it is tapu and must not be touched. This reason claim will be urged regardless of what I may say about my indifference to tapu, or my citing of nihilistic desires to tempt the hand of fate. [r]egardless of my desires (it is claimed) I ought not drink - l have a reason not to drink. But how could that reason ever explain any action of mine? Could the external reason even explain my [action] from drinking? Clearly, in order to explain it the external reason must have some causally efficacious role [in] among the antecedents of the action (in this case, an omission) — l must have in some manner. "internalized" it. The only possibility, it would seem, consistent with its being an external reason, is that I believe the external reason claim [but] : I believe that the coffee is tapu. There's no doubting that such a belief can play a role in explaining actions - including my refraining from drinking the coffee. The question is whether the belief alone can[not] produce action, to which the correct answer is “No.” A very familiar and eminently sensible view says that **in** order to explain an action the belief must couple with desires (such that those same desires had in the absence of the belief would not have resulted in the action). And this seems correct: if I believe that the coffee is [bad] tapu but really just don’t care about that, then I will not refrain from drinking it. So in order for the belief to explain action it must couple with [desire] elements - but in that case the putative external reason collapses into an internal one.

#### Agents can only be motivated by their own desires; not the external desires of another because:

#### [A] External desires are inaccessible through empirical uncertainty – an evil demon could deceive us, we could be dreaming, or in a simulation, and we’re unable to know others’ experiences, so externalism is an unreliable basis for ethics since we can only verify and access internal drives.

#### [B] Individuals have unlimited wants and those are not communicated, so we never know what others want

#### [C] We only care about our own desires as individuals are self interested and don’t care about helping others, even if we did know how to help.

#### Only a contractarian system that derives principles of mutual restraint from individuals’ self-interest account for this fact because contractarian principles are necessarily in the interest of all parties involved because they wouldn’t constrain their action against their will.

**Gauthier 86** Gauthier, David P. *Morals by Agreement*. Oxford: Clarendon, 1986. Print. // Park City NL

Moral principles are introduced as the objects of full voluntary ex ante agreement among rational persons. Such agreement is hypothetical, in supposing a pre-moral context for the adoption of moral rules and practices. But the parties to agreement are real, determinate individuals, distinguished by their capacities, situations, and concerns. In so far as [Since] they would agree to constraints on their choices, restraining their pursuit of their own interests, they acknowledge a distinction between what they may and may not do. As rational persons understanding the structure of their interaction, they recognize for mutual constraint, and so for a moral dimension in their affairs.

#### Additionally, self-interest is determined at the time of the original decision to rise to a norm of mutual self-restraint. For example, I might say that eating ice cream is in my self-interest because I’m hungry even if it will lead to extinction somehow in the future.

#### Thus, the standard is consistency with contractarian principles of mutual restraint, defined as those principles by which individuals would constrain their actions with the belief that doing so would serve their self-interest.

#### Prefer additionally:

#### [1] Performativity – You agree to 4 minutes of prep and if you tried to go over the judges would down you or tell the tournament to DQ you. Their very performance justifies the NC framework and proves the AC collapses to the NC.

#### [2] Pluralism – unitary standards fail to account for complex scenarios and value-disagreement. Contractarianism solves because we can recognize the multiple values each party to the contract has. Anything else collapses ethics into unsolvable conflict because there’s no method to resolve interpersonal disagreement.

#### [3] Bindingness – other frameworks lack built-in enforcement mechanisms, but contracts contain punishments for those who break them. Bindingness is a prerequisite to ethics because moral rules don’t matter if nobody follows them.

