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### Plan

#### Plan: The People’s Republic of China should ban the appropriation of outer space for space-based solar power by private entities.

#### The plan builds norms, allows strategic signaling and bolsters US leadership

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Norms of behavior are a topic that many are familiar with but most struggle to define. In sociology, norms are defined as informal understandings that govern the behavior of members of a society (Scott & Marshall, 2009). The field of international relations defines norms as standards of appropriate behavior for actors with a given identity (Bjorkdahl, 2002). In the space context, norms have come to mean both “top down” high-level principles intended to inform the development of new international legal regimes and “bottom up” best practice guidelines intended to inform day-to-day operations (Schaffer, 2017).

The air, maritime, and even cyber domains are replete with examples of successful norms that increase the safety and efficiency of activities while also providing a measure of geopolitical stability and security benefits. Yet despite sixty-plus years of human activities in space, the space domain has yet to see the same development of norms. This is partly because human activities in space to this point have been largely limited to those of large governments and have been free from armed conflict—conditions that have limited the incentives to create norms of behavior and instead favored maximum freedom of action for all involved.

Recent trends in the space domain are changing the equation. The space domain is rapidly becoming more like the air, land, and maritime domains with the globalization of capabilities, burgeoning commercial activities, and tighter integration into all levels of military activities. The return of great power competition has created greater geopolitical tensions and concerns over future conflicts on Earth extending into space. As a result, there is a growing push from the United States and other countries for initiatives to develop norms of behavior for space activities that can help prevent future conflicts, or at the very least mitigate their harmful effects, and complement efforts to defend and protect military space capabilities (Schulte & Schaffer, 2012). Developing norms of behavior can also help with escalation dynamics, as they can help distinguish between routine and unusual behaviors. This distinction can aid risk and threat identification, particularly in a regime that has increasing commercial activities, and enable better signaling of intent.

This chapter discusses norms of behavior for space activities with a focus on military activities and potential conflict. It begins with an overview of recent initiatives to develop norms of behavior for space activities, including the reasons why they were successful or not. It then proposes ideas and concepts for future initiatives that could be undertaken to strengthen the safety, stability, and sustainability of the space regime, and concludes with an argument why the United States should actively engage in bilateral and multilateral fora to develop norms of behavior for space.

Recent Norm-Building Efforts for Space

Over the last decade, there have been three major multilateral efforts to develop norms of behavior for space. Although not all were specifically aimed at addressing security issues, they are useful examples to examine as they elide some of the procedural, political, and substantive challenges that future efforts to establish norms are likely to face.

International Code of Conduct for Outer Space

The first norm-building effort was the European Union-led International Code of Conduct (ICOC) for Outer Space Activities. The concept of the ICOC was formulated by European leaders during the mid2000s to make progress on space security issues in the face of continued geopolitical deadlock at the Conference on Disarmament and a US presidential administration that opposed the development of new legal regimes for space that limited freedom of action (Broad & Chang, 2010). The idea was to develop a set of voluntary “rules of the road” that could serve as transparency and confidence building measures (TCBMs) to enhance the safety, security, and sustainability of space (European Commission, 2015). In December 2008, the member states of the European Union (EU) approved the first draft of the code of conduct. After the 2009 Lisbon Treaty gave the EU new powers to engage in foreign and security policy making, the High Representative of the Union for Foreign Affairs and Security Policy to was given a mandate in September 2010 to conduct multilateral negotiations on the ICOC. The European External Action Service held multiple rounds of open consultations, culminating in a meeting in New York in August 2015 to try and finalize the negotiations. However, the final meeting failed to produce a consensus document, and instead the matter was referred to the United Nations General Assembly and remains in limbo (Krepon, 2015).

The ICOC failed to achieve traction for multiple reasons. The first is that it faced a mix of outright opposition and belated support from the United States. Domestically, Republicans in Congress considered the ICOC to be “stealth arms control” and took measures to try to limit US support. The Obama Administration supported the ICOC on paper but chose not to take an active role in promoting or negotiating it. The second major reason the ICOC failed was disagreement over the issue of selfdefense (Rajagopalan, 2015). Article 4.2 of the ICOC reiterated the right of States to exercise individual or collective self-defense under Article 51 of the United Nations Charter. Originally included as a nod to the US domestic critics, Article 4.2 was opposed by several developing countries who felt it was a loophole to allow the weaponization of space and created hesitation in many other countries who were not sure what it allowed or did not allow. The third major reason it failed was due to objections over the process (Johnson, 2014). Many developing countries felt they had been excluded from the process and did not have enough of a voice. Some also objected to its development outside of the United Nations process. Russia, with assistance from China, was able to leverage these concerns to sway many of the developing countries against the ICOC during the final negotiations in 2015 (Krepon, 2015). Although still voluntary, the ICOC would have been the first major international agreement on security-related space activities.

United Nations Group of Governmental Experts on Transparency and Confidence Building Measures in Outer Space Activities

The second norm-building effort was the United Nations Group of Governmental Experts (GGE) on Transparency and Confidence Building Measures in Outer Space Activities. The GGE on Space TCBMs was formed by then-Secretary General Ban Ki-Moon in 2011 after a request from the First Committee on the UN General Assembly (United Nations General Assembly, 2011). The GGE on Space TCBMs consisted of fifteen international experts nominated by Member States who were tasked with examining and reporting on methods for improving cooperation in space, and on reducing the risks of misunderstanding, mistrust, and miscalculations. The GGE’s recommendations included taking steps such as increasing information exchange on space policies and military space expenditures, forecast natural hazards in space, and international orbital break-ups (United Nations General Assembly, 2013).

The GGE on Space TCBMS was mostly successful in its efforts. The experts were able to reach consensus and published their report in July 2013. The United Nations General Assembly endorsed the report and encouraged all member nations review and implement the proposed measures through relevant national mechanisms on a voluntary basis. However, to date there has been little actual steps taken to formally implement the major recommendations of the GGE’s report aside from a joint meeting of the UN First and Fourth Committees (Hitchens, 2015). As a result, there is still a lack of transparency in military and dual-use space activities that could be a source of future misperceptions and tensions

Long-Term Sustainability of Outer Space Activities Working Group

The third norm-building effort is the Long-Term Sustainability (LTS) of Outer Space Activities Working Group within the United Nations Committee on the Peaceful Uses of Outer Space. Created in 2010, the LTS Working Group was tasked with producing a consensus report containing voluntary best-practice guidelines for all space actors to help ensure the long-term sustainable use of outer space. The LTS Working Group explored guidelines in four areas: (1) sustainable space utilization supporting sustainable development on Earth; (2) space debris, space operations, and tools to support space situational awareness sharing; (3) space weather; and (4) regulatory regimes and guidance for new actors in the space arena.

Despite troubles along the way, the LTS Working Group was able to reach consensus on more than 20 draft guidelines. Initial progress on creating draft guidelines was hindered by increasingly belligerent Russian statements and obtuse proposals for additional guidelines following the European and American sanctions after the annexation of Crimea and invasion of Ukraine. However, unlike what happened during the final ICOC negotiations, Russia was unable to convince other countries, including China and Brazil, to oppose the LTS effort, and progress eventually continued.

Consensus was reached on an initial set of 12 guidelines in February 2016 (Weeden & Samson, 2018b) and an additional nine guidelines, along with the perambulatory text, were agreed to in June 2018 (United Nations Office for Outer Space Affairs, n.d.). However, Russian obstruction prevented agreement on a General Assembly Resolution adopting the guidelines.

Future Efforts to Build Norms for Space Conflicts

Future conflicts in space could have devastating consequences for the long-term sustainability of space and the ability to use space for benefits on Earth. Thus, it is important that the United States looks to ways to prevent space from becoming the flashpoint for future conflicts, or from future conflicts on Earth from extending into space. Although not the entire answer, initiatives to develop norms of behavior can help in this regard. These future norm-building efforts can be grouped into two categories: efforts to create norms that help prevent future conflicts in space, and efforts to create norms that help manage the disastrous impacts from future conflicts in space.

Norms to help prevent future conflicts Norm-building efforts that help prevent future conflicts would essentially be extensions of the concepts and recommendations from the GGE on Space TCBMs. The main goal would be to develop norms that reducing the risks of misunderstanding, mistrust, and miscalculations that could spark or escalate conflict in space. I describe three areas on which to focus.

(1) Norms of behavior for rendezvous and proximity operations (RPO) in space. RPOs involve the deliberate altering of a satellite’s trajectory so that it comes close to another space object. In recent years, RPO technologies have started proliferating to more countries and private sector entities and are being explored for a wide range of civil and commercial applications such as satellite servicing and removal of space debris. Developing norms of behavior for civil and commercial RPO would not only increase the safety and efficiency of such activities, but also help discriminate them from potential hostile military activities in space.

(2) Norms of behavior for how militaries interact with each other in space. In a period of growing competition, innocuous or accidental behavior could be mistaken as a hostile or aggressive act, and during actual crisis, a mistake or accident could serve as the spark that escalates a situation towards armed conflict. An excellent model for this type of norm would be the Incidents at Sea Agreement, which was a treaty signed by the United States and Soviet Union in 1972 that outlined how American and Soviet ships and aircraft should interact with each other ("Agreement Between the Government", n.d.). The Incidents at Sea Agreement included steps to avoid collisions, maintaining safe distances, use of signals when maneuvering in close proximity, and avoiding activities that could be interpreted as hostile attacks. As the United States, Russia, China, and other countries increase their national security activities in space, they should consider negotiating a similar bilateral or multilateral “incidents in space agreement” to outline steps that can be taken to reduce misperceptions and increase stability in space (Listner, 2009).

(3) Norms of behavior for the testing and development of counterspace weapons. Over the last two decades, the United States, Russia, and China, among other countries, have been developing and testing a range of counterspace capabilities to deceive, disrupt, deny, degrade, or destroy space systems (Weeden & Samson, 2018a). Some of these counterspace capabilities are non-kinetic or reversible, while others involve the use of ASAT weapons to destroy satellites. Previous destructive ASAT tests have created thousands of pieces of orbital space debris, which pose a long-term hazard to commercial, civil, and military space activities (Weeden, 2010). Surprise ASAT testing could be highly escalatory and create misperceptions of actual attacks, particularly if a country has limited space situational awareness. Thus, it behooves all countries to encourage norms of behavior in ASAT testing to prevent, or at the very least minimize, the creation of long-lived orbital debris and provide prior notification of tests (Porras, 2018).

Norms to manage conflicts

Although every effort should be taken to try to prevent future conflicts from extending into space, we also must consider the possibility that they still might. While conflict may not yet be entirely preventable, humanity has taken steps to limit the indiscriminate nature of conflict and minimize the humanitarian suffering it creates. This includes development of International Humanitarian Law (IHL), also known as the Law of Armed Conflict (LOAC), which includes both formal treaties, agreed to by states and state practice that has over time developed into customary international law. IHL defines the circumstances by which states may use armed force, and limits the effects caused by armed conflict.

One important norm-building initiative for space would be the development of a manual on how IHL applies to conflicts in outer space. Such manuals already exist for the maritime, air, and cyber domains, and were developed by experts and practitioners to provide advice to military lawyers on the application and use of IHL in their respective domains. While not binding agreements, the manuals have nonetheless had an impact on how militaries conduct activities in peacetime, periods of tension, and armed conflict. Two efforts have begun to develop such a manual for space: (1) the Manual on International Law Applicable to Military Activities in Space (MILAMOS), led by McGill University in Canada (Manual on International Law Applicable to Military Uses of Outer Space, 2018); and (2) the Woomera Manual, led by the University of Adelaide in Australia and Exeter University in the United Kingdom (The Woomera Manual on International Law of Military Space Operations, 2018). Both are in their early stages, and it remains to be seen if they will be successful.

Importance of US Engagement on Norms

The United States has historically played a key role in shaping the few norms and legal principles that already exist in space. The peaceful uses of outer space, the principle at the heart of international space law, arose from the US desire to be able to use space for intelligence purposes (Loverro, 2017). As a result, the United States was able to influence the outer space legal regime in a way that greatly benefited its national security priorities and capabilities.

However, in recent years, US influence in the key multilateral fora that are actively discussing norms has waned. This is partly due to domestic politics, as seen in the ICOC negotiations, and partly due to the lack of a clear vision for what the goal of such engagement should be (Loverro, 2017). As was seen during the ICOC and LTS Working Group, Russia and China have been able to exploit the absence of the United States to try and shape the discussions towards their benefit.

