## 2

### Framework – Short

#### The meta-ethic is practical reason—

#### [1] Inescapability— I can question why to follow or the validity of an ethical theory, which concedes the authority of reason as if I question reason, I use reason to question. Outweighs on validity—any other truth risks falsity Reality may be fake, our experiences may be arbitrary, and experience may be descriptive not normative, but questioning the validity of reason requires reason, conceding its validity. Any other ethic begs the question of why, meaning it’s arbitrary and nonbinding

#### [2] Action theory— Only reason can explain why we take transitional action to an overall end. For example, setting the end of tea provides me a reason to unify the necessary actions to produce tea, like getting a pot, filling it with water, etc. Any other explanation fails since it can’t give meaning to why we take transitioning action – freezing action. 2 Impacts—

#### [a] That’s a side constraint on the AC—ethics is a guide to action so it must appeal to a structure of action.

#### [b] Bindingness—reason is intrinsic to actions since only it can provide value to transitioning action, which justifies universality

#### That justifies universality—

#### If we are all reasoners, we must all be able to determine if an action is good. An action that maximizes my freedom at the cost of others then would have to be recognized as good by everyone, but that leads to a contradiction where everyone takes other’s freedoms to maximize theirs, making it impossible to reach my end

#### Thus, the standard is respecting a system of inner and outer freedom

**Offense**

#### Deontology’s theorization of humans being valuable as ends in themselves not just means necessitates privatization because each individuals ownership over themselves is converted into ownership of objects over space

Blodger 16 [Ian Blodger The Minnesota Journal of Law, Science & Technology 2016 Reclassifying Geostationar Reclassifying Geostationary Earth Orbit as Priv th Orbit as Private Property: Why ty: Why Natural Law and Utilitarian Theories of Property Demand Privatization <https://scholarship.law.umn.edu/cgi/viewcontent.cgi?article=1006&context=mjlst> ]//aaditg

--Works w any NC that defends natural rights

--Geo = geostationary earth orbit

Analyzing the situation first from a Lockean perspective, GEO should be open to private ownership when individuals have invested their labor in the space.93 Companies that currently have satellites in orbit have invested time and resources sufficient to attain a property right in the orbital zone.94 Looking to the theories of Lockes work, which argue that an increase in value is a necessary condition for labor, satellites in GEO clearly meet the standard.95 Since space is essentially void,96 a satellites presence will increase the value of the space by generating industry and allowing for communications and other activities, which were not possible because that space was empty to begin with.97 One argument against this theory is that the space is at its highest value as void, since the voided area itself allows for travel through that point on future space missions.98 However, this argument would overstate the need for a spacecraft to cross the very narrow belt of satellites in GEO.99 It is also possible to argue that the satellite would produce higher values elsewhere, suggesting an opportunity cost and thus a net loss compared to the current location.100 However, this argument relies on the fluctuating value of the satellite and not the value of the GEO. Since the party launching the satellite already owns it, the question of its value has no bearing on whether they have improved the GEO area for purposes of Lockes theory.101 Thus, under this interpretation of Lockes labor requirement, the space is sufficiently increased in value so that it can be considered property. The same conclusion results under different interpretations of Lockes theory of property. The more general interpretation of Lockes theory is that any time someone interacts with something with the purpose of bringing about a better result, then that interaction constitutes labor and confers a property right in the object.102 The satellites themselves currently occupy a physical location, which does not change relative to Earths position.103 This position prevents other satellites from entering a wide area around the existing satellite, and prevents other satellites from transmitting on frequencies, which are already in use.104 These qualities denote at least a transitive interaction between the person and the GEO area through the satellite, since it was the individuals purpose to place the satellite in that location. Lockes example of tilling the land suggests that transitive relationships between a person and the object of his action are sufficient to confer a property interest.105 Thus, tilling and planting do not necessarily require the actor to physically touch the soil with his body, but rather allow him to do so through the use of tools.106 In the context of a satellite as well, the person who sends the satellite into orbit has a connection with his property and that of the orbital zone.107 This makes sense on the metaphysical level. For Locke, the reason a persons labor converts common areas into private zones is because each person owns his body.108 Here, ownership over the body is converted into ownership over a satellite, and that satellite is used in an exertion of great labor to settle a voided location in space.109 Since a person owns the fruits of his labor, a satellite owner gains a property interest in the GEO occupied by his satellite.110 Therefore under this reading of Lockes theory, anyone who places a satellite in geostationary orbit should be conferred a property right in that space. The labor need not alter the orbit itself, since the orbit is simply a scientific property of a location in space allowing the satellite to remain in a fixed point relative to the earth.111 In this way, the satellite is no different from a house built on Earth since both are bound to a fixed point, and improve the area generally.112 It could be argued that the house inherently alters the ground beneath it by laying foundations and is therefore distinct from a satellite that simply occupies a position. However, pouring concrete in an Earth bound location is the same kind of action taken by placing a satellite in a location bound to Earth, just farther away. Placing a satellite in orbit is similar to transporting materials from one area and erecting them in another location which does confer a property right under Lockes theory (just as a farmer might harvest trees and transport them to his plot to build a house, so the scientist combines electronic components and shoots them off to GEO to make a functioning satellite).113 Spaces lack of matter makes little difference to the question of whether the actor invested labor in a specific location.114

#### Space Commercialization is the extension of free market – every transaction is voluntary and no coercion is involved

Sowers’19 [George Sowers, professor of practice in mechanical engineering at Colorado School of Mines. Space News. “Op-ed | Commercializing Space: Before a commercial LEO market can flourish, the ISS must be retired” March 19, 2019 <https://spacenews.com/op-ed-commercializing-space-before-a-commercial-leo-market-can-flourish-the-iss-must-be-retired/>] //aaditg

