### NC – OFF

#### T – Appropriation:

#### Interpretation: Appropriation means use, exploitation, or occupation that is permanent and to the exclusion of others

Babcock 19 Professor of Law, Georgetown University Law Cente. Babcock, Hope M. "The Public Trust Doctrine, Outer Space, and the Global Commons: Time to Call Home ET." Syracuse L. Rev. 69 (2019): 191.

Article II is one of those succeeding provisions that curtails “the freedom of use outlined in Article [I] by declaring that outer space, including the [m]oon and other celestial bodies, is not subject to national appropriation.”147 It flatly prohibits national appropriation of any celestial body in outer space “by means of use or occupation, or by any other means.”148 However, “many types of ‘use’ or ‘exploitation’. . . are inconceivable without appropriation of some degree at least of any materials taken,” like ore or water.149 If this view of Article II’s prohibitory language is correct, then “it is not at all farfetched to say that the OST actually installs a blanket prohibition on many beneficial forms of development.”150 However, the OST only prohibits an appropriation that constitutes a “long-term use and permanent occupation, to the exclusion of all others.”151

#### Violation: Aff does not appropriate – reject non-legal interpretations

Johnson 20 [Chris Johnson is the Space Law Advisor for Secure World Foundation and has nine years of professional experience in international space law and policy. He has authored and co-authored publications on international space law, national space legislation, international cooperation in space, human-robotic cooperative space exploration, and on the societal benefits of space technology for Africa. "The Legal Status of MegaLEO Constellations and Concerns About Appropriation of Large Swaths of Earth Orbit." https://swfound.org/media/206951/johnson2020\_referenceworkentry\_thelegalstatusofmegaleoconstel.pdf]

No, This Is Not Impermissible Appropriation

An opposite conclusion can also be reasonably arrived at when approached along the following lines. The counter argument would assert that the deployment and operation of these global constellations, such as SpaceX’s Starlink, OneWeb, Kepler, etc., are aligned with and in full conformity with the laws applicable to outer space. These constellations are merely the exercise and enjoyment of the freedom of exploration and use of outer space and do not constitute any impermissible appropriation of the orbits that they transit.

Freedom of Access and Use Permits Constellations

Rather than being a violation of other’s rights to access and explore outer space, the deployment of these constellations is more correctly viewed as the exercise and enjoyment of the right to access and use outer space. Article I of the Outer Space Treaty establishes a right to access and use space without discrimination.

Not allowing an actor to deploy spacecraft, regardless of their number or destination, would be infringing with the exercise of their freedom. It would be discriminatory. Additionally, actors do not need permission from any other State, or group of States, to access and explore outer space.

Aligned with the Intentions of the Outer Space Treaty

This use of outer space by constellations in LEO, while not explicitly mentioned by the drafters of the Outer Space Treaty or other space law, actually is the fulfillment of their visions for the use of outer space. The preamble to the Outer Space Treaty (which contains the subject matter and purpose of the treaty and can be used for interpreting the operative articles of the treaty) speaks of the aspirations of humanity in exploring and using outer space. It is easy to see constellations that will provide Internet access to the world as fulfilling the visions of the drafters:

The States Parties to this Treaty,

Inspired by the great prospects opening up before mankind as a result of man’s entry into outer space,

Recognizing the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes,

Believing that the exploration and use of outer space should be carried on for the benefit of all peoples irrespective of the degree of their economic or scientific development,

Desiring to contribute to broad international cooperation in the scientific as well as the legal aspects of the exploration and use of outer space for peaceful purposes,

Believing that such cooperation will contribute to the development of mutual understanding and to the strengthening of friendly relations between States and peoples,

As such, subsequent article of the Outer Space Treaty should be read in a permissive light, as permitting constellations, rather than a restrictive light which only sees potential negative aspects of constellations.

Due Regard and Harmful Contamination Will be Addressed

Operators in LEO are well aware of the challenges to space sustainability that their constellations will pose and will be taking efforts to mitigate the creation of debris. OneWeb is keenly focused on space sustainability and has even argued that the current norm, whereby spacecraft are not in space for longer than 25 years and are deorbited from lower orbits at the end of their lifetime (aka post mission disposal), is not sufficient to keep outer space clean and that shorter lifespan limits should be imposed on operators, especially operators in LEO, and operators of small satellites.

Additionally, these systems will be able to cooperate with emerging space safety and space traffic management plans and can operate in ways that do not restrict or impinge on other users of the space domain. Because due regard is therefore displayed for the space domain, and to the interests of others, these constellations do not prejudice or infringe upon the freedoms of use and exploration of the space domain and are therefore not occupation, or possession, much less appropriation.

This Does Not Constitute Possession, or Ownership, or Occupation

The use of LEO by satellite constellations is substantially similar to the use of GSO, and therefore permissible. In each region, individual actors are given permission - either from a national administrator or from an international governing body (the ITU) via a national administer–to use precoordinated subsections of space. In a way that is overwhelmingly similar to the use of orbital slots in GSO, the placement of spacecraft into orbits in LEO or higher orbits does not constitute possession, ownership, or occupation of those orbits. This is because States (and their companies) have been occupying orbital slots in GSO for decades, and these uses of GSO have never been accused of “appropriating” GSO. The users have never claimed to be appropriating GSO, and their exercising of rights to use GSO is respected by other actors in the space domain. This is the same situation for other orbits, including LEO and other non-Geostationary orbits.

And while GSO locations are relatively stable (subject to space weather and other perturbations, and require stationkeeping), spacecraft in LEO are actually moving through space and are not stationary, so it is even more difficult to see this use by constellations as occupation, much less appropriation. Moreover, Space Situational Awareness (SSA) and Space Traffic Management (STM) will allow other uses to use these orbits, and nothing about the use of any one user necessarily precludes others. Lastly, there is no intention by operators of constellations to exclusively occupy, must less possess or appropriate, these orbits. Would not the appropriation of outer space be an intentional, volutional act? No such intention can be found in the operators of global constellations.

Their Kulu card concedes the labs are either on shuttles, on government property, or both. Kulu 18 [Harker reads yellow.]

Kulu(Factories in space, Medicine and drugs, Erik Kulu 2018-2021, Manufacturing of pharmaceutical drugs in low orbit <https://www.factoriesinspace.com/medicine-and-drugs>)

Microgravity changes how crystal structures develop and in the process creates better samples than can be grown on Earth. Improving the 3D structure can have a positive impact on drug delivery, manufacturing and storage. A high percentage of pharmaceutical company executives (60%) said the space economy will have a high disruption on their sector in the coming decades. In a nutshell, space affords Big Pharma unique conditions in order to improve their drugs and potentially find new treatments. A long-term goal is the manufacturing of pharmaceuticals in a low orbit. While manufacturing in a low orbit could improve drugs, it could also increase the price.[1](https://www.factoriesinspace.com/medicine-and-drugs#fn1) Liquid-liquid separation and chemical extraction are key processes in drug manufacturing and many other industries, including oil and gas, fragrances, food, wastewater filtration, and biotechnology. MIT spinout Zaiput Flow Technologies launched a novel continuous-flow liquid-liquid separator that makes those processes faster, easier, and more efficient. Today, nine pharmaceutical giants and a growing number of academic labs and small companies use the separator. Having proved its efficacy on Earth, the separator is now being tested as a tool for manufacturing drugs and synthesizing chemicals in outer space.[2](https://www.factoriesinspace.com/medicine-and-drugs#fn2) In space, microgravity lets materials grow without encountering walls, and it allows them to mix evenly and hold together without traditional supports. And a nearby ultrahigh vacuum helps things form without impurities. In microgravity, crystals can grow larger; in one experiment, crystals made from proteins grew to be 6 cubic millimeters, on average, compared with 0.5 cubic millimeters here on Earth. Once grown, those crystals can be analyzed to determine the proteins' 3D structures, which can help inform new strategies for drug discovery. Growing other crystals, like those used to manufacture drugs or those that can detect gamma-rays and neutrons, in space so that they're bigger and purer can make the resulting (in) material (of) higher-quality.[3](https://www.factoriesinspace.com/medicine-and-drugs#fn3) For drug delivery, uniformity is ideal, but it will still be some time before Merck is manufacturing drugs in space.[5](https://www.factoriesinspace.com/medicine-and-drugs#fn5) Paul Reichert, a research scientist at Merck pharmaceuticals, has been an advocate for zero gravity drug development for 25 years. Weightless drug manufacturing, he says, would enable engineers to better control chemical processes, especially when it comes to synthesizing complicated large-molecule medicines. Reichert has never left Earth, but he has designed more than a dozen experiments performed by astronauts aboard the space shuttle and the International Space Station. Still, progress is slow. “I’ve done 14 experiments in space in 24 years,” he says. “I can do 14 experiments in a day here on Earth.” Kelly hopes that more pharmaceutical experiments will be done on the Space Station, but he says an even better research site is the Moon: “It’s perfectly designed, and placed at a good distance. It’s got a sixth of the gravity of Earth, and has no atmosphere.”[6](https://www.factoriesinspace.com/medicine-and-drugs#fn6)

#### Howell 19 also concedes all of their evidence is about the International Space Station. [Harker reads yellow.]

Howell 19(Elizabeth Howell, How Big Pharma Was Wooed To Space-Based 'Business Park, August 14 2019, https://www.forbes.com/sites/elizabethhowell1/2019/08/14/how-big-pharma-was-wooed-to-space-based-business-park/?sh=e97d10632e17)

