## 1AC

### Framing

#### The standard is maximizing expected well-being, Prefer -

#### [1] Actor specificity – state actors can only use util – outweighs since different actors have different obligations.

#### Aggregation – all policies benefit some and hurts others – only util can resolve these cuz it gives a clear weighing mechanism

#### Collectivism – States are composed of many actors who inevitably disagree about intent means they can only use consequentialism because they don’t have to agree

#### Bureaucrats aren’t philosophers – policymakers do not have experience with dense frameworks so they don’t understand how to apply them to specific instances but they do understand that pain is bad and pleasure is good because it’s intrinsic to existing.

#### [2] Extinction first –

#### Wager – if there is any chance of goodness existing, we ought to preserve our existence to maximize it.

#### Sequencing – if their framework is true, people dying is bad because it means those people can’t use their framework

#### Repugnance – if their framework cannot explain why people dying is bad – you should reject it because it cannot disavow of atrocities. You shouldn’t vote for a framework that can’t say the holocaust was a bad thing.

#### Performativity – us having a moral debate proves moral uncertainty because it means we are not certain about which framework is true - means we should preserve our ability to find the true framework

#### [3] TJFs

#### Weighability – only util allows for equal weighing and more accessible weighing, novices are taught magnitude and probability not perfect vs imperfect duties.

#### Resolvability – only util allows for easy resolution between two equal arguments – a DA and an advantage can be weighed but two equal Kant offense can’t be weighed.

#### Topic Literature – authors assume pain and pleasure because it’s the most intuitive which means most if not all of the authors in the literature are writing under util

### Debris

#### The commercial space industry is exponentially boosting debris and collisions – public launches aren’t even close

Pultarova ‘21

Pultarova, Tereza. “SpaceX Starlink Satellites Responsible for over Half of Close Encounters in Orbit, Scientist Says.” Space.com, Space, 18 Aug. 2021, [https://www.space.com/spacex-starlink-satellite-collision-alerts-on-the-rise. //](https://www.space.com/spacex-starlink-satellite-collision-alerts-on-the-rise.%20//) Phoenix

Operators of satellite constellations are constantly forced to move their satellites because of encounters with other spacecraft and pieces of space junk. And, thanks to [SpaceX's](https://www.space.com/18853-spacex.html)Starlink satellites, the number of such dangerous approaches will continue to grow, according to estimates based on available data.

SpaceX's [Starlink](https://www.space.com/spacex-starlink-satellites.html) satellites alone are involved in about 1,600 close encounters between two spacecraft every week, that's about 50 % of all such incidents, according to Hugh Lewis, the head of the Astronautics Research Group at the University of Southampton, U.K. These encounters include situations when two spacecraft pass within a distance of 0.6 miles (1 kilometer) from each other.

Lewis, Europe's leading expert on space debris, makes regular estimates of the situation in orbit based on data from the Socrates (Satellite Orbital Conjunction Reports Assessing Threatening Encounters in Space ) database. This tool, managed by Celestrack, provides information about satellite orbits and models their trajectories into the future to assess collision risk.

Lewis publishes regular updates on Twitter and has seen a worrying trend in the data that reflects the fast deployment of the Starlink constellation.

"I have looked at the data going back to May 2019 when Starlink was first launched to understand the burden of these megaconstellations," Lewis told Space.com. "Since then, the number of encounters picked up by the Socrates database has more than doubled and now we are in a situation where Starlink accounts for half of all encounters."

The current 1,600 close passes include those between two Starlink satellites. Excluding these encounters, Starlink satellites approach other operators’ spacecraft 500 times every week.

In comparison, Starlink's competitor [OneWeb](https://www.space.com/soyuz-rocket-oneweb-6-internet-satellites-launch), currently flying over 250 satellites, is involved in 80 close passes with other operators' satellites every week, according to Lewis' data.

And the situation is bound to get worse. [Only 1,700 satellites](https://www.space.com/spacex-starlink-satellite-megaconstellation-launch-photos.html) of an expected constellation of tens of thousands have been placed into orbit so far. Once SpaceX launches all 12,000 satellites of its first generation constellation, Starlink satellites will be involved in 90% of all close approaches, Lewis’ calculations suggest.