The last two decades have seen a great upswing in commercial space endeavors with hundreds of new companies formed and a few prominent billionaires entering the fray. This is all good, but it remains devilishly hard to make money in space without tapping into government space markets. Nevertheless, I’m a firm believer that the commercialization of space is absolutely essential for the growth of the space economy and achieving all of the goals we espouse for human activities in space. So, what do I mean by commercial space? This has been a great topic of debate ever since NASA initiated the commercial cargo and commercial crew programs. There are many definitions and which is appropriate depends on the context. The real distinction is between the public sector and the private sector. Any given space activity can include a mixture of both elements. The purest form of commercial activity takes place entirely within the private sector. It is performed by private-sector companies for the benefit of private-sector customers using private-sector capital. Something like Direct TV would be an example. At the other end of the spectrum is a pure public-sector activity where the activity is performed entirely by public-sector agencies using public-sector employees, entirely funded by public funds for a public purpose. An example would be SLS, but even it is not purely public as several private sector companies are employed. In between are all manner of hybrids involving a mix of investment funds, executing entities and customers. When I talk about commercializing space, I’m talking about growing the purely private sector part of the space economy while recognizing that the space economy in total intertwines public and private in many complex ways. Given that government funding of space activities will likely not grow much, any growth in the overall space economy must come from the private sector. ECON 101 Now the only economic system that can reliability deliver growth is the free market. Some people call it capitalism, but I prefer free market as being more descriptive and without the negative connotations that have arisen around the term capitalism. The free market is based on the principle of economic freedom. That is, every transaction that occurs between one or more parties is completely voluntary. No coercion of any kind is involved. For example, when you walk into a grocery store and buy a bag of apples, no one forced you to do it. It was your choice. And no one forced the store to sell apples. It was their choice. The transaction is governed by a price, the value of the exchange amenable to both the buyer and the seller. In that sense, every free market transaction is a win-win situation for both sides. Each gained something. You gained some tasty apples, and the store made a small profit. Of course, there is competition within the free market. That’s one of its strengths. But the competition is between sellers to attract the business of the buyers or consumers as they’re known. Competition among sellers results in choices for consumers, and we all like choices. The supermarket across the street may attract your business by offering more selection or better quality or lower prices or better service. It short, it must provide more value where value is defined by you, the individual consumer.

#### Private entities utilize their own property and resources to fund and conduct space exploration which means – Prohibition of it is a violation of a) Their ability to use their own property (like their rocketships or fuel) to set their ends in space and b). Their freedom to explore unknown horizons such as space.

## 3

### 1NC – PIC – Solar Energy

#### CP Text: The appropriation of outer space by private entities is unjust except for the appropriation of the sun for Solar Energy.

#### Space-solar tech coming now, private entities are key – it’s impossible to be weaponized

Snowden 19 (Mar 12, 2019,01:29pm EDT|48,669 views Solar Power Stations In Space Could Supply The World With Limitless Energy Scott Snowden Scott SnowdenContributor Sustainability, Forbes, <https://www.forbes.com/sites/scottsnowden/2019/03/12/solar-power-stations-in-space-could-supply-the-world-with-limitless-energy/?sh=229b778b4386)//ww> pbj