The most exclusive business park for humankind is so remote that it takes a rocket to get there — and big pharma is among the growth industries in this difficult-to-reach location. The "weightless" lab is packed with experiments that develop drugs and 3D-print human tissue, among other things. It's called the U.S. National Laboratory and its address is on the International Space Station. Its sole manager — Florida's non-profit Center for the Advancement of Space (CASIS) — has been in charge there for eight years, working with astronauts who contend with packed schedules and a dangerous environment. While CASIS says its ecosystem is growing and thriving, NASA's Office of the Inspector General criticized the organization for its work, as late as January 2018: "The organization has underperformed on tasks important to achieving NASA's goal of building a commercial space economy in low Earth orbit," the OIG wrote in a report at that time. "After more than five years of operation, CASIS has not fully met a majority of the goals and expectations set out by NASA," it added. (At the time, NASA said it concurred or partially concurred with OIG recommendations, although OIG and NASA clashed as to how the report's performance metrics for CASIS were defined.) Yet CASIS says it has been working hard amid unique requirements for its lab. It's a tough place to work, because the principal investigators are nowhere near their experiments. Further, astronaut time is precious — so experiments ideally are somewhat autonomous, able to be controlled from Earth or to run on their own. German astronaut Alexander Gerst works on a CASIS-developed experiment called Space Algae. German astronaut Alexander Gerst works on a CASIS-developed experiment called Space Algae. Algae ... [+] NASA CASIS had a classic "blue ocean" advantage — the ability to offer experiment environments that are completely unavailable to competitors, for obvious reasons — but at the same time, it had to move quickly to gain community trust. MORE FOR YOU New Research Finds A Connection Between Domestic Violence And These Two Personality Disorders This Scientist Helps Andean Forests And Ecuador’s Women In STEM Exceptional Fossil Preservation Suggests That Discovering Dinosaur DNA May Not Be Impossible Any success so far is due to quick growth in partnerships, said Ken Shields, the laboratory's chief operating officer, in an interview. "We knew very quickly we had a limited time to get our organization and the national lab ramped up," he said, which required a good deal of forecasting. One of the potential winners CASIS identified was "big pharma", and nearly a decade later that idea is paying off in a big way, Shields said. While that industry is thriving, there are special requirements to consider. In space, experiments can take years to plan due to requirements in fire safety and astronaut safety — not to mention the usual research approvals and funding challenges that principal investigators go through at their individual institutions. How Schools Can Better Serve Hispanic And Latino Students SpaceX's Falcon 9 is one of the providers launching CASIS cargo to space. SpaceX's Falcon 9 (pictured here atop a Falcon 9 rocket during a July 25, 2019 launch from Cape ... [+] NURPHOTO VIA GETTY IMAGES Shields said his non-profit's first step was to understand who in big pharma was investing "a lot of dollars in applied development", and then make the pitch to those folks about how microgravity could simplify the production of drugs. CASIS had to rapidly demonstrate a robust supply chain of rocket launches and high-speed connections to allow results to come out quickly. While drug development takes years of work (meaning tangible financial results can often come decades down the line) what CASIS can point to is demonstrated interest of well-known industry names. Merck has studied the crystallization of antibodies in space. AstraZeneca recently launched a regenerative medicine payload. And Dover Lifesciences won a technology in space award (sponsored by Boeing) to crystallize a protein complex that is tough to make in Earth's gravity. <https://www.the-scientist.com/bio-business/pharma-looks-to-outer-space-to-boost-drug-rd--68183> On a cool December afternoon in 2018, on a viewing platform at the Kennedy Space Center at Cape Canaveral in Florida, Jordan Greco watched his research project leave planet Earth. As chief scientific officer of the Connecticut-based biotech LambdaVision, he had spent years developing a protein-based artificial retina to treat patients blinded or severely visually impaired by retinal degenerative diseases. At 1:15 PM that day, a Falcon 9 launch rocket lit up the sky as it blasted the SpaceX Dragon cargo spacecraft toward (blasted to) the International Space Station (ISS), carrying onboard the proteins that make up Greco’s artificial retina. “It didn’t really hit me until we were sitting on the balcony at the NASA complex and seeing that rocket off in the distance,” Greco recalls. “Our protein, our experiment that we’ve been working on for years, is on that thing.” Once the SpaceX capsule docked at the ISS, an astronaut in the station’s near-weightless environment was to initiate an experiment that Greco hoped would help him understand how to improve the artificial retina’s function. Back on Earth, he and his colleagues had been making progress with the retina—essentially a small film covered in hundreds of layers of the microbial light-activated protein bacteriorhodopsin—but were struggling to produce consistently high-quality retinas. The team suspected that the bacteriorhodopsin proteins should be oriented the same way with respect to one another for the artificial retina to create robust electrical signals and communicate effectively with patients’ neurons. But the team’s process of dipping the film into protein solutions seemed to generate somewhat disordered protein arrangements. Greco suspected that gravity was negatively affecting the layering process—for instance, by causing the proteins in the solution to undergo sedimentation, he explains. To test that hypothesis, he and his colleagues sent materials to the ISS to repeat part of the experiment in microgravity. Microgravity influences scientific experiments in many ways that appeal to drug developers. Scientific research in space has thrived over the past decade, but it’s only recently that the pharmaceutical and biotech sector has started getting in on the action, pursuing new ways to study drugs and other medical treatments. Pharma giants including Merck, AstraZeneca, Eli Lilly, and Sanofi, along with dozens of smaller companies, have all sent experiments to the ISS to reap the unique benefits of microgravity. Of the 150 or so life science research projects supported in the 2019-2020 fiscal year by the Center for the Advancement of Science in Space (CASIS)—a nonprofit that collaborates with NASA to manage the US National Laboratory on the ISS—more than a third have been led by pharmaceutical and biotechnology companies, says CASIS’s interim chief scientist, Mike Roberts. Such endeavors could one day help improve astronaut health and equip humanity for longer ventures into space, but their primary aim is to develop or improve drugs for people on Earth. That’s certainly the hope of Greco and his colleagues, who found out a few months after that December afternoon that, as they’d hypothesized, the proteins layered in space appeared to have more-orderly arrangements—an improvement that could benefit the artificial retina’s function. Studies such as these have yet to yield new blockbuster drugs or even significant improvements to existing ones. Research in space is slow, and the costs are sky-high. All projects are subsidized through NASA, and many rely on additional financial support through federal grants, spurring a new kind of space race—one aiming to prove that such projects are profitable enough for the private sector to fund on their own. “Overcoming that 1G gravitational pull to get rockets up to low Earth orbit or beyond is expensive still,” says Roberts. But even so, “we’ve seen a significant uptick in interest” in conducting experiments in space. The benefits of microgravity While microgravity can be achieved for a few moments on an aircraft rounding the top of a parabolic flight, or simulated imperfectly in bioreactors on Earth, the best way to conduct experiments under sustained microgravity is to go to the ISS. The station orbits approximately 400 km from the planet’s surface and is close enough to Earth to experience about 90 percent of its gravitational pull, but astronauts aboard the station feel nearly weightless because it’s in constant free fall around the planet. The resulting microgravity conditions in this setting influence scientific experiments in many ways that appeal to drug developers. There are minimal convection currents in fluids, for instance, and hardly any sedimentation—conditions advantageous not only for LambdaVision’s layering procedure but also for processes such as protein crystallization, whereby proteins form a regular array. Under near weightlessness, “you get a [higher-quality] crystal than [what you’d get through] the crystallization process on Earth,” making certain proteins easier to study and more attractive as drugs, explains Marlise dos Santos, an aerospace pharmacy specialist at InnovaSpace, a UK-based think tank that promotes life science in space, among other activities related to extreme environments. Paul Reichert, a research scientist at Schering-Plough and at Merck after their merger, was one of the first in the pharmaceutical industry to recognize the value of near weightlessness for protein crystallization. In the 1990s, before the ISS was operational, he collaborated with NASA to send interferon alfa-2b, the active ingredient in the company’s antiviral and cancer drug intron A, into low Earth orbit on the Space Shuttle to see if it would crystallize in space. Upon studying the product that was returned to Earth, Reichert noticed that the protein had turned into small crystals with perfectly uniform size—the kind that would be ideal for drug delivery. Although the crystallized interferon alfa-2b was never commercialized, Reichert has conducted similar experiments on the ISS with the monoclonal antibody pembrolizumab, the key ingredient in Merck’s popular oncology drug Keytruda. Because antibodies aren’t very soluble under standard conditions, treatments such as Keytruda tend to form viscous solutions at high concentrations and need to be delivered in burdensome, lengthy, and regular intravenous infusions. If pembrolizumab took the form of a compact crystalline suspension, however, it could be deliverable as an injection, Reichert explains. In his most recent experiment, published in npj Microgravity, he and his colleagues found that cooling pembrolizumab on the ISS yielded “a uniform population of particles [that] actually gave a better injectability profile than the heterogeneous population of crystals that we got on Earth,” Reichert says. Eli Lilly has also sent its products to the ISS to be crystallized, in this case to make them easier to study structurally using analytical techniques such as X-ray diffraction. The company has also flown mice to the ISS to test an experimental drug that boosts muscle growth. Under microgravity, the loss of physical strain on bone and muscle accelerates the natural onset of common musculo-skeletal diseases in rodents, making them ideal models of such human conditions, explains Jeremy Hinds, a senior research scientist at Lilly. In addition, Hinds is studying whether near weightlessness affects the process of freeze-drying materials, a common step in drug distribution and storage. Microgravity “could have positive outcomes on the physical properties and resulting drug product performance,” he explains in an email to The Scientist. CASIS, which selects the research projects that go to the US national lab on the ISS and provides companies with logistical support, is also working with a number of smaller companies studying everything from treatments for rare diseases to medical devices. One such company is MIT spinout MakerHealth, which has spent nearly a decade creating a device that can produce a number of personalized pharmaceuticals on demand. A mission is slated for 2021 to carry the device’s mechanical reactors to the ISS, where they’ll produce some simple compounds in space. Engineer Jose Gomez-Marquez of MIT’s Little Devices Lab who helped develop the device says the experiment could not only show that it’s possible to make drugs in space—a prerequisite for humanity’s future ventures into outer space—but also help his team understand the typical gravitational constraints on the device’s function and how they can improve it further: “It’s a fundamental physics question.” EXTRATERRESTRIAL LAB: The Destiny Lab on the International Space Station allows researchers to carry out experiments in microgravity. COURTESY OF NASA Challenges in space research While research and development in space is well underway, progress has been slow, says Reichert. “We’re still in the infancy of doing this kind of work.” Many of the challenges are logistical. Only six astronauts are stationed on the ISS; their time for experimental work is limited, and basic laboratory tasks such as pipetting and moving reagents around are challenging in microgravity. That’s in part why pharma entities and biotechs typically contract companies that specialize in automating scientific experiments and packing them into flight-ready “cube labs,” which astronauts simply need to activate to have the experiments conduct themselves. LambdaVision, for instance, worked with the microgravity research company Space Tango to turn their 2018 layering experiment and a more recent study of how bacteriorhodopsin functions under microgravity into miniature labs. The downside of such arrangements is that researchers are often limited to one experiment at a time, and results can be a long time coming, Reichert says. “The astronaut just activates the experiment that sits there for two to three weeks, and then it comes back on a Dragon SpaceX module a month later, and then we first see what the results are.” Doing research in space comes with a host of other challenges as well, such as organizing simultaneous control experiments on the ground, and adapting research methods to the nonstandard laboratory equipment on the ISS. For Paul Jaminet, founder and president of the Massachusetts-based oncology startup Angiex, which undertook an experiment on the ISS in 2018, the endeavor “turned out to be significantly more work than we thought it would be.” The company’s experiment showed that endothelial cells’ response to one of the company’s cancer drugs changed over the course of their time on the ISS, and that the cells generally grew and behaved differently in space than on Earth. In particular, the cells displayed unique characteristics that Angiex founder and head of research Shou-Ching Jaminet tells The Scientist could mimic certain features of cardiovascular conditions afflicting humans on Earth. The husband-and-wife team is interested in continuing that line of research, but due to the amount of labor, time, and money involved, it’s taken a backseat to the company’s work on drug candidates and other projects that are further along. Researchers are often limited to one experiment at a time, and results can be a long time coming. The biggest challenge is indeed the sheer cost of space experiments. Getting a single experiment to and back from the ISS can cost some $7.5 million, according to CASIS. Currently, flights to and from the ISS and astronaut time are covered by NASA, and the hardware and research costs of such experiments are sometimes partially funded through federal grants. Some smaller companies, including MakerHealth, Lambda-Vision, and Angiex, financed their endeavors with six-figure microgravity research grants awarded by a partnership between CASIS and Boeing through the Boston-based business accelerator program MassChallenge. These generous subsidies and incentives are part of a long-term effort by NASA to coax private companies to recognize the value of R&D in space. In addition to bringing benefits to people on Earth, companies ideally would ultimately pay for their own research and help the US National Laboratory on the ISS become self-supporting. However, a 2018 report by NASA’s Office of the Inspector General criticized CASIS for failing to recruit enough commercial users to the space station, and “question[ed] whether a sufficient business case exists under which private companies will be able to develop a self-sustaining and profit-making business [on the ISS].” That’s broadly in line with an analysis by Nicholas Vonortas, a microeconomist at George Washington University who received a NASA grant in 2015 to conduct a cost-benefit analysis of using protein crystallization on the ISS to get better structural information about peptides. Through economic models that considered the risk of experiments failing, among other factors, Vonortas found that the potential financial benefits of crystallizing proteins on the ISS will likely not be enough to outweigh the costs if they’re shouldered by the private sector alone. “All of this together, when you do the calculations, brings a result that is not as attractive as the scientists think,” he tells The Scientist. Space pharmacy ahead? Costs may decrease over time as travel to and from the ISS becomes more frequent, Vonortas says. Entrepreneur Elon Musk, for instance, has said he wants to establish a more regular service to the station than there is currently—an idea not without its skeptics. But a significant source of uncertainty is that the ISS, after more than 110,000 laps around the planet, may be nearing the end of its life. NASA and other participating space agencies plan to continue operations through 2024, but what happens after that is unclear. Instead, pharma research of the future may take advantage of independent initiatives developed by a growing community of companies working to make conducting experiments in sustained microgravity cheaper, faster, and more accessible for life scientists. For instance, the Israeli-Swiss company SpacePharma, founded in 2011, develops autonomous research stations that can be operated from the ground. “Until now, unless you were part of NASA or some space agency, it was very difficult to initiate and perform such experiments” in space, says Guy Samburski, SpacePharma’s director of chemical and pharmaceutical applications. The company recently launched the satellite DIDO 3, carrying four experiments by Italian and Israeli researchers on board, all packed into a milk carton–size box. The satellite won’t return to Earth, but is currently recording and transmitting research data back to scientists on the ground. SpacePharma’s next launch will involve a larger system that will eventually return home so researchers can physically collect materials and results. British spaceflight company Virgin Galactic and Jeff Bezos’s space company Blue Origin have also begun to offer such opportunities to scientists. The emergence of an entire ecosystem devoted to bringing pharmaceutical research into space has opened up new possibilities to those in the industry. “Could we have space labs in the sky that can operate autonomously and discover new lifesaving medications for us?” Gomez-Marquez asks. And while the return on investment currently isn’t ideal, many believe such research will become profitable over time. Eventually, “[it] might be financially beneficial for a company to have things produced or manufactured in space,” in the same way we outsource drug production to different countries on Earth, suggests Thais Russomano, a space medicine expert and cofounder and CEO of InnovaSpace. In fact, LambdaVision is already considering launching production of its artificial retina in space, encouraged by the potential superiority of space-made products. Whether such visions become reality, only time will tell. “If you’re asking me whether this is possible—absolutely, this is technically possible,” Vonortas says. But “the economics is a problem.”

#### Microgravity Labs in orbit do not appropriate – reject non-legal interpretations

Johnson 20 [Chris Johnson is the Space Law Advisor for Secure World Foundation and has nine years of professional experience in international space law and policy. He has authored and co-authored publications on international space law, national space legislation, international cooperation in space, human-robotic cooperative space exploration, and on the societal benefits of space technology for Africa. "The Legal Status of MegaLEO Constellations and Concerns About Appropriation of Large Swaths of Earth Orbit." https://swfound.org/media/206951/johnson2020\_referenceworkentry\_thelegalstatusofmegaleoconstel.pdf]

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#### No severance out of this – these two cards are the only 1AC cards about pharma in space. Severance is a voting issue – kills fairness and destroys discussion because no engagement. Plan text in a vacuum is bad – a] it incentivizes shiftiness in the 1AR and it’s bad for education and engagement because policies are contextually informed by their mechanisms and advantages b] this breaks all modes of topicality debate, you can read a plan that is nominally topical then not have to do defend T by reading non-T advantages c] we base 1NC preparation off what their cards define appropriation to mean – especially true given the fact they didn’t define LAWs in the 1AC, neg prep is based off their authors and the only connection they have to space d] Vote on presumption otherwise, it locks them in to defend an aff which they have no offense for

#### CX doesn’t check – preround prep is based off of what we know the 1AC to be based on advantage areas, compounded by the fact that this CX checks argument wasn’t even in the iteration of the aff that was disclosed to me

#### 1] Precision – if we win definitions the aff doesn’t defend a shift from the squo or solve their advantages – so at best vote negative on presumption. The resolution is the only predictable stasis point for dividing ground—any deviation justifies the aff arbitrarily jettisoning words in the resolution at their whim which decks negative ground and preparation because the aff is no longer bounded by the resolution. If they make debate unpredictable, they also make it unfair. That has to be logically prior because the conditions for the debate are disrupted before it even begins which makes weighing the case against T illogical. Fairness bad is an independent impact we can win on alone which they agreed to – both sides agree to speech times, flow, answer args, and a host of other norms, so fairness bad is a double turn and boils down to “fairness for me but not for thee” which is an unworkable, arbitrary double standard that you should reject. That would justify new 2ar arguments, clipping cards, 14 minute speeches, etc which makes debate literally impossible and would also obviate the point of their own critical research bc the 2AR would be the first time the aff makes an argument which turns their offense. Defending Implementation is also good – most teams defend that their aff is a policy proposal, that best helps the negative garner DA links

#### 2] Predictable limits—including non-appropriative slots offers huge explosion in the topic since they get permutations of different satellite systems – LEO MEO and HEO, plus different companies, plus sizes of constellations, et cetera. Letting temporary occupation be appropriation is a limits diaster - any aff about a single space ship, satellite, or weapon would be T because they temporarily occupy space. Limits explodes neg prep burden and draws un-reciprocal lines of debate, where the aff is always ahead, turns their pragmatics offense

#### Topicality is a voting issue that should be evaluated through competing interpretations – it tells the negative what they do and do not have to prepare for—there’s no way for the negative to know what constitutes a “reasonable interpretation” when we do prep – reasonability is arbitrary and causes a race to the bottom, proliferating abuse

#### No RVIs—it’s your burden to be topical.

**1NC**

Counterplan: We endorse the entirety of the affirmative with the exception of African asteroid mining.