As the current trends in the space domain force new thinking and discussions on the future of the space governance regime, the United States should once again be a force for increased order in space. That begins by seizing the diplomatic initiative to push for the creation of new norms of behavior in space that reflect US principles and priorities and serve as the foundation for an updated governance regime that enhances the safety, security, and stability, and sustainability of future outer space activities.

#### They’ll Say Yes--- they have a shared interest in stability and that builds coop

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China is focused on developing its own capabilities in the space domain, and increasingly depends on space-based assets for both economic and military aims that may be partly incompatible, and even in competition, with other key players, especially the United States. China sees space as critical to defending its national security and securing its role as a rising power. From China’s perspective, the most urgent problem is that the space capability gap between the United States and China is growing. China also seeks a voice in the creation of international norms and institutions — particularly because it perceives that it must accept rules that have been decided mainly by the United States.

As the two nations act on these differing priorities and goals, tensions in the space domain have had ramifications for the overall bilateral relationship. Recent testing and development of anti-satellite capabilities by China, and a doctrinal focus on “active defense” have caused the United States to openly call for a stronger focus on space protection and warfighting. From the Chinese perspective, it is necessary to develop such capabilities to support national security, close the power gap, and defend itself from American aggression.,

Failure to reconcile their differences in this domain could lead to a renewed arms race that could be to the detriment of both sides. Both countries have acknowledged the importance of developing a more stable, cooperative, and long-lasting bilateral relationship in space. Washington still hopes that Beijing can be a constructive partner for greater international space security. While China still chafes at the largely American constructed rules-based order, it likewise has a clear interest in using its development of space capabilities to promote bilateral cooperation and to play a role the formation of new international regimes. Both of these dynamics were evident in recent United Nations discussions on space governance, with an isolated Russia attempting to undermine international consensus on new guidelines for enhancing the long-term sustainability of space activities.

### Advantage – A New World Order

#### Impending Chinese development of space-based solar power ensures their geopolitical domination---cooperation prevents China from using SBSP to control all energy markets

Ray Kwong 19---an aerospace consultant, a commentator on U.S.-China relations, Foreign Policy, 6/16/19, “China Is Winning the Solar Space Race”, <https://foreignpolicy.com/2019/06/16/china-is-winning-the-solar-space-race/> DD AG

Today, if reports are accurate, China is at the forefront of the technology, which is basically solar power as you know it, except on steroids: It can collect energy 24 hours a day, seven days a week, 365 days a year. And instead of taking up millions of acres of land on the ground, space solar farms would be located in geosynchronous orbit, about 22,000 miles above sea level—far above pesky things like clouds, rain, and the cycle of day and night that make peak terrestrial solar power so intermittent. China plans on putting a commercial-scale solar power station in orbit by 2050, an accomplishment that would give it bragging rights as the first nation to harness the sun’s energy in space and beam power down to Earth.

And that’s where things start to get prickly. First, China’s space program is part and parcel of China’s military program, according to a recent report from the U.S.-China Economic and Security Review Commission. This means that the army oversees China’s space activities, with “most of China’s ostensibly civilian space activities [having] dual-use applications.”

Second, China’s space ambitions are all about the money—and an integral part of the country’s national economic rejuvenation and development goals. So if the space-based solar power demonstrator the Chinese Communist Party plans to have online as soon as next year is successful, more countries could potentially be enticed into Chinese President Xi Jinping’s signature foreign-policy venture, the Belt and Road Initiative. This cheap, emissions-free power would be hard for many countries to turn down and would dramatically deepen China’s political leverage—if not give Beijing de facto control of countries that buy it—advancing China’s goal of creating the world’s first global electrical grid.

Meanwhile, the United States has been sitting on space-based solar power technology since 1968, when NASA advisor and Apollo 11 project manager Peter Glaser published his concept of a solar power satellite as a means of harnessing solar energy for transmission to Earth in the journal Science. To top that off, Isaac Asimov, one of the most celebrated and prolific science fiction writers of all time, had predicted the idea in 1941, writing about a space station transmitting energy collected from the sun to planets here and there using microwave beams. In 1983, Asimov wrote again about solar power stations, predicting that they would be up and running, oops, by 2019.

It’s not like NASA hasn’t tried to get the space-based solar power ball rolling, providing various presidential administrations with development and evaluation reports and feasibility studies, and even suggesting it as the primary power source for a first-generation, continuously occupied lunar base. “One of the most significant challenges to the implementation of a continuously manned lunar base is power,” researchers wrote in the latter report. “Using an orbiting space based solar power station to generate electrical power and beam it to a base sited anywhere on the moon should therefore be considered. The technology to collect sunlight, generate greater than the estimated 35 kilowatts of [continuous] power [required for the lunar base], and beam it to the surface using microwaves is available today.”

Still, for a variety of reasons—most, if not all, having to do with a lack of money—there are no active space-based solar power missions on NASA’s books, much to the consternation of hundreds, if not thousands, of NASA engineers and scientists past and present who see space-based solar power as the project of their dreams.

One of these scientists is John Mankins, a former NASA physicist known for his work on space-based solar power and a man of considerable patience. He not only spent 25 years at NASA and NASA’s Jet Propulsion Laboratory advocating for space solar with nothing to show for it, but he also recently wasted hours walking me through the McCain National Defense Authorization Act for fiscal year 2019 to find any sign of space-based solar power that might be buried in that bureaucratic monstrosity. Mankins and others have recalibrated their thinking and are confident that space-based solar power costs are no longer absurd.

That said, aside from China, the space agencies of Japan, the European Union, and India are working to get their own space-based solar power programs off the ground as well. Japan’s JAXA deserves an extra shoutout. Mankins said JAXA is currently working on a new and improved road map for its program; this in addition to working on everything including space elevators, space junk removal, looking for water on asteroids, and building motor home-sized moon rovers. And at the end of May, the governments of the United States and Japan, both major partners on the International Space Station, agreed to further cooperation in space that could include flying Japanese astronauts to the moon.

But it’s China’s interest in space-based solar power—and the United States’ apparent disinterest—that hold the most geopolitical implications. Energy plays a decisive role in global geopolitics and international order. It has buttressed the rise of great powers, propagated the genesis of alliances, and, too often, sparked the emergence of conflict and wars. Bottom line? In the worst case, the country that first harnesses the power of the sun from space wins, hands down. While earthbound renewable energy is largely a private sector thing, space-based solar power, at least in this scenario, would be a single-source, state-based game-changer that could easily be exploited for geopolitical gain. China’s steady pursuit of militarizing commercial space technologies only makes things more complex—or ominous, depending on one’s perspective.

Being the first mover, of course, doesn’t give China a categorical or insurmountable advantage. For all we know now, their space-based solar power technology is straight from the NASA open-source playbook. But that means that the United States has to act quickly—not only to counter inevitable technology evolution, but also to at least keep pace with the energy market evolution brought on by the climate crisis. To be sure, getting the current U.S. administration to buy into and commit to space-based solar power is an iffy proposition. As it stands, NASA has to grovel for funding, even as the White House accelerates major mission dates. (Curiously, though, it gets money for things it doesn’t even ask for, like an extra $125 million to develop nuclear rockets.)

That puts the United States at a critical moment. Will a 2020 U.S. presidential candidate latch onto space-based solar power as a way to make the Green New Deal a global endeavor? Maybe. Will commercial companies—American or otherwise—along with countries already working on it, partner up in the name of big science to work together to make it happen? Perhaps. Or will China’s space-based solar power play result in an extraordinary hegemonic shift in global dominance? It’s looking that way—and that keeps me up at night.

#### Successful Chinese expansion destroys the liberal order

Hal Brands 17, the Henry A. Kissinger Distinguished Professor at the Henry A. Kissinger Center for Global Affairs at Johns Hopkins University's School of Advanced International Studies and a senior fellow at the Center for Strategic and Budgetary Assessments, 12/14/17, “Trump Could Actually Make Democracy Great Again. Don't Scoff.,” <https://www.bloomberg.com/view/articles/2017-12-14/trump-could-actually-make-democracy-great-again-don-t-scoff> DD AG

Third, the best way of promoting liberal values over the long run is to sustain a broader international system in which democracies, rather than hostile autocracies, are geopolitically dominant -- even if that requires working with friendly authoritarians in the short run. When Woodrow Wilson spoke of making the world safe for democracy during World War I, he was not calling for a crusade to spread democracy across the globe. He was arguing that America must stop authoritarian regimes -- in that case, the Kaiser’s Germany -- from becoming geopolitically dominant in a way that would ultimately make it difficult for democracies anywhere to thrive.

Likewise, during the Cold War, the U.S. regularly cut deals with friendly dictators in China, Saudi Arabia and elsewhere in the service of containing communism, and thereby preserving an international system in which liberal values could survive and flourish.

Today, the single most important thing the U.S. can do to enhance the long-term prospects for the spread of democracy is to prevent Russia and China from overturning -- or even severely disrupting -- the stable and broadly liberal international system it has long worked to construct. To the extent that Washington can keep China from becoming the supreme power in East Asia, to the extent it can stop Moscow from restoring its lost sphere of influence in the former Soviet Union and Eastern Europe, it can create the ideological and geopolitical space for liberal values to flourish -- even if doing so requires cooperating with questionable regimes in Bangkok, Singapore and Warsaw along the way.

#### Incentivizing peaceful participation causes shared global governance and stops the spread of authoritarianism - takes out impact turns bc we don’t shut the door on some level of Chinese leadership

Timothy Heath 18, Senior defense and international research analyst with the nonprofit, nonpartisan RAND Corporation, 6/20/18, “Without Reform and Cooperation with China, the International System Cannot Hold,” [https://nationalinterest.org/feature/without-reform-cooperation-china-the-international-system-26350?page=0%2C1](https://nationalinterest.org/feature/without-reform-cooperation-china-the-international-system-26350?page=0%2C1D) DD AG

China’s belligerence in the South and East China Seas and its state-supported industrial policies and theft of intellectual property are well cataloged. Increasingly, however, China’s challenge to the existing order is also apparent in its efforts to shut down discussion of issues like Taiwan and Tibet—and to punish journalists, scholars, or officials who violate these demands—around the world. Resisting the forcible extension of democracy is one thing. Actively undermining free societies from the outside is a very different proposition—and one that could place China far more at odds with the prevailing order than has previously been the case.

Given that the United States remains the essential leader of the international system, growing Chinese willingness to contest aspects of that order unavoidably weaken U.S. influence and exacerbate instability. If left unchecked, China’s challenge could also result in the export of increasingly authoritarian values and shape an international order in which Beijing sets the terms of every deal, takes whatever intellectual property or resources it wants, and threatens those who resist with economic ruin and military force.

A revitalized international order thus requires the United States to compete more effectively with China to defend fundamental values and norms—and a vibrant multilateral order can help in that process. The United States could strengthen its engagement with international institutions and take action to protect its interests and those of its allies. The United States could continue to muster international backing for the widely-supported norm of the peaceful resolution of disputes. America could also continue to press China to cease predatory economic policies such as intellectual property theft and forced technology transfer.

But unavoidable U.S.-China competition for influence does not invalidate the possibility, and potential value, of collaborating with Beijing on a shared international order. The global system is already experiencing considerable stress, and finding ways to cooperate with China on shared concerns is essential if the situation is not to worsen further. Working with China, the United States and its allies and partners could help fashion a multilateral system that ultimately provides the United States with greater influence and sets norms to which all countries could be judged, including China. Strong U.S. leadership, backed by military strength and cooperation with its network of allies and partners, will remain essential to deterring China from considering dangerous acts of aggression against its neighbors. But a resilient and responsive multilateral order can incentivize China to operate primarily within, as opposed to outside, international institutions.

In the process, the United States could seek opportunities to involve itself in Chinese-led institutions and show flexibility in expanding China’s role in institutions led by the United States and its allies. Chinese initiatives, such as the Asian Infrastructure Investment Bank and the Belt and Road Initiative, could be viewed as opportunities for the United States to get involved and shape the evolution of related norms and institutions. Similarly, Washington could seek ways to ensure China’s voice is fairly represented in relevant institutions founded by western countries, such as the International Monetary Fund.

The simple fact is that without at least tacit Chinese support, no rule-based international order can survive. It is inevitable that there will have to be reforms to address Beijing’s concerns and to provide it with a continued stake in the international order. The trick is to decide where compromise is acceptable for U.S. interests and to draw clear lines around principles where it is not.

#### The liberal order prevents extinction from nuclear war and rogue tech development

Yuval Noah Harari 18, Professor of History at Hebrew University of Jerusalem, 9/26/18, “We need a post-liberal order now,” The Economist, <https://www.economist.com/open-future/2018/09/26/we-need-a-post-liberal-order-now>

For several generations, the world has been governed by what today we call “the global liberal order”. Behind these lofty words is the idea that all humans share some core experiences, values and interests, and that no human group is inherently superior to all others. Cooperation is therefore more sensible than conflict. All humans should work together to protect their common values and advance their common interests. And the best way to foster such cooperation is to ease the movement of ideas, goods, money and people across the globe.

