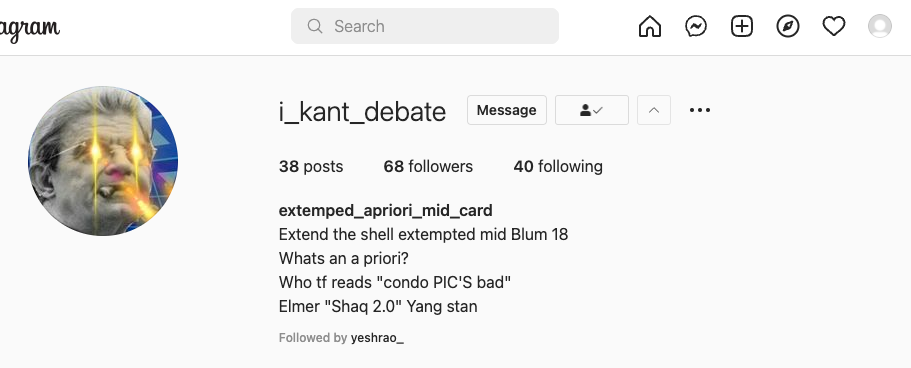
# 1NC vs. Lilly

## Speaks



## 1

**Interp: The affirmative must defend private entities as a general principle, not specify a subset**

**Private entities is a bare plural–that’s generic**

**Byrd** [“Generic Meaning,” Georgia State University, Transcript of lecture given by Pat Byrd, Department of Applied Linguistics & ESL]

Here are some things that we do know about these generic noun phrase types when they are used in context:1. The + singular: The computer has changed modern life This form is considered more formal than the others--and is not as likely to be used in conversation as the plural noun: Computers have changed modern life. Master (1987) found in the samp.le that he analyzed that this form with the was often used to introduce at topic--and came at the beginning of a paragraph and in introductions and conclusions.2. Zero + plural: Computers are machines. Computers have changed modern life. Probably the most common form for a generalization. It can be used in all contexts--including both conversation (Basketball players make too much money) and academic writing (Organisms as diverse as humans and squid share many biological processes). Perhaps used more in the hard sciences and social sciences than in the humanities. 3. A + singular: A computer is a machine. This generic structure is used to refer to individual instances of a whole group and is used to classify whatever is being discussed.The form is often used for definitions of terms. It is also often used to explain occupations. My sister is a newspaper reporter. I am a teacher. Use is limited to these "classifying" contexts. Notice that this form can't always be subtituted for the other: \*Life has been changed by a computer. \*A computer has changed modern life. 4. Zero + noncount: Life has been changed by the computer. The most basic meaning and use of noncount nouns is generic--they are fundamentally about a very abstract level of meaning. Thus, the most common use of noncount nouns is this use with no article for generic meaning. Zero Article and Generic Meaning: Most nouns without articles have generic meaning. Two types are involved.1. Zero + plural: Computers are machines. Computers have changed modern life.2. Zero + noncount: Life has been changed by the computer.

**1–Precision outweighs - anything outside the res is arbitrary and unpredictable because the topic determines prep, not being bound by it lets them jettison any word.**

**2–Limits and Ground - decimates clash by exploding limits to infinite private entities and combinations, each with different astrological fields of science, political and economic conditions, and goals which makes contesting the aff with unifying neg ground impossible and means they can always pick the most aff skewed slice of the res.**

**3–TVA – read your aff as an advantage under whole res – we still get your content education and sufficient aff ground by switching up aff advantages, frameworks, implementation, etc. But, 1ar theory checks pics and they incentivize more of them cuz nothing but cheaty generics link**

## 2

**Interpretation: the affirmative must only defend that the appropriation of space by private entities is unjust.**

**China's "private" sector companies aren't private**

**Olson 20** [Stephen Olson, research fellow at the Hinrich Foundation. "Are Private Chinese Companies Really Private?" The Diplomat, 9-30-2020, accessed 1-14-2022, https://thediplomat.com/2020/09/are-private-chinese-companies-really-private/] HWIC

China has often been criticized for a lack of transparency, especially with regard to its economic and trade policies. While in many cases these criticisms are valid, it belies the fact that in other instances, China is remarkably open and transparent about its intentions and ambitions. Such is the case with China’s “Opinion on Strengthening the United Front Work of the Private Economy in the New Era,” recently released by the Central Committee of the Chinese Communist Party (and further elaborated on by President Xi Jinping himself). This document tells us in no uncertain terms that Chinese private companies will be increasingly called upon to conduct their operations in tight coordination with governmental policy objectives and ideologies. The rest of the world should take note. A Different Vision of “Private” Business The 5,000 word “opinion” aims to ratchet-up the role and influence of the CCP within the private sector in order “to better focus the wisdom and strength of the private businesspeople on the goal and mission to realize the great rejuvenation of the Chinese nation.” The objective is to establish a “united front” between business and government and facilitate the “enhancement of the party’s leadership over the private economy.” According to the plan, “private economic figures are to be more closely united around the party,” thereby achieving “a high degree of consistency with the Party Central Committee on political stand, political direction, political principles, and political roads.” All of this stands in stark contrast to long-accepted concepts of how private companies function in a free market. The overriding purpose of business, according to these traditional precepts, is to earn profits through the provision of value-added products and services, in response to marketplace signals and under the constraint of basic economic realities. Government ideology plays no role in that equation. But China has a very different vision. Government officials and government ideologies are directly infused into business operations. Private sector employees are “educated” on government policies and ideologies, with the expectation that this “enlightenment” will help inform their business decisions. This government-business symbiosis is further cemented by the provision of massive government subsidies (estimated to be about 3 percent of China’s GDP) to Chinese companies.