#### Now negate:

#### [1] Banning appropriation prevents private entities from fulfilling existing contracts with governments.

Loren Grush, daughter of 2 NASA engineers so she knows whats up, June 18, 2019, The Verge, “Commercial space companies have received $7.2 billion in government investment since 2000”, [https://www.theverge.com/2019/6/18/18683455/nasa-space-angels-contracts-government-investment-spacex-air-force] mc

Early investments from a government agency, like NASA or the Air Force, can be a crucial step in the evolution of commercial space companies from scrappy startups to successful businesses. That’s according to a new report from Space Angels, an investment firm focused on the space industry, which quantified how much money government agencies have invested in private aerospace firms over the last 18 years. The analysis reveals just how important a role the government still plays in the private space industry. It found that early public investment can sometimes be the difference between life and death for a company. “I think it’s really important for people to recognize that it isn’t just the private sector deciding to do something,” Chad Anderson, CEO of Space Angels, tells The Verge. “The government has played a key role in the development of entrepreneurial space companies.” “THE GOVERNMENT HAS PLAYED A KEY ROLE IN THE DEVELOPMENT OF ENTREPRENEURIAL SPACE COMPANIES.” Space Angels made the report at the request of NASA, as the agency wanted to know just how its investments over the last couple of decades have affected the private sector. Ultimately, Space Angels found that 67 space companies received a total of $7.2 billion in investments from the government between 2000 and 2018. And about 93 percent of that investment went into companies dedicated to launching rockets. “It’s no surprise,” says Anderson. “Government funding has been directed at reducing the barriers to entry, and the biggest barrier in the beginning is launch.” The report highlights SpaceX as a prime example of how early government investment contributed to the success of a company. During its first decade of operation, SpaceX operated off of $1 billion, and about half of that money came from government contracts from NASA, according to the Space Angels report. Musk notably thanked NASA for the agency’s support after SpaceX launched its very first Dragon cargo capsule to the International Space Station in 2012. “They didn’t do this alone,” says Anderson. “They couldn’t have done it without the help of NASA.”

#### [2] The plan forecloses the ability for future business contracts in space.

**Christensen 16,** "Building Confidence and Reducing Risk in Space Resources Policy," Ian Christensen. Project Manager [https://room.eu.com/article/building-confidence-and-reducing-risk-in-space-resources-policy] // recut ahs emi

Like most areas of economic activity, **space resource** utilisation **business plans are based** **upon** the ability to access a resource, produce a product, service, or goods based from the resource, and produce revenue from that product based on established market activities. An economic system requires a level of regulation and oversight to ensure it functions. Regulation and governmental oversight is part of an overall market framework that provides stability and confidence in validity for commercial entities and those that invest in them. Just as the commercial companies are in the initial stages of developing and validating hardware, governments have begun to establish regulatory and policy frameworks. US President Barack Obama signed into a law in November 2015 a fairly comprehensive piece of legislation focusing on the development of the US commercial space sector, the ‘US Commercial Space Launch Competitiveness Act of 2015’. One title of this law, Title IV - Space Resource Exploration and Utilization, has elicited considerable international attention. It authorises US commercial entities engaged in the recovery of space resources to possess, own, transport, use and sell space or asteroid resources obtained in accordance with US and international law. In layman’s terms, the Act makes asteroid mining permissible under US law for US entities. This provision has led many to question whether the US law violates the Outer Space Treaty (OST), the document which represents the primary source of international law governing space activities. At issue is whether authorising the use of space resources violates Article II of the Treaty, which states ‘Outer space, including the Moon and other celestial bodies, is not subject to national appropriation by claims of sovereignty, by means of use or occupation, or by other means’. The most prohibitive interpretation of this Article would suggest all **extractive** or consumptive **uses of space resources** on celestial bodies would be **prohibited**. An interpretation of this type **would have obvious negative impact on business** plans focused on space resources utilisation, **and** by extension the **security of investments** in those plans. However, opinion is consolidating around the interpretation that the US law is in compliance with the OST. Both the International Institute of Space Law (IISL) - the primary international professional society for attorneys in the space sector - and European Union (EU) officials have issued statements indicating belief that the Act is compliant. The Act itself contains an explicit disclaimer of extraterritorial sovereignty. In February 2016, the Government of Luxembourg announced its intent to develop a specific legal and regulatory regime focused on space resources. While the exact details of this legislation are unknown at this time, it is certain that it will be supportive of the legal right to access, possess, use, transport and sell space resources, as the policy is part of a broader initiative designed to attract space resources companies to operate from Luxembourg. While the question of how the US Act relates to Article II of the OST is not the primary focus of this article, the discussion does highlight the current role of political risk in the nascent space mining industry. Speaking at a panel in 2013, Bob Richards, CEO of prospective lunar resources company Moon Express, stated there was a risk in assuming governments will be supportive in defending space resources businesses’ rights to operate in space. He said: “We are making some broad assumptions and interpretations to existing treaties that were set up by governments in the past. We are assuming that commercial ventures will be allowed and there will not be some kind of international backlash.” **Signalling** this **support** - ie**, reducing political risk and establishing** the underlying frameworks to enable **activity** - is one reason governments enact legislation of the type represented by the US Act. Legislation and regulation is also a means by which governments ensure that they meet obligations to international agreements and treaties. In this regard the US law is as notable for what it does not include, as for what it does. Article VI of the OST establishes an obligation for states to be responsible for the space activities of their entities, including non-governmental actors such as commercial companies. It states, in part, that ‘the activities of non-governmental entities in outer space, including the Moon and other celestial bodies, shall require authorisation and continuing supervision by the appropriate State Party to the Treaty’. States typically respond to this obligation through national regulations, laws and licensing regimes. The space resources provisions in the US Act did not establish any elements of this regulatory framework, instead requiring the executive branch of the US government to deliver a report with recommendations (which would cover other activities in addition to space resources). It can be expected that the pending legislation in Luxembourg might also address a regulatory approach. This results in a condition of **uncertainty – or risk** – as the commercial entities continue to execute their business plans. The lack of a regulatory framework does **not** necessarily create an environment c**onducive to business** development. The current situation in the US is one in which the government has clearly signalled its intent to support commercial space resources development - but has yet to fully implement the regulatory framework to enable that support. The passage of the US Act, legislative action in other countries and the increasing activities of space resources-focused commercial enterprises creates a window - and a need - for additional action to define a regulatory scheme that reduces the political risk faced by the commercial sector while simultaneously upholding national obligations to the international legal system.