Though the global liberal order has many faults and problems, it has proved superior to all alternatives. The liberal world of the early 21st century is more prosperous, healthy and peaceful than ever before. For the first time in human history, starvation kills fewer people than obesity; plagues kill fewer people than old age; and violence kills fewer people than accidents. When I was six months old I didn’t die in an epidemic, thanks to medicines discovered by foreign scientists in distant lands. When I was three I didn’t starve to death, thanks to wheat grown by foreign farmers thousands of kilometers away. And when I was eleven I wasn’t obliterated in a nuclear war, thanks to agreements signed by foreign leaders on the other side of the planet. If you think we should go back to some pre-liberal golden age, please name the year in which humankind was in better shape than in the early 21st century. Was it 1918? 1718? 1218?

Nevertheless, people all over the world are now losing faith in the liberal order. Nationalist and religious views that privilege one human group over all others are back in vogue. Governments are increasingly restricting the flow of ideas, goods, money and people. Walls are popping up everywhere, both on the ground and in cyberspace. Immigration is out, tariffs are in.

If the liberal order is collapsing, what new kind of global order might replace it? So far, those who challenge the liberal order do so mainly on a national level. They have many ideas about how to advance the interests of their particular country, but they don’t have a viable vision for how the world as a whole should function. For example, Russian nationalism can be a reasonable guide for running the affairs of Russia, but Russian nationalism has no plan for the rest of humanity. Unless, of course, nationalism morphs into imperialism, and calls for one nation to conquer and rule the entire world. A century ago, several nationalist movements indeed harboured such imperialist fantasies. Today’s nationalists, whether in Russia, Turkey, Italy or China, so far refrain from advocating global conquest.

In place of violently establishing a global empire, some nationalists such as Steve Bannon, Viktor Orban, the Northern League in Italy and the British Brexiteers dream about a peaceful “Nationalist International”. They argue that all nations today face the same enemies. The bogeymen of globalism, multiculturalism and immigration are threatening to destroy the traditions and identities of all nations. Therefore nationalists across the world should make common cause in opposing these global forces. Hungarians, Italians, Turks and Israelis should build walls, erect fences and slow down the movement of people, goods, money and ideas.

The world will then be divided into distinct nation-states, each with its own sacred identity and traditions. Based on mutual respect for these differing identities, all nation-states could cooperate and trade peacefully with one another. Hungary will be Hungarian, Turkey will be Turkish, Israel will be Israeli, and everyone will know who they are and what is their proper place in the world. It will be a world without immigration, without universal values, without multiculturalism, and without a global elite—but with peaceful international relations and some trade. In a word, the “Nationalist International” envisions the world as a network of walled-but-friendly fortresses.

Many people would think this is quite a reasonable vision. Why isn’t it a viable alternative to the liberal order? Two things should be noted about it. First, it is still a comparatively liberal vision. It assumes that no human group is superior to all others, that no nation should dominate its peers, and that international cooperation is better than conflict. In fact, liberalism and nationalism were originally closely aligned with one another. The 19th century liberal nationalists, such as Giuseppe Garibaldi and Giuseppe Mazzini in Italy, and Adam Mickiewicz in Poland, dreamt about precisely such an international liberal order of peacefully-coexisting nations.

The second thing to note about this vision of friendly fortresses is that it has been tried—and it failed spectacularly. All attempts to divide the world into clear-cut nations have so far resulted in war and genocide. When the heirs of Garibaldi, Mazzini and Mickiewicz managed to overthrow the multi-ethnic Habsburg Empire, it proved impossible to find a clear line dividing Italians from Slovenes or Poles from Ukrainians.

This had set the stage for the second world war. The key problem with the network of fortresses is that each national fortress wants a bit more land, security and prosperity for itself at the expense of the neighbors, and without the help of universal values and global organisations, rival fortresses cannot agree on any common rules. Walled fortresses are seldom friendly.

But if you happen to live inside a particularly strong fortress, such as America or Russia, why should you care? Some nationalists indeed adopt a more extreme isolationist position. They don’t believe in either a global empire or in a global network of fortresses. Instead, they deny the necessity of any global order whatsoever. “Our fortress should just raise the drawbridges,” they say, “and the rest of the world can go to hell. We should refuse entry to foreign people, foreign ideas and foreign goods, and as long as our walls are stout and the guards are loyal, who cares what happens to the foreigners?”

Such extreme isolationism, however, is completely divorced from economic realities. Without a global trade network, all existing national economies will collapse—including that of North Korea. Many countries will not be able even to feed themselves without imports, and prices of almost all products will skyrocket. The made-in-China shirt I am wearing cost me about $5. If it had been produced by Israeli workers from Israeli-grown cotton using Israeli-made machines powered by non-existing Israeli oil, it may well have cost ten times as much. Nationalist leaders from Donald Trump to Vladimir Putin may therefore heap abuse on the global trade network, but none thinks seriously of taking their country completely out of that network. And we cannot have a global trade network without some global order that sets the rules of the game.

Even more importantly, whether people like it or not, humankind today faces three common problems that make a mockery of all national borders, and that can only be solved through global cooperation. These are nuclear war, climate change and technological disruption. You cannot build a wall against nuclear winter or against global warming, and no nation can regulate artificial intelligence (AI) or bioengineering single-handedly. It won’t be enough if only the European Union forbids producing killer robots or only America bans genetically-engineering human babies. Due to the immense potential of such disruptive technologies, if even one country decides to pursue these high-risk high-gain paths, other countries will be forced to follow its dangerous lead for fear of being left behind.

An AI arms race or a biotechnological arms race almost guarantees the worst outcome. Whoever wins the arms race, the loser will likely be humanity itself. For in an arms race, all regulations will collapse. Consider, for example, conducting genetic-engineering experiments on human babies. Every country will say: “We don’t want to conduct such experiments—we are the good guys. But how do we know our rivals are not doing it? We cannot afford to remain behind. So we must do it before them.”

Similarly, consider developing autonomous-weapon systems, that can decide for themselves whether to shoot and kill people. Again, every country will say: “This is a very dangerous technology, and it should be regulated carefully. But we don’t trust our rivals to regulate it, so we must develop it first”.

The only thing that can prevent such destructive arms races is greater trust between countries. This is not an impossible mission. If today the Germans promise the French: “Trust us, we aren’t developing killer robots in a secret laboratory under the Bavarian Alps,” the French are likely to believe the Germans, despite the terrible history of these two countries. We need to build such trust globally. We need to reach a point when Americans and Chinese can trust one another like the French and Germans.

Similarly, we need to create a global safety-net to protect humans against the economic shocks that AI is likely to cause. Automation will create immense new wealth in high-tech hubs such as Silicon Valley, while the worst effects will be felt in developing countries whose economies depend on cheap manual labor. There will be more jobs to software engineers in California, but fewer jobs to Mexican factory workers and truck drivers. We now have a global economy, but politics is still very national. Unless we find solutions on a global level to the disruptions caused by AI, entire countries might collapse, and the resulting chaos, violence and waves of immigration will destabilise the entire world.

This is the proper perspective to look at recent developments such as Brexit. In itself, Brexit isn’t necessarily a bad idea. But is this what Britain and the EU should be dealing with right now? How does Brexit help prevent nuclear war? How does Brexit help prevent climate change? How does Brexit help regulate artificial intelligence and bioengineering? Instead of helping, Brexit makes it harder to solve all of these problems. Every minute that Britain and the EU spend on Brexit is one less minute they spend on preventing climate change and on regulating AI.

In order to survive and flourish in the 21st century, humankind needs effective global cooperation, and so far the only viable blueprint for such cooperation is offered by liberalism. Nevertheless, governments all over the world are undermining the foundations of the liberal order, and the world is turning into a network of fortresses. The first to feel the impact are the weakest members of humanity, who find themselves without any fortress willing to protect them: refugees, illegal migrants, persecuted minorities. But if the walls keep rising, eventually the whole of humankind will feel the squeeze.

#### The solution to critiques of liberalism is more liberalism---institutional innovations make it self-correcting and key to human prosperity---attempts to replace that order empirically fail

G. John Ikenberry 18, Albert G. Milbank Professor of Politics and International Affairs at Princeton University; Daniel Deudney, Associate Professor of Political Science at Johns Hopkins University, August 2018, “Liberal World The Resilient Order,” <https://www.foreignaffairs.com/articles/world/2018-06-14/liberal-world> DD AG