**Negate – they skirt the core controversy of the topic which is national vs private space activities – kills stasis point and pre-round prep and means we lose access to generics that rely on the motives of private companies differing from national interest proven by the fact that their advantage is functionally China space good/bad**

**No plan text in a vacuum–worst model is plan text not meeting the advantage – at worst neg on presumption since the aff wouldn’t do anything**

## 3

**Interp: The affirmative must define appropriation with a delineated text in the 1AC**

**Pershing 19**, Abigail D. "Interpreting the Outer Space Treaty's Non-Appropriation Principle: Customary International Law from 1967 to Today." Yale J. Int'l L. 44 (2019): 149. (Robina Fellow at European Court of Human Rights. European Court of Human Rights Yale Law School)//Elmer

Though the Outer Space Treaty flatly prohibits national appropriation of space,150 it leaves unanswered many questions as to what actually counts as appropriation. As far back as 1969, scholars wondered about the implications of this article.151 While it is clear that a nation may not claim ownership of the moon, other questions are not so clear. Does the prohibition extend to collecting scientific samples?152 Does creating space debris count as appropriation by occupation? While the answers to these questions are most likely no, simply because of the difficulties that would be caused otherwise, there are some questions that are more difficult to answer, and more pressing. As commercial space flight becomes more and more prevalent,153 the question of whether private entities can appropriate property in space becomes very important. Whereas once it took a nation to get into space, it will soon take only a corporation, and scholars have pondered whether these entities will be able to claim property in space.154 Though this seems allowable, since the treaty only prohibits “national appropriation,”155 allowing such appropriation would lead to an absurd result. This is because the only value that lies in recognition of a claim is the ability to have that claim enforced.156 If a nation recognized and enforced such a claim, this enforcement would constitute state action.157 It would serve to exclude members of other nations and would thus serve as a form of national appropriation, even though the nation never attempted to directly appropriate the property.158 Furthermore, the Outer Space Treaty also requires that non-governmental entities must be authorized and monitored by the entities’ home countries to operate in space.159 Since a nation cannot authorize its citizens to act in contradiction to international law, a nation would not be allowed to license a private entity to appropriate property in space.160 While this nonappropriation principle is great for allowing free access to space, thereby encouraging research and development in the field, it makes it difficult to create or police a solution to the space debris problem. A viable solution will have to work without becoming an appropriation. There is, however, very little substantive law on what actually counts as appropriation in the context of space.161 So, the best way to see what is and is not allowed is to look both at the general international law regarding appropriations and to look at the past actions of space actors to see what has been allowed (or at least tolerated) and what has been prohibited or rejected.

**The net benefit is shiftiness – vague plan wording wrecks Neg Ground since it’s impossible to know which arguments link given different types of appropriation like mining, space col, satellites, and tourism – the 1AR dodges links by saying they don’t affect particular types of appropriation, or they don’t reduce private appropriation enough to trigger the link. Cx doesn’t check–it’s non verifiable and skews preround prep–they get away with abuse no risk justifying infinite abuse BUT no regress since the interp is grounded in the lit and limited words in the res mean limited interps**

**Fairness and education are voters – debate is a game w/ portable skills**

**Drop the debater–severance kills 1NC strat construction—1AR restart favors aff since it’s 7-6 time skew and they get 2 speeches to my one**

**No rvi–shouldn’t win for being fair and incentivizes baiting just to beat it back with infinite prep while chilling t/theory since you’ll out frame us and auto-win on 2ar ethos each round**

**Competing interps–reasonability is arbitrary and causes a race to the bottom–finding the best model of debate is key to preserve the most substantive norms in the long terms but no frivolous race to the top since limited words in the res mean limited interps**

**NC theory first–NC abuse was reactive so they were the root cause only 2 months to discuss topic specific shells which outweigh on timeframe**

## 4

#### China’s space program is key to asteroid mitigation---US efforts fail and the same entities referenced in AC Patel and AC Choo are key.

**Chen 21 (**, S., 2021. How 23 giant Chinese rockets could save world from asteroids. [online] South China Morning Post. Available at: <https://www.scmp.com/news/china/science/article/3139914/how-23-giant-chinese-rockets-could-save-world-doomsday-asteroid> [Accessed 19 January 2022] Stephen Chen investigates major research projects in China, a new power house of scientific and technological innovation. He has worked for the Post since 2006. He is an alumnus of Shantou University, the Hong Kong University of Science and Technology, and the Semester at Sea programme which he attended with a full scholarship from the Seawise Foundation.)-rahulpenu