#### [3] Private appropriation is consistent with international law. There is no OST violation – sovereignty and private property are distinct.

Pace 11 (Scott Pace is the director of the Space Policy Institute at the Elliott School of International Affairs at George Washington University, and former Associate Administrator for Program Analysis and Evaluation at NASA. “Merchant and Guardian Challenges in the Exercise of Spacepower” Toward a Theory of Spacepower, Chapter 7, February 2011, National Defense University Press, http://www.ndu.edu/press/space-Ch7.html, TDA)recut emi

Current international law recognizes the continued ownership of objects placed in space by governments or private entities. Similarly, resources removed from outer space (such as lunar samples from the Apollo missions) can be and are subject to ownership. Other sorts of rights in space, such as to intellectual property and spectrum, are also recognized. Article II of the 1967 Outer Space Treaty, however, specifically bars national appropriation of the Moon or other celestial bodies by claims of sovereignty or other means. It also says that states shall be responsible for the activities of persons under their jurisdiction or control. Thus, the central issue is the ability to confer and recognize real property rights on land, including in situ resources found on the Moon and other celestial bodies. In common law, a sovereign is generally required to recognize private property claims. Thus, the Outer Space Treaty, by barring claims of sovereignty, is usually thought to bar private property claims. Many legal scholars in the International Institute of Space Law and other organizations support that view. Other scholars, however, make a distinction between sovereignty and property and point to civil law that recognizes property rights independent of sovereignty.34 It has also been argued that while article II of the treaty prohibits territorial sovereignty, it does not prohibit private appropriation. The provision of the Outer Space Treaty requiring state parties to be responsible for the activities of persons under their jurisdiction or control leaves the door open to agreements or processes that allow them to recognize and confer property rights, even under common law.