THE LIBERAL VISION Modern liberalism holds that world politics requires new levels of political integration in response to relentlessly rising interdependence. But political orders do not arise spontaneously, and liberals argue that a world with more liberal democratic capitalist states will be more peaceful, prosperous, and respectful of human rights. It is not inevitable that history will end with the triumph of liberalism, but it is inevitable that a decent world order will be liberal. The recent rise of illiberal forces and the apparent recession of the liberal international order may seem to call this school of thought into question. But despite some notable exceptions, states still mostly interact through well-worn institutions and in the spirit of selfinterested, pragmatic accommodation. Moreover, part of the reason liberalism may look unsuited to the times is that many of its critics assail a strawman version of the theory. Liberals are often portrayed as having overly optimistic even utopian-assumptions about the path of human history. In reality, they have a much more conditional and tempered optimism that recognizes tragic tradeoffs, and they are keenly attentive to the possibilities for large-scale catastrophes. Like realists, they recognize that it is often human nature to seek power, which is why they advocate constitutional and legal restraints. But unlike realists, who see history as cyclical, liberals are heirs to the Enlightenment project of technological innovation, which opens new possibilities both for human progress and for disaster. Liberalism is essentially pragmatic. Modern liberals embrace democratic governments, market-based economic systems, and international institutions not out of idealism but because they believe these arrangements are better suited to realizing human interests in the modern world than any alternatives. Indeed, in thinking about world order, the variable that matters most for liberal thinkers is interdependence. For the first time in history, global institutions are now necessary to realize basic human interests; intense forms of interdependence that were once present only on a smaller scale are now present on a global scale. For example, whereas environmental problems used to be contained largely within countries or regions, the cumulative effect of human activities on the planet's biospheric life-support system has now been so great as to require a new geologic name for the current time period-the Anthropocene. Unlike its backwardlooking nationalist and realist rivals, liberalism has a pragmatic adaptability and a penchant for institutional innovations that are vital for responding to such emerging challenges as artificial intelligence, cyberwarfare, and genetic engineering. Overall, liberalism remains perennially and universally appealing because it rests on a commitment to the dignity and freedom of individuals. It enshrines the idea of tolerance, which will be needed in spades as the world becomes increasingly interactive and diverse. Although the ideology emerged in the West, its values have become universal, and its champions have extended to encompass Mahatma Gandhi, Mikhail Gorbachev, and Nelson Mandela. And even though imperialism, slavery, and racism have marred Western history, liberalism has always been at the forefront of efforts-both peaceful and militant-to reform and end these practices. To the extent that the long arc of history does bend toward justice, it does so thanks to the activism and moral commitment of liberals and their allies. DEMOCRATIC DECLINE IN PERSPECTIVE In many respects, today's liberal democratic malaise is a byproduct of the liberal world order's success. After the Cold War, that order became a global system, expanding beyond its birthplace in the West. But as free markets spread, problems began to crop up: economic inequality grew, old political bargains between capital and labor broke down, and social supports eroded. The benefits of globalization and economic expansion were distributed disproportionately to elites. Oligarchic power bloomed. A modulated form of capitalism morphed into winnertake-all casino capitalism. Many new democracies turned out to lack the traditions and habits necessary to sustain democratic institutions. And large flows of immigrants triggered a xenophobic backlash. Together, these developments have called into question the legitimacy of liberal democratic life and created openings for opportunistic demagogues. Just as the causes of this malaise are clear, so is its solution: a return to the fundamentals of liberal democracy. Rather than deeply challenging the first principles of liberal democracy, the current problems call for reforms to better realize them. To reduce inequality, political leaders will need to return to the social democratic policies embodied in the New Deal, pass more progressive taxation, and invest in education and infrastructure. To foster a sense of liberal democratic identity, they will need to emphasize education as a catalyst for assimilation and promote national and public service. In other words, the remedy for the problems of liberal democracy is more liberal democracy; liberalism contains the seeds of its own salvation. Indeed, liberal democracies have repeatedly recovered from crises resulting from their own excesses. In the 1930s, overproduction and the integration of financial markets brought about an economic depression, which triggered the rise of fascism. But it also triggered the New Deal and social democracy, leading to a more stable form of capitalism. In the 1950s, the success of the Manhattan Project, combined with the emerging U.S.-Soviet rivalry, created the novel threat of a worldwide nuclear holocaust. That threat gave rise to arms control pacts and agreements concerning the governance of global spaces, deals forged by the United States in collaboration with the Soviet Union. In the 1970s, rising middle-class consumption led to oil shortages, economic stagnation, and environmental decay. In response, the advanced industrial democracies established oil coordination agreements, invested in clean energy, and struck numerous international environmental accords aimed at reducing pollutants. The problems that liberal democracies face today, while great, are certainly not more challenging than those that they have faced and overcome in these historically recent decades. Of course, there is no guarantee that liberal democracies will successfully rise to the occasion, but to count them out would fly in the face of repeated historical experiences. Today's dire predictions ignore these past successes. They suffer from a blinding presentism. Taking what is new and threatening as the master pattern is an understandable reflex in the face of change, but it is almost never a very good guide to the future. Large-scale human arrangements such as liberal democracy rarely change as rapidly or as radically as they seem to in the moment. If history is any guide, today's illiberal populists and authoritarians will evoke resistance and countermovements. THE RESILIENT ORDER After World War II, liberal democracies joined together to create an international order that reflected their shared interests. And as is the case with liberal democracy itself, the order that emerged to accompany it cannot be easily undone. For one thing, it is deeply embedded. Hundreds of millions, if not billions, of people have geared their activities and expectations to the order's institutions and incentives, from farmers to microchip makers. However unappealing aspects of it may be, replacing the liberal order with something significantly different would be extremely difficult. Despite the high expectations they generate, revolutionary moments often fail to make enduring changes. It is unrealistic today to think that a few years of nationalist demagoguery will dramatically undo liberalism. Growing interdependence makes the order especially difficult to overturn. Ever since its inception in the eighteenth century, liberalism has been deeply committed to the progressive improvement of the human condition through scientific discovery and technological advancements. This Enlightenment project began to bear practical fruits on a large scale in the nineteenth century, transforming virtually every aspect of human life. New techniques for production, communication, transportation, and destruction poured forth. The liberal system has been at the forefront not just of stoking those fires of innovation but also of addressing the negative consequences. Adam Smith's case for free trade, for example, was strengthened when it became easier to establish supply chains across global distances. And the age-old case for peace was vastly strengthened when weapons evolved from being simple and limited in their destruction to the city-busting missiles of the nuclear era. Liberal democratic capitalist societies have thrived and expanded because they have been particularly adept at stimulating and exploiting innovation and at coping with their spillover effects and negative externalities. In short, liberal modernity excels at both harvesting the fruits of modern advance and guarding against its dangers. This dynamic of constant change and ever-increasing interdependence is only accelerating. Human progress has caused grave harm to the planet and its atmosphere, yet climate change will also require unprecedented levels of international cooperation. With the rise of bioweapons and cyberwarfare, the capabilities to wreak mass destruction are getting cheaper and ever more accessible, making the international regulation of these technologies a vital national security imperative for all countries. At the same time, global capitalism has drawn more people and countries into cross-border webs of exchange, thus making virtually everyone dependent on the competent management of international finance and trade. In the age of global interdependence, even a realist must be an internationalist. The international order is also likely to persist because its survival does not depend on all of its members being liberal democracies. The return of isolationism, the rise of illiberal regimes such as China and Russia, and the general recession of liberal democracy in many parts of the world appear to bode ill for the liberal international order. But contrary to the conventional wisdom, many of its institutions are not uniquely liberal in character. Rather, they are Westphalian, in that they are designed merely to solve problems of sovereign states, whether they be democratic or authoritarian. And many of the key participants in these institutions are anything but liberal or democratic. Consider the Soviet Union's cooperative efforts during the Cold War. Back then, the liberal world order was primarily an arrangement among liberal democracies in Europe, North America, and East Asia. Even so, the Soviet Union often worked with the democracies to help build international institutions. Moscow's committed antiliberal stance did not stop it from partnering with Washington to create a raft of arms control agreements. Nor did it stop it from cooperating with Washington through the World Health Organization to spearhead a global campaign to eradicate smallpox, which succeeded in completely eliminating the disease by 1979. More recently, countries of all stripes have crafted global rules to guard against environmental destruction. The signatories to the Paris climate agreement, for example, include such autocracies as China, Iran, and Russia. Westphalian approaches have also thrived when it comes to governing the commons, such as the ocean, the atmosphere, outer space, and Antarctica. To name just one example, the 1987 Montreal Protocol, which has thwarted the destruction of the ozone layer, has been actively supported by democracies and dictatorships alike. Such agreements are not challenges to the sovereignty of the states that create them but collective measures to solve problems they cannot address on their own. Most institutions in the liberal order do not demand that their backers be liberal democracies; they only require that they be status quo powers and capable of fulfilling their commitments. They do not challenge the Westphalian system; they codify it. The UN, for example, enshrines the principle of state sovereignty and, through the permanent members of the Security Council, the notion of great-power decision-making. All of this makes the order more durable. Because much of international cooperation has nothing at all to do with liberalism or democracy, when politicians who are hostile to all things liberal are in power, they can still retain their international agendas and keep the order alive. The persistence of Westphalian institutions provides a lasting foundation on which distinctively liberal and democratic institutions can be erected in the future. Another reason to believe that the liberal order will endure involves the return of ideological rivalry. The last two and a half decades have been profoundly anomalous in that liberalism has had no credible competitor. During the rest of its existence, it faced competition that made it stronger. Throughout the nineteenth century, liberal democracies sought to outperform monarchical, hereditary, and aristocratic regimes. During the first half of the twentieth century, autocratic and fascist competitors created strong incentives for the liberal democracies to get their own houses in order and band together. And after World War II, they built the liberal order in part to contain the threat of the Soviet Union and international communism. The Chinese Communist Party appears increasingly likely to seek to offer an alternative to the components of the existing order that have to do with economic liberalism and human rights. If it ends up competing with the liberal democracies, they will again face pressure to champion their values. As during the Cold War, they will have incentives to undertake domestic reforms and strengthen their international alliances. The collapse of the Soviet Union, although a great milestone in the annals of the advance of liberal democracy, had the ironic effect of eliminating one of its main drivers of solidarity. The bad news of renewed ideological rivalry could be good news for the liberal international order. CORE MELTDOWN In challenging the U.S. commitment to NATO and the trading rules of the North American Free Trade Agreement (NAFTA) and the World Trade Organization, Trump has called into question the United States' traditional role as the leader of the liberal order. And with the vote to leave the EU, the United Kingdom has launched itself into the uncharted seas of a full withdrawal from Europe's most prized postwar institution. In an unprecedented move, the Anglo-American core of the liberal order appears to have fully reversed course. Despite what the backers of Trump and Brexit promise, actually effecting a real withdrawal from these long-standing commitments will be difficult to accomplish. That's because the institutions of the liberal international order, although often treated as ephemeral and fragile, are actually quite resilient. They did not emerge by accident; they were the product of deeply held interests. Over the decades, the activities and interests of countless actors-corporations, civic groups, and government bureaucracies-have become intricately entangled in these institutions. Severing those institutional ties sounds simple, but in practice, it is devilishly complicated. The difficulties have already become abundantly clear with Brexit. It is not so easy, it turns out, to undo in one fell swoop a set of institutional arrangements that were developed over five decades and that touch on virtually every aspect of British life and government. Divorcing the EU means scrapping solutions to real problems, problems that haven't gone away. In Northern Ireland, for example, negotiators in the 1990s found an elegant solution to the long-running conflict there by allowing the region to remain part of the United Kingdom but insisting that there be no border controls between it and the Republic of Ireland-a bargain that leaving the EU'S single market and customs union would undo. If officials do manage to fully implement Brexit, it seems an inescapable conclusion that the United Kingdom's economic output and influence in the world will fall. Likewise, the initial efforts by the Trump administration to unilaterally alter the terms of trade with China and renegotiate NAFTA with Canada and Mexico have revealed how intertwined these countries' economies are with the U.S. economy. New international linkages of production and trade have clearly produced losers, but they have also produced many winners who have a vested interest in maintaining the status quo. Farmers and manufacturers, for instance, have reaped massive gains from NAFTA and have lobbied hard for Trump to keep the agreement intact, making it politically difficult for him to pull off an outright withdrawal. The incentives for Washington to stay in international security institutions are even greater. Abandoning NATO, as candidate Trump suggested the United States should do, would massively disrupt a security order that has provided seven decades of peace on a historically wartorn continent-and doing so at a time when Russia is resurgent would be all the more dangerous. The interests of the United States are so obviously well served by the existing security order that any American administration would be compelled to sustain them. Indeed, in lieu of withdrawing from NATO, Trump, as president, has shifted his focus to the time-honored American tradition of trying to get the Europeans to increase their defense spending to bear more of the burden. Similarly, major pieces of the nuclear arms control architecture from the end of the Cold War are unraveling and expiring. Unless American diplomatic leadership is forthcoming, the world may find itself thrown back into a largely unregulated nuclear arms race. The Trump administration's initiatives on trade and alliance politics have generated a great deal of anxiety and uncertainty, but their actual effect is less threatening-more a revisiting of bargains than a pulling down of the order itself. Setting aside Trump's threats of complete withdrawal and his chaotic and impulsive style, his renegotiations of trade deals and security alliances can be seen as part an ongoing and necessary, if sometimes ugly, equilibration of the arrangements underlying the institutions of the liberal world order. Moreover, despite Trumps relentless demeaning of the international order, he has sometimes acted in ways that fulfill, rather than challenge, the traditional American role in it. His most remarkable use of force so far has been to bomb Syria for its egregious violations of international norms against the use of chemical weapons on civilians. His policy toward Russia, while convoluted and compromised, has essentially been a continuation of that pursued by the George W. Bush and Obama administrations: sanctioning Russia for its revisionism in eastern Europe and cyberspace. Perhaps most important, Trump's focus on China as a great-power rival will compel him or some future administration to refurbish and expand U.S. alliances rather than withdraw from them. On the issues that matter most, Trump's foreign policy, despite its "America first" rhetoric and chaotic implementation, continues to move along the tracks of the American-built order. In other areas, of course, Trump really is undermining the liberal order. But as the United States has stepped back, others have stepped forward to sustain the project. In a speech before the U.S. Congress in April, French President Emmanuel Macron spoke for many U.S. allies when he called on the international community to "step up our game and build the twenty-first-century world order, based on the perennial principles we established together after World War II." Many allies are already doing just that. Even though Trump withdrew the United States from the Trans-Pacific Partnership, the trade deal lives on, with the 11 other member states implementing their own version of the pact. Similarly, Trumps withdrawal from the Paris agreement has not stopped dozens of other countries from working to implement its ambitious goals. Nor is it preventing many U.S. states, cities, companies, and individuals from undertaking their own efforts. The liberal order may be losing its chief patron, but it rests on much more than leadership from the Oval Office. THE LONG VIEW It is easy to view developments over the last few years as a rebuke to the theory of liberalism and as a sign of the eclipse of liberal democracies and their international order. But that would be a mistake. Although the recent challenges should not be underestimated, it is important to recognize that they are closer to the rule than the exception. Against the baseline of the 1990s, when the end of the Cold War seemed to signal the permanent triumph of liberal democracy and the "end of history," the recent setbacks and uncertainties look insurmountable. In the larger sweep of history, however, Brexit, Trump, and the new nationalism do not seem so unprecedented or perilous. The liberal democracies have survived and flourished in the face of far greater challenges-the Great Depression, the Axis powers, and the international communist movement. There is every reason to believe they can outlive this one. Above all, the case for optimism about liberalism rests on a simple truth: the solutions to today's problems are more liberal democracy and more liberal order. Liberalism is unique among the major theories of international relations in its protean vision of interdependence and cooperation-features of the modern world that will only become more important as the century unfolds. Throughout the course of history, evolution, crises, and tumultuous change have been the norm, and the reason liberalism has done so well is that its ways of life are so adept at riding the tumultuous storms of historical change. Indeed, the cumulative effect of Trumps nativistic rhetoric and dangerous policies has been not to overthrow the system but to stimulate adjustments within it. Fisher Ames, a representative from Massachusetts in the first U.S. Congress, once compared autocracy to a merchant ship, "which sails well, but will sometimes strike on a rock, and go to the bottom." A republic, he said, "is a raft, which would never sink, but then your feet are always in water." The liberal order and its democracies will prevail because the stately ships of illiberalism readily run aground in turbulent times, while the resilient raft of liberalism lumbers along.0