How 23 giant Chinese rockets could save the world from ‘doomsday’ asteroid China can send mammoth machines into space which travel for years then deflect problematic rocks Same devices have been criticised recently because one plummeted back to Earth in uncontrolled re-entry China’s space programme could one day save the world, with massive rockets travelling for years to defend the planet from huge asteroids capable of wiping out entire cities, according to a government-backed study. This saviour role is unexpected given these are the same machines seen as a threat by many, including the United States, just weeks ago; the main 20-tonne section from one such rocket fell back to Earth in May in an uncontrolled re-entry. It fell into the sea or burned up beforehand, although last year fragments from another rocket were said to have hit two villages in the West African country, Ivory Coast. Now a new government-funded study says China can launch 23 Long March 5 (CZ-5) rockets – the largest in its fleet, weighing almost 900 tonnes on take-off – to break up the rocky objects in our solar system. Some asteroids are as small as pebbles but others are hundreds of kilometres across. An asteroid about 500 metres (1,640 feet) wide could kill millions. Although the chance of one colliding with the Earth is currently low, there is one called Bennu which could hit in about a century. Researcher Li Mingtao and his colleagues at the National Space Science Centre in Beijing have been commissioned to find out how China can step in and try to ensure humans do not go the way of the dinosaurs. The asteroid that led to their extinction was around 10km (6 miles) wide. To change the course of a giant asteroid hurtling towards us at terrifying speeds, a lot of kinetic energy would be needed. Nuclear weapons might do the job but such a blast could break the target into several threatening chunks. In their proposal, the space centre team suggested launching 23 CZ-5 rockets from various sites across China, at the same time. The spacecraft would have to travel for almost three years to reach their target. On top of each rocket would be a deflector, a device designed to avoid breaking up the asteroid. Each rocket would “hit” the asteroid, one after another, by way of a gentle nudge. This would only change the course of a Bennu-sized asteroid slightly, but enough to make it pass safely at a distance about 1.4 times the radius of the Earth and save some cities from annihilation, according to Li’s calculations. “[It is] possible to defend against large asteroids with a nuclear-free technique within 10 years,” said Li and colleagues in a June paper published in Icarus , an international journal for solar system studies. The CZ-5 is the backbone of China’s space programme, a more-than-handy workhorse used in space station construction and Mars exploration. The problem is its size becomes an issue during free fall back to Earth, travelling at thousands of miles an hour. Western authorities including the US Space Force have said they carefully tracked each CZ-5 after each launch. In May US Defence Secretary Lloyd Austin hoped the rocket of concern at the time would “land in a place where it will not harm anyone. Hopefully in the ocean, or someplace like that.” He also said there was a need to make sure “those kinds of things” were taken into consideration when planning and conducting operations. Some Western media warned readers that the debris might hit big cities. That did not happen but led to an increased focus on China’s responsibility as a space power. In the Icarus paper Li and his colleagues said fuel not used during the rocket launch could give extra thrust during the flight towards an asteroid, and the rocket fuselage also increased the total mass of the deflector. They said existing rockets only had to undergo small modifications such as adding a few small thrusters. A similar mission proposed by researchers with Nasa and California’s Lawrence Livermore National Laboratory in 2018 would require the launch of 75 Delta IV heavy rockets, according to the two organisations and mentioned by Li. Known as HAMMER (Hypervelocity Asteroid Mitigation Mission for Emergency Response), the US plan would deliver more than 400 tonnes of deflectors, nearly twice as many as in the Chinese proposal, but with a flight time nearly a year shorter, to achieve similar results. The US mission would be more expensive than the Chinese one, Li said. The Chinese plan also needs less preparation time. While the American approach would need to discover an asteroid 25 years before its potential collision with Earth, China’s plan could cut the lead time to just a decade. Overall, the Chinese approach, involving what is called the Assembled Kinetic Impactor, could greatly improve deflection efficiency and reduce both launch costs and lead time, the paper said. A space scientist at Beijing’s Tsinghua University said competition between China and the US would accelerate the development of space technology. “The problem is, when the doomsday threat comes, politics may override science and lots of time may be wasted on debates to decide which country should take the lead,” said the researcher, who did not want to be named because of the sensitivity of the issue. China has been challenging US dominance in space for some time. It already has a rover on Mars, is building a space station, exploring the far side of the moon and studying lunar samples recently retrieved by robots. The US launched its first asteroid defence programme decades ago. It has the only asteroid-warning radar system on Earth and one of its spacecraft is returning home after obtaining samples from Bennu, the asteroid that could hit us in about a century. In 2025 China is expected to launch its own spacecraft to retrieve asteroid samples. China is also building a planetary defence system with what will be the most powerful radar in the world, according to researchers involved in the project. It will be made up of large radio telescopes across the country and be able to track more targets than its US counterpart.

**Asteroids cause extinction**

**Pettit, 19** [Harry Pettit, Senior Digital Technology and Science Reporter @ The Sun, "Apocalyptic asteroid strike that could wipe out humanity is ‘only a matter of time’, top scientist warns", 12-3-2019, <https://www.foxnews.com/science/apocalyptic-asteroid-strike-that-could-wipe-out-humanity-is-only-a-matter-of-time-top-scientist-warns>, accessed 12-4-2019]

A catastrophic asteroid impact big enough to wipe out humanity is only a matter of time, according to one top scientist. Humanity has next-to no defense against such an impact, Professor Alan Fitzsimmons said, which threatens to end life on Earth. Speaking to the BBC, the astrophysicist warned that the planet is at risk of a deadly disaster if protective measures aren't put in place. "We will get a serious asteroid impact sometime," said Professor Fitzsimmons, of Queen's University in Belfast. "It may not be in our lifetime, but mother nature controls when that will happen. "We will need to do something about it. We'll need to move that asteroid so it misses us and doesn't hit us." Astronomers are currently tracking nearly 2,000 asteroids, comets and other objects that threaten the Earth, and new ones are found every day. Earth hasn't seen an asteroid of apocalyptic scale since the space rock that wiped out the dinosaurs 66million years ago. However, smaller objects still capable of flattening an entire city crash into Earth every so often. One a few hundred meters across that devastated 800 square miles of forest neat Tunguska in Siberia on June 30, 1908. Professor Fitzsimmons called on amateur astronomers to help space agencies like Nasa track potentially deadly asteroids. He said an upcoming mission was designed to help stop space rocks hitting Earth, but that it needed help deciding which ones to observe. Launching in 2024, the probe will measure the movement of a smaller asteroid moon knocked out of its orbit by an earlier spacecraft. Astronomers can help the mission by identifying and reporting as many asteroids as possible in the Kuiper belt, a mysterious region beyond Neptune. Experts hope the mission, run by both Nasa and the European Space Agency, will pave the way for a full-blown asteroid deflection system. Some scientists believe such a technique won't work, and would prefer firing a nuclear bomb at space rocks bearing down on our planet. For what it's worth, NASA doesn't believe any of the thousands of "Near-Earth objects" it keeps an eye on are currently on a collision course with our planet. However, that could change in the coming months or years as the space agency constantly revises objects' predicted trajectories. "NASA knows of no asteroid or comet currently on a collision course with Earth, so the probability of a major collision is quite small," NASA says. "In fact, as best as we can tell, no large object is likely to strike the Earth any time in the next several hundred years." Even if they were to hit our planet, the vast majority of asteroids would not wipe out life as we know it. "Global catastrophes" are only triggered when objects larger than 3,000 feet smash into Earth, according to NASA.

**Private companies key**

**1AC Patel 21**, Neel. (I’m the space reporter for MIT Technology Review, and I also write The Airlock newsletter, your number one source for everything happening off this planet. Before joining, I worked as a freelance science and technology journalist, contributing stories to Popular Science, The Daily Beast, Slate, Wired, the Verge, and elsewhere. Prior to that, I was an associate editor for Inverse, where I grew and led the website’s space coverage.) “China's Surging Private Space Industry Is out to Challenge the US.” MIT Technology Review, MIT Technology Review, 28 Jan. 2021, https://www.technologyreview.com/2021/01/21/1016513/china-private-commercial-space-industry-dominance/. //JQ

“The state is really great at large, ambitious projects like going to the moon or developing a large reconnaissance satellite,” says Lincoln Hines, a Cornell University researcher who focuses on Chinese foreign policy. “But it’s not responsive to meeting market needs”—one big way to encourage rapid technological growth and innovation. “I think the government thinks its commercial space sector can be complementary to the state,” he says.