#### Commercial mining solves extinction from scarcity, climate, terror, war, and disease.

Pelton 17—(Director Emeritus of the Space and Advanced Communications Research Institute at George Washington University, PHD in IR from Georgetown).. Pelton, Joseph N. 2017. The New Gold Rush: The Riches of Space Beckon! Springer. Accessed 8/30/19.

Are We Humans Doomed to Extinction? What will we do when Earth’s resources are used up by humanity? The world is now hugely over populated, with billions and billions crammed into our overcrowded cities. By 2050, we may be 9 billion strong, and by 2100 well over 11 billion people on Planet Earth. Some at the United Nations say we might even be an amazing 12 billion crawling around this small globe. And over 80 % of us will be living in congested cities. These cities will be ever more vulnerable to terrorist attack, natural disaster, and other plights that come with overcrowding and a dearth of jobs that will be fueled by rapid automation and the rise of artifi cial intelligence across the global economy. We are already rapidly running out of water and minerals. Climate change is threatening our very existence. Political leaders and even the Pope have cautioned us against inaction. Perhaps the naysayers are right. All humanity is at tremendous risk. Is there no hope for the future? This book is about hope. We think that there is literally heavenly hope for humanity. But we are not talking here about divine intervention. We are envisioning a new space economy that recognizes that there is more water in the skies that all our oceans. Th ere is a new wealth of natural resources and clean energy in the reaches of outer space—more than most of us could ever dream possible. There are those that say why waste money on outer space when we have severe problems here at home? Going into space is not a waste of money. It is our future. It is our hope for new jobs and resources. The great challenge of our times is to reverse public thinking to see space not as a resource drain but as the doorway to opportunity. The new space frontier can literally open up a “gold rush in the skies.” In brief, we think there is new hope for humanity. We see a new a pathway to the future via new ventures in space. For too long, space programs have been seen as a money pit. In the process, we have overlooked the great abundance available to us in the skies above. It is important to recognize there is already the beginning of a new gold rush in space—a pathway to astral abundance. “New Space” is a term increasingly used to describe radical new commercial space initiatives—many of which have come from Silicon Valley and often with backing from the group of entrepreneurs known popularly as the “space billionaires.” New space is revolutionizing the space industry with lower cost space transportation and space systems that represent significant cost savings and new technological breakthroughs. “New Commercial Space” and the “New Space Economy” represent more than a new way of looking at outer space. These new pathways to the stars could prove vital to human survival. If one does not believe in spending money to probe the mysteries of the universe then perhaps we can try what might be called “calibrated greed” on for size. One only needs to go to a cubesat workshop, or to Silicon Valley or one of many conferences like the “Disrupt Space” event in Bremen, Germany, held in April 2016 to recognize that entrepreneurial New Space initiatives are changing everything [ 1 ]. In fact, the very nature and dimensions of what outer space activities are today have changed forever. It is no longer your grandfather’s concept of outer space that was once dominated by the big national space agencies. The entrepreneurs are taking over. The hopeful statements in this book and the hard economic and technical data that backs them up are more than a minority opinion. It is a topic of growing interest at the World Economic Forum, where business and political heavyweights meet in Davos, Switzerland, to discuss how to stimulate new patterns of global economic growth. It is even the growing view of a group that call themselves “space ethicists.” Here is how Christopher J. Newman, at the University of Sunderland in the United Kingdom has put it: Space ethicists have offered the view that space exploration is not only desirable; it is a duty that we, as a species, must undertake in order to secure the survival of humanity over the longer term. Expanding both the resource base and, eventually, the habitats available for humanity means that any expenditure on space exploration, far from being viewed as frivolous, can legitimately be rationalized as an ethical investment choice. (Newman) On the other hand there are space ethicists and space exobiologists who argue that humans have created ecological ruin on the planet—and now space debris is starting to pollute space. Th ese countervailing thoughts by the “no growth” camp of space ethicists say we have no right to colonize other planets or to mine the Moon and asteroids—or at least no right to do so until we can prove we can sustain life here on Earth for the longer term. However, for most who are planning for the new space economy the opinion of space philosophers doesn’t really fl oat their boat. Legislators, bankers, and aspiring space entrepreneurs are far more interested in the views of the super-rich capitalists called the space billionaires. A number of these billionaires and space executives have already put some very serious money into enterprises intent on creating a new pathway to the stars. No less than five billionaires with established space ventures—Elon Musk, Paul Allen, Jeff Bezos, Sir Richard Branson, and Robert Bigelow—have invested millions if not billions of dollars into commercializing space. They are developing new technologies and establishing space enterprises that can bring the wealth of outer space down to Earth. This is not a pipe dream, but will increasingly be the economic reality of the 2020s. These wealthy space entrepreneurs see major new economic opportunities. To them space represents the last great frontier for enterprising pioneers. Th us they see an ever-expanding space frontier that offers opportunities in low-cost space transportation, satellite solar power satellites to produce clean energy 24h a day, space mining, space manufacturing and production, and eventually space habitats and colonies as a trajectory to a better human future. Some even more visionary thinkers envision the possibility of terraforming Mars, or creating new structures in space to protect our planet from cosmic hazards and even raising Earth’s orbit to escape the rising heat levels of the Sun in millennia to come. Some, of course, will say this is sci-fi hogwash. It can’t be done. We say that this is what people would have said in 1900 about airplanes, rocket ships, cell phones and nuclear devices. The skeptics laughed at Columbus and his plan to sail across the oceans to discover new worlds. When Thomas Jefferson bought the Louisiana Purchase from France or Seward bought Alaska, there were plenty of naysayers that said such investment in the unknown was an extravagant waste of money. A healthy skepticism is useful and can play a role in economic and business success. Before one dismisses the idea of an impending major new space economy and a new gold rush, it might useful to see what has already transpired in space development in just the past five decades. The world’s first geosynchronous communications satellite had a throughput capability of about 500 kb / s. In contrast, today’s state of the art Viasat 2 —a half century later— has an impressive throughput of some 140 Gb/s. Th is means that the relative throughput is nearly 300,000 greater, while its lifetime is some ten times longer (Figs. 1.1 and 1.2 ). Each new generation of communications satellite has had more power, better antenna systems, improved pointing and stabilization, and an extended lifetime. And the capabilities represented by remote sensing satellites , meteorological satellites , and navigation and timing satellites have also expanded their capabilities and performance in an impressive manner. When satellite applications first started, the market was measured in millions of dollars. Today commercial satellite services exceed a quarter of a billion dollars. Vital services such as the Internet, aircraft traffi c control and management, international banking, search and rescue and much, much more depend on application satellites. Th ose that would doubt the importance of satellites to the global economy might wish to view on You Tube the video “If Th ere Were a Day Without Satellites?” [ 2 ]. Let’s check in on what some of those very rich and smart guys think about the new space economy and its potential. (We are sorry to say that so far there are no female space billionaires, but surely this, too, will come someday soon.) Of course this twenty-fi rst century breakthrough that we call the New Space economy will not come just from new space commerce. It will also come from the amazing new technologies here on Earth. Vital new terrestrial technologies will accompany this cosmic journey into tomorrow. Information technology, robotics, artificial intelligence and commercial space travel systems have now set us on a course to allow us humans to harvest the amazing riches in the skies—new natural resources, new energy, and even totally new ways of looking at the purpose of human existence. If we pursue this course steadfastly, it can be the beginning of a New Space renaissance. But if we don’t seek to realize our ultimate destiny in space, Homo sapiens can end up in the dustbin of history—just like literally millions of already failed species. In each and every one of the five mass extinction events that have occurred over the last 1.5 billion years on Earth, some 50–80 % of all species have gone the way of the T. Rex, the woolly mammoth, and the Dodo bird along with extinct ferns, grasses and cacti. On the other hand, the best days of the human race could be just beginning. If we are smart about how we go about discovering and using these riches in the skies and applying the best of our new technologies, it could be the start of a new beginning for humanity. Konstantin Tsiokovsky, the Russian astronautics pioneer, who fi rst conceived of practical designs for spaceships, famously said: “A planet is the cradle of mankind, but one cannot live in a cradle forever.” Well before Tsiokovsky another genius, Leonardo da Vinci, said, quite poetically: “Once you have tasted flight, you will forever walk the earth with your eyes turned skyward, for there you have been, and there you will always long to return.” The founder of the X-Prize and of Planetary Resources, Inc., Dr. Peter Diamandis, has much more brashly said much the same thing in quite diff erent words when he said: “The meek shall inherit the Earth. The rest of us will go to Mars.” The New Space Billionaires Peter Diamandis is not alone in his thinking. From the list of “visionaries” quoted earlier, Elon Musk, the founder of SpaceX; Sir Richard Branson, the founder of Virgin Galactic; and Paul Allen, the co-founder of Microsoft and the man who financed SpaceShipOne, the world’s first successful spaceplane have all said the future will include a vibrant new space economy. Th ey, and others, have said that we can, we should and we soon shall go into space and realize the bounty that it can offer to us. Th e New Space enterprise is today indeed being led by those so-called space billionaires , who have an exciting vision of the future. They and others in the commercial space economy believe that the exploitation of outer space may open up a new golden age of astral abundance. They see outer space as a new frontier that can be a great source of new materials, energy and various forms of new wealth that might even save us from excesses of the past. Th is gold rush in the skies represents a new beginning. We are not talking about expensive new space ventures funded by NASA or other space agencies in Europe, Japan, China or India. No, these eff orts which we and others call New Space are today being forged by imaginative and resourceful commercial entrepreneurs. Th ese twenty-fi rst century visionaries have the fortitude and zeal to look to the abundance above. New breakthroughs in technology and New Space enterprises may be able to create an “astral life raft” for humanity. Just as Columbus and the Vikings had the imaginative drive that led them to discover the riches of a new world, we now have a cadre of space billionaires that are now leading us into this New Space era of tomorrow. These bold leaders, such as Paul Allen and Sir Richard Branson, plus other space entrepreneurs including Jeff Bezos of Amazon and Blue Origin, and Robert Bigelow, Chairman of Budget Suites and Bigelow Aerospace, not only dream of their future in the space industry but also have billions of dollars in assets. These are the bright stars of an entirely new industry that are leading us into the age of New Space commerce. These space billionaires, each in their own way, are proponents of a new age of astral abundance. Each of them is launching new commercial space industries. They are literally transforming our vision of tomorrow. These new types of entrepreneurial aerospace companies—the New Space enterprises—give new hope and new promise of transforming our world as we know it today. The New Space Frontier What happens in space in the next few decades, plus corresponding new information technologies and advanced robotics, will change our world forever. These changes will redefi ne wealth, change our views of work and employment and upend almost everything we think we know about economics, wealth, jobs, and politics. Th ese changes are about truly disruptive technologies of the most fundamental kinds. If you thought the Internet, smart phones, and spandex were disruptive technologies, just hang on. You have not seen anything yet. In short, if you want to understand a transition more fundamental than the changes brought to the twentieth century world by computers, communications and the Internet, then read this book. There are truly riches in the skies. Near-Earth asteroids largely composed of platinum and rare earth metals have an incredible value. Helium-3 isotopes accessible in outer space could provide clean and abundant energy. There is far more water in outer space than is in our oceans. In the pages that follow we will explain the potential for a cosmic shift in our global economy, our ecology, and our commercial and legal systems. These can take place by the end of this century. And if these changes do not take place we will be in trouble. Our conventional petro-chemical energy systems will fail us economically and eventually blanket us with a hydrocarbon haze of smog that will threaten our health and our very survival. Our rare precious metals that we need for modern electronic appliances will skyrocket in price, and the struggle between “haves” and “have nots” will grow increasingly ugly. A lack of affordable and readily available water, natural resources, food, health care and medical supplies, plus systematic threats to urban security and systemic warfare are the alternatives to astral abundance. The choices between astral abundance and a downward spiral in global standards of living are stark. Within the next few decades these problems will be increasingly real. By then the world may almost be begging for new, out of- the-box thinking. International peace and security will be an indispensable prerequisite for exploitation of astral abundance, as will good government for all. No one nation can be rich and secure when everyone else is poor and insecure. In short, global space security and strategic space defense, mediated by global space agreements, are part of this new pathway to the future.

#### African asteroid mining solves their economy without massive biodloss drawback

Oni 19 David is a space industry and technology analyst at Space in Africa. He’s a graduate of Mining Engineering from the Federal University of Technology Akure. "Why Africa Should Consider Asteroid Mining - Space in Africa." Space in Africa, 1 Sept. 2019, africanews.space/why-africa-should-consider-asteroid-mining.