While on the surface of the Earth, society still struggles to adopt solar energy solutions, many scientists maintain that giant, space-based solar farms could provide an environmentally-friendly answer to the world's energy crisis. Only last week, we reported that China was planning to build the world's first solar power station to be positioned in Earth's orbit. Because the sun always shines in space, an orbital solar power station is seen as an inexhaustible source of clean energy. "Above the Earth, there's no day and night cycle and no clouds or weather or anything else that might obstruct the sun's ray, so a constant power source is available," said Ali Hajimiri, professor of electrical engineering at the California Institute of Technology and co-director of the university’s Space Solar Power Project. The multi-rotary SPS (MR-SPS) concept is one with multiple independent solar sub-arrays used to... [+] point to the sun. The multi-rotary SPS (MR-SPS) concept is one with multiple independent solar sub-arrays used to... [+] NASA Collecting solar power in space and wirelessly transmitting was first described by Isaac Asimov in 1941 in his short story Reason. In 1968, American aerospace engineer Peter Glaser published the first technical article on the concept – Power From The Sun: Its Future in the journal Science. Space-based solar power attracted considerable attention in the 1970s as the necessary individual technical components – in essence, photovoltaic cells, satellite technology and wireless power transmission – were developed. Despite the concept being technically feasible, it was considered economically unrealistic at the time and research ultimately stalled. “The idea seems to be going through a resurgence and it’s probably because the technology exists to make it happen,” said John Mankins, a former NASA scientist who was at the forefront of this field in the 1990s, before it was abandoned. Aerospace engineer Peter Glaser first wrote about the idea in 1968. Aerospace engineer Peter Glaser first wrote about the idea in 1968. SCIENCE MAGAZINE Global energy demands are only going to grow, says Hajimiri. The global population is expected to reach a staggering 9.6 billion by 2050, according to a United Nations report, so methods of generating large quantities of clean energy must be found. A space-based solar power system could provide energy to everyone, even in places that don't receive sunlight all year round, like northern Europe and Russia. In April of 2015, a research agreement between Northrop Grumman and Caltech provided up to $17.5m for the development of innovations necessary to enable a space solar power system. Three Caltech professors head up the project: joining Hajimiri were Harry Atwater and Sergio Pellegrino. Caltech is just one institution working on developing this technology. We know that scientists at the Chongqing Collaborative Innovation Research Institute for Civil-Military Integration in China are constructing a facility to test the theoretical viability of the concept and plans to develop an orbital photovoltaic array were announced in Japan some time ago. One of the biggest issues to overcome is that of getting an array of solar panels large enough to make the project viable into orbit. Early concept designs in the 1970s featured giant arrays that would've proved very difficult to actually get into orbit. "The systems of the 70s for solar power satellites, the cost estimates suggested, at that time, that it might be as much as a trillion dollars to get to the first kilowatt hour because of the way the designs worked. Essentially a single satellite, a platform, an integrated, monolithic platform about the size of Manhattan," said Mankins. However, with SpaceX and Blue Origin slowly driving the cost of orbital delivery down, suddenly the concept seems a little closer to reality. "Going to modular systems to allow mass production, I believe was the answer to how to get solar power satellite costs down to something more reasonable," said Mankins. Proposed space solar array SPS-ALPHA, image and concept courtesy John C. Mankins. Proposed space solar array SPS-ALPHA, image and concept courtesy John C. Mankins. JOHN C. MANKINS Details of China's proposed plans have not been made public, but most concept designs that exist today are based around an idea that the photovoltaic array is composed of a lightweight, deployable structure made of many smaller "solar satellites" that could easily connect together in space to form much larger array and "harvest sunlight." Equally, this approach also makes assembly, maintenance and repair considerably easier. "I've seen a presentation on what they [China] are presumably doing. I can't guarantee that's actually it, but it was by them, about the space solar system. What I've seen appears to be a conventional approach, which is similar to what people are currently contemplating," said Hajimiri. This completed array would orbit about 22,000 miles above the Earth and "beam" the energy back down to the surface. The photovoltaic array converts the sunlight into electricity, which in turn is converted into RF electrical power (microwaves) that are beamed wirelessly to ground-based receivers. These would take the form of giant wire nets measuring up to four miles across that could be installed across deserts or farmland or even over lakes. A solar facility like this could generate a constant flow of 2,000 gigawatts of power, Mankins estimates, compared to the largest solar farm that exists today in Aswan, southern Egypt, that only generates in the region of 1.8 gigawatts. It's unlikely the solar array could be weaponized into a "death ray" like the one seen in Diamonds... [+] Are Forever. It's unlikely the solar array could be weaponized into a "death ray" like the one seen in Diamonds... [+] MGM/UNITED ARTISTS An orbiting solar array, collecting and storing massive amounts of energy that's beamed to the surface... You'd be forgiven for thinking this could be the plot of a James Bond movie, if this array was somehow weaponized. Thankfully, that's not how it works. "The energy densities will not exceed what you normally would get. It would definitely not exceed what you get from the sun," said Hajimiri. The microwaves that transmit the energy to the surface would be at the so-called non-ionizing radiation frequency. "What that means is that the frequencies are such that unlike x-rays, these are the frequencies at which their photons don't have enough energy to induce chemical change, like that ultraviolet or x-rays do," said Hajimiri. "I've been working on wireless power transmitters that would operate in the microwave frequency range, between about 2 gigahertz and 8 gigahertz, roughly. Wavelengths on the order of 10 to 2 inches. Those wavelengths of electromagnetic radiation can pass through the Earth's atmosphere, including clouds and weather, without interruption, without interference." However, Mankins expects there might still be some problems. "There's always the geopolitics issue. Because when you're at an equatorial orbit, geostationary Earth orbit, you can see a great deal of the Earth below you. For me, it's challenging to envision how there would ever be agreement to allow such a thing." The team at Caltech have successfully tested their proof of concept on the ground, their photovoltaic prototypes demonstrated they can collect and wirelessly transmit 10 gigahertz of power, so the next step is to perform scaled down experiments in space. The biggest challenge is to reduce the mass as much as possible without sacrificing efficiency. Of course, that would also help reduce cost, which is probably still the biggest hurdle. "Hopefully, we'll be able to test it in space within a couple of years," said Hajimiri. "Space solar power would transform our future in space and could provide a new source of virtually limitless and sustainable energy to markets across the world," said Mankins. "Why wouldn't we pursue it?"

#### Space renewable shift is inevitable and good – squo energy habits are unsustainable, only space-solar energy solves

Crawford 10/5 (Mark Crawford is an engineering and technology writer in Corrales, N.M. Space-Based Solar Power Offers Out-of-This World Challenges Oct 5, 2021, ASME, <https://www.asme.org/topics-resources/content/space-based-solar-power-offers-out-of-this-world-challenges)//ww> pbj