## 5

**CP Text: The People’s Republic of China**

* **Increasing and encouraging private and civil space cooperation with the United States over appropriation of outer space.**
* **Demilitarizing its space industry.**
* **Dismantling and removing ASAT weapons.**

**The United States Federal Government repealing the Wolf Amendment**

**Is just**

**The Counterplan competes – it redirects China’s commercial space industry to productive cooperation with the United States. The 1AC said that China’s government is reliant on private action meaning the Plan collapses all of the space sector meaning meaningful cooperation with the US becomes impossible.**

**Cooperation de-escalates the Space Race, solves Sino-Russian axis, and spills-over to broader US-China relations**

**Marshall and Hadfield 21** Will Marshall and Chris Hadfield 4-15-2021 "Why the U.S. and China Should Collaborate in Space" https://time.com/5954941/u-s-china-should-collaborate-in-space/ (CEO of Planet which operates 200 satellites that image the entire Earth landmass on a daily basis, and he formerly worked at NASA on lunar missions and space debris. Colonel Chris Hadfield was Commander of the International Space Station and flew both the U.S. Space Shuttle and Russian Soyuz vehicles. Prior to that he served as a fighter/test pilot with the U.S. Air Force, U.S. Navy, and Royal Canadian Air Force.)//Elmer

While much has been made of the tense March 18 exchange between American and Chinese diplomats in Anchorage, Alaska, one area became an unlikely candidate for cooperation: outer space. During a press conference after the meeting, Jake Sullivan, the U.S. National Security Advisor, pointed out that the Perseverance rover that recently landed on Mars “wasn’t just an American project. It had technology from multiple countries from Europe and other parts of the world.” China’s top diplomat, Yang Jiechi, seized the opportunity to say that, “China would welcome it if there is a will to carry out similar cooperation from the United States with us.” Planned or not, Yang’s comment gave voice to one very smart way two geopolitical rivals sharing the same planet could work together despite their growing tensions. Space exploration has long been used to foster deep cooperation, even between adversaries. During the height of the Cold War, the U.S. and U.S.S.R. jointly undertook the 1975 Apollo-Soyuz mission, which both served as a means of political rapprochement and opened the possibility of cooperation in other areas. Those links endured. After the Soviet Union collapsed, Russia was invited to partner in the construction of the International Space Station (ISS). It was a multi-layered act that went beyond simple generosity; the more work former Soviet scientists had to do designing and building the ISS, the less likely they’d be to sell their expertise to other countries. Today, Sino-American space cooperation is similarly desirable. It could improve ties as it did for the U.S. and Russia, de-escalate an emerging Sino-Russian axis in space, and serve as a bargaining chip to help sustain other areas of cooperation. While China and the U.S. seem to clash on virtually every issue, space, by its nature, is different. Orbit isn’t a high-ground that one can seize. Instead, space works like a commons, where for any one state or company to be able to operate safely, all have to act responsibly. We need peaceful cooperation to enjoy its benefits. One reason not to cooperate in space with a geopolitical rival is technology transfer. There are legitimate concerns that collaboration could lead to technology sharing that unfairly advances China. Indeed, in 2011, the U.S. Congress included a passage, known as the Wolf Amendment, in an appropriations bill, forbidding NASA from cooperating in any way with China for fear of technological theft or espionage. The reasoning was straightforward: The U.S. enjoys significant leadership in some space technologies, including satellites, and much of that technology is proprietary, shared with no other countries. In the area of human spaceflight, however, things are different. The U.S. has extensively shared the entire ISS program for decades with the fourteen partner nations, including Russia. If there ever were secrets there, they are secrets no more. In fact, Russia and the U.S. as partners saved the day between 2011, after the space shuttles were grounded, and 2021, when the U.S. regained the ability to transport astronauts to space. During that decade, Russia’s Soyuz spacecraft served as the only way to get crews to and from the station. At the same time, uncrewed American resupply ships similarly helped keep the ISS viable when the Russian Soyuz fleet was grounded following mishaps. China has developed and proven a very successful human spaceflight program; adding their launch and spacecraft capability to the partnership would strengthen the overall mission. In order for China and the U.S. to work together in space, some things would have to change. First, the Wolf Amendment would have to be repealed—nothing meaningful can happen until that goes. Cooperation might then begin in lower profile areas such as sharing remote sensing data and reducing orbital debris. The United States and Europe have led the way with Landsat and Copernicus satellite programs providing free images of Earth that can be used to understand changes to our environment. The Chinese have yet to create a similar data share program for their Earth imaging systems—but they should. The United States and China could also discuss joint efforts to reduce the belt of space junk that circles the planet and threatens everyone’s satellites. Most importantly, cooperation could extend to joint human spaceflight missions; the US could invite China to conduct a crewed visit to the ISS, or to join in the human exploration of the Moon, targeted to happen in this decade and which both nations are now working on separately; the goal would be a joint Moon base rather than a space race. For decades, space travel has provided an opportunity for humans to see our world differently. Apollo 11 astronaut Michael Collins said, “The thing that really surprised me was that the Earth projected an air of fragility.” Chinese astronauts, since Yang Liwei’s first flight 18 years ago, have surely had a similar experience gazing down at our planet. Cooperating in space can give the United States and China the opportunity to change their thinking together. Bold American leadership can be a leveraged move in reducing tensions, as it was in keeping the Cold War cold—a win for all nations and our shared, blue-green planet.