## Case

### Hijack

#### 1. Well-being is arbitrarily defined – it can’t universally guide action if we don’t know what it is

Medvedev and Landhuis 18

Medvedev, Oleg N, and C Erik Landhuis. “Exploring constructs of well-being, happiness and quality of life.” *PeerJ* vol. 6 e4903. 1 Jun. 2018, doi:10.7717/peerj.4903. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5985772/>

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The existing definitions of happiness, subjective well-being, and health related quality of life and the main components assigned to these constructs in the research literature (see Table 1) suggest conceptual overlap between these dimensions (Camfield & Skevington, 2008). Quality of life was defined in the cross-cultural project of the World Health Organization (WHO) as: An individual’s perception of their position in life, in the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards, and concerns. It is a broad ranging concept, affected in a complex way by the person’s physical health, psychological state, level of independence, social relationships and their relationships to salient features of their environment. The new reconceptualization of subjective well-being assumed to be synonymous of happiness by Diener (2006, p. 400) as: “An umbrella term for different valuations that people make regarding their lives, the events happening to them, their bodies and minds, and the circumstances in which they live” resulted in greater theoretical convergence between these constructs. This raises an issue as to the point in which conceptual overlap invites redundancy, and whether one or the other of the terms is now surplus to requirements. Historically, humans strived to achieve happiness and considered it the most important goal in life (Compton, 2005). Cross-cultural research provide supporting evidence for primacy of happiness compared to other individual values such as physical health, wealth or love (Kim-Prieto et al., 2005; Skevington, MacArthur & Somerset, 1997). Essentially, other human goals are valued because they are believed to give rise to happiness (Csikszentmihaliy, 1992). Initially psychology was dealing with mental health issues affecting physical and social functioning of an individual (Andrews & McKennell, 1980; Beck, 1991, 1993). Happiness, well-being, and quality of life have only attracted increased interest of psychologists by the end of the 20th century resulting in growing research in this area (Diener, 1984; WHOQOL Group, 1998a, 1998b). Happiness and well-being research became increasingly important in the economics’ context (Kristoffersen, 2010), and well-being data are widely used along with economic indicators by economists (Kahneman & Krueger, 2006). Currently, **there is no agreement between researchers in defining happiness and its related constructs** (Diener, 2006; Diener et al., 2010; Rojas & Veenhoven, 2013; Kern et al., 2014; Shin & Johnson, 1978). In the literature **happiness is often called subjective well-being** (Diener, 2006; Hills & Argyle, 2002), **emotional well-being, positive affect** (Brandburn, 1969; Fordyce, 1988), **and quality of life** (Diener, 2000; Ratzlaff et al., 2000; Shin & Johnson, 1978), **which suggests that the meanings of happiness may depend on the context** (Diener, 2006; Carlquist et al., 2016). Elsewhere, subjective happiness was defined as “a global evaluation of life satisfaction” (Diener, 2006, p. 400). In the same way, subjective well-being was defined as “evaluations of life quality” (Andrews & McKennell, 1980, p. 131). These definitions indicate close relationship between the constructs of happiness, subjective well-being, quality of life, and life satisfaction. More recently subjective well-being was proposed as more appropriate “Big One” including the relevant aspects of global well-being (Diener, 2006; Kashdan, Biswas-Diener & King, 2008).

#### 2. Different things cause different people pleasure – that leads to conflict over what’s ethical under util. Empirics prove: people disagree on whether policies will have a positive outcome so they can’t determine what’s the solution.

**Utilitarianism requires us to answer disagreements about what is pleasurable – only contractarianism solves.**

**1. Any other system arbitrarily rejects the opinion of some parties – that reproduces oppression and fails to truly promote pleasure**

**2. Contractarianism find mutually agreeable definitions of well being that we can use to guide action – that’s best for their standard because it makes the most people happy.**

### Util OV

**Maximizing expected well-being fails:**

1. **Induction fails: Consequentialism relies on interpreting the past to predict the future. That doesn’t work because the only justification for such logic is that it has worked in the past. The argument is circular.**
2. **Infinite consequences: Any given action has infinite consequences. One can’t weigh the consequences of an action when there are potentially infinite results, making consequentialism non-action guiding.**

### Line by line

**On Papineau**

**1. cross apply all the internalism arguments from the NC**

**2. internal motivations can motivate external actions - that’s why rational though make adhere to real world contracts**