Fossil fuels comprise over three-quarters of the world’s energy consumption. These dwindling resources can only support our transportation and energy needs for another 50 to 100 years. In addition, the energy sector is the world’s greatest polluter, releasing nearly one-third of global greenhouse gas emissions, according to the Center for Climate and Energy Solutions. Depletion of oil, gas, and coal reserves will eventually force the world to shift to clean, renewable resources, especially solar energy, which is plentiful. However, solar panels have a maximum efficiency of about 22 percent and are further impacted by external factors, such as limited daylight hours or bad weather. During winter in Europe, for example, as little as three percent of sunlight reaches the earth. These limitations on solar efficiency would be removed by using satellites to collect solar energy in space and beam it to collection sites on Earth. Space-based solar panels can generate 2,000 GW of power constantly, or about 40 times more energy than a solar panel would generate on Earth, according to the National Space Society. More for You: Infographic: Floating Solar Rides the Waves To make space-based solar power (SBSP) feasible on a global scale, several main systems are required: Low-cost, reusable launch vehicles to get materials into space Very large, lightweight, advanced satellite solar panels for in-orbit construction Microwave-transmitting satellites and laser-transmitting satellites, equipped with solar collectors, reflectors, and transmitters Receiving centers built on Earth to receive and distribute this energy. “There are many technical challenges to overcome to ensure that these systems are practical and affordable such as safety, cost, and durability,” states Karen L. Jones, senior project leader and technology strategist with the Center for Space Policy and Strategy. “For example, when beaming power down to Earth, the power densities of microwave beams must be low enough to avoid any real or perceived health and safety concerns.” Other challenges include figuring out how to launch such large solar collection systems into orbit in an affordable way. Solar panels on the International Space Station cover about 2,500 square meters; SBSP solar reflectors could stretch to three kilometers. Space-based solar energy innovators and operators will also need to design their systems to withstand the harsh space environment and offer reliable energy. Key mechanical engineering challenges include robotics and on-orbit assembly and modularity. “Modularity will be essential for assembling lightweight structures that are large enough to capture solar rays in a heliostat reflector array,” said Jones. “These building blocks must be both interoperable and have some level of autonomy. So we need standards in key areas that enable on-orbit assembly, for example, mechanical, electrical, power, thermal, and data interfaces. ASME has been a key player in standards development and should consider a role in standards development as space-based solar power continues to mature.” The U.S. Naval Research Laboratory launched an orbital SPS experiment on the X-37B space plane in May 2020 to test the viability of space-based solar power systems, including converting sunlight to microwaves and analyzing the antenna’s energy conversion process and resulting thermal performance. The U.S. Air Force Laboratory has partnered with Northrop Grumman and others to develop advanced SBSP technologies. For example, the University of Toledo is developing photovoltaic energy sheets that would harvest solar energy and transmit the power wirelessly to Earth. These flexible solar cell sheets would be assembled and interconnected into much larger structures that could include tens of millions of sheets and extend to sizes as large as a square mile. China also plans to use a new super heavy-lift rocket to construct a large space-based solar gigawatt-level power station by 2050. One way to create such a large system is by launching tens of thousands of “solar satellites” covered with photovoltaic panels that are programmed to connect in space to form an enormous cone-shaped collection and transmission system. The solar energy would be beamed wirelessly to ground-based receivers of large wire nets measuring up to four miles across. Researchers at the Japan Aerospace Exploration Agency continue to work on using microwaves to transmit energy, based on their successful experiments in 2015 that successfully used microwaves to transmit electric power. The team was able to deliver 1.8 kW of power through the air with pinpoint accuracy to a receiver about 170 feet away, proving that the technology is viable. The target market for space-based solar power, at least in its early operational stages, could be discrete applications rather than broad commercial opportunities with utility-scale terrestrial facilities that supply power grids. Jones, who recently wrote Space-Based Solar Power: A Near Term Investment Decision wrote with co-author James Vedda, notes that emerging markets for space-based solar power could include on-demand power-beaming for for forward-deployed military bases. "These bases have relied on very dangerous caravans to deliver fuel to the troops," she said. "Nearly two-thirds of coaltion deaths in Iraq and Afghanistan were related to fuel-transporation activities." Similar opportunities may include other terrestrial applications where agile and on-deman beaming capabilities are needed for disaster zones and other types of remote and isolated communities, and powering untethered remote assets such as drones and distributed infrastructure and Internet of Things devices. "Regardless of how we envision the future," said Jones, "there will be surprises regarding future applications for wireless power transmission."

**Warming causes extinction & turns every impact – no adaptation & each degree is worse**

**Krosofsky ’21** [Andrew, Green Matters Journalist, “How Global Warming May Eventually Lead to Global Extinction”, Green Matters, 03-11-2021, https://www.greenmatters.com/p/will-global-warming-cause-extinction]//pranav

Eventually, yes. **Global warming will invariably result in the mass extinction of millions of different species,** humankind included. In fact, **the Center for Biological Diversity says that global warming is currently the greatest threat to life on this planet**. **Global warming causes a number of detrimental effects on the environment that many species won’t be able to handle long-term**. Extreme weather patterns are shifting climates across the globe, eliminating habitats and altering the landscape. **As a result, food and fresh water sources are being drastically reduced**. Then, of course, **there are the rising global temperatures themselves, which many species are physically unable to contend with**. Formerly frozen arctic and antarctic regions are melting, increasing sea levels and temperatures. Eventually, **these effects will create a perfect storm of extinction conditions**. The melting glaciers of the arctic and the searing, **unmanageable heat indexes being seen along the Equator are just the tip of the iceberg, so to speak.** **The species that live in these climate zones have already been affected by the changes caused by global warming.** Take polar bears for example, whose habitats and food sources have been so greatly diminished that they have been forced to range further and further south. **Increased carbon dioxide levels in the atmosphere and oceans have already led to ocean acidification**. **This has caused many species of crustaceans to either adapt or perish and has led to the mass bleaching of more than 50 percent of Australia’s Great Barrier Reef**, according to National Geographic. According to the Center for Biological Diversity, the current trajectory of global warming predicts that more than 30 percent of Earth’s plant and animal species will face extinction by 2050. By the end of the century, that number could be as high as 70 percent. We won’t try and sugarcoat things, humanity’s own prospects aren’t looking that great either. According to The Conversation, **our species has just under a decade left to get our CO₂ emissions under control. If we don’t cut those emissions by half before 2030, temperatures will rise to potentially catastrophic levels. It may only seem like a degree or so, but the worldwide ramifications are immense.** The human species is resilient. We will survive for a while longer, even if these grim global warming predictions come to pass, **but it will mean less food, less water, and increased hardship across the world — especially in low-income areas and developing countries. This increase will also mean more pandemics, devastating storms, and uncontrollable wildfires**.

## Case

1. **My framework hijacks—happiness requires recognition that one has authority over their happiness, which requires freedom and reason**