**That solves every impact**

**Paulson 15**, H. M. "Dealing with China: An insider unmasks the new economic superpower. Hachette Book Group." Inc.: All Books (2015). (Former US Treasury Secretary)//Elmer

One crisp day in early March 2014, I found myself sitting in a sleek conference room high above Boston Harbor taking questions from a group of financial executives. These men and women worked for a range of institutions that managed well over $3 trillion of financial assets, including the personal savings and pension funds of millions of Americans. They were keen to learn as much as they could about the Chinese economy. Was it about to hit the wall? Was I worried about a real estate bubble? How fragile was the country's financial system? Was the government serious about dealing with China's environmental problems? One fellow had a more personal question for me. "Hank," he said. "You're a real patriot. Why are you helping China?" The question pulled me up short. Three years before, when I first 'c began planning to write this book, I don't think I would have been asked anything like that at a meeting of sophisticated financiers. They would J have accepted that helping China to reform its economy, open its markets, protect its environment, and improve the quality of life of its people-all things I have been working on-would bring economic and strategic benefits to the U.S. as well. But that viewpoint has been changing as China has emerged as our biggest, most formidable economic competitor since the end of World War II and has started flexing its newfound military muscle in unsettling ways. As a result, many Americans, from all walks of life, have begun to view China with growing apprehension and resentment. Some would now prefer confrontation to cooperation. I understand these sentiments. Partly they are a function of China's choices and actions, and partly they are born of frustration with the recent economic troubles of the United States. I've spent a fair number of pages explaining how China must carry out meaningful economic reforms if it expects to continue its amazing success story. These arguments make sense for China and its people. But why should an American care? Why should we root for China to succeed? Shouldn't we instead be hoping that this ungainly giant stumbles, if only to slow down its daunting economic and military growth? In coming years China's weight and influence in the world, already substantial, is likely to begin to rival our own. Why take the chance now of helping the Chinese deal with so many of their problems and challenges? Why aid a competitor? The answer is simple: we should do so because it is more than ever in America's own self-interest that we do. To begin with, just about every major global challenge we face-from economic and environmental issues to food and energy security to nuclear proliferation and terrorism-will be easier to solve if the world's two most important economic powers can act in complementary ways. But these challenges will be almost impossible to address if the U.S. and China work at cross-purposes. If we want to benefit from an expanding global economy, we need the most dynamic growth engines, like China's, to thrive. If we want to prevent the worst climate change outcomes and to preserve our fragile global ecosystems, we need China to solve its massive environmental problems at home and adopt better practices abroad. If we want to keep diseases from our shores, we need Chinaand other countries to use the very best methods to prevent and halt epidemics. If we want to stem the spread of dangerous weapons to those who might harm our citizens, we need nations, including China, to work together to end illicit trafficking. If we want all these things to happen, we must be proactive, frank, and at times forceful with the Chinese while seeking ways to cooperate, to develop complementary policies, and to work to more fully integrate them into a rules-based global order. If we attempt to exclude, ignore, or weaken China, we limit our ability to influence choices made by its leaders and risk turning the worst-case scenarios of China skeptics into a self-fulfilling reality.

## 6

**Counterplan Text – The Appropriation of Outer Space by Private Entities in the Peoples Republic of China except for appropriation for the Tiangong Space Station is unjust.**

**Space Stations are forms of appropriation.**

**Trapp 13**, Timothy Justin. "Taking up Space by Any Other Means: Coming to Terms with Nonappropriation Article of the Outer Space Treaty." U. Ill. L. Rev. (2013): 1681. (JD Candidate at UIUC Law)//Elmer

4. The International Space Station The International Space Station presents a unique application of the nonappropriation principle. All spacecraft must inherently occupy some amount of space. If this were to constitute appropriation by occupation and thus violate the nonappropriation article, the result would be absurd and would render the nonappropriation article unenforceable. The International Space Station, however, is different from regular satellites in that it actually contains a livable area within itself, making it a sort of man-made celestial body.182 Thus, it would seem that any exclusion of any party from the space inside the spacecraft would count as appropriation by exclusion. It would even stand to reason that any claim of ownership of any part of the spacecraft would be appropriation by claim of sovereignty. In fact, the Intergovernmental Agreement on Cooperation in the Detailed Design, Development, Operation, and Utilization of the Permanently Manned Civil Space Station (ISS Agreement) sets up a regime of national control, ownership, and exclusion.183 So why does this not count as appropriation? Though it may seem that the International Space Station has appropriated the space it occupies through the terms of the ISS Agreement, this agreement has one important bit of language to keep it safe.184 Specifically, the ISS Agreement says that “[n]othing in this agreement shall be interpreted as . . . constituting a basis for asserting a claim to national appropriation over outer space or over any portion of outer space.”185 The effectiveness of such a proclamation may make it seem that it is enough for an actor merely to say that it is not appropriating space. That cannot be the case, however, because any actor could make such a claim and then act in direct violation of it. Something more subtle must be going on in the context of the International Space Station. One of the saving graces of the International Space Station must be that the ISS Agreement makes sure that the space station complies with the general principles guiding the exploration and exploitation of outer space.186 Indeed, the space station is a cooperative effort, furthering the goal of international harmony through space exploration.187 The agreement establishing the space station also directly states that it “will enhance the scientific, technological, and commercial use of outer space,” thus furthering the Outer Space Treaty’s goal of making sure that use is for the benefit of all.188 Furthermore, the ISS Agreement provides that the International Space Station will be used for peaceful purposes, again complying with the Outer Space Treaty’s mandate of the same.189 By complying with the underlying principles of the Outer Space Treaty, it seems that the International Space Station gains legitimacy and is thus not subject to stricter interpretations of the nonappropriation article.190 Another characteristic of the International Space Station that separates it from other acts of appropriation is that it is a multi-national entity.191 Though different nations do have different rights with respect to certain parts of the spacecraft, those rights are subject to a multinational agreement.192 Thus, it may accurately be said that while there has been no national appropriation of space, there has been international appropriation of space, which may be allowed under the current regime.193