#### Invisible tipping points trigger the Kessler Syndrome.

Thompson 21

Clive, 11/17/21, Clive Thompson is a contributing writer for the New York Times Magazine, a columnist for Wired and Smithsonian magazines, and a regular contributor to Mother Jones. He’s the author of Coders: The Making of a New Tribe and the Remaking of the World, and Smarter Than You Think: How Technology is Changing our Minds for the Better. He’s @pomeranian99 on Twitter and Instagram, [“Get Ready for the “Kessler Syndrome” to Wreck Outer Space,” OneZero, <https://onezero.medium.com/get-ready-for-the-kessler-syndrome-to-wreck-outer-space-7f29cfe62c3e>] Justin

Back in 1978, the astrophysicist Donald Kessler made an alarming prediction: Space junk could wreck our ability to keep satellites aloft. In a fascinating paper, Kessler noted that “low earth orbit” — a region between 99 miles and 1,200 miles up — was getting pretty crowded. In 1978 there were already 3,866 objects being tracked in space. That included satellites used by scientists (say, to monitor weather) or spy agencies. It also included a lot of debris: Every time a rocket launches a satellite into orbit, it tends to leave stray bits of material. The thing is, when objects are zooming through space about 2 km/s, even something as tiny as a chip of paint can smash through glass or steel. Pieces of debris become bullets. What Kessler predicted is that sooner or later, objects in low-earth orbit would start colliding, and produce chain effects, like billiard balls colliding on a crowded pool table. If a piece of debris hit a satellite, it would produce more debris, which would to increase the risk of other collisions … and so on, and so on. At some point, you could reach a tipping point. There’d be so many chunks of debris that collisions would be inevitable, leaving low-earth orbit a junkyard where no satellites could survive. Remember the scene in Wall-E where they blast off Earth, and the planet is utterly ringed with crap? That’s what Kessler worried about. Except in our situation the pieces of junk could be quite small — billions of objects the size of grains of sand, which is actually a lot harder to deal with, because you can’t see it coming. In essence, Kessler predicted we could create an artificial asteroid belt of junk: The result would be an exponential increase in the number of objects with time, creating a belt of debris around the earth. This process of mutual collisions is thought to have been responsible for creating most of the astroids from larger planetlike bodies. Space folks began calling this the “Kessler Syndrome”. It was hard to predict when this might start happening. Kessler worried that conditions could be ripe by as early as 2000. Thankfully, that estimate turned out to be premature. But wow, it looks like it might happen soon. What’s happened recently that makes the “Kessler Syndrome” more likely? A couple of things: Way more satellites are going up The pace at which satellites are going up in the sky is simply exploding. Back when Kessler wrote his paper in 1978, we humans were launching about 53 new satellites a year. Going to space was hard. But now launches are an order of magnitude more common, and they’re increasing in pace rapidly. SpaceX in particular is launching oodles of satellites as it builds its orbital Internet-access service Starlink. In the last two years, it has put 1,740 satellites in low-earth orbit, with plans to eventually shoot 30,000 up there. This is part of a larger trend, which is … The privatization of outer space The private sector is rapidly becoming the dominant actor in space. There’s a huge demand for satellite data — everyone wants better info about weather, crops, traffic patterns, tree coverage, emissions, you name it, on top of the explosive use of satellites for communication and Internet. SpaceX’s remarkable innovations in rocketry (the leading folks, though others are following in their footsteps) have made it cheaper than ever to get a satellite into orbit. It is unlocking a huge pent-up demand for near-earth-orbit tech. More launches mean not only more intentional objects in orbit but unintentional ones — bits of rocket parts and detritus from launches.

#### Debris triggers miscalculated war

Dockrill ‘16

Peter Dockrill 16. Award-winning science & technology journalist. “Space Junk Accidents Could Trigger Armed Conflict, Study Finds.” <https://www.sciencealert.com/space-junk-accidents-could-trigger-armed-conflict-expert-warns>.

The increasingly crowded space in Earth's low orbit could set the stage for an international armed conflict, says a new study. Researchers from the Russian Academy of Sciences warn that accidents stemming from the steady rise in space junk floating around the planet could incite political rows and even warfare, with nations potentially mistaking debris-caused incidents as the results of intentional aggressive acts by others. In a paper published in Acta Astronautica, the team suggests that space debris in the form of spent rocket parts and other fragments of hardware hurtling at high speed pose a "special political danger" that could dangerously escalate tensions between nations. According to the study, destructive impacts caused by random space junk cannot easily be told apart from military attacks. "The owner of the impacted and destroyed satellite can hardly quickly determine the real cause of the accident," the authors write. The risks of such an event occurring are compounded by the sheer volume of debris now orbiting Earth. Recent figures from NASA indicate that there are more than 500,000 pieces of space junk currently being tracked in orbit, travelling at speeds up to 28,160 km/h (17,500 mph). The majority of those objects are small – around the size of a marble – but some 20,000 of them are bigger than a softball. In addition to these 500,000 or so fragments – which are big enough for scientists to know about them – NASA estimates that there are millions of undetectable pieces of debris in orbit that are too small to be monitored. But even extremely small fragments such as these pose a threat – in fact, they're considered a greater risk than trackable debris, as their invisible status means spacecraft and satellites can't do anything to avoid them until it's too late. As NASA observed in 2013: "Even tiny paint flecks can damage a spacecraft when travelling at these velocities. In fact a number of space shuttle windows have been replaced because of damage caused by material that was analysed and shown to be paint flecks… With so much orbital debris, there have been surprisingly few disastrous collisions." While we may have been lucky in the past, we can't rely on that to continue. The study by the Russian team cites the repeated sudden failures of defence satellites in past decades that were never explained. The researchers attribute two possible causes: either unrecorded collisions with space junk, or aggressive actions from adversaries. "This is a politically dangerous dilemma," the authors write.