**Engstrom**, Stephen [“Universal Legislation As the Form of Practical Knowledge. University of Pittsburgh, ND]

Kant holds that to set something as one’s end is to represent it in practical judgment as one’s effect, or, in other words, to represent oneself as its cause: “an end”, he says, “is the object of a concept, so far as the latter is regarded as the cause of the former (the real ground of its possibility)” (KU 220; cf. MS 384). **Thus the act of practical representation that constitutes the setting of an object as an end essentially includes an understanding of itself as the cause whereby that object is to be brought about. It’s therefore essential to an end that to will something as one’s end is to regard oneself, in one’s representation of that end, as the cause that, through that same representation, is to realize it. Hence every representation of an end—and so every maxim15—contains two components: (i) the representation of the object, and (ii) the representation of the relation of causal dependency in which that object stands to the subject, as the latter’s effect, or (what comes to the same thing) the representation of the subject’s causal sufficiency in respect of the object, that is, the sufficiency of the subject’s action to produce it**. And since what is represented in cognition must correspond to the cognition of it, to these two components in the representation of an end there must correspond two components in the end itself. **In the case of the end of happiness, we can characterize the two components by saying that happiness includes, in addition to the agreeable activities a person represents as its own effect, also the person’s practical sufficiency in respect of that effect.** And since this end is the object of the fundamental act of choice in which a particular person constitutes itself as such, the practical sufficiency it includes can be characterized as practical self- sufficiency. But here I would caution that this expression can mislead if not properly understood. We should not suppose that the idea of self-sufficiency is best exemplified by a Robinson Crusoe or a rugged individualist, or through some exaggerated image of the self-made man. **Self-sufficiency does involve a certain independence**, the ability to stand on one’s own two feet, as we say, and **to manage one’s own affairs**, putting it in proximity to what nowadays is often called “personal autonomy”. But persons who become attached to an inflated ideal of individualism or to some other excessive conception of self-sufficiency do so through the specific objects they opt to include in the content of their end rather than on account of anything belonging to its form. Self- sufficiency can take a collective form to the extent that persons join their wills, entering into communities and other cooperative engagements, and it will have an essentially collective dimension where, as in the human case, persons are naturally sociable and born into families. **Happiness, then, has two components, which are related, I think we can say, as matter and form: the agreeable objects (activities) a person includes as ingredients in specifying what happiness consists in, and self-sufficiency in the production of them. Each of these components is essential. Mere satisfaction of a person’s inclinations through good fortune is not enough, since complete happiness always includes the security that only self-sufficiency can bring.16 And because the material component of happiness depends in part on natural inclinations that reflect a person’s dependent existence, no person can ensure happiness by simply giving up the objects of inclinations to maintain self- sufficiency.17**

**Util Indicts**

1. **Problem of induction—I predict based on past experiences, but there’s no justification for why those past experiences are true besides they worked in the past, which is based on experiences and is circular**
2. **Infinite consequences—each action has a consequence which leads to another consequence—if I drop a pen, that could lead to a hurricane so there is no consequence that can be predicted**
3. **Util relies on internalism, which has no bindingness since I could say I did an action because I didn’t know that the result would be bad since no one knows my experiences**
4. **Util triggers skep—if our bodies naturally know pain is bad and pleasure is good, we automatically act off pain and pleasure ie I automatically remove my hand from a hot stove bc receptors unconsciously trigger my hand to move—means we don’t have control over action and there can’t be moral prescription**
5. **Infinite regress—calculating consequences begs the question of how long I should calculate to have a precise prediction. Triggers infinite regress since I can think how long to calculate calculation and so forth—freezes action**
6. **There’s always infinite pleasure and pain in the universe—util is incoherent since we can’t add or subtract from that.**

**Bostrom ’08** (Bostrom, Nick [Professor at University of Oxford, director of Oxford’s Future of Humanity Institute, PhD from London School of Economics]. The Infinitarian Challenge to Aggregative Ethics. 2008. http://www.nickbostrom.com/ethics/infinite.pdf)

In the standard Big Bang model, assuming the simplest topology (i.e., that space is singly connected), there are three basic possibilities: the universe can be open, flat, or closed. **Current data suggests a flat or open universe**, although the final verdict is pending. **If the universe is either open or flat, then it is spatially infinite at every point in time and the model entails that it contains an infinite number of galaxies, stars, and planets**. There exists a common misconception which confuses the universe with the (finite) ‘observable universe’. But **the observable part**—the part that coulsd causally affect us—**would be just an infinitesimal fraction of the whole**. Statements about the “mass of the universe” or the “number of protons in the universe” generally refer to the content of this observable part; see e.g. [1]. **Many cosmologists believe that our universe is just one in an infinite ensemble of universes** (a multiverse), **and this adds to the**

### Advantage

#### Akoto is power tagged – it makes a claim without evidence – it just says that private companies MAY be tempted to cut corners with cyber security

#### Non-unique – Japan gets hit with over 500,000 attacks daily.

Goud ’17 [Naveen; researcher at Cybersecurity Insiders; no date, carbon dated to 2/6/17; “Cyber Attacks on Japan’s Critical Infrastructure touches 128 billion mark”; <https://www.cybersecurity-insiders.com/cyber-attacks-on-japans-critical-infrastructure-touches-128-billion-mark/>; Cybersecurity Insiders; accessed 3/22/21; TV]

Internal Affairs and Communications Ministry of Japan has disclosed that the cyber attacks made on their nation’s critical infrastructure touched the mark of 128 billion- a 2.4 fold increase from the previous year. And the Ministry added in their announcement that half of the attacks were launched from China.

Initially, the primary targets of the hackers were Internet of Things (IoT) related devices, such as webcams and routers meant for home use. Then from mid-2016, their focus shifted on public utility systems which include government websites and power grids.

As Internet of Things has less protection against cyber threats such as viruses, we can come to a conclusion that IoT appliances are acting as stepping stones for infecting government’s critical IT infrastructure.

Smart TVs, CCTV cameras on a public network, Smart Phones, and Computer PCs topped the list of IoT which were targeted by hackers.

The National Institute of Information and Communications Technology (NICT) admitted that the statement given by the Japan Ministry was true and the threat from nations like Russia and China was increasing at an alarming rate.

NICT proposed some measures to counter such cyber attacks to government agencies. It said that there were some sensors installed on domestic networks to monitor such attacks. Now the organizations want the government agencies to prop up these sensors with efficient software tools which could not only detect the attacks but can also fend them off in a proactive way.

By and large, Japan is considered as an ‘Electronics Hub’ of the world, the nation’s financial influx is gained mostly from electronics. If the nation’s fails to defend cyber attacks, then all such cyber attacks could lead to a political and financial instability within no time.

To counter such issues, Japan is said to have increased the strength of the cyber security teams meant to save the nation’s critical infrastructure from cyber threats. It is said that the teams working under the umbrella of National Security are fending off over 500,000 cyber attacks on a daily note.