**Private Companies are fueling completion of Tiangong.**

**Jones 22** Andrew Jones 1-3-2022 "China aims to complete space station in another huge year in space"<https://spacenews.com/china-aims-to-complete-space-station-in-another-huge-year-in-space/> (Andrew Jones covers China's space industry for SpaceNews. Andrew has previously lived in China and reported from major space conferences there. Based in Helsinki, Finland, he has written for National Geographic, New Scientist, Smithsonian Magazine, Sky & Telescope, IEEE Spectrum, and The Wire China.)//Elmer

HELSINKI — This year, China’s main space contractor will target more than 40 orbital launches, including completion of the Tiangong space station, following 48 successful launches in 2021. The China Aerospace Science and Technology Corp. (CASC) stated on social media that it is targeting more than 40 launches, including six missions to complete the construction of the country’s space station. The Tianzhou-4 cargo spacecraft will launch on a Long March 7 from Wenchang to dock with the orbiting Tianhe core module around March or April, following the end of the ongoing, six-month Shenzhou-13 crewed mission. The station’s third crewed mission, Shenzhou-14, will follow Tianzhou-4. The mission’s three astronauts will be aboard Tianhe for the arrival of the 20-metric-ton-plus Wentian and Mengtian modules, expected to launch around June and August, respectively. The module launches will complete the T-shaped orbital outpost. Tianzhou-5 will launch ahead of Shenzhou-15, both scheduled for late in the year. The module launches will be followed closely, partly due to the significance of the missions, but also because of the use of the Long March 5B, the two previous launches of which saw the large first stages make high-profile uncontrolled reentries which sparked acrimony. The Tiangong space station is planned to operate in orbit for at least 10 years. It will host a range of international experiments through collaboration with the United Nations Office of Outer Space Affairs, and potentially foreign astronauts and further modules in the coming years.

**Tiangong is completed by 2022 and is used for key collaboration over science – specifically disease**

**Mallapaty 21** Smriti Mallapaty 7-23-2021 "China’s space station is preparing to host 1,000 scientific experiments" <https://www.nature.com/articles/d41586-021-02018-3> (Smriti joined Nature in 2020, and covers the Asia-Pacific region. She previously worked as an editor at the Nature Index, and has also worked as a freelance journalist reporting on science and environment based out of Kathmandu, Nepal. She has a master of science degree in environmental technology from Imperial College London.)//Elmer

China launched the core of its space station in April, and sent three astronauts up in June. But although the space station probably won’t be complete until late 2022, there is already a long queue of experiments from across the world waiting to go up. Scientists in China told Nature that the China Manned Space Agency (CMSA) has tentatively approved more than 1,000 experiments, several of which have already been launched. Before April, the International Space Station (ISS) was the only space laboratory in orbit, and many researchers say Tiangong (or ‘heavenly palace’) is a welcome addition for astronomical and Earth observation, and for studying how microgravity and cosmic radiation affect phenomena such as bacterial growth and fluid mixing. However, others argue that crewed space stations are costly, and serve more of a political than a scientific purpose. “Increased scientific access to space is of scientific benefit globally, no matter who builds and operates platforms,” says Julie Robinson, chief scientist for human exploration and operations at NASA Headquarters in Washington DC. “We need more space stations, because one space station is definitely not enough,” adds Agnieszka Pollo, an astrophysicist at the National Centre for Nuclear Research in Warsaw who is part of a team sending an experiment to study γ-ray bursts. Open to the world The ISS was launched in 1998, as a partnership between space agencies from the United States, Russia, Europe, Japan and Canada (see ‘Variations on a theme’). It has housed more than 3,000 experiments since then, but China is barred from it because of US rules that prohibit NASA from using funds for collaboration with China. Although most experiments slated for Tiangong will involve Chinese researchers, China says that its space station will be open to collaboration from all countries, including the United States. In June 2019, the CMSA and the United Nations Office for Outer Space Affairs (UNOOSA), which promotes collaboration in space, selected nine experiments — in addition to the 1,000 that China has tentatively approved — to go up once the space station is complete. Simonetta Di Pippo, director of UNOOSA in Vienna, says these involve 23 institutions in 17 nations. China previously launched two small space labs — Tiangong-1 and Tiangong-2. These hosted more than 100 experiments, circling Earth for a number of years, but are no longer in orbit. The space station offers brand new facilities, and China is encouraging experiments not attempted in space before, says Tricia Larose, a medical researcher at the University of Oslo, who is leading a project planned for 2026. “They’re saying, yes, build your hardware, make it brand new, do something that has never been done before, and send it up to us.” Even though most projects approved so far are led by Chinese researchers, many have international collaborators, says Zhang Shuang-Nan, an astrophysicist at the Chinese Academy of Sciences (CAS) Institute of High Energy Physics in Beijing, who advises the CMSA. ‘The playrooms of scientists’ The first section of Tiangong to arrive was a core module known as Tianhe (‘harmony of the heavens’). In late May, a cargo ship named Tianzhou-2 (‘heavenly ship’) was sent up and docked, delivering fuel, space suits and experimental equipment. In June, three Chinese astronauts — or ‘taikonauts’ — aboard Shenzhou-12 (‘divine vessel’) also docked, entering the 17-metre-long chamber that will be their home for the next three months. Over the next year or more, the CMSA will send another eight missions to Tiangong. Two will deliver the Wentian (‘quest for heavens’) and Mengtian (‘dreaming of heavens’) modules, which will mainly house scientific experiments (see ‘China’s first space station’). These will be “the playrooms of scientists”, says Paulo de Souza, a physicist at Griffith University in Brisbane, Australia, who develops sensors used in space. The space station will have more than 20 experimental racks, which are mini-labs with closed, pressurized environments, says Yang Yang, director of international cooperation at the CAS Technology and Engineering Center for Space Utilization in Beijing. Outside, there will be 67 connection points for research hardware facing Earth or the sky, says Yang. A powerful central computer will process data from experiments before beaming them back to Earth. Organoids and dark matter The experiments being sent up to the new space station encompass numerous fields. Zhang is the principal investigator for HERD (High Energy Cosmic-Radiation Detection facility), which is a partnership involving Italy, Switzerland, Spain and Germany, slated for 2027. This particle detector will study dark matter and cosmic rays, and will cost some 1 billion to 2 billion yuan (US$155 million to $310 million), says Zhang. Zhang and Pollo are also involved in POLAR-2, which will study the polarization of γ-rays emitted from large and distant explosions, with the goal of clarifying the properties of γ-ray bursts, and possibly even gravitational waves. Larose plans to send up 3D blobs of healthy and cancerous intestinal tissue, known as organoids. She wants to find out whether the very-low-gravity environment will slow or stop the growth of the cancerous cells, which might lead to new therapies. Other projects from scientists in India and Mexico will study ultraviolet emissions from nebulae and infrared data from Earth, to study meteorological conditions and what drives intense storms. Despite many of the projects being partnerships between Chinese and Western scientists, geopolitical tensions have made collaborations more difficult, notes Larose. She says Norway has yet to sign a bilateral agreement with China that would give her project the green light. Merlin Kole, an astrophysicist at the University of Geneva in Switzerland, who is also working on POLAR-2, adds that stricter adherence to export regulations means there is added bureaucracy around sending electronic hardware to China. But Di Pippo says that tensions have so far had no impact on the progress of projects selected by UNOOSA, adding that the agency is discussing plans with the CMSA to send more experiments to Tiangong by the end of next year. Scientific bang for buck Some scientists have argued that crewed space stations are a waste of money — the cost of Tiangong has not been made public, but the ISS cost some €100 billion (US$118 billion) to build and maintain for its first decade. “You’d get a much bigger scientific bang for the buck with robotic missions,” says Gregory Kulacki, an analyst on China security issues for the Union of Concerned Scientists, an advocacy group headquartered in Cambridge, Massachusetts. “Within China, as within the United States, there has been a tension between scientists who want to do the best science they possibly can and who prefer robotic missions, and governments who want to use human space-flight programmes largely for political purposes.” But other researchers point out that although satellites offer an alternative for some observations, for many experiments, particularly those requiring microgravity, crewed space stations are essential. They provide a home for long-term observations, data-processing capacity and access for astronauts who can perform maintenance tasks and run the experiments. Furthermore, as well as housing experiments from researchers, Tiangong is intended to test human space-travel technologies to support China’s space-exploration goals, says Zhang. With current ISS funding running only until sometime between 2024 and 2028, it’s also possible that Tiangong will eventually become Earth’s only space station in operation. Tiangong is projected to operate for at least a decade, and China already has plans to launch other spacecraft to work in tandem with it. The China Survey Space Telescope, or Xuntian (‘survey the heavens’), is a two-metre optical telescope that will rival NASA’s Hubble Space Telescope and will periodically dock with Tiangong for refuelling and maintenance. Set to launch in 2023, it will have a larger field of view for peering into the deep Universe than does Hubble.