It is no news that mining activities have caused severe environmental consequences, and Africa has had its fair share too. While policies and regulations are being put in place by governments and various international bodies to prevent further environmental degradation and protect what is left of the earth’s habitat, the majority of the African continent has struggled to enforce these regulations, largely due to weak governmental structures. Sadly, the African political clime has been plagued with a complicated history of inconsistent legislation and weak law enforcement mechanisms. For most African countries, it is a conundrum. Many mining firms thrive, not only because of the promising prospects but also because of the loopholes in the regulations and policies of most African countries. To them, working under unpleasant conditions is a small price to pay, compared to upholding safety and environmental standards. Mining, by nature, is an exploitative, dangerous and environmentally damaging activity. Even with strict policies and regulations in place, mining activities will still release dangerous substances into the atmosphere and surroundings. It really is a catch-22 with combating environmental degradation, because eventually, it is only a matter of time before the consequent environmental hazards catch up with us. The good news is that significant progress is being made in the space industry. Our world has gone from baby steps on the moon to giant leaps in space technology. These milestones are now beyond bragging rights, but rather an exigent obligation to keep up with the global paradigm shift. What’s more, these advancements are extending to the African continent. A number of African states have several satellites already launched into space, and more African states already have space programmes running. Space science and technology is the new black! The industrialisation of space would be brought about primarily by increasing commercial activities in space, worth several billion dollars per year, largely involving the following activities: telecommunications, direct broadcast television, navigation (e.g. the Global Positioning System), remote sensing, and meteorological services. With SpaceX, Blue Origin and Virgin Galactic —the top three frontline space tourism companies— are engaged in a fierce rivalry as to who would be the supreme space tourism company, and a host of government as well as private companies showing sufficient interest and involvement in space tourism, it is safe to say that asteroid mining is imminent. Asteroid Mining in Africa Artist’s concept of asteroid mining station (Credit: Deep Space Industries) There are millions of asteroids in the solar system – remnants of bodies colliding in space. Most of the asteroids are distributed between the orbits of Mars and Jupiter —the main asteroid belt— but not all of them. According to Advantage Environment, approximately 13,000 asteroids are categorized as near-Earth objects, well within reasonable reach, and at least 900 more are discovered every year. Asteroid mining is a concept that involves the extraction of useful materials from asteroids and near-earth objects, which are useful for propulsion, construction, life support, agriculture, metallurgy, and precious and strategic metals. Volatiles such as hydrogen and methane could be used to produce rocket fuel for transporting spacecraft between the Earth and near-earth objects. Rare-earth metals, such as thulium, scandium, and holmium could be used to manufacture materials as well as solar panels which could be used to power habitats in space. These solar-powered cells could also be used to provide electricity for its inhabitants with satellites specifically designed for this purpose. Iron, nickel and cobalt would serve as fundamental raw materials for building space factories. Precious metals such as platinum, platinum-group metals (PGMs), and gold are also useful. A handful of companies, emerging and existing, will require materials with a high level of purity in large quantities, all of which are readily available in asteroids. There are conjectures that the asteroid mining industry is a whooping trillion-dollar industry. Asteroid Mining in Africa Photo Credit: Planetary Resources With all of the vast possibilities that space technology brings our way, we might want to ask ourselves, is asteroid mining still rocket science? To establish a mine, a portion of vegetation is cleared. This causes deforestation (and eventually, erosion and flooding) as well as the loss of biodiversity, which adversely affect native inhabitants. Leakages and tailing dumpings have raised serious environmental concerns. Yet most African governments struggle to keep these occurrences in check. There have been several reported cases of cyanide leaks and lead poisoning. Rivers and dams are re-routed to create exposed riverbeds for mining, which has a detrimental effect on fish and wildlife that depend on rivers for survival. OK Tedi copper and gold mine in Papua, New Guinea has caused environmental harm that is far-reaching to the 50,000 residents spread across the 120 villages close to the mine, due to the discharges produced daily. Mining also has a remarkable adverse effect on the atmosphere. During mining, particles that are not visible to the ordinary eye are released into the air and transported by wind. Lead, arsenic, cadmium, and other toxic elements are often present in such particles. Respiratory diseases and allergies can be triggered by the inhalation of such airborne particles. Underground mining causes huge amounts of waste earth to be brought to the surface, waste that often becomes toxic when it comes into contact with air and water. It causes cave-ins and sinkholes which can cause severe damage to buildings and equipment, as well as the loss of life. Coal mining also leads to greenhouse gas emissions. Acid mine drainage occurs when water comes in contact with coal and other rocks during the mining process. This water, made toxic because of the influence of toxic minerals and other heavy metals, eventually leaks out of abandoned mines and contaminates groundwater, streams, rivers, soil, plants, animals and humans. As a result, an orange colour blankets the river, estuary or sea bed, killing plants and making surface water unfit for drinking. Asteroid Mining in Africa Acid mine drainage in South Africa Common health threats posed by coal mining include pneumoconiosis (aka black lung disease), cardiopulmonary disease, chronic obstructive pulmonary disease, hypertension, lung disease, and kidney disease. In a report given by Infogalactic, a series of lead poisonings in Zamfara State, Nigeria, led to the deaths of at least 163 people between March and June 2010, including 111 children. Health ministry figures state the discovery of 355 cases, with 46 per cent proving fatal. According to NASA-compiled data, Kriel, a town in South Africa’s coal mining province in east Johannesburg, has the second-highest volume of sulphur dioxide (SO2) emissions in the world. Mining activities have taken a toll on our environment, which is why beyond maximizing of mineral resources for space infrastructure and fuelling of propellants, asteroid mining also provides a ready recourse to terrestrial mining activities, with a view to saving the planet. Thousands of people are forced to work in mines and are also forced to live under sub-human conditions. If attention is shifted from terrestrial mining, of course with robots working the mines in space, these people could not only live elongated lives but also find healthier employment alternatives. The advantages of asteroid mining are numerous: trip exchanges for cargo to reduce wasteful journeys of transport trucks, development of cheaper batteries to reduce energy and storage costs, beneficiation of plastic waste to sustainable and clean bio-fuel as well as the development and use of solar-powered airships Some studies indicate that an asteroid that runs 1,000 m (3,280 ft) across could yield about 100,000 tons of platinum, which already has miners in South Africa worried because they only mine a measly 130 tons of the metal on Earth each year. “Space miners will first target water-rich asteroids for their hydrogen potential, then mineral-rich asteroids for their nickel and iron-ore. Platinum is a small by-product of their yield and has no use in space. But that means it poses a risk to the platinum resources below the earth’s surface”, says Kieck. This is not the time for African countries to take the back seat, instead, they should take advantage of the momentum that is driving the space industry. Nations like South Africa, Zimbabwe and Nigeria have shown interests in asteroid mining, having recognised its vast potential. It will be noteworthy to see African countries on the frontiers with technology giants like Russia, China and the USA. In May 2017, Mechanical engineer and PhD graduate, Jonathan Lun’s idea for the innovation challenge was chosen as the winner at the GIC awards ceremony, in Johannesburg. His idea is to use an innovative rocket technology, known as a vacuum arc thruster, which consumes asteroid metal as fuel to achieve industrial-scale transport of mined asteroid material. Asteroid mining will serve as a stepping stone, bridging the gap between developed countries and developing countries in space technology to a significant level, Africa will be setting the foundation to be key players in the space industry, while at the same time contributing significantly to the battle against environmental degradation.

#### Yes private companies key and coming now – over 283, launching soon, but keeping barriers low key

Bailey 21 Stephanie Bailey, Business. "Why Africa is sending more satellites into space." CNN, October 6, 2021, www.cnn.com/2021/09/21/business/african-satellites-spc-intl/index.html.

London (CNN Business)Africa's space industry has been slow to take off, but it's predicted to skyrocket in the next few years. Since the continent's first satellite launched more than 20 years ago, 44 have been sent into orbit by 13 African countries, according to consultancy Space in Africa. It says a further 125 are being developed by 23 countries, all expected to launch before 2025. The payoff could be substantial. A 2021 report by the World Economic Forum estimates that data collected from space could unlock $2 billion a year in benefits for Africa. The report says satellites could address agricultural challenges by measuring crop health, improve water management by monitoring drought, and track tree cover for more sustainable forest management. In a continent where less than a third of the population has access to broadband, more communication satellites could help people connect to the internet. Addressing Africa's challenges South African startup Astrofica was founded four years ago, providing space consultancy services. It supported the CubeSat program at Cape Peninsula University of Technology, which launched a constellation of maritime satellites for tracking ships along the southern African coast. Astrofica's co-founder and CTO, Khalid Manjoo, says the goal of the startup is to use the space industry to address Africa's challenges — from food security to national security. It hopes to launch its first constellation of satellites by the end of 2022, "that will provide decision makers with critical data sets [in] near real time," according to Manjoo. He hopes the data will be used to monitor crop yield or track the use of fertilizers, as well as help governments with water management. The launch of South Africa&#39;s SumbandilaSat on a Russian Soyuz rocket in Baikonur, Kazakhstan, in September 2009. The launch of South Africa's SumbandilaSat on a Russian Soyuz rocket in Baikonur, Kazakhstan, in September 2009. "The satellites that we put up in space, it's cool stuff, but it's not necessarily the end goal; the end goal for Astrofica is to deal with the challenges and problems that we would like to solve," he says. "They cannot be solved using purely terrestrial systems, they need these critical space-based insights." Manjoo says African countries are spending too much money acquiring agricultural data from international providers, which is not timely enough — although the company welcomes collaboration with foreign partners. According to Manjoo, ride shares — where satellite manufacturers can buy a spot on someone else's rocket — have made getting to space cheaper and more accessible. Astrofica is looking to launch its first satellite on board an American SpaceX rocket, a Russian Soyuz rocket, or a Polar Satellite Launch Vehicle in India. Launching constellations Space in Africa estimates over 283 companies now operate in the continent's space and satellite industry, which it says generated more than $7.3 billion in revenue in 2019 and predicts will generate over $10 billion by 2024. Africa must remove barriers to flying to secure post-pandemic boom, says IATA regional exec Africa must remove barriers to flying to secure post-pandemic boom, says IATA regional exec Another South African company, Dragonfly Aerospace, provides imaging systems for satellites and is now working on launching its own constellation. "The new space industry has a lot of opportunity because there's a lot of growth," says Bryan Dean, Dragonfly Aerospace's CEO. "You are now able to launch more satellites for the same amount of money than you were in the past, and a system of satellites in orbit is far more powerful than a single satellite because they work together and combine the data." Space entrepreneur Max Polyakov bought the company in April and as part of expansion plans, Dean says Dragonfly Aerospace is near completing a 3,000 square meter satellite manufacturing facility in Stellenbosch, South Africa, with capacity to build up to 48 satellites per year. Dragonfly Aerospace&#39;s new facility. Dragonfly Aerospace's new facility. Dean says one bottleneck for the production of satellites is being able to test how they will behave in the extreme temperatures of space. "In the past this was dominated by government facilities which you could rent," he says. "But with the advent of more commercial operations, many companies are investing in having those facilities in house." The company hopes to launch its first satellite in June next year from the US. Overcoming roadblocks Minoo Rathnasabapathy, a space research engineer at MIT, says the continent's space industry still has challenges to overcome, most notably a lack of resources. "When you consider the US or Europe, it's really apples and oranges." she says. "In the US we see a lot of private industry and a lot of private funding and we're seeing NASA and ESA [the European Space Agency] be able to tap into that funding. Whereas in Africa, we're just not there yet and that's completely understandable given other priorities of the countries." Astrofica's Manjoo says another hurdle is changing mindsets. Astrofica&#39;s Jessie Ndaba and Khalid Manjoo testing SumbandilaSat, a South African micro earth observation satellite, in 2009. Astrofica's Jessie Ndaba and Khalid Manjoo testing SumbandilaSat, a South African micro earth observation satellite, in 2009. "There is still a view across the continent, quite a myopic view, that the investments that you need to justify in space are too high risk and also that money may be better positioned in terms of alleviating tangible issues such as education, poverty, infrastructure upliftment, which decision makers can see," he says. Manjoo adds that government bureaucracy is holding back the African space industry and investment is needed to support local businesses. "Those are huge amounts of investments," he says. "But countries are slowly starting to understand that the investment in space today is actually for the sustainability and prosperity of your country and your region in the years to come."

**Key to prevent extinction**

**Owusu-Afriyie, 2 ---** Aburi Botanic Gardens staff

(George, "The Potential Role of African Botanic Gardens in Environmental Awareness Programmes and the Need to be Involved," 10-1-2, www.bgci.org/education/1703/, accessed 1-15-12)

Today some of the 60 botanic gardens and arboreta in Africa are among those botanic gardens that are leading the worldwide fight to save plant diversity, as well as creating an understanding and awareness for the promotion of methods of conservation and development of plant resources. Despite financial constraints, a number of African botanic gardens are implementing major reforms under the auspices of Botanic Gardens Conservation International, to enable them play a more purposeful role in conservation. The Creation of Environmental Awareness Among the Populace **African's biological diversity is** not only of continental economic importance but is also **of global significance**. Unfortunately, existing arrangements for the utilization of the continent's biodiversity cannot be considered sustainable and this is having serious repercussions on development programmes in Africa. The rich plant diversity in Africa is indiscriminately harvested for a number of purposes including: cultivation and production of food and cash crops for domestic and external interests herbal medicine construction. Luckily, in spite of their continued exploitation, botanic gardens and other habitats still contain some of the **richest assemblages of plant life known on this planet.** Thus African gardens are appropriate institutions with the necessary capacities and plant diversities for use in environmental awareness programmes. The success of environmental awareness programmes will largely depend upon the communities' understanding of the functioning of the environment, the problems it presents, and their expected contribution to its protection and improvement. The pursuit of conservation-oriented practices to halt the degradation and extinction of plant resources will depend not only on their acceptability, but also on the active support and involvement of the populace at large. In addition, people need to be well informed, sensitized and motivated towards adopting specific plant conservation practices and the sustainable use of plant resources. It is well known that plants are the **key to life on Earth** and the **prime element in biodiversity**. They dominate our landscape, providing the framework of natural ecosystems that provide the habitats for animal species and **make life on earth possible for humans** as well as other living beings. Yet in spite of this common knowledge of the importance of plants in human survival, plant life is being lost at an increasing rate not only in Africa, but also throughout the whole world. This is the result of economic pressure on the developing countries and careless human activities. Until unfair transactions, particularly in trading systems, are addressed and humans made the centre of attention, only a limited impact will be made in our effort to control the excessive utilization of resources and the regenerability of the various life-sustaining systems on the Earth.