#### No large-scale cyber attacks or retaliation

Dr. Joseph S. **Nye 19**, Jr., University Distinguished Service Professor and Former Dean of the Kennedy School of Government at Harvard University, “Global Cyber Conflicts Will Be Hard To Control”, The Statesman (Pakistan), 10/14/2019, Lexis

The problem of perceptions and controlling escalation is not new. In August 1914, the major European powers expected a short and sharp “Third Balkan War.” The troops were expected to be home by Christmas. After the assassination of the Austrian archduke in June, Austria-Hungary wanted to give Serbia a bloody nose, and Germany gave its Austrian ally a blank check rather than see it humiliated. But when the Kaiser returned from vacation at the end of July and discovered how Austria had filled in the check, his efforts to de-escalate were too late. Nonetheless, he expected to prevail and almost did.

Had the Kaiser, the Czar, and the Emperor known in August 1914 that a little over four years later, all would lose their thrones and see their realms dismembered, they would not have gone to war. Since 1945, nuclear weapons have served as a crystal ball in which leaders can glimpse the catastrophe implied by a major war. After the Cuban Missile Crisis in 1962, leaders learned the importance of de-escalation, arms-control communication, and rules of the road to manage conflict.

Cyber technology, of course, lacks the clear devastating effects of nuclear weapons, and that poses a different set of problems, because there is no crystal ball. During the Cold War, the great powers avoided direct engagement, but that is not true of cyber conflict. And yet the threat of cyber **Pearl Harbor**s has been **exaggerated**. Most cyber conflicts occur **below the threshold** established by the rules of armed conflict. They are **economic** and **political**, rather than **lethal**. It is **not credible** to threaten a **nuclear response** to cyber theft of intellectual property by China or cyber meddling in elections by Russia.

According to American doctrine, deterrence is not limited to a cyber response (though that is possible). The US will respond to cyberattacks across domains or sectors, with any weapons of its choice, **proportional** to the damage that has been done. That can range from **naming** and **shaming** to economic sanctions to kinetic weapons. Earlier this year, a new doctrine of “persistent engagement” was described as not only disrupting attacks, but also helping to reinforce deterrence. But the technical overlap between intrusion into networks to gather intelligence or disrupt attacks and to carry out offensive operations often makes it difficult to distinguish between escalation and de-escalation. Rather than relying on tacit bargaining, as proponents of “persistent engagement” sometimes emphasize, explicit communication may be necessary to limit escalation.

#### No cyber impact – attribution, restraint, and capabilities.

Lewis ’20 [James Andrew; 8/17/20; senior vice president and director of the Strategic Technologies Program at the Center for Strategic and International Studies; "Dismissing Cyber Catastrophe," https://www.csis.org/analysis/dismissing-cyber-catastrophe]

More importantly, there are powerful strategic constraints on those who have the ability to launch catastrophe attacks. We have more than two decades of experience with the use of cyber techniques and operations for coercive and criminal purposes and have a clear understanding of motives, capabilities, and intentions. We can be guided by the methods of the Strategic Bombing Survey, which used interviews and observation (rather than hypotheses) to determine effect. These methods apply equally to cyberattacks. The conclusions we can draw from this are:

Nonstate actors and most states lack the capability to launch attacks that cause physical damage at any level, much less a catastrophe. There have been regular predictions every year for over a decade that nonstate actors will acquire these high-end cyber capabilities in two or three years in what has become a cycle of repetition. The monetary return is negligible, which dissuades the skilled cybercriminals (mostly Russian speaking) who might have the necessary skills. One mystery is why these groups have not been used as mercenaries, and this may reflect either a degree of control by the Russian state (if it has forbidden mercenary acts) or a degree of caution by criminals.

There is enough uncertainty among potential attackers about the United States’ ability to attribute that they are unwilling to risk massive retaliation in response to a catastrophic attack. (They are perfectly willing to take the risk of attribution for espionage and coercive cyber actions.)

No one has ever died from a cyberattack, and only a handful of these attacks have produced physical damage. A cyberattack is not a nuclear weapon, and it is intellectually lazy to equate them to nuclear weapons. Using a tactical nuclear weapon against an urban center would produce several hundred thousand casualties, while a strategic nuclear exchange would cause tens of millions of casualties and immense physical destruction. These are catastrophes that some hack cannot duplicate. The shadow of nuclear war distorts discussion of cyber warfare.

State use of cyber operations is consistent with their broad national strategies and interests. Their primary emphasis is on espionage and political coercion. The United States has opponents and is in conflict with them, but they have no interest in launching a catastrophic cyberattack since it would certainly produce an equally catastrophic retaliation. Their goal is to stay below the “use-of-force” threshold and undertake damaging cyber actions against the United States, not start a war.

This has implications for the discussion of inadvertent escalation, something that has also never occurred. The concern over escalation deserves a longer discussion, as there are both technological and strategic constraints that shape and limit risk in cyber operations, and the absence of inadvertent escalation suggests a high degree of control for cyber capabilities by advanced states. Attackers, particularly among the United States’ major opponents for whom cyber is just one of the tools for confrontation, seek to avoid actions that could trigger escalation.

The United States has two opponents (China and Russia) who are capable of damaging cyberattacks. Russia has demonstrated its attack skills on the Ukrainian power grid, but neither Russia nor China would be well served by a similar attack on the United States. Iran is improving and may reach the point where it could use cyberattacks to cause major damage, but it would only do so when it has decided to engage in a major armed conflict with the United States. Iran might attack targets outside the United States and its allies with less risk and continues to experiment with cyberattacks against Israeli critical infrastructure. North Korea has not yet developed this kind of capability.