**Space Station research is key to Drug Development that solves Pandemics.**

**Johnson 19** Michael Johnson 7-3-2019 "Finding the Keys in Space to Treat Diseases on Earth"<https://www.nasa.gov/mission_pages/station/research/news/b4h-3rd/eds-space-research-to-treat-earth-diseases/> (Chief Technologist, Applied Engineering and Technology Directorate. NASA Goddard Space Flight Center Massachusetts Institute of Technology.)//Elmer

A protein that causes disease and a medicine that suppresses it operate much like a keyhole and a key. Determining the shape of the keyhole by examining the protein structure can help create a key to fit it—i.e., an effective medicine with few side effects. Scientists are growing protein crystals on the ISS to design keys to fit keyholes for various medical conditions on Earth. The High-Quality Protein Crystal Growth (PCG) experiment on the Japanese Experiment Module Kibo is one example. It expands a partnership between PeptiDream Inc, a Tokyo-based biopharmaceutical company, and the Japan Aerospace Exploration Agency (JAXA) to increase by sixfold the experimental protein samples, or keys, investigated. The partners previously crystallized a nonstandard cyclic peptide drug candidate to target the human epidermal growth factor receptor 2 (HER2). About 1 out of every 5 people with breast cancer makes an excess of HER2 protein, which promotes the growth of cancer cells. Unlike conventional peptide-based drugs, nonstandard peptides have unlimited potential as novel medicines due to their structural stability and longer duration in the human body. The space-grown crystals had substantially higher resolution than those attained on the ground. Results clearly showed the potential drug bound to the receptor via an unprecedented binding mode. These findings are useful to PeptiDream in furthering the development of the drug. JAXA’s previous PCG experiments were conducted at 20°C (68°F) through a collaboration with the State Space Corporation ROSCOSMOS (ROSCOSMOS). When new developments with the private Orbital ATK Dragon cargo spacecraft made it possible for users to choose crystallization temperatures, JAXA launched the 4°C (39°F) PCG experiment. “Crystallization at 4 degrees C allows crystallization of candidate drugs in high demand, such as unstable hydrosoluble proteins and membrane proteins,” said JAXA’s Masaki Shirakawa. “At 20 degrees C, some proteins just aggregate, and do not crystallize. Conducting experiments under 4 degrees C opens the door to space experiments involving unstable proteins.” Early analysis indicates the 4°C (39°F) PCG experiment resulted in high-quality crystals of the protein and the drug candidate complex, thereby accelerating development of the potential drug. The agreement between PeptiDream and JAXA leverages each partner’s strengths—PeptiDream’s as a leading drug discovery company, and JAXA’s expertise in identifying and optimizing crystallization conditions and the technical ability to carry out space experiments. PeptiDream has established technology that facilitates quick, inexpensive, large-scale production of a wide variety of nonstandard peptides. “At any stage of the drug discovery process, a high resolution structure always significantly accelerates this process and having a 3-D structure is truly invaluable,” said Patrick Reid, President and CEO of PeptiDream. “The crystal structure determined from the crystals attained from the JAXA-PCG experiment will significantly accelerate the optimization of these candidates toward clinical candidates,” said Executive Vice President Keiichi Masuya. Kibo and the space station play a key role in allowing PeptiDream and JAXA to obtain structural information on target proteins and their drug candidates swiftly and efficiently, thus aiming to produce new and better drugs for Japan and the world.