#### Offering cooperation over SBSP acts as an olive branch that moderates aggressive Chinese behavior and prevents miscalculation from a space arms race

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As China’s interests continue to expand outward from its shores, it seeks to build a military capable of protecting its economic interests overseas. For example, China has participated in counterpiracy operations in the Gulf of Aden since 2008 and recently established a permanent base in Djibouti to aid in this effort and serve as a PLA logistics hub for the region. This base will assist the PLA Navy in extending its reach while also securing sea lines of communication, through which much of China’s imports and exports transit. Beijing also has grand ambitions in space, many of which are economical and also require protection. These ambitions include projects to start lunar and asteroid mining, bring the BeiDou-2 Navigation Satellite System network into global service by 2020 and establish a Chinese space station by 2022. Beijing even has preliminary plans for an ambitious space-based solar energy network that will use microwaves to transmit power back to Earth by 2050.10 In the Strategic Studies Quarterly 12, no. 1 edition, Dr. Namrata Goswami argues that Chinese space exploration must be viewed through the broader framework of the Chinese economy’s expanding need for resources.11 She explains that President Xi sees space Counter and Cooperate AIR & SPACE POWER JOURNAL  SPRING 2019 73 as an environment for scientific innovation as well as an opportunity to revitalize stagnant state-owned enterprises. She goes on to state that “. . . these goals are unique as they indicate a completely different view of space. Rather than just an arena for conquest and showing off, China views space as an environment in which to live, work, and create wealth through habitation and resource extraction.”12 This begs the question: how will China protect its interests in space? Leadership in Beijing will increasingly have to consider how it will secure these important economic assets in a realm where there are few laws or agreed upon codes of conduct. Although this analysis is not exhaustive, it provides a basis for understanding China’s current space initiatives and ambitions. So what kind of policy should Washington adopt to accommodate China’s interests, advance our own, and dissuade Beijing from extending a potential conflict into space? An intelligent approach will be two-fold. On one hand, we should foster cooperation where our interests with the Chinese overlap. On the other, we should develop a comprehensive approach for defending our interests, especially in the SCS. The latter issue is of great importance because we must first confront Beijing’s transgressions here on Earth to deter China’s militaristic expansionism in space. Proposals for US Policy Cooperate China’s economic and military rise during the last several decades was made possible by the post-World War II economic order established by the US. However, as a great power, China is unsatisfied with the current US-led order that it did little to help shape. Beijing and Washington are increasingly at odds internationally as their competing interests and visions for the future begin to collide. New avenues for cooperation are desperately needed to foster mutual trust and create an environment where the US and China can coexist with minimal friction. Space presents an excellent opportunity for coop

eration between Washington and Beijing. Our two nations will compete in this realm—there is no avoiding that. However, both parties will benefit greatly from having a standardized set of rules governing military and economic activities in space. Hopefully, if these two great powers establish a framework of behaviors and norms for space, the rest of the world will follow suit. To start, the US should extend an olive branch. As Brian Wee den and Xiao He point out in their article for War on the Rocks, “Washington still hopes that Beijing can be a constructive partner for greater international space security. While China still chafes at the largely American constructed rules-based order, it likewise has a clear interest in using its development of space capabilities to promote bilateral cooperation and to play a role the formation of new international regimes.”13 While Russia seeks to undermine international space initiatives, Beijing and Washington should look toward the future and create a bold plan for space governance. This does not mean intimate cooperation, but there should be norms and codes for how government entities and private corporations 74 AIR & SPACE POWER JOURNAL  SPRING 2019 Loftus should act in space. Weeden and He go on to say that both sides should seek to establish confidence-building mechanisms to help build trust as well as processes for cooperation and deconfliction. On the economic front, private companies crave stability and clear rules. If the world’s two preeminent military and economic powers establish clear guidelines early on, potential financiers will have greater confidence to invest the large up-front costs for expensive space-based projects. This leads to the next point that both sides should promote: private sector cooperation in the space domain. It would be advantageous for both sides if private corporations in the US and China pursue space exploration together. Space-lift capabilities, space stations, asteroid mining, lunar stations, and other endeavors all require significant initial costs. By partnering, American and Chinese corporations could call upon the support of both the Chinese and US governments in seeking out new resources such as solar power, rare elements, and numerous other fields for scientific discovery that would be of great benefit to people everywhere. A private-sector partnership should be plausible as long as intellectual property rights are respected and the governments involved don’t micromanage the projects. Deep US–Chinese economic integration is often cited as one reason war between our two nations is unthinkable. Why would the same logic not extend to space? Despite the potential space holds for cooperation, there is plenty of room for conflict. While high-ranking military officials in both China and the US believe the militarization of space is inevitable, it would be beneficial to agree upon one rule up front: no kinetic strikes.14 In 2007, China tested an antisatellite missile against one of its failing weather satellites, projecting debris that continues to threaten space-based assets to this day. A kinetic battle involving satellites would create clouds of space junk for which there is no current remedy. Both Beijing and Washington have reason to limit space warfare to nonkinetic means. If a conflict were to occur, there are a number of different ways to neutralize or affect satellites short of kinetic strikes. These methods include radio frequency jamming and lasers that can temporarily incapacitate or even completely destroy satellite-based sensors. It should be added that spy satellites are important to building trust. Spy satellites allow nation-states to have an understanding of what their rivals are doing, at least partially allaying suspicion of the other party. A similar terrestrial example is the Treaty on Open Skies, which is primarily based around the US and Russia but claims 32 other signatories. According to the Department of State, “the Treaty is designed to enhance mutual understanding and confidence by giving all participants, regardless of size, a direct role in gathering information through aerial imaging on military forces and activities of concern to them.”15 Both sides must recognize the importance of this technology in allaying suspicions and preventing paranoia. An agreement to not target spy satellites (through a kinetic strike, jamming, lasers, or any other means) would be a bitter pill to swallow but would foster greater openness while also mitigating the militarization of space.

#### The security dilemma best explains US-Chinese competition in space---it’s not determinism or a self-fulfilling prophecy---alternative analysis lacks predictive utility

Christopher D. Fabian 19, MA thesis, B.S. from US Air Force Academy, May 2019, "A Neoclassical Realist's Analysis of Sino-U.S. Space Policy," <https://commons.und.edu/cgi/viewcontent.cgi?article=3456&context=theses> DD AG

Neoclassical realism is the best theoretical approach to perform the medium-term predictive analysis that competitive strategies require. It acknowledges that structural factors such as relative power and geography are the chief independent variables of international relations in the long-term, ultimately setting the left and right bounds of state behavior.19 This theory suggests that foreign policy is strongly linked to systemic incentives but asserts that those incentives are not deterministic. 20 Therefore, it accounts for the general trend of conflict that occurs when the global status quo is usurped, while avoiding the propensity for structural determinism inherent to offensive realism. Neoclassical realism emphasizes that building an understanding of structural factors is required as the first step to analyzing international relations, therefore the overarching method through which competitive strategy must be developed is by examining external, systemic variables impacting Sino-U.S. relations. This thesis will examine the unique geography of East Asia, the physics of the space domain, and the relative power dynamic between China and the United States as its primary independent variables. One of the core tenants of neoclassical realism is the assumption of imperfect rationality. A leader’s understanding of structural factors is inevitably refracted as it passes through the lens of cultural perception and behavioral economics, and often functions in combination with a lack of information about an opponent’s intentions and capabilities. These influences create misperceptions about the relative power dynamic, causing leaders to make seemingly irrational decisions. As a result, structural factors can only impact states’ behavior to the extent that they influence the perception and decision making of leaders. This complicates the linear correlation between structural factors and state behavior, making a purely realist analysis less accurate over the short and medium terms. 21 Therefore, neoclassical realism requires that a state’s decision making apparatus must be considered as an intervening variable to account for these factors. 22 Internal factors must be studied in conjunction with external factors to be able to perform a comprehensive analysis of state behavior. In order to determine the effects of these intervening variables, this thesis will examine the decision making apparatuses of China and the United States through an examination of unmotivated and motivated biases that affect the Sino-U.S. strategic relationship. For foreign policy analysis, a neoclassical realist approach seeks to avoid both a heavily quantitative game theoretical analysis or the purely qualitative methods of thick description.23 A balance must be struck between the tendencies for game theoretical analysis to devolve into structural determinism, or for thick description to become mired in overly-nuanced analysis. A non-quantitative, descriptive game theoretical analysis is able to strike this balance. On one hand, purely quantitative game theoretical framework used for predictive analysis succumbs to exponentially increasing complexity as a greater range of intervening variables is introduced. On the other, a simple 2x2 game is often dismissed as being too simplistic to capture the complexity of international politics.24 Therefore, a game should be used as a representation of general policy stances, one that can be modified to encompass a wide range of phenomena in order to illuminate the fundamental nature of a policy issue.25 The foundation of this analysis will be a basic 2x2 game that seeks to describe the structural dynamic of Sino-U.S. relations. Independent variables such as relative military capability and economic means will be used to set a reference point for each player, assign utility within the function, and establish equilibrium. The game will be then be modified using intervening variables, such as motivated and unmotivated biases, in order to anticipate deviations from perfect rationality. This method is based off Robert Jervis’s seminal article Cooperation Under the Security Dilemma, in which he sets the theoretical groundwork for integrating game theory, neoclassical realism, and the security dilemma.26 This analysis will build on Jervis’s framework by incorporating actor and domain specific information. D. LITERATURE REVIEW The best fit for a literature review when using a neoclassical realist methodology is a topdown approach as it requires a solid appreciation of structural incentives before applying them to the analysis of a given scenario. Therefore, developing a conceptual understanding of the mechanisms of international conflict and how they are modified to account for psychological factors is foundational to this thesis. In order to apply this understanding to Sino-U.S. space policy the structural variables affecting Sino-U.S. space policy must be examined. These includes the geography of the space domain, establishing deterrence in space, its use as an instrument of national power, and the broader Sino-U.S. geostrategic balance. Subsequently assessing intervening psychological variables is based on attaining an understanding of Chinese and American security cultures, the perceptions of policy makers about the space and its role in strategy, and domestic variables that impact decision making. Finally, integrating space policy into the thesis schema requires both a review of existing literature on competitive strategy for East Asia and a review of each nations’ space capabilities and policies in an attempt to link the two. This will include an analysis of how space capabilities fit into current strategy, how they interact with psychological factors, and conclude with a near-term predictive analysis of technology and policy development. In his 1978 publication Cooperation Under the Security Dilemma, Robert Jervis provides an excellent analysis of structural and cognitive factors influencing the security dilemma in international relations. His fundamental assumption is that international relations exist in a condition of anarchy where a state is responsible for its own security absent an international sovereign.27 This results in zero-sum relationships where a state’s quest for security impedes the security of another. Therefore, when a state seeks to expand its influence in order to increase its own security it upsets the existing status quo, making another state less safe. 28 He uses a game theoretical framework to broadly explain the choices that both states can make, cooperate or defect. Both states can defect and the result is conflict; both states can cooperate and reap gains; or one can cooperate while the other defects, which results in one state losing big and the other winning big. The fear of this third condition is the causal force behind the security dilemma.29 Jervis expands the theory by adding the offense-defense postulate which examines the circumstances under which the security dilemma is most strong. When technology and geography conspire to give an advantage to an attacker, first strikes are incentivized and the dilemma becomes stronger. 30 Additionally, the security dilemma is heightened when offense is not distinguishable