#### Their impacts of natural disasters are based of hurricanes and storms – even if they win that – we have defense

**Status quo solves - current protection measures provide adequate disaster response**

Fischetti 1/26/12 - senior editor at Scientific American who covers energy, environment and sustainability issues. (Mark, “New Orleans Protection Plan Will Rely on Wetlands to Hold Back Hurricanes”, Scientific American, Google Scholar, http://blogs.scientificamerican.com/observations/2012/01/26/new-orleans-protection-plan-will-rely-on-wetlands-to-hold-back-hurricanes/)

More than **six years after** Hurricane **Katrina** plowed into New Orleans and the Mississippi River delta, **a plan has finally emerged to protect the area from future storms**. **It relies** heavily **on the restoration of wetlands to cut down high surges of ocean water** like those that flooded the city in 2005—somewhat of a surprise, considering past efforts focused on levees and seawalls. Last week, after prolonged deliberations over competing plans between state and federal agencies, the U.S. Army Corps of Engineers, and cities and parishes (counties), the state’s **Coastal Protection and Restoration Authority released the Louisiana Comprehensive Master Plan for a Sustainable Coast**. If all its provisions are carried out, the work would require $50 billion over 50 years. The plan includes maps of what the state’s refurbished delta would look like from the air by 2061. It also shows maps of the wetlands that would disappear by 2061 (see image below), as well as the extent of flooding that storms such as Katrina would bring, if the projects aren’t built. Southern Louisiana has lost 1,883 square miles of wetlands during the past 80 years, an area three-quarters the size of Delaware, largely because of erosion that has been catalyzed by hundreds of miles of manmade navigation channels and oil and gas pipeline canals. Most of that land will not be regained. But if the plan’s projects succeed, by 2042 the state would begin to gain more land annually than it loses, and by 2061 it would gain an average of about 2.5 square miles a year. Several major strategies make up the bulk of the plan (see example below). Along the outer edge of the torn-up coast, furthest from New Orleans, former **barrier islands** that have been worn to thin wisps of land **would be broadened with sandy sediment**, mostly dredged from the ocean bottom and conveyed through pipelines. **Natural ridges of land along the coast would be strengthened in similar fashion**. Together, **the islands and ridges** would form a dotted line around southeastern Louisiana that **can cut down storm surges**. They would not all connect, so wind-driven water could still find its way through, but the many **segments would break up the incoming wavefront into chaotic eddies flowing in conflicting directions that would** at least partially **cancel out one another.** Closer inland, large areas of wetlands that are severely tattered or nearly gone would be reconstituted. Large openings, called diversions, would be cut in the levees that line the winding Mississippi River, as well as the Atchafalaya River to its west. **Gates would** be inserted, which **would allow freshwater and sediment**—the lifeblood of marshy terrain—**to wash down into the wetlands** when the river is running high. Decades ago the delta had thick, robust marshes and swamps that began behind the barrier islands and ran back for miles and miles to where towns and cities had sprouted. The vast marshes could absorb large storm surges, turning them into the equivalent of mild high tides by the time they reach metropolitan areas. Healthy wetlands also gradually dilute the salt from seawater, so it doesn’t kill plants that grow in fresher water closer to firm land, a mechanism that has further eroded today’s struggling regions. Portion of New Orleans protection plan: better levees (purple), breakwaters (orange lines, top), refurbished wetlands (brown dotted areas), gates in Mississippi River levees to divert sediment and freshwater to sustain those wetlands (circles), and rebuilt barrier islands (orange dots, bottom). Close to New Orleans, of course, **levees would continue to be raised and connected**, and **breakwaters would** also **be erected** **along** certain **shorelines that are close to populated areas**. Numerous **homes and businesses would be raised or floodproofed**. And some houses in areas that were destroyed by Katrina and are at the greatest risk for future flooding would simply be bought and removed, and the land left vacant.These strategies strongly echo three different protection plans that experts had recommendations back in early 2006, which Scientific American detailed in an article before the infighting between stakeholders widened. As it was then, restoring wetlands remains a controversial strategy, yet the Coastal Protection and Restoration Authority is clearly relying on it; the biggest chunk of money designated in the plan is $17.9 billion to improve thousands of acres in numerous locations. Sediment and freshwater are needed to build and maintain wetlands; spring flooding by the Mississippi River is largely what built the vast stretches to begin with, until levees raised along the river prevented the annual overflows. Much of the initial rebuilding will be done by dredging sediment from nearby channels and pumping it into needed spots, but the diversions are important for supplying new sediment, freshwater and nutrients to the areas year after year. Some interest groups, notably fishers, have already expressed opposition to the diversions, most recently on Monday during the first of three consecutive days of public meetings about the plan (the full comment period ends February 25). They claim that the inflows of freshwater will chase shrimp, crabs and certain fish that prefer brackish water further out to sea, harm spawning grounds or oyster beds, or impede the fishers’ ability to harvest the seafood. They also claim that two small, experimental diversions that have been running for at least a decade have failed to actually rebuild land. Studies by scientists have shown improvements in those places, however, although land has not always be regained at the rates initially predicted. Even if the planned diversions do work, it will be many years before large, healthy marshes return—years during which, proponents hope, no Katrinas come blowing in. In the meantime, lessons learned while rebuilding the Mississippi delta could prove valuable across the U.S. The country has more than 30,000 miles of levees, and as much as 70 percent of them can no longer be trusted because of long-term erosion or poor construction, according to a 2010 report by the Federal Emergency Management Agency.

#### No cyber war or retaliation

Jasmine **Rodet 18**, Master’s Degree in Cyber Security, Strategy, and Diplomacy from the University of New South Wales, Cyber Security Program Manager at Fortescue Metals Group, “The Threat of Cyber War is Exaggerated”, 11/11/2018, linkedin.com/pulse/threat-cyber-war-exaggerated-jasmine-rodet/

For the regular person on the street, the term ‘cyber war’ is more likely to bring to mind the 1983 movie “WarGames” and the doomsday articles that appear regularly in the media about the ‘cyber battlefield’ and an impending World War III.  This essay argues that the threat of cyber war is **exaggerated** and although it can, by definition, be stated that we are already in a state of cyber war, the impact on states is **negligible** compared to conventional war domains.

The argument is presented in 3 steps. The first step is to define cyber war and cyber weapons, referencing scholars and experts in the area of conventional war and the cyber domain. The second step is to explore who has been exaggerating the threat of cyber war and what their motivations might be. The third is to explore the evidence and quantify the probability and impact that cyberwar has had on states to date.