**Future pandemics cause extinction**

**Diamandis 21** [Eleftheriosi, biochemist specializing in clinical chemistry, Prof and Head of Clinical Biochemistry in the Dept of Laboratory Medicine and Pathobiology at the University of Toronto] “The Mother of All Battles: Viruses vs Humans. Can Humans Avoid Extinction in 50-100 Years?” Preprints, April 13, 2021,<https://www.preprints.org/manuscript/202104.0397/v1> TG

The recent SARS-CoV-2 pandemic, which is causing COVID 19 disease, has taught us unexpected lessons about the dangers of human extinction through highly contagious and lethal diseases. As the COVID 19 pandemic is now being controlled by various isolation measures, therapeutics and vaccines, it became clear that our current lifestyle and societal functions may not be sustainable in the long term. We now have to start thinking and planning on how to face the next dangerous pandemic, not just overcoming the one that is upon us now. Is there any evidence that even worse pandemics could strike us in the near future and threaten the existence of the human race? The answer is unequivocally yes. It is not necessary to get infected by viruses of bats, pangolins and other exotic animals that live in remote forests in order to be in danger. Creditable scientific evidence indicates that the human gut microbiota harbor billions of viruses which are capable of affecting the function of vital human organs such as the immune system, lung, brain, liver, kidney, heart etc. It is possible that the development of pathogenic variants in the gut can lead to contagious viruses which can cause pandemics, leading to destruction of vital organs, causing death or various debilitating diseases such as blindness, respiratory, liver, heart and kidney failures. These diseases could result in the complete shutdown of our civilization and probably the extinction of human race. In this essay, I will first provide a few independent pieces of scientific facts and then combine this information to come up with some (but certainly not all) hypothetical scenarios that could cause human race misery, even extinction. I hope that these scary scenarios will trigger preventative measures that could reverse or delay the projected adverse outcomes.

**Tiandong is peaceful – multilateral and no dual use – force solvency deficits to be contextualized to this**

**Cheng 18** Cheng Cheng 5-28-2018 "Spotlight: China welcomes all UN member states to jointly utilize its space station" [https://web.archive.org/web/20180529002834/http://www.xinhuanet.com/english/2018-05/29/c\_137213340.htm](https://web.archive.org/web/20180529002834/http:/www.xinhuanet.com/english/2018-05/29/c_137213340.htm) //Elmer

VIENNA, May 28 (Xinhua) -- China announced Monday that all member states of the United Nations are welcome to cooperate with China to jointly utilize its future China Space Station (CSS). "CSS belongs not only to China, but also to the world," said Shi Zhongjun, China's ambassador to UN and other international organizations in Vienna. "All countries, regardless of their size and level of development, can participate in the cooperation on an equal footing," he said. Interested public and private organizations, including institutes, academies, universities and private enterprises with scientific orientations, can identify their appropriate models of cooperation on board CSS, may it be the growth of a space plant, or even the accommodation of an astronaut, said the ambassador. HOME OF COOPERATION FOR MUTUAL BENEFIT CSS, expected to be launched by 2019, and complete and brought into operation by 2022, will be the world's first space station that is developed by a developing country and open for cooperation with all UN member states. Consisting of one core module and two experiment modules, CSS will have the capacity to accommodate up to three astronauts at the same time and maximum six during rotation. Operating in low-Earth orbit about 400 kilometers above the Earth's surface, CSS will be used in a wide range of research fields, including space medicine, life science, biotechnology, microgravity science, Earth science and space technology. "Through the vehicle of CSS, we would like to build up a model of sincere mutual beneficial cooperation among countries in the peaceful exploration and use of outer space," said the Chinese ambassador. As a developing country itself, China stands ready to help other developing countries in their development of space technology and space capacity building in particular, he said. Guided by the idea of a shared future for mankind, CSS will be a home that is inclusive and open, a home of peace and goodwill, and a home of cooperation for mutual benefit, he added. Priyani Wijesekera, ambassador of Sri lanka to the UN in Vienna, believes that CSS would benefit developing states like Sri lanka which lacks financial means and expertise to launch such a project. "It's very interesting and we are looking forward to cooperating with China," she told Xinhua. CHINA'S MOVE TO SHARE WELCOMED Simonetta Di Pippo, director of the UN Office for Outer Space Affairs (UNOOSA) welcomed China's move to share its "state of the art space program" which is "one of the most holistic and technologically advanced in the world." "With the global challenges we all face here on Earth, it is therefore important to foster collaboration and cooperation in the field of space activities," she said. The director said technical advances in space have broader benefits to all humankind, as space is a driver and a tool for socio-economic sustainable development. In 2016, the United Nations, represented by UNOOSA, confirmed its partnership with the China Manned Space Agency (CMSA) by signing a Memorandum of Understanding to allow "Access to Space" to all UN member states, developing countries in particular, to address all 17 Sustainable Development Goals by jointly utilizing CSS. Following Monday's announcement, the UNOOSA has extended official letters to all Permanent Missions in Vienna and New York as well as offices of the United Nations Development Program, kicking off a three-month application period for public organizations, industries and private sector organizations with scientific orientation. "By working together, the sky is no longer the limit," said Di Pippo. "I believe that all the efforts that we are making together will be highly beneficial to our cooperation, to all Member States of the United Nations, and to the attainment of the Sustainable Development Goals," she said. China's exploration into outer space has been at the core of global attention since the launch of the first Chinese satellite in 1970. The planned launch of CSS next year follows the launch of space laboratory, Tiangong-1, in 2011. China has been consistent in its peaceful commitment to the outer space. Yang Liwei, China's first "taikonaut", exhibited the UN flag to the whole world on China's first space safari in 2003, followed by 10 more Chinese in his footsteps making trips into the outer space. The core module of CSS is named Tianhe, or "Harmony of the Heavens" in the Chinese language, which conveys China's hope to promote mutual trust and peace through cooperation aboard CSS. Maria Assunta Accili Sabbatini, Italy's ambassador to the UN in Vienna, said the project offers a great opportunity for Italy as the two countries' space agencies have maintained close ties. "We believe this opens a lot of room for cooperation," she said.