**On ext 1st –**

1. **Compound Probability - Multiplied probabilities of long link chains have negligible net probabilities.**
2. **Decision Gridlock – Every course of action or inaction has a negligible possibility of causing extinction. This makes it impossible to prioritize averting existential risk because doing so would risk extinction.**

**Tannsjo doesn’t talk about extinction**

**On Sinnott-Armstrong – necessary enablers are part of actions, not causes. Turning on the mower doesn’t cause me to mow the lawn, it is a constitutive part of my contract.**

**On ASPEC – governments also use contracts – democratic laws prove.**

**Also there’s no implication for governments using something making it normative.**

### Advantage:

**Time frame – Kessler effect 200 years away**

**Stubbe 17** [(Peter, PhD in law @ Johann Wolfgang Goethe University Frankfurt) “State Accountability for Space Debris: A Legal Study of Responsibility for Polluting the Space Environment and Liability for Damage Caused by Space Debris,” Koninklijke Brill Publishing, ISBN 978-90-04-31407-8, p. 27-31] TDI

The prediction of possible scenarios of the future evolution of the debris p o p ulation involves many uncertainties. Long-term forecasting means the prediction of the evolution of the future debris environment in time periods of decades or even centuries. Predictions are based on models84 that work with certain assumptions, and altering these parameters significantly influences the outcomes of the predictions. Assumptions on the future space traffic and on the initial object environment are particularly critical to the results of modeling efforts.85 A well-known pattern for the evolution of the debris population is the so-called Kessler effect’, which assumes that there is a certain collision probability among space objects because many satellites operate in similar orbital regions. These collisions create fragments, and thus additional objects in the respective orbits, which in turn enhances the risk of further collisions. Consequently, the num ber of objects and collisions increases exponentially and eventually results in the formation of a self-sustaining debris belt aroundthe Earth. While it has long been assumed that such a process of collisional cascading is likely to occur only in a very long-term perspective (meaning a time 1 n of several hundred years),87 a consensus has evolved in recent years that an uncontrolled growth of the debris population in certain altitudes could become reality much sooner.88 In fact, a recent cooperative study undertaken by various space agencies in the scope of i a d c shows that the current l e o debris population is unstable, even if current mitigation measures are applied. The study concludes:Even with a 90% implementation of the commonly-adopted mitigation measures [...] the l e o debris population is expected to increase by an average of 30% in the next 200 years. The population growth is primarily driven by catastrophic collisions between 700 and 1000 km altitudes and such collisions are likely to occur every 5 to 9 years.89

**Solar flares will inevitably end satellites – non uniques the whole aff**

Wild 15 (Jim Wild, Professor of Space Physics at Lancaster University, “With So Much Vested In Satellites, Solar Storms Could Bring Life To A Standstill,” July 30, 2015, https://theconversation.com/with-so-much-vested-in-satellites-solar-storms-could-bring-life-to-a-standstill-45204)

These can disrupt satellite operations by depositing electrical charge within the on-board electronics, triggering phantom commands or overloading and damaging sensitive components. The effects of space weather on the Earth’s upper atmosphere disrupts radio signals transmitted by navigation satellites, potentially introducing positioning errors or, in more severe cases, **rendering them unusable**. These are **not theoretical** hazards: in recent decades, solar storms have caused outages for a number of satellites services – and a handful of satellites have been lost altogether. These **were costly events** – satellite operator losses have run into hundreds of millions of dollars. The wider social and economic impact was relatively limited, but even so it’s unclear how our growing amount of space infrastructure would fare against the more extreme space weather that we might face. When Space Weather Becomes A Hurricane The largest solar storm on record was the Carrington event in September 1859, named after the British astronomer who observed it. Of course there were no Victorian satellites to suffer the consequences, but the telegraph systems of the time were crippled as electrical currents induced in the copper wires interfered with signals, electrocuted operators and set telegraph paper alight. The geomagnetic storm it triggered was so intense that the northern lights, usually a polar phenomenon, were observed as far south as the Bahamas. Statistical analysis of this and other severe solar storms suggests that we can expect an event of this magnitude once every few hundred years – it’s a question of “**when**” **rather than “if”**. A 2007 study estimated a Carrington event today would cause US$30 billion in losses for satellite operators and threaten vital infrastructure in space and here on the ground. It’s a risk taken sufficiently seriously that it appears on the UK National Risk Register and has led the government to draw up its preparedness programme.