#### Public pressure forces retaliation

Gallagher ‘15

Nancy Gallagher 15. Interim director of the Center for International and Security Studies in Maryland, previous Executive Director of the Clinton Administration’s CTBT Treaty Committee, an arms control specialist at the State Dept., and a faculty member at Wesleyan, “Antisatellite warfare without nuclear risk: A mirage,” May 29, Bulletin of Atomic Scientists, <http://thebulletin.org/space-weapons-and-risk-nuclear-exchanges8346>

In recent decades, however, as space-based reconnaissance, communication, and targeting capabilities have become integral elements of modern military operations, strategists and policy makers have explored whether carrying out antisatellite attacks could confer major military advantages without increasing the risk of nuclear war. In theory, the answer might be yes. In practice, it is almost certainly no. Hyping threats. No country has ever deliberately and destructively attacked a satellite belonging to another country (though nations have sometimes interfered with satellites' radio transmissions). But the United States, Russia, and China have all tested advanced kinetic antisatellite weapons, and the United States has demonstrated that it can modify a missile-defense interceptor for use in antisatellite mode. Any nation that can launch nuclear weapons on medium-range ballistic missiles has the latent capability to attack satellites in low Earth orbit. Because the United States depends heavily on space for its terrestrial military superiority, some US strategists have predicted that potential adversaries will try to neutralize US advantages by attacking satellites. They have also recommended that the US military do everything it can to protect its own space assets while maintaining a capability to disable or destroy satellites that adversaries use for intelligence, communication, navigation, or targeting. Analysis of this sort often exaggerates both potential adversaries’ ability to destroy US space assets and the military advantages that either side would gain from antisatellite attacks. Nonetheless, some observers are once again advancing worst-case scenarios to support arguments for offensive counterspace capabilities. In some other countries, interest in space warfare may be increasing because of these arguments. If any nation, for whatever reason, launched an attack on a second nation's satellites, nuclear retaliation against terrestrial targets would be an irrational response. But powerful countries do sometimes respond irrationally when attacked. Moreover, disproportionate retaliation following a deliberate antisatellite attack is not the only way in which antisatellite weapons could contribute to nuclear war. It is not even the likeliest way. As was clearly understood by the countries that negotiated the Outer Space Treaty, crisis management would become more difficult, and the risk of inadvertent deterrence failure would increase, if satellites used for reconnaissance and communication were disabled or destroyed. But even if the norm against attacking another country’s satellites is never broken, developing and testing antisatellite weapons still increase the risk of nuclear war. If, for instance, US military leaders became seriously concerned that China or Russia were preparing an antisatellite attack, pressure could build for a pre-emptive attack against Chinese or Russian strategic forces. Should a satellite be struck by a piece of space debris during a crisis or a low-level terrestrial conflict, leaders might mistakenly assume that a space war had begun and retaliate before they knew what had actually happened. Such scenarios may seem improbable, but they are no more implausible than the scenarios that are used to justify the development and use of antisatellite weapons.