**Prefer the specificity our evidence to African biodiversity- its key to prevent extinction- key region and species to global life-support systems**

**Richard, 10** -- science and technology editor

(Michael Graham, "The True Size and Importance of Africa," 10-13-10, www.treehugger.com/clean-technology/the-true-size-and-importance-of-africa-map.html, accessed 1-16-12)

Don't Overlook Africa! Because of the way flat maps distort the size of countries (the closer they are to the poles, the more distorted they are), most people don't really know just how big the African continent is. This leads many people - and the smart and powerful aren't immune to this - to underestimate Africa's importance. The map above shows just how wrong our perception can be (unless we've already seen a map like this before). It shows that you could fit the whole USA, China, India, Spain, France, Germany, the UK, Italy, Switzerland, Japan, and Eastern Europe, inside of Africa and still have some room left. We're All Inter-Connected Africa matters a lot because of the number of people who live there (about 1 billion as of 2005, with projections of 2 billion by 2050), but also because of the **number of indigenous animal and plant species**, because of the vast expanses of land that aren't being protected, because of the huge ecosystems that are uniquely found there, because of the impact that it can have on the global climate (especially deforestation and desertification), because of all the solar power potential and other natural resources, etc. It is one of the **key regions** that needs to improve on many levels for the welfare of its people and **to safeguard the integrity of our planet's life-support systems.** Africa is too often the forgotten continent, but it shouldn't be, and humanitarian problems should make us forget environmental issues because both go hand in hand. The degradation of the environment will affect the most vulnerable people there.

### 1NC

#### CCP legitimacy high now

Yvonne Murray 22, “2021 saw China's Xi Jinping tighten grip on power,” 1/4/22, RTE (Ireland's National Public Service Media), https://www.rte.ie/news/2021/1231/1269202-china-year-in-review/

In 2021, while most of the world struggled to contain the virus, China kept its borders sealed, stamped out outbreaks with ruthless efficiency and in its zero-Covid bubble, set about turbo charging internal reforms.

It was the year, the Chinese leader, Xi Jinping, declared "the east is rising and the west is in decline". But his confidence was cautious, warning officials not to write off their main rival, the United States.

And as this superpower rivalry deepened, taking on what other countries feared was a distinctly Cold War hue, Taiwan took centre stage.

The US President Joe Biden appeared to break with Washington's long-held policy of "strategic ambiguity" (which is meant to keep everyone in the dark as to whether the US would defend Taiwan) by stating the US would indeed come to the island’s defence. His aides later back-pedalled on his comments.

When an unprecedented number of Chinese warplanes flew past Taiwan amid Beijing’s threats to take the island, many speculated the invasion was nigh.

And while China continued to look for parity of esteem for its authoritarian form of governance, especially in international institutions built on democratic norms, Taiwan became the touchstone in a global clash of values.

Democracy versus authoritarianism

The clashes came thick and fast. In the Spring, politicians in Europe, who had criticised human rights abuses in Xinjiang, were hit with sanctions by Beijing. The shelving of the China Investment Agreement as a result, was a clear sign that Sino-European relations had taken a nosedive. In the autumn, Beijing lost a good friend with the exit of Germany’s Chancellor, Angela Merkel.

Then the decision by an EU country, Lithuania, to allow Taiwan to open a representative office under its own name, drew fury from Beijing, culminating in the sudden flight of Lithuanian diplomats out of China.

In another dramatic diplomatic incident, Huawei’s senior executive, Meng Wanzhou, reached a deal with US prosecutors in her extradition case, allowing her to return to China.

Within hours, the two Canadian citizens, Michael Kovrig and Michael Spavor, detained on spying charges in China were suddenly released - Beijing appearing to make no secret of its hostage diplomacy. Irish businessman Richard O’Halloran, meanwhile, remained detained without charge in Shanghai.

At the same time, the number of foreign journalists inside China, dwindled further. Reporters who tried to hold the one-party state government to account on issues like the re-education camps in Xinjiang, the ongoing erosion of democracy in Hong Kong or the virus origins were frequently called "fake news" and "hostile foreign forces" by a regime now entirely intolerant of scrutiny.

When I fled Beijing with my family in March after years of intimidation and harassment by the authorities, there were no Irish journalists, reporting for Irish outlets, left in China.

In our Taipei exile, we joined a burgeoning number of China correspondents forced to cover the superpower from a distance.

In 2021, it seemed the chasm between China and much of the rest of the world - or to use Chairman Xi’s framing "east and west" - yawned wider.

The home front

But despite the chilly geopolitical atmosphere, on home turf this year the leadership was in a celebratory mood. Pomp and pageantry marked 100 years of the Communist Party in July and the party leader, Xi Jinping, used the moment to deliver a colourful message to his own people and more pointedly to the outside world.

"We will never allow anyone to bully, oppress or subjugate China," he said, to whoops and cheers in Tiananmen Square.

"Anyone who dares try to do that will have their heads bashed bloody against the Great Wall of Steel forged by over 1.4 billion Chinese people," he said.

Domestically, there is no doubt that the pandemic delivered a massive boost for the leadership. The Chinese public, looking at the infection and death rates in advanced democracies, felt a sense of national pride that China had to a large extent remained Covid-free, and the downsides of the policies, such as impact on mental health, received little attention.

However, those Chinese people who tried to document the chaos of the early response to the virus were forgotten. One citizen journalist, Zhang Zhan, is now dying in prison for attempting to report the reality of the Wuhan lockdown, countering the official propaganda. Others simply disappeared.

The government continued to push their own narratives on the origins of the virus, suggesting, alternately, that it came in on frozen food imports from Europe or it was manufactured in a US laboratory - both widely accepted by Chinese citizens and promoted by officials on international social media platforms.

The WHO's heavily choreographed mission to Wuhan resulting in the verdict that a leak from a Wuhan lab was "extremely unlikely" was another victory for the Communist Party. (Although the WHO chief, Tedros Adhanom, swiftly put the lab leak theory back on the table as soon as the team left China.)

Common prosperity

But behind the outward confidence, China’s leaders spoke of major internal challenges: a demographic crisis, pressing energy and food security issues as well as an unsustainable wealth gap which makes China one of the most unequal societies in the world.

They know that the Party’s social contract with its citizens (to stay out of politics while leaders deliver growth and jobs) could suffer in a slowing economy, damaging their legitimacy.

2021 was in many ways a dress rehearsal for 2022

And so, under the banner of "common prosperity," the government enacted a series of crackdowns on technology companies, brought wealthy entrepreneurs to heel, banned expensive online education platforms and reined in the overheated real estate sector.

The government also went after the online gaming industry, which state media labelled "spiritual opium," limiting playing time for teenagers and prompting the American makers of the game Fortnite to pull the plug on their China venture.

With all this set to continue, 2021 was in many ways a dress rehearsal for 2022 - the year in which Xi, often compared to Mao, is expected to enter an unprecedented third term as leader of an unapologetically authoritarian, deeply nationalistic and increasingly powerful regime.

#### The plan alienates the PLA – they view space dominance as the linchpin of China’s legitimacy – specifically, public-private tech development is key

Economic Times 20 [(Economic Times, Indian daily newspaper, internally cites Dean Cheng, Senior Research Fellow at the Heritage Foundation and the Davis Institute for National Security and Foreign Policy, former analyst in the International Security and Space Program at the Office of Technology Assessment, BA in Politics from Princeton University) “China attempting to militarize space as it seeks to modernize its military power,” 8/31/2020] JL

The Jamestown Foundation, a US think-tank, hosted a webinar on August 19 entitled "China's Space Ambitions: Emerging Dimensions of Competition." One presenter, Dean Cheng, Senior Research Fellow at The Heritage Foundation, noted that Beijing's space programme is linked to China's central concept of comprehensive national power. "This is basically how the Chinese think about how they rack and stack, how they compare with other countries."

China recognises that military power is important, but it is not the only factor in being a great power. Cheng drew a parallel with the former USSR, where military power alone did not ensure survival of that communist state. Other comprehensive national power factors are political unity, economic power, diplomatic strength, science and technology, and even culture. "Space touches every one of these aspects in comprehensive national power, and that is a part of why Chinese see space as so important."

Indeed, a strong space industrial complex will generate benefits that ripple through the rest of China's economy. Furthermore, he said space achievements "promote pride within China, especially for the Chinese Communist Party (CCP) ... It's symbolic of how far China has come," he said, and "it gives the CCP legitimacy".

China is pushing into space services, including satellite launches, satellite applications and Earth observation/satellite imagery for others. Satellite customers include Belarus, Laos, Pakistan and Venezuela, for example, attracting hard currency and influence. Cheng said most underestimate the impact this has, as such countries grow almost totally dependent on Chinese equipment, assets and training over time. Incidentally, China could have manufactured back doors into these systems for foreigners to allow it access.

Mark Stokes, Executive Director at the US-based Project 2049 Institute think-tank, said in the same webinar that PLA requirements have always been fundamental to development of Chinese space capabilities. Potential PLA space missions in support of joint warfighting in a crisis include targeting (battlefield surveillance, electronic reconnaissance and ocean surveillance), communications, PNT services (obtaining target data, navigation information, navigation support and timing services), space jamming (encompassing space communications, radar, electro-optical and PNT) and space protection.

Stokes said the end of 2015 was "significant" for Chinese space efforts because consolidation of end-users under the PLA's Strategic Support Force (PLASSF) occurred, specifically within the Space Systems Department. In terms of developing and meeting requirements, the PLASSF is now "much more efficient," the American analyst posited.

Indeed, China created its space force in 2015, just a few months after Russia. After formally establishing its Space Force in December 2019, the US is still getting its equivalent off the ground. Cheng said both China and Russia have been pushing to militarise space, even though such a term is probably meaningless given that 95 per cent of space technology has dual applications for both military and civilian use. Certainly, outer space can no longer be viewed as a sanctuary.

Stokes said that "not much has changed really in terms of the space launch infrastructure and the launch, tracking and control of space ... but they are now integrated with end-users, and that is going to have an effect on making the whole system more efficient."

China has freedom of action in space, and the creation of the PLASSF and consolidation of space/counter-space research, development and acquisition, as well as training and operations, have benefitted from a single integrated command. The PLA's ability to interfere with American military operations in places like Taiwan will continue to grow yearly.

Cheng said, "The Chinese see future war as revolving around joint operations, which are not just land, air and sea forces." They also include the outer space and electronic warfare domains, which are necessary for information dominance." China, therefore, wishes to deny an adversary like the US the use of space, plus it needs to give the Chinese military every advantage.

China has therefore developed the ability to target hostile space-based assets (from the ground or space) and their all-important data-links. Indeed, jamming and electronic warfare complement anti-satellite weapons (which China has already tested), any of which can achieve effective mission kills against US and allied satellites. Stokes has not yet ascertained which agency is responsible for satellite kinetic kills, but it could well be the PLA Rocket Force, which is traditionally very tightly controlled by the Central Military Commission.

A detailed report entitled China's Space and Counter-space Capabilities and Activities, prepared for the US-China Economic and Security Review Commission, was published on March 30. Its authors, Mark Stokes, Gabriel Alvarado, Emily Weinstein and Ian Easton, summarised China's counter-space capabilities as follows.

"China has an operational counter-space capability that will evolve through 2020 and out to 2035. These capabilities include anti-satellite kinetic kill vehicles (KKV) and space electronic countermeasures ... On the non-kinetic side, the PLA has an operational ground-based satellite electronic countermeasures capability designed to disrupt adversary use of satellite communications, navigation, search and rescue, missile early warning and other satellites through use of jamming."

China obtained its first ground-based satellite jammers from Ukraine in the late 1990s, but it has developed its own solutions since then. "The PLA is capable of carrying out electronic countermeasures to disrupt, deny, deceive or degrade space services. Jamming prevents users from receiving intended signals and can be accomplished by attacking uplinks and downlinks.

The PLA and defence industry are developing and deploying jammers capable of targeting satellite communications over a large range of frequencies, including dedicated military communication bands. The PLASSF also has advanced cyber capabilities that could be applied in parallel with counter-space operations."

Nonetheless, the report asserted that the US still assumed a technological lead in space.

"China also is carrying out research, development and testing on potential space-based counter-space systems. The PLASSF and defense industry have carried out advanced satellite maneuvers and are likely testing orbital technologies that could be applied to counter-space operations." The PLASSF Network Systems Department probably oversees satellite jamming operations.