#### Turn - space debris creates existential deterrence and a taboo

Bowen 18 [(Bleddyn, lecturer in International Relations at the University of Leicester) “The Art of Space Deterrence,” European Leadership Network, February 20, 2018, <https://www.europeanleadershipnetwork.org/commentary/the-art-of-space-deterrence/>] TDI

Fourth, the ubiquity of space infrastructure and the fragility of the space environment may create a degree of existential deterrence. As space is so useful to modern economies and military forces, a large-scale disruption of space infrastructure may be so intuitively escalatory to decision-makers that there may be a natural caution against a wholesale assault on a state’s entire space capabilities because the consequences of doing so approach the mentalities of total war, or nuclear responses if a society begins tearing itself apart because of the collapse of optimised energy grids and just-in-time supply chains. In addition, the problem of space debris and the [political-legal hurdles to conducting debris clean-up](https://doi.org/10.1080/14777622.2014.890489) operations mean that even a handful of explosive events in space can render a region of Earth orbit unusable for everyone. This could caution a country like China from excessive kinetic intercept missions because its own military and economy is increasingly reliant on outer space, but perhaps not a country like North Korea which does not rely on space. The usefulness, sensitivity, and fragility of space may have some existential deterrent effect. [China’s catastrophic anti-satellite weapons test in 2007](https://defenceindepth.co/2017/01/11/chinas-space-weapons-test-ten-years-on-behemoth-pulls-the-peasants-plough/) is a valuable lesson for all on the potentially devastating effect of kinetic warfare in orbit.

#### No war over satellites

Bowen 18 [Bleddyn Bowen, Lecturer in International Relations at the University of Leicester. The Art of Space Deterrence. February 20, 2018. https://www.europeanleadershipnetwork.org/commentary/the-art-of-space-deterrence/]

Space is often an afterthought or a miscellaneous ancillary in the grand strategic views of top-level decision-makers. A president may not care that one satellite may be lost or go dark; it may cause panic and Twitter-based hysteria for the space community, of course. But the terrestrial context and consequences, as well as the political stakes and symbolism of any exchange of hostilities in space matters more. The political and media dimension can magnify or minimise the perceived consequences of losing specific satellites out of all proportion to their actual strategic effect.

#### No risk of conflict from satellite attacks.

Sandra Erwin 18, Staff Writer at Space News, 30 years of experience reporting about defense and space, citing Brian Weeden, Director of Program Planning at the Scure World Foundation and Michael Hoversten, chief of space, cyber, international, and operations law at Air Force Space Command headquarters a 1/2/2018, “Sorry sci-fi fans, real wars in space not the stuff of Hollywood”, Space News, <https://spacenews.com/sorry-sci-fi-fans-real-wars-in-space-not-the-stuff-of-hollywood/>