#### **Goes nuclear**

Johnson ‘14

Les Johnson 14. Baen science fiction author, popular science writer, and NASA technologist. “Living without satellites”. <https://www.baen.com/living_without_satellites>

Satellite imagery is used by the military and our political leaders to maintain the peace. When your potential adversaries can’t hide what they’re doing, where their armies are moving and what they are doing with their civilian and military infrastructure, then the danger of surprise attack is diminished. In our nuclear age with instant death only minutes away by missile attack, the doctrine of Mutual Assured Destruction (MAD) only works if both sides know whether or not they are being attacked. The launch of missiles or a bomber fleet can easily be seen from space far in advance of either reaching their potential targets halfway around the globe. The danger of surprise attack is therefore small, making an accidental war far less likely. So what does all this mean? And what do we do about it? First of all, it means that the advocates of space development, exploration and commercialization have succeeded far beyond their initial expectations and dreams. The economies and security of countries in the developed world are now dependent on space satellites. We space advocates should celebrate our success and be terrified of it at the same time. Should we lose these fragile assets in space, our economy would experience a disruption like no other: ship, air and train travel would stop and only restart/operate in a much-reduced capacity for years (GPS loss). Many banking and retail transactions would cease (VSAT loss). Distribution of news and vital national information would be crippled (communications satellite loss). Lives would be put at risk and the productivity of our farming would dramatically decrease (weather satellite loss). The risk of war, including nuclear war, would increase (loss of spy satellites) and our military’s ability to react to crises would be significantly reduced (loss of military logistics and intelligence gathering satellites).

#### Any nuclear war causes extinction – ice age and famine

Starr ‘15

Steven Starr 15 [Director of the University of Missouri’s Clinical Laboratory Science Program, as well as a senior scientist at the [Physicians for Social Responsibility](http://www.psr.org/). He has worked with the Swiss, Chilean, and Swedish governments in support of their efforts at the United Nations to eliminate thousands of high-alert, launch-ready U.S. and Russian nuclear weapons. “Nuclear War: An Unrecognized Mass Extinction Event Waiting To Happen.” Ratical. March 2015. <https://ratical.org/radiation/NuclearExtinction/StevenStarr022815.html>] TG

A war fought with 21st century strategic nuclear weapons would be more than just a great catastrophe in human history. If we allow it to happen, such a war would be a mass extinction event that [ends human history](https://ratical.org/radiation/NuclearExtinction/StarrNuclearWinterOct09.pdf). There is a profound difference between extinction and “an unprecedented disaster,” or even “the end of civilization,” because even after such an immense catastrophe, human life would go on. But extinction, by definition, is an event of utter finality, and a nuclear war that could cause human extinction should really be considered as the ultimate criminal act. It certainly would be the crime to end all crimes. The world’s leading climatologists now tell us that nuclear war threatens our continued existence as a species. Their studies predict that a large nuclear war, especially one fought with strategic nuclear weapons, would create [a post-war environment in which for many years it would be too cold and dark to even grow food](http://climate.envsci.rutgers.edu/pdf/RobockToonSAD.pdf). Their findings make it clear that not only humans, but most large animals and many other forms of complex life would likely vanish forever in a nuclear darkness of our own making. The environmental consequences of nuclear war would attack the ecological support systems of life at every level. Radioactive fallout, produced not only by nuclear bombs, but also by the destruction of nuclear power plants and their spent fuel pools, would poison the biosphere. Millions of tons of smoke would act to [destroy Earth’s protective ozone layer](https://www2.ucar.edu/atmosnews/just-published/3995/nuclear-war-and-ultraviolet-radiation) and block most sunlight from reaching Earth’s surface, creating Ice Age weather conditions that would last for decades. Yet the political and military leaders who control nuclear weapons strictly avoid any direct public discussion of the consequences of nuclear war. They do so by arguing that nuclear weapons are not intended to be used, but only to deter. Remarkably, the leaders of the Nuclear Weapon States have chosen to ignore the authoritative, long-standing scientific research done by the climatologists, research that predicts virtually any nuclear war, fought with even a fraction of the operational and deployed nuclear arsenals, will leave the Earth essentially uninhabitable.

#### Kessler syndrome kills colonization

Clormann Klimburg-Witjes ‘21

Clormann, Michael, and Nina Klimburg-Witjes. “Troubled Orbits and Earthly Concerns: Space Debris as a Boundary Infrastructure.” Science, Technology, & Human Values, June 2021, doi:10.1177/01622439211023554. // Phoenix