from defense because signaling is inherently ambiguous. When both of these conditions are met, it creates a doubly dangerous scenario where it is difficult to gain security without menacing others. When the opposite condition is true, signaling is effective and a zerosum relationship is not exaggerated. This results in a doubly stable relationship with a diminished propensity towards the security dilemma. Even when defense has the advantage a security dilemma can result when offensive and defensive postures are indistinguishable because intentions are difficult to predict.31 The usefulness of Jervis’s work to this analysis would be limited if he had only accounted for structural factors. However, in “Cooperation Under the Security Dilemma” Jervis briefly acknowledges imperfect rationality through the concept of subjective security demands. He purports that if every world leader rationally understood her nation’s alignment with this theory, conflict would be obsolete. Therefore, the structural mechanism of the security dilemma is dependent on the psychology and perception of national leaders, which alters their calculus of the security dilemma.32 Jervis expands this idea in a topical anthology titled Psychology and Deterrence. These two works, when taken together, form the basis of a neoclassical realist’s analysis of the security dilemma. Case studies involving deterrence failure are used to discern the factors responsible for the underlying miscalculations.33 Three hypothesis are of particular interest to this thesis. First, the misperception of the offense-defense balance prior to World War I (WWI) contributed to a lack of first-strike stability. Second, culture differences resulting in bad signaling were a factor leading to the Falklands War. Third, a miscalculation of an unacceptable shift in balance of power created an incentive to launch a preemptive attack preceding the ArabIsraeli War of 1973. 34. The integration of structural and psychological factors in decision making under the security dilemma is accomplished through the application of behavioral economics. Daniel Kahneman and Amos Tversky set the basis for this understanding in their collected works, the capstone of which is Thinking Fast and Slow. Cognitive predispositions, the availability heuristic, and motivated biases are all used to explain deterrence failures in Psychology and Deterrence. 35 However, the most relevant of their works is Prospect Theory: An Analysis of Decision Under Risk. It explains that the linear correlation between risk and gains in a rational model can be modified to account for the propensity of an actor to accept risk based on her satisfaction with the status quo. The result is a non-linear relationship between risk and gains. Their model is often used to account for psychological variables within a game theoretical framework.36 Kahneman and Tversky propose that actors have the tendency to assess their position in relative rather than absolute terms, therefore those who are dissatisfied with their relative position are increasingly likely to accept risk while those who are satisfied become risk averse.37 This dynamic is expected to be especially strong between China and the United States where the U.S. represents a strong status quo power and China is emerging to challenge America’s position. Assessing internal variables for China and the United States can set a reference point for each nation and, using prospect theory, perform an analysis of their propensity to accept risk. After examining models of international conflict and incorporating them within a theoretical framework in order to set the foundation for this thesis methodology, structural dynamics underlying the Sino-U.S. space policy relationship must be examined. Because context is essential to any niche policy arena, the broader Sino-U.S. geostrategic balance is the primary structural dynamic affecting Sino-U.S. space policy. In Destined for War: Can America and China Escape Thucydides’s Trap? Grahm Allison coins the term Thucydides’s Trap to describe the friction caused by a state gaining comparative military, political, and economic power at the expense of an existing hegemon. He uses Thucydides examination of this dynamic in History of the Peloponnesian War as the basis of his research and examines 15 additional case studies in which a rising power has displaced a status quo power.38 By Allison’s own admission the use of words like destined or predetermined are misleading. However, he reveals that, “…in all cases we find heads of state confronting strategic dilemmas about rivals under conditions of uncertainty and chronic stress,”39 and in 12 of 16 cases examined the result has been war between the two states.40 Additional to the zero-sum hard power relationship strongly acting upon both actors to strengthen the security dilemma, Allison proposes that psychological factors can modify the relationship and serve to either dampen or exacerbate Thucydides’s Trap. Generally, a rising power’s recognized status in the international community lags behind that state’s self-perceived importance whereas the status quo power faces fear and anxiety in the face of potential decline.41 Management of these perceptions is essential to avoiding conflict. Allison makes the case that the contemporary Sino-U.S. relationship meets the conditions for Thucydides’s trap and analogizes it with the pre-WWI dynamic between Britain and Germany. He argues that the rapid expansion (or reemergence) of China’s economy is supporting a subsequent increase in military power and political influence in East Asia. This threatens to upset the status quo of American hegemony in the region.42 Allison examines China’s national motivations and internal decision making apparatus and proposes that the Chinese Communist Party’s (CCP) mandate is to return Chinese national prestige and recoup national sovereignty. This is supported primarily by a strong nationalist sentiment and continued economic reform. 43 The analysis is useful in that it examines the structural preconditions for conflict, but also conducts a layered neoclassical realist analysis by identifying accompanying psychological factors and suggesting a way forward to help soften the structural predilection for conflict. These actor-specific recommendations may be integrated into a competitive strategy approach to increase its efficacy. Robert Haddick’s Fire on the Water is relevant to this thesis in that it combines an understanding of East Asian geography, the current state of military technology and doctrine, and national motivations to perform a holistic analysis of the Sino-U.S. strategic balance. Although China has substantial coastline, it is viewed as a continental power rather than a maritime one due to the cramped nature of the South China and East China Seas. A series of island chains create a physical barrier that serves to constrain Chinese naval expansion and offers the opportunity for hostile nations to stage attacks into mainland China. China’s traditional fear of encirclement, its quest for resources, and unresolved national sovereignty creates incentives for maritime expansion.44 On the other hand, fear of China’s expanding influence among nations along China’s periphery has resulted in rebalancing in order to contain China. Furthermore, China’s expanded influence threatens U.S. interest in the region, creating the potential to limit access to sea lines of communication and coerce trading partners. This creates a struggle where China must demonstrate the capability to deny U.S. military assets access to the area close to China’s maritime borders while the U.S. seeks to maintain the ability to project power into the region and strike at Chinese strategic interests. This dynamic has two important implications for this thesis. Due to the emphasis on systems warfare and information systems, the current overall military balance lacks first-strike stability. Also, the cost of offensive capabilities is far lower than the capabilities they are designed to defeat. American surface ships and 5th generation air assets are orders of magnitude more expensive and harder to produce than the Chinese anti-access missiles designed to interdict them. Haddick’s assessment of an offensive dominant condition is bleak considering Jervis’s observations about how an environment that favors the offense heightens the security dilemma. More importantly, the tyranny of distance has created an overreliance on space assets in East Asian military operations. It is clear to see through Haddick’s analysis that space operations and terrestrial geography are interrelated. He paints a bleak picture where, in the event of hostilities, the area within 2000km of the Chinese mainland would turn into a dead zone where the cost of performing military operations is prohibitive aside from limited probing actions.45 The United States will likely be deprived of traditional land, sea, and air assets used for performing ISR used for targeting mainland China, which greatly reduces the coercive capability of the U.S. military. The resulting reliance on space assets to perform these functions increases their value as military targets. Likewise, China uses space-based capabilities for targeting U.S. military assets between the Chinese mainland and the second island chain. Aided by their continental position, China’s space and ground based ISR assets create a redundant architecture with which to threaten U.S. assets. 46 This creates an asymmetric advantage for China that makes space warfare a possible tool of coercion and deterrence. However, for the Chinese, as the theater of operation’s distance from the mainland increases their reliance on space assets is proportionally raised. Therefore, projecting power beyond the first island chain becomes a difficult proposition without space power. Due to the importance of space assets in the East Asian military balance this thesis argues that they will likely be considered as first-strike options by both nations. In addition to the links between terrestrial geography and space power, space has a unique geography in and of itself. Said geography, defined by orbital mechanics and the relentless pull of gravity, must be examined as a fundamental structural component of this analysis. Often times policy makers fail to grasp that realities of orbital mechanics and current state of technology create a very limited right and left bound of what is possible (or at the very least practical) in space. Everett Dolman, author of Astropolitik: Classical Geopolitics in the Space Age, argues that space, counterintuitively, is an operationally limited environment. Due to the exponential cost that the rocket equation imposes on lifting objects into orbit, spacefaring nations develop narrow, well-trodden pathways to space in an attempt to minimize this cost.47 Launch locations and support stations at given latitudes and longitudes are more valuable than others.48 Also, an orbit’s characteristics translate to their relative path along the earth’s surface. Therefore, only certain combinations of orbital elements produce an orbit that serves a purpose for terrestrial support functions. These limiting factors create strategic chokepoints through which the entirety of the space domain may be controlled. 49 Dolman uses his assessment of space geography to apply the geopolitical realist lines of thinking from Mackinder and Mahan’s to the space domain. It is arguable that his Realpolitik thought experiment has had disproportional influence on space strategists, but a useful line of thought still comes out of Dolman’s analysis. It is evident that space domination is possible given a state with adequate technological prowess and the will to do so. Rather than the cosmos being an impossibly large area out of reach of a single hegemon, a state could physically dominate space by controlling the most important chokepoints. These chokepoints may serve as flash points for future conflicts because of space’s overall importance to terrestrial conflict.50 The entire structure of the space law framework set about in the Cold War was not benign, rather it was an attempt by Russia and the United States to prevent the domination of space by the other power considering their own inability to do so.51 Therefore, with the technological advancements since the Cold War and the removal of the primary buffer against U.S. expansion, the prospect of the U.S. seeking space domination seems more likely. This effectively extends the “border” between the Chinese and Americans and adds another dimension to the already complex relationship. This thesis will argue that the geography of space combined with the American doctrine of space control exacerbates the Chinese fear of encirclement. In Heavenly Ambitions: America’s Quest to Dominate Space, Joan Johnson-Freese argues that, despite the impressions of policy makers in both China and the U.S., domination of space is currently impractical due to the current technological development of space systems. Ideologically, her soft-power driven, innerpolitik analysis of space policy is a counterpoint to Dolman. This has won her a similar number of disciples in the space policy realm. Three arguments in particular, which are consistent and well developed through her collected works, contribute to understanding the structural elements of space policy. First, she believes that domination of space is inherently threatening. A space hegemon, unlike one in land, air, or sea would inherently have the capability to violate any nations sovereignty with little posturing, at a moment’s notice.52 This would require the placement of space weapons to interdict all objects passing through space and be omnipresent in scope and duration.53 Second, space is an offensive dominant domain. The cost of developing, launching, and maintaining a space asset that provides a terrestrial effect is far greater than the corresponding technology that can defeat it. Anti-Satellite (ASAT) technologies to include on-orbit interdictors, terrestrial based missiles, and electronic jammers are simple, cheap, and efficient, making them accessible to nations less capable than top-tier space powers.54 Also, the development time of space technologies is far slower than their counter. It is possible to shield on-orbit assets with maneuver capability, shielding, or escorts. However, these assets drastically increase the cost of maintaining a given effect in a hostile environment. When taken in concert, it is clear from Dolman and Freese’s work that space hegemony will take a concerted national effort, requiring an expenditure of time, political capital, and money. Also, the window of time between setting out to achieve dominance and actually achieving it would be exceptionally vulnerable to a security dilemma. Even after achieving dominance a hegemon would need to maintain the capability to render an opponent’s ASAT technologies useless, a capability which also falls prey to the unfavorable cost relationship of an offensive dominant domain.55 Third, in the space domain offensive technologies are difficult to distinguish from defensive ones. The capabilities that make a good weapon are not mutually exclusive with those that have scientific or commercial uses.56 Very few red flag capabilities exist that give an adversary certainty as to the purpose of a given platform. This results in the necessity to either judge an adversary by its potential capabilities or take it at face value to be benign. It also results in a delicate situation where technology diffusion between commercial entities of one country and the commercial or military organization of another has national security implications.57 Even worse, the exact same satellite may be used for civilian or military purposes, sometimes at the same exact time.58 This complicates the legitimacy of civilian assets as military targets, a line of thought reminiscent of the strategic bombing campaigns during WWII. Also, escalation could occur if third party assets are being used by one of the belligerents. Therefore, it is evident through Freese’s arguments that space is susceptible to Jervis’s doubly dangerous scenario where technologies are both offensive dominant and offensive-defense indistinguishable. Continuing the thread of integrating theories of international conflict to the space domain, Forrest Morgan applies the principles of deterrence to space in his RAND monograph Deterrence and First Strike Stability in Space: A Preliminary Assessment. Morgan’s work operates on the theoretical level, using traditional cost imposition/denial of gains structure in support of a broad analysis. Generally, the point where perceived cost of executing a strategy outweighs the gains reaped from said strategy, deterrence is established. He heavily caveats the work, calling it an empty template for further research. Due to deterrence’s subjective nature the deterrent effect of a strategy may be strong on one actor but useless for another. 59 This foundational analysis can be applied to Sino-U.S. space policy if the relative development of the U.S. and China’s space capabilities and strategic culture are accounted for. Morgan points out that the nature of space deterrence has fundamentally changed since the end of the Cold War. First, a decoupling of space and nuclear warfare has destroyed the tacit red lines that guaranteed an attack on space systems would result in nuclear retaliation.60 Furthermore, technologies have been developed that allow for incremental escalation and nonlethal functional kills of space assets.61 A paradigm is created where escalation is probable, but the extent to which it will happen is unknown. This is a problem for Sino-U.S. space relations because China is a nuclear capable power who believes itself to have achieved nuclear deterrence with the United States, yet does not have the implied strategic understanding that it took the U.S. and the U.S.S.R. four decades to build. The rules of the game have changed, but the danger of nuclear apocalypse is still real and a risk of miscalculation has increased. Morgan echoes Johnson-Freese’s assertion that the dual-use phenomenon complicates deterrence and extends the reasoning on offensive dominance by adding valuable insight on the state of first-strike stability. In short, first-strike stability is difficult to maintain because the disproportionate gain from a first strike outweighs any cost a recipient can impose in response. The United States’ overwhelming reliance on and comparative advantage from space based effects gives a prospective attacker very high payoff and satellites being relatively soft targets increases the likelihood of success and further adds to the benefit of a first-strike.62 Conversely, the emphasis on system based warfare means that an effective attack on space assets drastically reduces the ability of the U.S. to impose costs. Also, its overreliance on space and the fragility of the space environment require an asymmetric response to both avoid a tit-for-tat spiral and protect the continued use of the domain. Furthermore, a lack of space situational awareness (SSA) prevents a rapid response.63 Chinese military planners are acutely aware of the asymmetric advantage to be gained from a first-strike in space and have integrated it into military doctrine. This further strengthens the argument of space warfare as a flash point in East Asia. The structural factors examined in the literature thus far paint a bleak picture for a peaceful restructuring of East Asia. However, a bipartisan grand strategy that preempts conflict, is sustained and refined over decades, and has an acute sense of both a competitor and one’s own culture and history may be able to subvert structural determinism.64 When imperfect rationality and miscalculation results in deterrence failure it is difficult to underestimate the importance of understanding a competitor’s decision making apparatus. Strategic culture, political climate, and soft power interactions are the core of this apparatus. Joan Johnson-Freese, who is equal parts East Asia policy and space policy expert, asserts that, “it might be generally possible to grasp the mechanics of the Chinese space program without the benefits of historical information, but the likelihood of truly understanding the policy aspects without this contextual information is slightly less, and attempts at analysis and extrapolation become superficial at best.”65 Likewise, competitive strategy will be ineffective absent an understanding of one’s own limitations. Resources such as latent military capacity, budget, political capitol, strategic culture, and soft power/international prestige should be easy to calculate, but many times within the space program’s short history the failure to grasp internal limitations has been a stumbling block.