#### And the Chinese private sector is crucial for space competition – Xi has promised and said so before

Patel 21 — (Neel V. Patel, Neel is the space reporter for MIT Technology Review, and he writes The Airlock newsletter. Before joining, he worked as a freelance science and technology journalist, contributing stories to Popular Science, The Daily Beast, Slate, Wired, the Verge, and elsewhere. Prior to that, he was an associate editor for Inverse, where he grew and led the website’s space coverage., “China’s surging private space industry is out to challenge the US“, MIT Technology Review, 1-21-2021, Available Online at https://www.technologyreview.com/2021/01/21/1016513/china-private-commercial-space-industry-dominance, accessed 1-11-2022, HKR-AR)

Until recently, China’s space activity has been overwhelmingly dominated by two state-owned enterprises: the China Aerospace Science & Industry Corporation Limited (CASIC) and the China Aerospace Science and Technology Corporation (CASC). A few private space firms have been allowed to operate in the country for a while: for example, there’s the China Great Wall Industry Corporation Limited (in reality a subsidiary of CASC), which has provided commercial launches since it was established in 1980. But for the most part, China’s commercial space industry has been nonexistent. Satellites were expensive to build and launch, and they were too heavy and large for anything but the biggest rockets to actually deliver to orbit. The costs involved were too much for anything but national budgets to handle.

That all changed this past decade as the costs of making satellites and launching rockets plunged. In 2014, a year after Xi Jinping took over as the new leader of China, the Chinese government decided to treat civil space development as a key area of innovation, as it had already begun doing with AI and solar power. It issued a policy directive called Document 60 that year to enable large private investment in companies interested in participating in the space industry.

“Xi’s goal was that if China has to become a critical player in technology, including in civil space and aerospace, it was critical to develop a space ecosystem that includes the private sector,” says Namrata Goswami, a geopolitics expert based in Montgomery, Alabama, who’s been studying China’s space program for many years. “He was taking a cue from the American private sector to encourage innovation from a talent pool that extended beyond state-funded organizations.”

As a result, there are now 78 commercial space companies operating in China, according to a 2019 report by the Institute for Defense Analyses. More than half have been founded since 2014, and the vast majority focus on satellite manufacturing and launch services.

For example, Galactic Energy, founded in February 2018, is building its Ceres rocket to offer rapid launch service for single payloads, while its Pallas rocket is being built to deploy entire constellations. Rival company i-Space, formed in 2016, became the first commercial Chinese company to make it to space with its Hyperbola-1 in July 2019. It wants to pursue reusable first-stage boosters that can land vertically, like those from SpaceX. So does LinkSpace (founded in 2014), although it also hopes to use rockets to deliver packages from one terrestrial location to another.

Spacety, founded in 2016, wants to turn around customer orders to build and launch its small satellites in just six months. In December it launched a miniaturized version of a satellite that uses 2D radar images to build 3D reconstructions of terrestrial landscapes. Weeks later, it released the first images taken by the satellite, Hisea-1, featuring three-meter resolution. Spacety wants to launch a constellation of these satellites to offer high-quality imaging at low cost.

To a large extent, China is following the same blueprint drawn up by the US: using government contracts and subsidies to give these companies a foot up. US firms like SpaceX benefited greatly from NASA contracts that paid out millions to build and test rockets and space vehicles for delivering cargo to the International Space Station. With that experience under its belt, SpaceX was able to attract more customers with greater confidence.

Venture capital is another tried-and-true route. The IDA report estimates that VC funding for Chinese space companies was up to $516 million in 2018—far shy of the $2.2 billion American companies raised, but nothing to scoff at for an industry that really only began seven years ago. At least 42 companies had no known government funding.

And much of the government support these companies do receive doesn’t have a federal origin, but a provincial one. “[These companies] are drawing high-tech development to these local communities,” says Hines. “And in return, they’re given more autonomy by the local government.” While most have headquarters in Beijing, many keep facilities in Shenzhen, Chongqing, and other areas that might draw talent from local universities.

There’s also one advantage specific to China: manufacturing. “What is the best country to trust for manufacturing needs?” asks James Zheng, the CEO of Spacety’s Luxembourg headquarters. “It’s China. It’s the manufacturing center of the world.” Zheng believes the country is in a better position than any other to take advantage of the space industry’s new need for mass production of satellites and rockets alike.

Making friends

The most critical strategic reason to encourage a private space sector is to create opportunities for international collaboration—particularly to attract customers wary of being seen to mix with the Chinese government. (US agencies and government contractors, for example, are barred from working with any groups the regime funds.) Document 60 and others issued by China’s National Development and Reform Commission were aimed not just at promoting technological innovation, but also at drawing in foreign investment and maximizing a customer base beyond Chinese borders.

**“China realizes there are certain things they cannot get on their own,”** says Frans von der Dunk, a space policy expert at the University of Nebraska–Lincoln. Chinese companies like LandSpace and MinoSpace have worked to accrue funding through foreign investment, escaping dependence on state subsidies. And by avoiding state funding, a company can also avoid an array of restrictions on what it can and can’t do (such as constraints on talking with the media). Foreign investment also makes it easier to compete on a global scale: you’re taking on clients around the world, launching from other countries, and bringing talent from outside China.

#### That factionalizes the CCP and emboldens challenges to Xi – the PLA is increasingly powerful and not unconditionally subservient

Simpson 16 [(Kurtis, Centre Director with Defence Research and Development Canada, has been conducting research on China’s leadership, Communist Party politics, the People’s Liberation Army and foreign policy for over 30 years,Master’s Degree and a Ph.D from York University, previously served as an intelligence analyst at the Privy Council Office and leader of the Asia Research Section at the Department of National Defence’s Chief Defence Intelligence (CDI) organization) “China’s Re-Emergence: Assessing Civilian-Military Relations In Contemporary Era – Analysis,” Eurasia Review, 12/21/2016] JL

Paralleling divided loyalties between Chinese Party, military and government bodies, one must also recognize that within each, factions exist, based upon generational, personal, professional, geographic, or institutional allegiances.19 These minor fault lines are most pronounced during crises, and they continue independent of professionalization.20 As was demonstrated by the civil-military dynamics of the Chinese government’s suppression of student demonstrators, both divisions and allegiances of interests emerged with respect to how to contain this situation and factional interests largely determined which troops would carry out the orders, who commanded them, what civilian Party leaders supported the actions, and who would be sanctioned following the mêlée. A consequence of factionalism within the PLA is that the Party’s control mechanisms (particularly because rule of law and constitutional restraints on the military are weak) needs to be robust to control not only a single military chain of command but (particularly during crises) perhaps more than one. This is not likely the case. A review of the evidence indicates the military’s influence, on the whole, is increasing, and the Party’s control decreasing.

On one level, the Party clearly controls the military as the Central Military Commission or CMC (the highest military oversight body in the PRC) is chaired by a civilian, President Xi Jinping. Moreover, the PLAs representation on formal political decision-making bodies (such as the Politburo Standing Committee, the Politburo, the Central Committee, and the NPC) has decreased over the years, but this does not necessary equate to a reduced level of influence. For example, the two Vice-Chairman of the CMC are now military generals, as are the remaining other eight members. Irrespective of institutional membership, military leaders retain considerable say. Personal interactions and informal meetings with senior party elites provide venues to sway decisions. They do, also, hold important places on leading small groups dedicated to issues like Taiwan and other security questions, such as the South China Seas.21

In a similar vein, other methods of Party influence, as exercised through political commissars, party committees, and discipline inspection commissions are no longer empowered to enforce the ideological dictates of a paramount leader. In the face of diffuse reporting chains, competing allegiances, and often effective socialization by the military units they are supposed to be watching over, most do not provide the Party guardian and guidance function once so pervasive.

While perhaps overstated, Paltiel’s observation that “…China’s energies over the past century and half have given the military a prominent and even dominant role in the state, preempting civilian control and inhibiting the exercise of constitutional authority” is likely now truer than ever before in history.22 While still loyal to the party as an institution, the PLA is not unconditionally subservient to a particular leader and retains the resources to enter the political arena if (at the highest levels) a decision is made to do so.

The civilian-military trend lines evident in China since the end of the Cultural Revolution affirm that the symbiotic nature of the Party-PLA relationship has morphed in important respects since the late 1960s. The promotion of professionalism, a reduced role for ideological indoctrination, an increasing bifurcation of civil-military elites, and growing state powers (complete with divided loyalties and continued factionalism) has complicated the political landscape informing how the CCP interacts with the PLA. If, as postulated, we have moved from a fused, ‘dual role elite’ model to one of ‘conditional compliance’ in which the military actually holds a preponderance of the power capabilities and where its interests are satisfied through concessions, bargaining, and pay-offs, empirical evidence should reflect this. A review of China’s three major leadership changes since the transition from the revolutionary ‘Old Guard’ to the modern technocrats confirms this.

Formally anointed and legitimized by Deng in 1989, Jiang assumed leadership without military credentials and few allies, viewed by many as a ‘caretaker’ Party Secretary in the wake of the Tiananmen Massacre. Despite his limitations, Jiang was well versed in the vicissitudes of palace politics. Informed by a high political acumen, he immediately promoted an image as an involved Commander-in-Chief, personally visiting all seven military regions, a sign of commitment not made by either the likes of Mao or Deng. Symbolic gestures like this were bolstered by his providing incentives to the PLA, such as: consistent raises in the defence budget; funds for military modernization; as well as equipment, logistics, and augmented R&D.23

Referred to as the ‘silk-wrapped needle,’ Jiang marshalled Party resources to not only reward, but to punish.24 His institutional authority over appointments enabled him to manipulate factions, dismiss those who opposed him, enforce new rigid retirement standards, and promote loyalists. A delicate equilibrium was established during the early-1990s until his semi-retirement in 2004,25 where Jiang guaranteed military priorities such as supporting ‘mechanization’ and an ‘information-based military’ (promoting the concept of RMA with Chinese characteristics) in exchange for the PLA backing of his legacy contributions to Marxist Leninist Mao Zedong thought with the enshrinement of his “Three Represents” doctrine.

Like Jiang, Hu Jintao’s succession was the product of negotiation, compromise, and concessions. While neither opposed by the PLA, nor supported by the military ‘brass,’ Hu was a known commodity, having served as Vice-President (1998) and CMC Vice-Chairman since 1999. He was deemed acceptable until proven otherwise. In the shadow of Jiang (who retained the position of CMC Chair until 2004), Hu did not exert the same kind of influence in, nor engender the same kind of deference from, China’s military, but equally proved capable of fostering a pragmatic relationship with the army which ensured its interests, and in so doing, legitimized his leadership position.

Ceding much of the military planning and operational decisions to the PLA directly, Hu played to his strengths and focused upon national security issues (such as the successful resolution of SARs in China), which bolstered his credibility as a populist leader among the masses, indirectly increasing his power within both the military and the Party. Additionally, he focused upon foreign military security affairs (most notably, North Korea-US negotiations), which enabled him to link his personal political agenda with the military’s latest ambitions.

In according the military a distinct place in China’s national development plan, supporting China’s rise, and ensuring its vital interests, Hu recognized the military’s evolving requirement to ‘go global’ and its worldwide interests in non-combat operations, such as peacekeeping and disaster relief, as well as stakes in the open seas, outer space, and cyberspace as interest frontiers with no geographic boundaries.26 Under the slogan of ‘China’s historical mission in the new phase of the new century’ and his acquiescence to the PLA’s stated requirements ‘to win local wars under modern conditions’ by funding new technology acquisition, Hu received the army’s formal recognition for his contributions to military thought based upon “scientific development” which informed a “strategic guiding theory,” resulting in a new operational orientation for China’s military. Emulating his predecessor, Hu won ‘conditional compliance’ from the PLA by successfully bartering military needs and wants for the army’s support and endorsement of his political tenure. This was not done outside of self-interest. Hu, as did Jiang, skillfully coopted, fired, and promoted select Generals to serve his greater ends, and he did this through varied means. Ultimately, however, it was done in a manner acceptable to the military.

Xi Jinping’s rise to power in 2012, while replicating the ‘horse-trading’ of Jiang and Hu, marks a fundamental departure in leadership style. Often described as a transformative leader, Xi is openly critical of his predecessors and rails against earlier periods where reform stalled and corruption grew.27 An advocate of ‘top-level design,’ incrementalism is being supplanted by a massive attempt to centralize all aspects of the CCP’s power, which includes a major restructuring of the economy, government, administration, and military.

Nicknamed “the gun and the knife” as a slight for his attempts to simultaneously control the army, police, spies, and the ‘graft busters,’ Xi’s power appears uncontested at present. Nevertheless, he is also viewed as ‘pushing the envelope too far’ and endangering the equilibrium which has been established between the Party and PLA over the past 25 years. For example, only two years into his mandate, he fostered a Cult of Personality, “the Spirit of Xi Jinping” which was officially elevated to the same standing as that of Mao and Deng, by comparison, foundational figures in Chinese history. His open attacks of political ‘enemies’ (most notably Zhou Yongkang, a Politburo Standing Committee member and former security czar) breeds fear among almost every senior official, all of whom are vulnerable on some point. Equally true, an unprecedented anti-corruption campaign is inciting comrades to turn on comrades, not unlike a massive game of prisoner’s dilemma.

Nowhere is the pressure for reform greater than in the PLA. Xi advocates administering the army with strictness and austerity, promoting frugality and obedience. At his direction, “mass-line educational campaigns” designed to “rectify work style” through criticism and self-criticism are being implemented.28 Ideological and political building is now equated with army building, as a means of ensuring the Party’s uncontested grip over the troops ideologically, politically, and organizationally. Select military regions (those opposite Taiwan and adjacent to the South China Seas) and commanders from those regions are witnessing favoritism and promotion at the expense of others. Moreover, a new “CMC Chairmanship Responsibility System” has been instituted, which directly calls into question the support of some of Xi’s senior-most generals.