Throughout our interviews, interlocutors drew attention to space debris as a tangible, material risk in different ways. However, space debris has not always been a concern for the space community. During the so-called Old Space age, beginning in the 1950s, geopolitical concerns about competitiveness and leadership in space exploration sidelined efforts toward a more sustainable technological usage of outer space; the development of self-disposing satellites or the reusability of rockets was not prominent idea at that time. Only recently has space debris become a concern within the space community and in public perception. This was reflected in many interviews. For instance, interviewees pointed to the need to take urgent action given the negative impacts of continued unsustainable use of Earth’s orbits, as the following quote of a space policy advisor and activist shows: I think one of the main challenges arising is how ...stemming from the fact that our society is so dependent, at least our Western society, has become so dependent on space technologies, how we can sustain that and how we can protect ourselves from when things go wrong. (PA 1) In a similar vein, public administration official (PAO) 1, a space agency engineer, lamented a lack of awareness about the sustainability risk emanating from space debris and the potentially catastrophic consequences that space debris collisions would have for technologized societies. If we at some point would say that all our systems would collapse when [space] infrastructure stops working the way we expect it to—if they are not resilient enough, for example. And then, if something happens in outer space—be it the Kessler syndrome or, for example, space weather like a coronal mass ejection that paralyzes our satellite infrastructure, which might very well happen. Would we, as a society, be able to absorb the shock, to compensate for this whole thing or not. (PAO 1) Portrayals of looming infrastructural collapse, such as this one, were often accompanied by storyline about the impact of space debris on the sustainable future use of outer space. As one of our interviewees put his worries, “[t]he threat is, simply put, that the more debris revolves around in outer space, the more difficult it becomes to conduct spaceflight activities under safe conditions. And if this is not guaranteed, then systems like a satnav become more prone to blackouts in the long run” (PAO 2). He emphasized that rocket launches can only continue if their flight paths in orbit remain safe and unobstructed. In a similar vein, some interview partners voiced concerns about the obstacles that space debris poses to futures space activities, often by drawing on transhumanist narratives of human colonization of outer space (Dunnett et al. 2019).

#### It’s try or die to get off the rock – Earth has finite resources and we are an infinitely growing population

Pelton ‘17

former Dean and Chairman of the Board of Trustees of the International Space University, Founder of the Arthur C. Clarke Foundation and the founding President of the Society of Satellite Professionals International, serves on the Executive Board of the International Association for the Advancement of Space Safety, Director Emeritus of the Space and Advanced Communications Research Institute (SACRI) at George Washington University [Joseph N. Pelton, 2017, Chapter 1: Why This Gold Rush Is Different in *The New Gold Rush The Riches of Space Beckon!*, pgs 1-2, Springer, DOI: 10.1007/978-3-319-39273-8] AMarb

What will we do when Earth’s resources are used up by humanity? The world is now hugely over populated, with billions and billions crammed into our overcrowded cities. By 2050, we may be 9 billion strong, and by 2100 well over 11 billion people on Planet Earth. Some at the United Nations say we might even be an amazing 12 billion crawling around this small globe. And over 80 % of us will be living in congested cities. These cities will be ever more vulnerable to terrorist attack, natural disaster, and other plights that come with overcrowding and a dearth of jobs that will be fueled by rapid automation and the rise of artificial intelligence across the global economy. We are already rapidly running out of water and minerals. Climate change is threatening our very existence. Political leaders and even the Pope have cautioned us against inaction. Perhaps the naysayers are right. All humanity is at tremendous risk. Is there no hope for the future? This book is about hope. We think that there is literally heavenly hope for humanity. But we are not talking here about divine intervention. We are envisioning a new space economy that recognizes that there is more water in the skies that all our oceans. There is a new wealth of natural resources and clean energy in the reaches of outer space—more than most of us could ever dream possible. There are those that say why waste money on outer space when we have severe problems here at home? Going into space is not a waste of money. It is our future. It is our hope for new jobs and resources. The great challenge of our times is to reverse public thinking to see space not as a resource drain but as the doorway to opportunity. The new space frontier can literally open up a “gold rush in the skies.” In brief, we think there is new hope for humanity. We see a new a pathway to the future via new ventures in space. For too long, space programs have been seen as a money pit. In the process, we have overlooked the great abundance available to us in the skies above. It is important to recognize there is already the beginning of a new gold rush in space—a pathway to astral abundance. “New Space” is a term increasingly used to describe radical new commercial space initiatives—many of which have come from Silicon Valley and often with backing from the group of entrepreneurs known popularly as the “space billionaires.” New space is revolutionizing the space industry with lower cost space transportation and space systems that represent significant cost savings and new technological breakthroughs. “New Commercial Space” and the “New Space Economy” represent more than a new way of looking at outer space. These new pathways to the stars could prove vital to human survival.

### Solvency

#### Thus the plan, all states ought to expand the Public Trust Doctrine to include outer space so private entities cannot appropriate outer space.