‘Cyber war’ is a term often used interchangeably in media with cyber-crime, cyber-attacks, cyber-conflict and cyber-incidents, creating confusion amongst the public and scholars alike. Clausewitz (1989, 75), in his book, On War, defines war as ‘an act of force to compel the enemy to do our will’. Rid (2012, 7) on the other interprets Clausewitz use of ‘force’ as meaning ‘violent’ force. According to Rid, if an act is not potentially violent, it is not an act of war. However, Stone (2013, 107) describes ‘cyber war’ as a politically motivated act of force, not necessarily lethal and not necessarily attributable. The definition by Powers and Jablonski states more simply that cyber war is the utilisation of digital networks for geopolitical purposes (Nocetti 2016, 464). Neither of the latter two definitions requires violence to qualify as cyber war.  Under these definitions, the Stuxnet cyber-incident in 2010 and the Estonia incident in 2007 would constitute an act of cyber war, and as such we could say that nations have been at cyber war in the past and are likely to continue to engage in cyber war in years to come.

For this essay, I will use Stones definition to argue that even though states may engage in cyber war, the concept of cyber war is exaggerated. It seems that cyber war is **deliberately exaggerated** in the media and by politicians for **financial** and **political** gains. There are countless examples in the media and in politics of the exaggeration of the threat of cyber war and the language used plays a big factor in creating a sense of fear in the community.

The Four Corners report, Hacked, is a classic example where the reporter, Andrew Fowler describes the current situation in Australia as ‘… a secret war where the body count is climbing every day’ (Fowler 2013). The documentary reveals nothing violent or lethal about cyber incidents. The documentary is actually about hackers working from locations overseas, having targeted key Federal Government departments and major corporations in Australia.

In another example, NATO may be interpreted as exaggerating the threat of Cyber War when they invited Charlie Millar to present at their Conference for Cyber Conflict at the NATO Cooperative Cyber Defence Centre of Excellence in 2017. Millar is an independent security evaluator, and his presentation was titled ‘Kim Jong-il and me: How to build a cyber army to attack the US’. He later presented similar content at Def Con 2018. His presentation described the steps he would take to mount a cyber war, including the types of people he would engage, how much he would pay them, what his strategy would be and how much it would cost in total.

Who stands to gain from the exaggeration and hype? Logically, one group would be those that gain financially from the sale of cyber protective services and software. According to Valerino, 57% of technical experts surveyed said that we are currently in a cyber arms race and 43% said that the worst-case scenarios are inevitable (Valeriano and Ryan 2015). Translate this into sales and Gartner projects worldwide security spending will reach $96 Billion in 2018, up 8 Percent from 2017 and to top $113 billion by 2020 (Gartner 2017).

Additionally, there may be **political motivations** to exaggerate the threat of cyber war. Cyberspace is not well understood by the general public and fear is natural. In the US’s cyber security debate, observers have noted there is a tendency for policymakers, military leaders, and media, among others, to use frightening ‘cyber-doom scenarios’ when making a case for action on cyber security (Dunn 2008, 2).

There is some evidence to suggest that more recently in the political arena; we may be maturing in our understanding of the real threat of cyber war. The Tallinn Manual, an academic, non-binding study on how international law applies to cyber conflicts and cyber warfare, was written at the invitation of the Tallinn-based NATO Cooperative Cyber Defence Centre of Excellence. It was first published in 2013 with the title ‘The Tallinn Manual on the International Law of Cyber War’. In 2017, it was re-released with the revised title ‘Tallinn Manual 2.0 on the International Law of Cyber Operations’. The change in title from ‘war’ to ‘operations’ signifies a more moderate use of language from NATO and is an acknowledgement that cyber incidents generally fall below the threshold at which International Law would declare them to be a formal act of war. Experience over the 4 short years from 2013 to 2017 has demonstrated that cyber incidents tend to have a low-level impact on the target state. As the book’s authors put it ‘the focus of the original Manual was on the most severe cyber operations, those that violate the prohibition of the use of force in international relations, entitle states to exercise the right of self-defence, and/or occur during armed conflict’ while the new version ‘adds a legal analysis of the more common cyber incidents that states encounter on a day-to-day basis and that fall below the thresholds of the use of force or armed conflict’ (Leetaru 2017).

To get a better sense if cyber war is exaggerated, we must also consider the probability of cyber war in the future. The probability of cyber war should be weighed up against the probability of conventional war. Where tensions are already high, for example, between North Korea and the US or Russia and Estonia, I would argue that cyber war is more likely than conventional war. This is due to factors including; cyber warfare is less costly than conventional warfare, states are less rational in their decision space in the cyber realm, states find cyber attribution very difficult to achieve so attacks can be undertaken covertly and cyber war is considered ‘a challenge’ and central to the hackers’ ethos (Junio 2013, 128).  Further, Sanger describes in his book, The Perfect Weapon, cyber weapons (such as cyber vandalism, Distributed Denial of Service (DDOS), intrusions and advanced persistent threat (APT)) as the ‘perfect weapons’ for the following reasons;

They are cheap: When compared to Nuclear weapons, there are only a handful of nations globally that can afford the technology to create a nuclear weapon.

They are easily accessible: Unlike a Nuclear bomb that requires uranium, a highly protected metal, in the production process, a cyber weapon can be created with minimal investment and highly available IT infrastructure.

They can be dialled-up or dialled-down relatively easily. A ballistic missile, the force of the explosion cannot be adjusted as easily as a DDOS attack. A DDOS attack can be adjusted to last an hour, a few days or a few weeks.

They have a huge range in how they are used: Sabotage as with Stuxnet, Espionage as with the Chinese industrial spying on the US, North Korea’s infiltration of Sony, the Iranians attack on Las Vegas Sands Corp. casino operators.

The significant factor is that cyber weapons can and are being used every day for discrete, **low-level** cyber conflicts to undermine and disrupt rivals, but historically it has **not progressed** to open conflict, nor has it **warranted** a **military response** (Sanger 2018). Additionally, massive cyber operations would necessarily impact the civilian population and violate the immunity