### Advantage—Microwaves

#### SBSP risk miscalc – shifts in solar panels cause misfires in the microwave beaming guns that are necessary to redirect energy back to Earth.

Chen, 21 (Stephen Chen, 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., 8-17-2021, accessed on 1-28-2022, South China Morning Post, "China aims to use space-based solar energy station to harvest sun’s rays to help meet power needs", https://www.scmp.com/news/china/science/article/3145237/china-aims-use-space-based-solar-energy-station-harvest-suns)//phs st

An intensive energy beam would need to penetrate the cloud efficiently and hit a ground station directly and precisely. Researchers at the Bishan facility will work on these and other projects. A solar energy plant is not efficient because it only operates during the day, and the atmosphere reflects or absorbs nearly half the energy in the sunlight. Since the 1960s, some space scientists and engineers have been attracted to the idea of a solar station in space. From an altitude of 36,000km (22,400 miles) or above, a geo-stationary solar plant can avoid the Earth’s shadow and see the sun 24 hours a day. The energy loss in the atmosphere could also be reduced to the minimum (about 2 per cent) by sending the energy in the form of high-frequency microwaves. Over the last few decades, various forms of solar power stations have been proposed from around the world but they remained theoretical because of major technical challenges. At Bishan, Chinese researchers would first need to prove that wireless power transfer worked over a long distance. Although the engineer and inventor Nikola Tesla popularised the idea in the late 19th century, the technology has been limited to only a small number of short-range applications, such as the wireless charger for smartphones. Tesla failed in part because he made the electricity travel in the air like waves in all directions. To increase the effective range, the energy must be concentrated into a highly focused beam. The Chinese researchers received wireless energy emitted from a balloon 300 metres (980 feet) above the ground. When the Bishan facility is complete, they plan to increase the range to more than 20km with an airship collecting solar energy from the stratosphere, according to the China Science Daily. In Bishan, researchers will also experiment with some alternative applications of the technology, such as using the energy beam to power drones. The core experimental zone will be 2 hectares (4.9 acres) and surrounded by a clearance zone five times larger. Local residents are not allowed to enter the buffer zone for their own safety, according to the district government. The safety risk of a space solar plant is not negligible, according to some recent studies in China. When the huge solar panels turn to chase the sun, for instance, they could produce small but persistent vibrations in the microwave beaming gun that could cause a misfire. The “space farm” would therefore need an extremely sophisticated flight control system to maintain its aim at a tiny spot on Earth. Another hazard would be radiation. According to one calculation by a research team with Beijing Jiaotong University last year, residents could not live within a 5km range of the ground receiving station for the 1GW Chinese solar plant in space. Even a train more than 10km away could experience problems such as sudden loss of communication because the frequency of the energised microwave would affect Wi-Fi.

#### High Power Microwave weapons destroy tech – they’re especially deadly to satellites which require systems to communicate. No “not a weapon” replies – HPM tech is dual use which makes its deployment impossible to enforce. US hesitancy proves misperceptions could escalate.

Larson 1-28 (Caleb Larson, Caleb Larson, a defense journalist based in Europe and holds a Master of Public Policy degree from the Willy Brandt School of Public Policy. He lives in Berlin and writes on U.S. and Russian foreign and defense policy, German politics and culture., 1-10-2022, accessed on 1-28-2022, 19FortyFive, "The US Navy Has Big Plans for High-Power Microwave Weapons", https://www.19fortyfive.com/2022/01/the-us-navy-has-big-plans-for-high-power-microwave-weapons/)//phs st

The U.S. Navy has announced the first test of its on-orbit power-beaming system on the U.S. Air Force's X-37B mini-space shuttle, just a day after the successful launch of that vehicle on its latest mission to space. These experiments could have game-changing implications for power generation on Earth, especially for facilities in remote areas and for unmanned aircraft, but they also underscore the potential applications of high-powered microwaves and other directed energy beams as weapons in space to jam, blind, or even destroy critical sensors and other components on opponents' satellites. The U.S. Naval Research Laboratory's (NRL) Photovoltaic Radio-frequency Antenna Module (PRAM) is one of a number of publicly disclosed payloads onboard the X-37B, which blasted off from Cape Canaveral Air Force Station in Florida on top of a United Launch Alliance Atlas V rocket on May 17, 2020. This is the reusable space plane's sixth trip into orbit since 2010 and it had just completed its fifth mission, which lasted a record-setting 780 days, in October 2019. Much about the craft and its missions remain highly classified. PRAM is a self-contained module that is a foot long, a foot wide, and around two inches tall. The system uses a solar panel on top to collect sunlight and then converts that into a microwave beam. In principle, a receiver on Earth could then take the beam and convert it back into energy that could be used to power traditional electric devices. You can read more about the history of this concept and the science behind it in this past War Zone piece. "PRAM converts sunlight for microwave power transmission. We could’ve also converted for optical power transmission," Chris Depuma, the PRAM program manager at NRL, said in a statement. "Converting to optical might make more sense for lunar applications because there’s no atmosphere on the Moon. The disadvantage of optical is you could lose a lot of energy through clouds and atmosphere." The Navy team plans to test how efficiently PRAM converts energy and its associated thermal performance in space, rather than in a terrestrial laboratory setting. NRL hopes these experiments will inform the development of future prototypes and could lead to a full system installed on a dedicated spacecraft. In principle, a constellation of solar-energy-collecting power-beaming satellites could provide near-limitless, clean power anywhere on Earth. This could completely transform how power is supplied for both military and civilian activities in the most remote areas. It could potentially power propulsion systems on long-endurance drones, allowing them to stay aloft indefinitely, something The War Zone has previously explored in detail. "To our knowledge, this experiment is the first test in orbit of hardware designed specifically for solar power satellites," Paul Jaffe, PRAM principal investigator at NRL, said in his own statement. This "could play a revolutionary role in our energy future." However, if a power-beaming system can take solar energy, convert it into a microwave beam, and direct that beam at a specific location, one has to wonder if that concept could not also be adapted into a space-based weapon. The idea of using high-powered microwaves to disrupt, or even destroy, electronic systems in space, as well as on Earth, is hardly new. The U.S. military alone has already explored various types of high-powered microwave weapons that can scramble or damage electronic systems and is evaluating new designs, right now. These include systems that can disrupt enemy computer networks, knock down small drones, and fry the electronics in incoming missiles to throw them off course, among others. A sufficiently powerful burst of microwave energy could cause enough damage to cause a mission kill on satellites. A 2019 report from the U.S. Defense Intelligence Agency (DIA) specifically highlighted ground and space-based high-powered microwaves, as well as other directed energy weapons, including lasers, as potential future threats to American assets in orbit. It also listed a slew of other possible dangers, including jamming and "killer satellites" capable of launching various types of kinetic and non-kinetic attacks. The Russians and the Chinese both already have various anti-satellite capabilities, including air-launched and ground-based kinetic interceptors, and are continuing to develop new capabilities given the traditional advantage that the United States has in space-based capabilities, including intelligence gathering, early warning, communications and data sharing, navigation, and more. The U.S. military itself has a number of other highly-classified counter-space capabilities and other countries, such as India, are also developing their own means to challenge opponents assets' in orbit. There is also renewed discussion about space-based weapons, mostly as a means to counter anti-satellite threats or for missile defense, in recent years. "Directed energy weapons (high energy lasers or particle beam) or space-based interceptors provide the best overall hope of a hard kill" to destroy future hypersonic weapons, according to a report the NATO Science & Technology Organization released in March. In 2019, France also notably announced plans to eventually deploy small laser-armed satellites to protect other space-based assets. As NRL's researchers noted with regards to PRAM, the vacuum of space removes many of the obstacles that deflect and diffuse directed energy beams on Earth. This means it could require less starting power to generate a beam with sufficient energy to disrupt or damage another target in space, even if it were shielded from common solar radiation. Many military-grade weapons and other systems are also hardened against electromagnetic radiation, but are still vulnerable to a suitably powerful microwave attack. Highly maneuverable satellites or other spacecraft – the X-37B would be an ideal platform itself – could also maneuver the system very close to its target. This could, in turn, reduce the power and range requirements for high-powered microwave or other directed energy weapons. A high-powered microwave also has the benefit of not needing to physically break up the target to destroy it, meaning that an attack would not cause a cloud of dangerous space debris that could threaten friendly assets in space.

#### Escalation is likely – the Pentagon believes that microwave weapons are some of China’s biggest tools in space warfare.

Kania 1-20 [Elsa Kania is an analyst at the Long Term Strategy Group. Elsa is a graduate of Harvard College and was a 2014–2015 Boren Scholar in Beijing, China, The PLA’s Potential Breakthrough in High-Power Microwave Weapons, 1-20-2022,No Publication,https://thediplomat.com/2017/03/the-plas-potential-breakthrough-in-high-power-microwave-weapons/, 1-29-2022 amrita]