#### The PTD prevents alienation, exclusion and accumulation with celestial property by private entities

Babcock ‘19

Babcock, Hope. “The Public Trust Doctrine, Outer Space, and the Global Commons: Time to Call Home ET.” Georgetown University, Georgetown University Law Center, 25 Oct. 2019, https://scholarship.law.georgetown.edu/facpub/2201/. // Phoenix

The PTD offers both an approach for managing an open access commons and a gap-filling tool until a regulatory regime is adopted.507 The doctrine is based on the idea that the “sovereign holds certain common properties in trust in perpetuity for the free and unimpeded use of the general public.”508 The public’s right to access and use trust resources is never lost, and neither the government nor private individuals can alienate or otherwise adversely affect those resources unless for a comparable public purpose.509 The resources the doctrine protects “have long been part of a ‘taxonomy of property’ [that recognizes] the division of natural wealth into private and public property.”510 “The doctrine places on governments ‘an affirmative, ongoing duty to safeguard the long-term preservation of those resources for the benefit of the general public,’”511 thus limiting the sovereign’s power on behalf of both present and future individuals.512 It directs the government to manage trust resources for public benefit, not private gain.513 It applies to private as well as public resources and is used to preserve the public’s access to CPRs.514 Government agencies have the non-rescindable power to revoke uses of trust resources that are inconsistent with the doctrine.515 This effectively places a permanent easement over trust resources that burdens their ownership with an overriding public interest in the preservation of those resources.516 However, trust resources can be alienated in favor of private ownership, if the alienation will still serve the public’s interest in those resources and not interfere with trust uses of the remaining land.517 The PTD, therefore, protects the “people’s common heritage,”518 just as Article 11 of the Moon Treaty protects outer space as part of the common heritage of mankind.519 The doctrine also appears to be infinitely malleable. Original uses of the doctrine were restricted to only that “aspect of the public domain below the low-water mark on the margin of the sea and the great lakes, the waters over those lands, and the waters within rivers and streams of any consequence,”520 and covered only traditional uses of those lands, like fishing and navigation.521 Over time, the scope and application of the doctrine broadened to protect more public resources and different uses.522 Thus, the doctrine expanded to protect new trust resources, such as dry sand beaches, inland lakes, groundwater, dry riverbeds, and wildlife,523 and passive uses of those resources, like scientific study.524 The original link to navigable water and tidelands disappeared.525 Supporters of the doctrine successfully advocated that it be applied to “wildlife, parks, cemeteries, and even works of fine art,”526 while arguing more recently its application to the atmosphere.527 A doctrine that imposes a perpetual duty on the sovereign to preserve trust resources, prevents their alienation for private benefit, assures public access to them, and can be invoked by anyone seems particularly useful as a management tool in outer space.528 The fact that public access to trust resources is so central to the doctrine makes it reflective, not contradictory, of international space law’s bar against appropriation of outer space and of the principle of space being the “province of all mankind.”529 It avoids the problems of alienation and exclusion associated with any of the management approaches associated with some form of private property and requires neither the creation of a new administrative authority nor the presence of a close-knit group of like-minded people.530 Members of the public, both rich and poor, can invoke and enforce the doctrine as easily as the sovereign.531 It is cost effective to the extent that no separate apparatus is required to implement it, and the doctrine has shown itself to be highly adaptable and innovative as different needs arise.532 It could also fill the gap in international law with respect to managing celestial property. Therefore, of all the management approaches studied here, the PTD seems the most suited to keep order in space until a regulatory regime is imposed. However, the doctrine provides no incentives for development of trust resources; rather, it might be used to limit or curtail that development, making it an imperfect, perhaps even counter-productive solution by itself to the extent that such development might be beneficial.533 Modifying the doctrine to allow limited use of private property management approaches, like tradable development claims, might buffer that effect—a form of overlapping hybridity between one type of property, a commons, and a management regime from another, private property, enabled by application of the PTD. CONCLUSION “Only a legal system that accommodates both the human need for resources and the necessary preservation of mankind’s common heritage can fulfill these criteria.”534 The future is now with regard to the development of outer space and its resources—it is no longer a question of whether humans will engage in these activities, but how soon they will. Technically advanced countries and private commercial enterprises are probing outer space and preparing for landing on an asteroid or the moon to extract their resources.535 Speculators are selling deeds to the moon’s surface and preparing to exploit the tourism potential that space offers.536 But, the legal framework for managing these initiatives is almost nonexistent.537 International treaties came into being before all this activity began in earnest and national laws that might apply are stunted by jurisdictional quandaries like the absence of national boundaries in outer space.538 Thus, there is an urgency to figure out how to control what happens in outer space before its resources are irreparably damaged or permanently monopolized by powerful countries and individuals. In the absence of regulation, much of the current debate centers on what property regime should be applied in outer space.539 The assumption is that by only allowing private property rights in space, countries and commercial enterprises will undertake the risks and costs of space development.540 However, unless international space law changes, it may prevent this from happening. If it changes, strong management controls will be necessary to prevent destruction or over-consumption of celestial resources, as well as monopolization and competitive behavior by participants, which could lead to hostilities and inequities.