A ‘hardliner’ by nature, Xi recognizes that he must earn the support of the PLA. New military priorities he supports include: accelerating modernization; Joint Command and C4ISR; training; talent management, as well as equipment and force modernization. That said, his goal of achieving the Chinese dream of building a “wealthy, powerful, democratic, civilized, and harmonious socialist modernized nation” by 2021, the 100th anniversary of the founding of the CCP, is exceptionally ambitious. It will require endless commitments to competing interests in a period of economic stagnation and global economic downturn. Should the PLA come to believe they are not first in line for government largess, support for Xi could erode very quickly.29

#### CCP instability collapses the international order – extinction

Perkinson 12 [(Jessica, MA in international affairs from American University) “The Potential for Instability in the PRC: How the Doomsday Theory Misses the Mark,” American University School of International Service, 2012] JL

Should the CCP undergo some sort of dramatic transformation – whether that be significant reform or complete collapse, as some radical China scholars predict2 – the implications for international and US national security are vast. Not only does China and the stability of the CCP play a significant role in the maintenance of peace in the East Asian region, but China is also relied upon by many members of the international community for foreign direct investment, economic stability and trade. China plays a key role in maintaining stability on the Korean Peninsula as one of North Korea’s only allies, and it is argued that instability within the Chinese government could also lead to instability in the already sensitive military and political situation across the Taiwan Strait. For the United States, the effect of instability within the CCP would be widespread and dramatic. As the United States’ largest holder of US treasury securities, instability or collapse of the CCP could threaten the stability of the already volatile economic situation in the US. In addition, China is the largest trading partner of a number of countries, including the US, and the US is reliant upon its market of inexpensive goods to feed demand within the US.

It is with this in mind that China scholars within the United States and around the world should be studying this phenomenon, because the potential for reform, instability or even collapse of the CCP is of critical importance to the stability of the international order as a whole. For the United States specifically, the potential - or lack thereof - forreform of the CCP should dictate its foreign policy toward China. If the body of knowledge on the stability of the Chinese government reveals that the Chinese market is not a stable one, it is in the best interests of the United States to look for investors and trade markets elsewhere to lessen its serious dependence on China for its economic stability, particularly in a time of such uncertain economic conditions within the US.

**1NC – Framing**

#### 1] C/ROB : vote for the better debater, anything else self/serving, arbitrary, and impact justified

#### 2] Death outweighs---it’s the upmost moral evil and disavowal of the risk makes it more likely.

Burns 2017 (Elizabeth Finneron-Burns is a Teaching Fellow at the University of Warwick and an Affiliated Researcher at the Institute for Futures Studies in Stockholm, What’s wrong with human extinction?, <http://www.tandfonline.com/doi/pdf/10.1080/00455091.2016.1278150?needAccess=true>, Canadian Journal of Philosophy, 2017)

Many, though certainly not all, people might believe that it would be wrong to bring about the end of the human species, and the reasons given for this belief are various. I begin by considering four reasons that could be given against the moral permissibility of human extinction. I will argue that only those reasons that impact the people who exist at the time that the extinction or the knowledge of the upcoming extinction occurs, can explain its wrongness. I use this conclusion to then consider in which cases human extinction would be morally permissible or impermissible, arguing that there is only a small class of cases in which it would not be wrong to cause the extinction of the human race or allow it to happen. 2.1. It would prevent the existence of very many happy people One reason of human extinction might be considered to be wrong lies in the value of human life itself. The thought here might be that it is a good thing for people to exist and enjoy happy lives and extinction would deprive more people of enjoying this good. The ‘good’ in this case could be understood in at least two ways. According to the first, one might believe that you benefit a person by bringing them into existence, or at least, that it is good for that person that they come to exist. The second view might hold that if humans were to go extinct, the utility foregone by the billions (or more) of people who could have lived but will now never get that opportunity, renders allowing human extinction to take place an incidence of wrongdoing. An example of this view can be found in two quotes from an Effective Altruism blog post by Peter Singer, Nick Beckstead and Matt Wage: One very bad thing about human extinction would be that billions of people would likely die painful deaths. But in our view, this is by far not the worst thing about human extinction. The worst thing about human extinction is that there would be no future generations. Since there could be so many generations in our future, the value of all those generations together greatly exceeds the value of the current generation. (Beckstead, Singer, and Wage 2013) The authors are making two claims. The first is that there is value in human life and also something valuable about creating future people which gives us a reason to do so; furthermore, it would be a very bad thing if we did not do so. The second is that, not only would it be a bad thing for there to be no future people, but it would actually be the worst thing about extinction. Since happy human lives have value, and the number of potential people who could ever exist is far greater than the number of people who exist at any one time, even if the extinction were brought about through the painful deaths of currently existing people, the former’s loss would be greater than the latter’s. Both claims are assuming that there is an intrinsic value in the existence of potential human life. The second claim makes the further assumption that the forgone value of the potential lives that could be lived is greater than the disvalue that would be accrued by people existing at the time of the extinction through suffering from painful and/or premature deaths. The best-known author of the post, Peter Singer is a prominent utilitarian, so it is not surprising that he would lament the potential lack of future human lives per se. However, it is not just utilitarians who share this view, even if implicitly. Indeed, other philosophers also seem to imply that they share the intuition that there is just something wrong with causing or failing to prevent the extinction of the human species such that we prevent more ‘people’ from having the ‘opportunity to exist’. Stephen Gardiner (2009) and Martin O’Neill (personal correspondence), both sympathetic to contract theory, for example, also find it intuitive that we should want more generations to have the opportunity to exist, assuming that they have worth-living lives, and I find it plausible to think that many other people (philosophers and non-philosophers alike) probably share this intuition. When we talk about future lives being ‘prevented’, we are saying that a possible person or a set of possible people who could potentially have existed will now never actually come to exist. To say that it is wrong to prevent people from existing could either mean that a possible person could reasonably reject a principle that permitted us not to create them, or that the foregone value of their lives provides a reason for rejecting any principle that permits extinction. To make the first claim we would have to argue that a possible person could reasonably reject any principle that prevented their existence on the grounds that it prevented them in particular from existing. However, this is implausible for two reasons. First, we can only wrong someone who did, does or will actually exist because wronging involves failing to take a person’s interests into account. When considering the permissibility of a principle allowing us not to create Person X, we cannot take X’s interest in being created into account because X will not exist if we follow the principle. By considering the standpoint of a person in our deliberations we consider the burdens they will have to bear as a result of the principle. In this case, there is no one who will bear any burdens since if the principle is followed (that is, if we do not create X), X will not exist to bear any burdens. So, only people who do/will actually exist can bear the brunt of a principle, and therefore occupy a standpoint that is owed justification. Second, existence is not an interest at all and a possible person is not disadvantaged by not being caused to exist. Rather than being an interest, it is a necessary requirement in order to have interests. Rivka Weinberg describes it as ‘neutral’ because causing a person to exist is to create a subject who can have interests; existence is not an interest itself.3 In order to be disadvantaged, there must be some detrimental effect on your interests. However, without existence, a person does not have any interests so they cannot be disadvantaged by being kept out of existence. But, as Weinberg points out, ‘never having interests itself could not be contrary to people’s interests since without interest bearers, there can be no ‘they’ for it to be bad for’ (Weinberg 2008, 13). So, a principle that results in some possible people never becoming actual does not impose any costs on those ‘people’ because nobody is disadvantaged by not coming into existence.4 It therefore seems that it cannot be wrong to fail to bring particular people into existence. This would mean that no one acts wrongly when they fail to create another person. Writ large, it would also not be wrong if everybody decided to exercise their prerogative not to create new people and potentially, by consequence, allow human extinction. One might respond here by saying that although it may be permissible for one person to fail to create a new person, it is not permissible if everyone chooses to do so because human lives have value and allowing human extinction would be to forgo a huge amount of value in the world. This takes us to the second way of understanding the potential wrongness of preventing people from existing — the foregone value of a life provides a reason for rejecting any principle that prevents it. One possible reply to this claim turns on the fact that many philosophers acknowledge that the only, or at least the best, way to think about the value of (individual or groups of) possible people’s lives is in impersonal terms (Parfit 1984; Reiman 2007; McMahan 2009). Jeff McMahan, for example, writes ‘at the time of one’s choice there is no one who exists or will exist independently of that choice for whose sake one could be acting in causing him or her to exist … it seems therefore that any reason to cause or not to cause an individual to exist … is best considered an impersonal rather than individual-affecting reason’ (McMahan 2009, 52). Another reply along similar lines would be to appeal to the value that is lost or at least foregone when we fail to bring into existence a next (or several next) generations of people with worth-living lives. Since ex hypothesi worth-living lives have positive value, it is better to create more such lives and worse to create fewer. Human extinction by definition is the creation of no future lives and would ‘deprive’ billions of ‘people’ of the opportunity to live worth-living lives. This might reduce the amount of value in the world at the time of the extinction (by killing already existing people), but it would also prevent a much vaster amount of value in the future (by failing to create more people). Both replies depend on the impersonal value of human life. However, recall that in contractualism impersonal values are not on their own grounds for reasonably rejecting principles. Scanlon himself says that although we have a strong reason not to destroy existing human lives, this reason ‘does not flow from the thought that it is a good thing for there to be more human life rather than less’ (104). In contractualism, something cannot be wrong unless there is an impact on a person. Thus, neither the impersonal value of creating a particular person nor the impersonal value of human life writ large could on its own provide a reason for rejecting a principle permitting human extinction. It seems therefore that the fact that extinction would deprive future people of the opportunity to live worth-living lives (either by failing to create either particular future people or future people in general) cannot provide us with a reason to consider human extinction to be wrong. Although the lost value of these ‘lives’ itself cannot be the reason explaining the wrongness of extinction, it is possible the knowledge of this loss might create a personal reason for some existing people. I will consider this possibility later on in section (d). But first I move to the second reason human extinction might be wrong per se. 2.2. It would mean the loss of the only known form of intelligent life and all civilization and intellectual progress would be lost A second reason we might think it would be wrong to cause human extinction is the loss that would occur of the only (known) form of rational life and the knowledge and civilization that that form of life has created. One thought here could be that just as some might consider it wrong to destroy an individual human heritage monument like the Sphinx, it would also be wrong if the advances made by humans over the past few millennia were lost or prevented from progressing. A related argument is made by those who feel that there is something special about humans’ capacity for rationality which is valuable in itself. Since humans are the only intelligent life that we know of, it would be a loss, in itself, to the world for that to end. I admit that I struggle to fully appreciate this thought. It seems to me that Henry Sidgwick was correct in thinking that these things are only important insofar as they are important to humans (Sidgwick 1874, I.IX.4).5 If there is no form of intelligent life in the future, who would there be to lament its loss since intelligent life is the only form of life capable of appreciating intelligence? Similarly, if there is no one with the rational capacity to appreciate historic monuments and civil progress, who would there be to be negatively affected or even notice the loss?6 However, even if there is nothing special about human rationality, just as some people try to prevent the extinction of nonhuman animal species, we might think that we ought also to prevent human extinction for the sake of biodiversity. The thought in this, as well as the earlier examples, must be that it would somehow be bad for the world if there were no more humans even though there would be no one for whom it is bad. This may be so but the only way to understand this reason is impersonally. Since we are concerned with wrongness rather than badness, we must ask whether something that impacts no one’s well-being, status or claims can be wrong. As we saw earlier, in the contractualist framework reasons must be personal rather than impersonal in order to provide grounds for reasonable rejection (Scanlon 1998, 218–223). Since the loss of civilization, intelligent life or biodiversity are per se impersonal reasons, there is no standpoint from which these reasons could be used to reasonably reject a principle that permitted extinction. Therefore, causing human extinction on the grounds of the loss of civilization, rational life or biodiversity would not be wrong. 2.3. Existing people would endure physical pain and/or painful and/or premature deaths Thinking about the ways in which human extinction might come about brings to the fore two more reasons it might be wrong. It could, for example, occur if all humans (or at least the critical number needed to be unable to replenish the population, leading to eventual extinction) underwent a sterilization procedure. Or perhaps it could come about due to anthropogenic climate change or a massive asteroid hitting the Earth and wiping out the species in the same way it did the dinosaurs millions of years ago. Each of these scenarios would involve significant physical and/or non-physical harms to existing people and their interests. Physically, people might suffer premature and possibly also painful deaths, for example. It is not hard to imagine examples in which the process of extinction could cause premature death. A nuclear winter that killed everyone or even just every woman under the age of 50 is a clear example of such a case. Obviously, some types of premature death themselves cannot be reasons to reject a principle. Every person dies eventually, sometimes earlier than the standard expected lifespan due to accidents or causes like spontaneously occurring incurable cancers. A cause such as disease is not a moral agent and therefore it cannot be wrong if it unavoidably kills a person prematurely. Scanlon says that the fact that a principle would reduce a person’s well-being gives that person a reason to reject the principle: ‘components of well-being figure prominently as grounds for reasonable rejection’ (Scanlon 1998, 214). However, it is not settled yet whether premature death is a setback to well-being. Some philosophers hold that death is a harm to the person who dies, whilst others argue that it is not.7 I will argue, however, that regardless of who is correct in that debate, being caused to die prematurely can be reason to reject a principle when it fails to show respect to the person as a rational agent. Scanlon says that recognizing others as rational beings with interests involves seeing reason to preserve life and prevent death: ‘appreciating the value of human life is primarily a matter of seeing human lives as something to be respected, where this involves seeing reasons not to destroy them, reasons to protect them, and reasons to want them to go well’ (Scanlon 1998, 104). The ‘respect for life’ in this case is a respect for the person living, not respect for human life in the abstract. This means that we can sometimes fail to protect human life without acting wrongfully if we still respect the person living. Scanlon gives the example of a person who faces a life of unending and extreme pain such that she wishes to end it by committing suicide. Scanlon does not think that the suicidal person shows a lack of respect for her own life by seeking to end it because the person whose life it is has no reason to want it to go on. This is important to note because it emphasizes the fact that the respect for human life is person-affecting. It is not wrong to murder because of the impersonal disvalue of death in general, but because taking someone’s life without their permission shows disrespect to that person. This supports its inclusion as a reason in the contractualist formula, regardless of what side ends up winning the ‘is death a harm?’ debate because even if death turns out not to harm the person who died, ending their life without their consent shows disrespect to that person. A person who could reject a principle permitting another to cause his or her premature death presumably does not wish to die at that time, or in that manner. Thus, if they are killed without their consent, their interests have not been taken into account, and they have a reason to reject the principle that allowed their premature death.8 This is as true in the case of death due to extinction as it is for death due to murder. However, physical pain may also be caused to existing people without killing them, but still resulting in human extinction. Imagine, for example, surgically removing everyone’s reproductive organs in order to prevent the creation of any future people. Another example could be a nuclear bomb that did not kill anyone, but did painfully render them infertile through illness or injury. These would be cases in which physical pain (through surgery or bombs) was inflicted on existing people and the extinction came about as a result of the painful incident rather than through death. Furthermore, one could imagine a situation in which a bomb (for example) killed enough people to cause extinction, but some people remained alive, but in terrible pain from injuries. It seems uncontroversial that the infliction of physical pain could be a reason to reject a principle. Although Scanlon says that an impact on well-being is not the only reason to reject principles, it plays a significant role, and indeed, most principles are likely to be rejected due to a negative impact on a person’s well-being, physical or otherwise. It may be queried here whether it is actually the involuntariness of the pain that is grounds for reasonable rejection rather than the physical pain itself because not all pain that a person suffers is involuntary. One can imagine acts that can cause physical pain that are not rejectable — base jumping or life-saving or improving surgery, for example. On the other hand, pushing someone off a cliff or cutting him with a scalpel against his will are clearly rejectable acts. The difference between the two cases is that in the former, the person having the pain inflicted has consented to that pain or risk of pain. My view is that they cannot be separated in these cases and it is involuntary physical pain that is the grounds for reasonable rejection. Thus, the fact that a principle would allow unwanted physical harm gives a person who would be subjected to that harm a reason to reject the principle. Of course the mere fact that a principle causes involuntary physical harm or premature death is not sufficient to declare that the principle is rejectable — there might be countervailing reasons. In the case of extinction, what countervailing reasons might be offered in favour of the involuntary physical pain/ death-inducing harm? One such reason that might be offered is that humans are a harm to the natural environment and that the world might be a better place if there were no humans in it. It could be that humans might rightfully be considered an all-things-considered hindrance to the world rather than a benefit to it given the fact that we have been largely responsible for the extinction of many species, pollution and, most recently, climate change which have all negatively affected the natural environment in ways we are only just beginning to understand. Thus, the fact that human extinction would improve the natural environment (or at least prevent it from degrading further), is a countervailing reason in favour of extinction to be weighed against the reasons held by humans who would experience physical pain or premature death. However, the good of the environment as described above is by definition not a personal reason. Just like the loss of rational life and civilization, therefore, it cannot be a reason on its own when determining what is wrong and countervail the strong personal reasons to avoid pain/death that is held by the people who would suffer from it.9 Every person existing at the time of the extinction would have a reason to reject that principle on the grounds of the physical pain they are being forced to endure against their will that could not be countervailed by impersonal considerations such as the negative impact humans may have on the earth. Therefore, a principle that permitted extinction to be accomplished in a way that caused involuntary physical pain or premature death could quite clearly be rejectable by existing people with no relevant countervailing reasons. This means that human extinction that came about in this way would be wrong. There are of course also additional reasons they could reject a similar principle which I now turn to address in the next section. 2.4. Existing people could endure non-physical harms I said earlier than the fact in itself that there would not be any future people is an impersonal reason and can therefore not be a reason to reject a principle permitting extinction. However, this impersonal reason could give rise to a personal reason that is admissible. So, the final important reason people might think that human extinction would be wrong is that there could be various deleterious psychological effects that would be endured by existing people having the knowledge that there would be no future generations. There are two main sources of this trauma, both arising from the knowledge that there will be no more people. The first relates to individual people and the undesired negative effect on well-being that would be experienced by those who would have wanted to have children. Whilst this is by no means universal, it is fair to say that a good proportion of people feel a strong pull towards reproduction and having their lineage continue in some way. Samuel Scheffler describes the pull towards reproduction as a ‘desire for a personalized relationship with the future’ (Scheffler 2012, 31). Reproducing is a widely held desire and the joys of parenthood are ones that many people wish to experience. For these people knowing that they would not have descendants (or that their descendants will endure painful and/or premature deaths) could create a sense of despair and pointlessness of life. Furthermore, the inability to reproduce and have your own children because of a principle/policy that prevents you (either through bans or physical interventions) would be a significant infringement of what we consider to be a basic right to control what happens to your body. For these reasons, knowing that you will have no descendants could cause significant psychological traumas or harms even if there were no associated physical harm. The second is a more general, higher level sense of hopelessness or despair that there will be no more humans and that your projects will end with you. Even those who did not feel a strong desire to procreate themselves might feel a sense of hopelessness that any projects or goals they have for the future would not be fulfilled. Many of the projects and goals we work towards during our lifetime are also at least partly future-oriented. Why bother continuing the search for a cure for cancer if either it will not be found within humans’ lifetime, and/or there will be no future people to benefit from it once it is found? Similar projects and goals that might lose their meaning when confronted with extinction include politics, artistic pursuits and even the type of philosophical work with which this paper is concerned. Even more extreme, through the words of the character Theo Faron, P.D. James says in his novel The Children of Men that ‘without the hope of posterity for our race if not for ourselves, without the assurance that we being dead yet live, all pleasures of the mind and senses sometimes seem to me no more than pathetic and crumbling defences shored up against our ruins’ (James 2006, 9). Even if James’ claim is a bit hyperbolic and all pleasures would not actually be lost, I agree with Scheffler in finding it not implausible that the knowledge that extinction was coming and that there would be no more people would have at least a general depressive effect on people’s motivation and confidence in the value of and joy in their activities (Scheffler 2012, 43). Both sources of psychological harm are personal reasons to reject a principle that permitted human extinction. Existing people could therefore reasonably reject the principle for either of these reasons. Psychological pain and the inability to pursue your personal projects, goals, and aims, are all acceptable reasons for rejecting principles in the contractualist framework. So too are infringements of rights and entitlements that we accept as important for people’s lives. These psychological reasons, then, are also valid reasons to reject principles that permitted or required human extinction.