**Chinese scientists** have reportedly **achieved** unexpected **success in** their **development of** a high-power microwave (**HPM**) weapon. This promising form of directed energy weapon combines “soft” and “hard kill” capabilities through the disruption or even destruction of enemy electronics systems. Such **a** powerful **“new concept weapon” possesses unique advantages,** including its potential speed, range, accuracy, flexibility, and reusability. The PLA’s future HPM weapons could have multiple defensive and offensive functions that would enhance its combat capabilities. In the near term, the PLA’s probable employment of this HPM **could be** as **a ship-borne anti-missile system** or to reinforce China’s air defense systems. Potentially, such a weapon system **would undermine the efficacy o**f even the most **advanced U.S. missiles, such a**s the Long Range Anti-Ship Missile (**LRASM**) currently under development. **Its** likely **applications could** also include its **use as an anti-satellite** (ASAT) **we**apon or incorporation with missiles in order **to overcome enemy air defenses.** Once operationalized, this new weapon could thus contribute to China’s anti-access/area-denial (A2/AD) capabilities. The PLA’s apparent breakthrough in HPM weapons **reflects a track record of** consistent **progress** over the course of decades of concentrated efforts. Given the limitations of the available information, it is difficult to compare the extent of U.S. and Chinese progress in this domain. Until the past several years, the U.S. military’s 50 or so years of research on HPM weapons could be dismissed as an apparent dead end. Only recently, the U.S. Air Force Research Laboratory successfully developed and is preparing to field the Counter-electronics High-Powered Microwave Advanced Missile Project (CHAMP), which could target an enemy’s electronics from an aircraft or missile. While **the** full **extent of current U.S. efforts is unknown,** the PLA’s reported advance in **the development of HPM** weapons could **indicate that Chinese capabilities** may have the potential to **keep pace with** those of the **U**nited **S**tates in this disruptive technology. Reports of a Major Breakthrough In January, Huang Wenhua, deputy director of the Northwest Institute of Nuclear Technology, received a first prize National Science and Technology Progress Award for his research on directed energy. This prize was evidently awarded for his development of a HPM weapon, given his extensive research on the topic and accounts of his remarks at the time. According to Huang, the system in question was initially tested successfully in November 2010 in northwest China, in what he referred to as the Huahai exercise. By his characterization, the completion of the exercise, verification, and experimentation is a “pioneering” achievement, since comparable advances had yet to be achieved elsewhere in the world. Huang also highlighted that this “disruptive technology,” in which a “major breakthrough” has occurred, would increase China’s capabilities in future electronic information confrontation. Enjoying this article? Click here to subscribe for full access. Just $5 a month. At this point, the actual capabilities and current status of this weapon system remain unknown. In an operational context, its efficacy would depend on a number of factors, including its output power, effective range, firing rate, and power requirements. However, Huang’s frequent publications and patents indicate continuing progress. Based on his prior writings, this HPM weapon could be intended for initial employment as a ship-borne anti-missile system. For instance, in 2009, ahead of its initial test, Huang co-authored a paper focused on the utility of HPM weapons against anti-ship missiles. The authors noted that HPM weapons could be used to degrade and damage the electronics of an incoming missile, interfering with, for instance, its data link, GPS receivers, and other guidance mechanisms. Contextualizing Chinese Advances in HPM Weapons This reported breakthrough seemingly reflects the success of China’s long-term agenda for the research and development of HPM weapons. Since Chinese efforts to create directed energy weapons date back to the 1970s and have intensified since the 1990s, **this** apparent **advance reflects** the results of **long-term research** at a number of critical institutions and the consistent funding for their work. Throughout his career, over the course of nearly 20 years in this field, Huang Wenhua has been instrumental in research and development of HPM technology. Since the early 1990s, Huang has engaged in research related to HPM weapons, under the aegis of the Northwest Institute of Nuclear Technology’s Key Laboratory of High-Power Microwave Technology. The National High-Technology Research and Development Plan or “863 Plan” has provided extensive funding to this research agenda, including through a subsidiary fund focused on HPM technology, with the guidance of its X07 expert group, of which Huang served as the director. Future Prospects for the PLA’s HPM Weapons Evidently, the PLA’s pursuit of HPM weapons has remained a consistent priority that will likely continue to receive high-level support at the level of the Central Military Commission (CMC). Notably, Liu Guozhi, who recently became the director of the new CMC Science and Technology Commission, previously served as the commander of the PLA’s Nuclear Test Base in Xinjiang and the director of the Northwest Institute of Nuclear Technology. Liu himself has received multiple awards for his own research on HPM weapons and pulsed power, initially collaborating with Huang on this research agenda. As such, he will likely prove a pivotal figure in the PLA’s efforts to advance this technological dimension of military innovation. Looking forward, **the PLA** could continue to **achieve significant progress in** **HPM** weapons, along with multiple forms of directed energy weapons, seeking **to rival U.S. tech**nological advances. In response to the Third Offset, the PLA has only intensified its focus on these “new concept weapons,” while also developing countermeasures to U.S. directed energy weapons. Although it is difficult to evaluate their future trajectory and likely timeframe at this point, the eventual fielding of the PLA’s HPM weapons will serve as a critical force multiplier for its war-fighting capabilities.

#### Downing satellites causes miscalc and goes nuclear – magnified by the Kessler effect.

Blatt 20 [Talia, joint concentration in Social Studies and Integrative Biology at Harvard, specialization in East Asian geopolitics and security issues] “Anti-Satellite Weapons and the Emerging Space Arms Race,” Harvard International Review, May 26, 2020, <https://hir.harvard.edu/anti-satellite-weapons-and-the-emerging-space-arms-race/> TG

Despite their deterrent functions, ASATs are more likely to provoke or exacerbate conflicts than dampen them, especially given the risk they [pose](https://thebulletin.org/2019/06/arms-control-in-outer-space-the-russian-angle-and-a-possible-way-forward/) to early warning satellites. These satellites are a crucial element of US ballistic missile defense, capable of [detecting missiles](https://www.globalsecurity.org/space/world/japan/warning.htm) immediately after launch and tracking their paths. Suppose a US early warning satellite goes dark, or is shut down. Going dark could signal a glitch, but in a world in which other countries have ASATs, it could also signal the beginning of an attack. Without early warning satellites, the United States is much more susceptible to nuclear missiles. Given the strategy of counterforcing—[targeting](https://www.belfercenter.org/sites/default/files/files/publication/isec_a_00273_LieberPress.pdf) nuclear silos rather than populous cities to prevent a nuclear counterattack—the Americans might believe their nuclear weapons are imminently at risk. It could be [twelve hours](https://books.google.com/books?id=ET8lDwAAQBAJ&pg=PA1&lpg=PA1&dq=%22Protecting+Space+Assets%22+johnson-freese&source=bl&ots=6Oq0IdeBjw&sig=ACfU3U1G6Hj8QdP4JlCRNxA6i5XplZwHyg&hl=en&sa=X&ved=2ahUKEwj1n-jT2YzpAhUugnIEHUuMCu4Q6AEwA3oECAkQAQ#v=onepage&q=%22Protecting%20Space%20Assets%22%20johnson-freese&f=false) before the United States regains satellite function, which is too long to wait to put together a nuclear counterattack. The United States, therefore, might move to mobilize a nuclear attack against Russia or China over what might just be a piece of debris shutting off a satellite. Additionally, accidental warfare, or strategic miscalculation, is uniquely likely in space. It is [much easier](https://books.google.com/books?id=VyXTDwAAQBAJ&pg=PA339&lpg=PA339&dq=space+offense+dominant&source=bl&ots=Mw0bgJ51qf&sig=ACfU3U3DeZiEHpr9nfszlCbJZIoyyssIpg&hl=en&sa=X&ved=2ahUKEwjrs-WD3IzpAhVulHIEHbL0AE4Q6AEwCXoECAoQAQ#v=onepage&q=space%20offense%20dominant&f=false) to hold an adversary’s space systems in jeopardy with destructive ASATs than it is to [sustainably defend](https://www.cnas.org/publications/commentary/the-us-military-should-not-be-doubling-down-on-space) a system, which is expensive and in some cases not technologically feasible because of limitations on satellite movement. Space is therefore [considered](https://books.google.com/books?id=VyXTDwAAQBAJ&pg=PA339&lpg=PA339&dq=space+offense+dominant&source=bl&ots=Mw0bgJ51qf&sig=ACfU3U3DeZiEHpr9nfszlCbJZIoyyssIpg&hl=en&sa=X&ved=2ahUKEwjrs-WD3IzpAhVulHIEHbL0AE4Q6AEwCXoECAoQAQ#v=onepage&q=space%20offense%20dominant&f=false) offense-dominant; offensive tactics like weapons development are prioritized over defensive measures, such as [improving GPS](https://www.politico.com/story/2018/04/06/outer-space-war-defense-russia-china-463067) or making satellites more resistant to jamming. As a result, countries are left with poorly defended space systems and rely on offensive posturing, which increases the risk that their actions are perceived as aggressive and incentivizes rapid, risky counterattacks

because militaries cannot rely on their spaced-based systems after first strikes. There are several hotspots in which ASATs and offensive-dominant systems are particularly relevant. Early warning satellites [play](https://www.politico.com/story/2018/04/06/outer-space-war-defense-russia-china-463067) a central role in US readiness in the event of a conflict involving North Korea. News of North Korean missile launches comes from these satellites. Given North Korea’s [history](https://www.bbc.com/news/world-asia-pacific-11813699) of nuclear provocations, unflinchingly hostile rhetoric towards the United States and South Korea, and diplomatic opacity, North Korea is always a threatening, unknowable adversary, but recent developments have magnified the risk. With the health of Kim Jong-un [potentially in jeopardy](https://apnews.com/f5d302ae65b03838173e40848223b771), a succession battle or even civil war on the peninsula [raises the chances](https://www.express.co.uk/news/world/1273890/Kim-Jong-un-dead-North-Korea-nuclear-weapon-news-latest-death-US) of loose nukes. If the regime is terminal, traditional MAD risk calculus will become moot; with nothing to lose, North Korea would have no reason to hold back its nuclear arsenal. Or China [might decide](https://foreignpolicy.com/2020/04/28/kim-jong-un-china-north-korea/) to seize military assets and infrastructure of the regime. If the US does not have its early warning satellites because they have been taken out in an ASAT attack, the US, South Korea, and Japan are all in imminent nuclear peril, while China could be in a position to fundamentally reshape East Asian geopolitics. The South China Sea is another hotspot in which ASATs could risk escalation. China [is developing](https://missiledefenseadvocacy.org/missile-threat-and-proliferation/todays-missile-threat/china-anti-access-area-denial-coming-soon/) Anti-Access Area Denial (A2/AD) in the South China Sea, a combination of long range radar with air and maritime defense meant to deny US freedom of navigation in the region. Given the disputed nature of territory in the South China Sea, the United States and its allies do not want China to successfully close off the region.

#### Nuke war causes extinction – Ice Age, famines, and war won’t stay limited

Edwards 17 [Paul N. Edwards, CISAC’s William J. Perry Fellow in International Security at Stanford’s Freeman Spogli Institute for International Studies. Being interviewed by EarthSky. How nuclear war would affect Earth’s climate. September 8, 2017. earthsky.org/human-world/how-nuclear-war-would-affect-earths-climate] Note, we are only reading parts of the interview that are directly from Paul Edwards -- MMG

In the nuclear conversation, what are we not talking about that we should be?

We are not talking enough about the climatic effects of nuclear war. The “nuclear winter” theory of the mid-1980s played a significant role in the arms reductions of that period. But with the collapse of the Soviet Union and the reduction of U.S. and Russian nuclear arsenals, this aspect of nuclear war has faded from view. That’s not good. In the mid-2000s, climate scientists such as Alan Robock (Rutgers) took another look at nuclear winter theory. This time around, they used much-improved and much more detailed climate models than those available 20 years earlier. They also tested the potential effects of smaller nuclear exchanges. The result: an exchange involving just 50 nuclear weapons — the kind of thing we might see in an India-Pakistan war, for example — could loft 5 billion kilograms of smoke, soot and dust high into the stratosphere. That’s enough to cool the entire planet by about 2 degrees Fahrenheit (1.25 degrees Celsius) — about where we were during the Little Ice Age of the 17th century. Growing seasons could be shortened enough to create really significant food shortages. So the climatic effects of even a relatively small nuclear war would be planet-wide. What about a larger-scale conflict? A U.S.-Russia war currently seems unlikely, but if it were to occur, hundreds or even thousands of nuclear weapons might be launched. The climatic consequences would be catastrophic: global average temperatures would drop as much as 12 degrees Fahrenheit (7 degrees Celsius) for up to several years — temperatures last seen during the great ice ages. Meanwhile, smoke and dust circulating in the stratosphere would darken the atmosphere enough to inhibit photosynthesis, causing disastrous crop failures, widespread famine and massive ecological disruption. The effect would be similar to that of the giant meteor believed to be responsible for the extinction of the dinosaurs. This time, we would be the dinosaurs. Many people are concerned about North Korea’s advancing missile capabilities. Is nuclear war likely in your opinion? At this writing, I think we are closer to a nuclear war than we have been since the early 1960s. In the North Korea case, both Kim Jong-un and President Trump are bullies inclined to escalate confrontations. President Trump lacks impulse control, and there are precious few checks on his ability to initiate a nuclear strike. We have to hope that our generals, both inside and outside the White House, can rein him in. North Korea would most certainly “lose” a nuclear war with the United States. But many millions would die, including hundreds of thousands of Americans currently living in South Korea and Japan (probable North Korean targets). Such vast damage would be wrought in Korea, Japan and Pacific island territories (such as Guam) that any “victory” wouldn’t deserve the name. Not only would that region be left with horrible suffering amongst the survivors; it would also immediately face famine and rampant disease. Radioactive fallout from such a war would spread around the world, including to the U.S. It has been more than 70 years since the last time a nuclear bomb was used in warfare. What would be the effects on the environment and on human health today? To my knowledge, most of the changes in nuclear weapons technology since the 1950s have focused on making them smaller and lighter, and making delivery systems more accurate, rather than on changing their effects on the environment or on human health. So-called “battlefield” weapons with lower explosive yields are part of some arsenals now — but it’s quite unlikely that any exchange between two nuclear powers would stay limited to these smaller, less destructive bombs.

### Framework

#### The standard is maximizing expected well-being.

#### 1. Death is bad and outweighs – agents can’t act if they fear for their bodily security which constrains every ethical theory

#### 2. Intuitions outweigh - since they’re the foundational basis for any argument and theories that contradict our intuitions are most likely false even if we can’t deductively determine why

#### 3. Extinction outweighs -

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

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