#### The Public Trust Doctrine is the antithesis to private ownership – private property is foundationally the right to exclude and monopolize access – PTD breaks that and has been historically used to combat privatization. Wildlife preservation proves.

Schreiber ‘16

Schreiber, Colleen. “Public Trust Doctrine at Center of Fight against Privatization.” Welcome to Hill Country Alliance, 5 Dec. 2016, https://hillcountryalliance.org/public-trust-doctrine-at-center-of-fight-against-privatization/. // Phoenix

The Texas Foundation for Conservation, a new nonprofit, is joining the fight to protect Texas fish and wildlife for future generations.

Opposed to privatization of wildlife, the group applauds the founders of the North American model for wildlife conservation but endorses the public trust doctrine which establishes a trustee relationship obligating government to hold and manage fish and wildlife for the benefit of all Texans, present and future.

“Those who love Texas fish and wildlife are increasingly concerned about the threat of privatization,” said Dr. Fred Bryant, director of the Caesar Kleberg Wildlife Research Institute at Texas A&M University-Kingsville and president of the Texas Foundation for Conservation. “Native fish and wildlife are no different than our beaches and waterways — they belong to all Texans.”

In addition to the tenet that wildlife are owned by all, other tenets of the foundation are that fish and wildlife should be managed using scientific principles, and private property rights are paramount to the success of wildlife management and conservation.

At the foundation’s inaugural meeting, “Ensuring the Wild Conservation Summit”, keynote speaker Shane Mahoney, president and CEO of Conservation Visions, an internationally recognized voice for conservation, called the North American model for conservation not only one of North America’s greatest achievements but one of the most successful and most profound conservation example in the world today.

The public trust doctrine, Mahoney said, dates back to Roman law, was incorporated in the Magna Carta, became part of English civil law, and then became law for the original 13 colonies. Then it carried forward as the founding principle of conservation, not only in the U.S. but in Canada as well.

“Anyone who wants to view this doctrine as some kind of modern phenomenon because of these recent debates over privatization should understand that this is not some sideshow,” said Mahoney. “This is not some water cooler debate. This is a fundamental principle that has been through most of the great upheavals in civilizations in history from the time of the Greeks onward.”

Despite the long history of the public trust doctrine, he said, few school children are taught how the public trust doctrine became one of the founding tenets of the North American conservation model, nor do they know that it was Theodore Roosevelt and a “cadre of other conservation giants” who inspired and instilled this model in the programs and policies of conservation. It was Roosevelt who strongly supported laws such as the Lacey Act, which bans trafficking in illegal wildlife, and amended in 2008, also now includes plants and plant products.

The public trust doctrine, Mahoney told listeners, is one of the most critical pieces of the North American model, but so, too, are the ideas that privatization of wildlife not be allowed. Mahoney pointed to three classic exploitation cases — the buffalo, the passenger pigeon, and the egret, as to why privatization should not be allowed.

“It is unbelievable to think that in a decade we could take bison, perhaps as many as 30 million, others say far more, to the very brink of extinction,” he told listeners. “And the passenger pigeon that one time flew in flocks in excess of a couple of billion birds, a single flock that would darken the skies for days on end in their constant passage over a town, and destroy them, all because of a rapacious taking of wildlife for personal property, for personal gain.”

In the 17th and 18th centuries, the fashion of the time included the wearing of bird feathers in women’s hats.

“We know what happened when egret feathers were worth more than a pound of gold,” he added, “and we know what would have happened to dozens upon dozens of other species had not the idea of democratic ownership and a public doctrine been initiated.”

In Labrador, where Mahoney comes from, people repeatedly raided the nest of the peregrine falcon because 20 years ago they could sell a single chick for $10,000 to $50,000.

It is because of the public trust doctrine, he said, that some wildlife species in the U.S. have gone from a time of virtual destruction to a time now when society complains about too many geese and wild turkey and too many wild deer.

### UV

#### Engaging the technical details of space policy brings about changes in governance bodies – institutions like NASA aren’t static, they respond to alliances of scholars and activists shaping collective understanding of technology and equity.