WASHINGTON — The public’s idea of a war in space is almost entirely a product of Hollywood fantasy: Interstellar empires battling to conquer the cosmos, spaceships going head to head in pitched dogfights The reality of how nations will fight in space is much duller and blander. And some of the key players in these conflicts will be hackers and lawyers. Savvy space warriors like Russia’s military already are giving us a taste of the future. They are jamming GPS navigation signals, electronically disrupting satellite communications links and sensors in space. Not quite Star Wars. This form of electronic warfare in space is serious enough, however, that the U.S. military is now moving to defend its satellites and other space assets. There is in fact a real conversation under way about war in space, albeit one of cyber and electromagnetic attacks, not spaceships shooting at each other. “There are legal and practical limits on armed conflict in space,” said Brian Weeden, director of program planning at the Secure World Foundation in Washington, D.C. “Most people experience space through Hollywood movies, TV shows and science-fiction books,” he said during an online discussion last month hosted by the American Bar Association. In almost all cases the depictions of warfare and combat in space are fictional. “They take extreme liberties and show outright ignorance of the laws of physics, orbital mechanics, conservation of energy and other things in order to make stories more dramatic and exciting.” Weeden mentioned “The Expanse” as a rare case of a TV show that depicts space warfare pretty close to accurately, but he insisted that the gap between fiction and reality with regard to space war is stark. Space indeed has turned into an important battlefront, and for good reasons. It is critical to nearly all aspects of national security and military power, including intelligence, surveillance, reconnaissance, communications, precision timing and navigation, attack warning and targeting of potential threats. The issue for the United States is to figure out how to thwart attacks within the boundaries of current treaties and legal frameworks, Weeden said. “Counterspace is now part of conventional warfare because space itself is part of conventional warfare.” Non-kinetic attacks like jamming and interference are occurring more often. They are cheaper and easier to pull off than full-on kinetic destruction of satellites that would require a high-power laser or a ballistic missile. As the Pentagon maps out strategies and tactics to defend its satellites, military lawyers are actively investigating how international law applies to outer space. “Any operation in outer space must comply with the same law that is applicable to other domains, like sea, air and ground warfare,” said Michael Hoversten, chief of space, cyber, international, and operations law at Air Force Space Command headquarters at Peterson Air Force Base, Colorado. As with other uses of military force, actions in space are restricted by international rules. If U.S. satellites were attacked, there is no ambiguity, he said. “The right to use force in self defense applies.” International law concerns The preeminent statute of international space law is the 1967 Outer Space Treaty, but some of the language is becoming harder to interpret in today’s environment, Hoversten said. “The treaty states that the Moon and other celestial bodies must be used exclusively for peaceful purposes” but it does not specifically say that outer space is exclusively a haven for peaceful purposes. The phrase “peaceful purposes” has been interpreted as “no military use” and also as “nonaggressive military use consistent with international law and the UN charter.” The reality is that many countries use space for military purposes, he said. And most are reluctant to sign on to new treaties that might restrict their ability to exploit space in national security or economic activities. The majority view is that military use is permissible, provided that it’s nonaggressive and consistent with international law and UN charter, Hoversten said. There is no consensus, however, about the meaning of “militarization” and “weaponization” of space, and different states use these terms differently. Outer space has been militarized for decades, but that is not the same as weaponization. “There is a common misconception that weapons of all kinds are illegal in outer space. That is not the case.” The only specific prohibition is against so-called weapons of mass destruction — nuclear, biological, chemical and radiological. Electronic arms like lasers or jammers, or even conventional kinetic weapons can lawfully be placed in orbit, he said. Some countries, notably China and Russia, for the past decade have championed efforts to prohibit all kinds of space weapons. The United States has opposed bans primarily because of difficulties in defining what a weapon is, Hoversten explained. Theoretically any satellite that is capable of maneuvering can be used as a weapon. U.S. officials also have argued that an arms control treaty for space weapons would be unverifiable. Also a topic of debate is how the U.S. military would justify the use of countermeasures. So far it remains a fuzzy issue, said Maj. Ross Brown, chief of space, international and operations law at 14th Air Force headquarters at Vandenberg Air Force Base, California. “Below an armed attack, the most applicable response is a countermeasure,” he said. But the devil is in the details. “Countermeasures must be proportional. Must not be forceful. They must be constrained. Must be reversible,” Brown said. “It’s a ‘mushy’ requirement.” Another concern is that the response must be “proportionate to the injury being suffered,” he said. “That is difficult to measure.” Disruptions to satellite links can cause material damage but also “strategic harm” if the military is cut off from access to information. As the Pentagon and others sound alarms about cyber threats to space, the reality is that very little is known about the frequency of attacks or even the scope of the danger. “Public data on cyber attacks on any satellites, military or commercial, is extremely scarce,” said Weeden. “Militaries, governments, space agencies, companies are pretty reluctant to talk publicly about cyber attacks, whether successful or unsuccessful.” There have been widely publicized incidents like the jamming of an HBO satellite signal in 1986 by a hacker dubbed “Captain Midnight.” On the government side, Congress has openly chided NASA for cyber attacks against its aging command-and-control infrastructure. But there are very few details. “We have satellites and ground control infrastructure that are, easily, one to three decades old,” Weeden said. “I don’t think it’s a stretch to really wonder just how hardened they may be against sophisticated cyber attacks. But we don’t have any good data on that.” Satellite providers that are under contract to the Defense Department are required to report breaches. Otherwise, commercial companies would not want vulnerabilities or weakness known that can hurt their business and might invite additional attacks. Commercial communications providers are now investing billions of dollars in cybersecurity technologies as they seek to attract government and military customers. They are putting up high-throughput satellites with smaller beams that are more resilient against jamming. And they are shielding satellite uplinks and downlinks with Pentagon-approved encryption. Hoversten said a number of space agencies and governments are coming together to draft a new rulebook on military uses of outer space. “A comprehensive manual is a few years down the road.”