Kaminski ‘15

(Amy Paige Kaminski, Amy Paige Kaminski, PhD in Science and Technology in Society, “Sharing the Shuttle with America: NASA and Public Engagement after Apollo,” March 6, 2015, https://pdfs.semanticscholar.org/a03b/fc6a47b2fbfad825dfde1669a394ecb0ba60.pdf)

This study thus proffers a rather apologetic and ironic insight: that operating within the American democracy, where a U.S. government agency is obligated to think about how optimally to serve millions while appeasing its political masters in the White House and the Congress, makes “improving” public engagement, democratizing procedures, or seeking legitimacy from external publics for any endeavor incredibly difficult. This is not to say that alternative degrees or forms of public engagement are impossible: indeed, some non-American nations and cultures adhere deeply to a commitment to broad and direct citizen participation in national governance and decision-making. Arenas for public policy debate, however, largely do not exist at the national level in the United States, including for space issues. Instead, the nation’s space activities are shaped by elected lawmakers charged with serving the national interest but also concerned with appeasing their electorates in the hopes of remaining in office, technical experts interested in the advancement of science and technology but also in ensuring their own professional success and livelihood, moneyed corporations with the technical abilities to enable space flight but also the motivation of financial profit, and others skilled at making their voices heard loudly. Given these constraints, it is in some respects astounding that U.S. government institutions are at all able to create opportunities for more citizens to participate in their work in various ways as NASA did throughout much of the Shuttle’s lifetime. Scholars, activists, and others concerned with how technoscientific developments and decisions can impact and serve societal interests have tended to regard public engagement and participatory democracy as a “holy grail” for enhancing, if not ensuring, equitable benefits and minimal negative consequences for various publics. Many case studies, particularly in the area of environmental justice and health research, have demonstrated how institutions and experts and “ordinary” citizens have successfully forged collaborative relationships in setting research agendas or deliberating policies and in turn have produced outcomes supporting their mutual interests. Such studies have usually explored the motives of determined publics and the challenges they faced in trying to engage with credentialed experts and others in positions of power to influence decisions related to issues affecting them. This case study of NASA’s engagement of external publics during the course of the Space Shuttle program raises the point that a full understanding of options for engagement between technoscientific institutions and publics requires also examining how, why, and which publics matter from the perspective of institutions as well as what factors drive and constrain those views. In presenting the many influences at play in shaping a government agency’s public engagement approaches, this study highlights in particular the significance of technological choices as well as internal and external perceptions of a technology’s possibilities and risks. I have shown through the analysis of NASA’s transition from Apollo to Shuttle and in NASA’s coping with the Challenger accident that institutions’ public engagement choices do not exist independently of the technologies they operate or seek to develop. Rather, technological choices combine with articulated public preferences and motivations held by an institution to define the range of possible public engagement formats an agency considers. As NASA’s pursuit of and eventual retrenchment from a fully democratized Shuttle program reveals, mediating the option space for interaction with external publics is the sociotechnical imaginary an institution adopts and attaches to the technology in question to legitimize it. Indeed, this study suggests that scholars as well as technoscientific policy and program developers should not overlook the connection between sociotechnical imaginaries and public engagement approaches in evaluating, advocating for, or pursuing democratic involvement in technoscientific matters. At the same time that this work demonstrates that sociotechnical imaginaries can be a powerful concept for guiding and examining an institution’s perceptions of public roles and relevance, this study of the Shuttle concomitantly shows that such visions can be quite frail, subject to resistance and constant revision based on a variety of external developments as well as changes in internal and external perceptions of a technology’s benefits and risks. The challenges of finding a broadly acceptable sociotechnical imaginary seem particularly formidable for expensive and risky technologies, no matter how captivating the vision: in addition to enduring skepticism from the outset, such imaginaries can be difficult to implement successfully. This finding opens the question of whether and how NASA and other institutions can develop stable sociotechnical imaginaries to substantiate their technological choices and enroll many publics in them.

#### Aff gets 1AR/1AC theory and RVIs –

#### A] else neg can be infinitely abusive and no way to check back.

#### B] 1AR theory is drop the debater to deter abuse, no rvis because they could brute force us in the 2n with double our time, and competing interps because reasonability is arbitrary and invites judge intervention even with a brightline and the highest layer of the round – the 1ARs too short to be able to rectify abuse and cover substance.

#### C] no 2NR paradigm issues, theory, RVIs, or recontextualizations because you can make whole new arguments in the 2n with 6 minutes forcing me to respond in only half the time.

#### D] Education is a voter because it controls the internal link to debate existing the first place – schools don’t fund uneducational games

#### E] Fairness is a voter because Debate is a game with a winner and a loser – we all have different motives for winning and fairness is the means for that fulfilling motive