#### Space miscalc unlikely---hotlines and info sharing agreements avoids accidents

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During the IAC 2015, China re-iterated the wish for international participation and cooperation in its space station project including extending the station by modules provided by international partners. Twitter messages posted by a European journalist from the Congress, that is still to be confirmed, however, showed a different view from ESA. ESA’s new Director General JohannDietrich Wörner said he had told China that the world does not need two space stations and will likely persuade China to drop its space station in favour of joining the ISS. On the other side, during the traditional “Heads of Space Agencies Panel” in IAC 2015, NASA Administrator Charles Bolden expressed his belief that the current exclusion of China from the ISS will not last forever. Though Sino-U.S. cooperation on human spaceflight is still uncertain, a positive move between the two countries has been made, that is the establishment of a space hotline. Western media reported in November that the hotline has been setup between Washington and Beijing to allow easy sharing of technical information about their space operations, hopefully **avoiding any misunderstandings or accidents.** Russia’s space agency Roscosmos on 17 December signed a cooperation agreement with the China National Space Administration (CNSA). The document was signed at the 20th regular meeting of Russian and Chinese Heads of Government, during Russian Prime Minister Dmitry Medvedev’s three-day visit to Beijing. The two sides agreed to promote the use of “GLONASS” and “Beidou” and their augmentations in their own countries and around the world, expanding the market of navigation services provided by these systems. The two space agencies signed another agreement on the same day on cooperation in the field of space electronics. It was reported earlier that the two countries were discussing a barter deal that Russia will import Chinese space electronic components and will export rocket engines, presumably the RD-180, to China. However, an official statement about the agreement did not mention the engine. Also on the same day, Russian state-owned nanotechnology company RUSNANO and the China Aerospace Science and Industry Corporation (CASIC) signed a strategic partnership agreement. CNSA also signed an agreement with the Netherlands on 26 October, and a memorandum of understanding with the UAE (United Arab Emirates) on 15 December, on exploration and peaceful use of outer space. A year after India signed its first space cooperation agreement with China, scientists from ISRO and the Chinese space agency have decided on six major areas of interest, including the hosting of payloads on each other’s satellites and inter-planetary missions. The other areas of interest are Earth observation, disaster management, space science and navigation, as the Times of India reported on 5 October. The Brazilian Ministry of Science, Technology and Innovation announced on 30 December that the sixth CBERS (China-Brazil Earth Resources Satellite) satellite, CBERS-4A, is scheduled to be launched into space in December 2018. The Planetary Science Institute signed a cooperation agreement with the Qian Xuesen Laboratory of Space Technology (Qian Xuesen Lab), CAST, on 15 December to advance their mutual interests in facilitating the open-ended expansion of the exploration of the solar system and to use the knowledge thus gained in supporting the expansion of human activity beyond the Earth. Both institutions also wish to advance their common interest in communicating to the public the knowledge and benefits gained through robotic and human exploration of the solar system