#### 3] Non consequential ethics are impossible

Greene 07 – Joshua, Associate Professor of Social science in the Department of Psychology at Harvard University (The Secret Joke of Kant’s Soul published in Moral Psychology: Historical and Contemporary Readings, accessed: <https://www.gwern.net/docs/philosophy/ethics/2007-greene.pdf>, pages 47-50)

**What turn-of-the-millennium science** **is telling us is that human moral judgment is not a pristine rational enterprise**, that our **moral judgments are driven by a hodgepodge of emotional dispositions, which themselves were shaped by a hodgepodge of evolutionary forces, both biological and cultural**. **Because of this, it is exceedingly unlikely that there is any rationally coherent normative moral theory that can accommodate our moral intuitions**. Moreover, **anyone who claims to have such a theory**, or even part of one, **almost certainly doesn't**. Instead, what that person probably has is a moral rationalization. It seems then, that we have somehow crossed the infamous "is"-"ought" divide. How did this happen? Didn't Hume (Hume, 1978) and Moore (Moore, 1966) warn us against trying to derive an "ought" from and "is?" How did we go from descriptive scientific theories concerning moral psychology to skepticism about a whole class of normative moral theories? The answer is that we did not, as Hume and Moore anticipated, attempt to derive an "ought" from and "is." That is, our method has been inductive rather than deductive. We have inferred on the basis of the available evidence that the phenomenon of rationalist deontological philosophy is best explained as a rationalization of evolved emotional intuition (Harman, 1977). Missing the Deontological Point I suspect that **rationalist deontologists will remain unmoved by the arguments presented here**. Instead, I suspect, **they** **will insist that I have simply misunderstood what** Kant and like-minded **deontologists are all about**. **Deontology, they will say, isn't about this intuition or that intuition**. It's not defined by its normative differences with consequentialism. **Rather, deontology is about taking humanity seriously**. Above all else, it's about respect for persons. It's about treating others as fellow rational creatures rather than as mere objects, about acting for reasons rational beings can share. And so on (Korsgaard, 1996a; Korsgaard, 1996b). **This is, no doubt, how many deontologists see deontology. But this insider's view**, as I've suggested, **may be misleading**. **The problem**, more specifically, **is that it defines deontology in terms of values that are not distinctively deontological**, though they may appear to be from the inside. **Consider the following analogy with religion. When one asks a religious person to explain the essence of his religion, one often gets an answer like this: "It's about love**, really. It's about looking out for other people, looking beyond oneself. It's about community, being part of something larger than oneself." **This sort of answer accurately captures the phenomenology of many people's religion, but it's nevertheless inadequate for distinguishing religion from other things**. This is because many, if not most, non-religious people aspire to love deeply, look out for other people, avoid self-absorption, have a sense of a community, and be connected to things larger than themselves. In other words, secular humanists and atheists can assent to most of what many religious people think religion is all about. From a secular humanist's point of view, in contrast, what's distinctive about religion is its commitment to the existence of supernatural entities as well as formal religious institutions and doctrines. And they're right. These things really do distinguish religious from non-religious practices, though they may appear to be secondary to many people operating from within a religious point of view. In the same way, I believe that most of **the standard deontological/Kantian self-characterizatons fail to distinguish deontology from other approaches to ethics**. (See also Kagan (Kagan, 1997, pp. 70-78.) on the difficulty of defining deontology.) It seems to me that **consequentialists**, as much as anyone else, **have respect for persons**, **are against treating people as mere objects,** **wish to act for reasons that rational creatures can share, etc**. **A consequentialist respects other persons, and refrains from treating them as mere objects, by counting every person's well-being in the decision-making process**. **Likewise, a consequentialist attempts to act according to reasons that rational creatures can share by acting according to principles that give equal weight to everyone's interests, i.e. that are impartial**. This is not to say that consequentialists and deontologists don't differ. They do. It's just that the real differences may not be what deontologists often take them to be. What, then, distinguishes deontology from other kinds of moral thought? A good strategy for answering this question is to start with concrete disagreements between deontologists and others (such as consequentialists) and then work backward in search of deeper principles. This is what I've attempted to do with the trolley and footbridge cases, and other instances in which deontologists and consequentialists disagree. **If you ask a deontologically-minded person why it's wrong to push someone in front of speeding trolley in order to save five others, you will get** characteristically deontological **answers**. Some **will be tautological**: **"Because it's murder!"** **Others will be more sophisticated: "The ends don't justify the means**." "You have to respect people's rights." **But**, as we know, **these answers don't really explain anything**, because **if you give the same people** (on different occasions) **the trolley case** or the loop case (See above), **they'll make the opposite judgment**, even though their initial explanation concerning the footbridge case applies equally well to one or both of these cases. **Talk about rights, respect for persons, and reasons we can share are natural attempts to explain, in "cognitive" terms, what we feel when we find ourselves having emotionally driven intuitions that are odds with the cold calculus of consequentialism**. Although these explanations are inevitably incomplete, **there seems to be "something deeply right" about them because they give voice to powerful moral emotions**. **But, as with many religious people's accounts of what's essential to religion, they don't really explain what's distinctive about the philosophy in question**.

#### 4] all of the people that have access to and are doing hormonal therapy are doing it regardless of your aff, and no one will make that radical of a life choice because of a high school debate – no spill up, vote negative on presumption

#### 5] Extinction’s not inevitable and neither have they justified anything about ontology in this AFF

#### 6] you cannot solve for like 99.9% of pharma projects, space is key to literally nothing

**1NC – Advantage**

#### Revolution/Abdication of pharma turns the aff more than it helps conditions

#### 1] Preciado’s folk politics – their movement worsens conditions

Hester, 15—Associate Professor of Media and Communication, University of West London (Helen, “Synthetic Genders and the Limits of Micropolitics,” …ment Issue 06 [the name of the journal is “…ment,” ellipses and all…], dml)

Of course, the alignment or conformity of certain ideas and practices with neoliberalism is hardly an isolated phenomenon, and should not in itself be seen as sufficient to render an activity irredeemably problematic. Moreover, we must be careful to ensure that the saturation of the city by capital is not simply assumed, and that accounts do not neglect the incipient potentials for resistance that these kinds of urban spaces can afford35. However, there are issues with the framing of political agency in Testo Junkie. Preciado, for all hir avowed cosmopolitanism, talks primarily in terms of small-scale interventions and repurposings, arguing that self-experimentation is ‘a requirement for the possibility of any future micropolitical action’36. This ‘micropolitics’ often seems to manifest itself almost exclusively at the level of the atomised subject, with little imaginative space being given to the ways in which diverse embodied appropriations might interconnect, or in which the project might be expanded or scaled up. As Preciado hirself admits, ‘romantic autoexperimentation carries the risk of individualism and depoliticization’37, and hir project might all too easily coincide with those currents of neoliberalism that depress awareness of shaping structural influences such as class.

In this sense, one could argue that Preciado’s work – for all its embrace of biotech and transformative media – trenches on what has been pejoratively called the ‘folk political.’ It frequently refuses to think beyond the microcommunity, neglects to directly engage with the ‘rhizomatic connections among […] resistances and insubordinations’38, and deals primarily with small ‘interventions consisting of non-scaleable tactics’39. As such, it risks remaining satisfied with isolated, temporary, and defensive gestures of experimentation, rather than looking toward socially transformative projects. As Srnicek and Williams note, ‘to present an emancipatory process of constructive freedom which might contend on a global scale with capitalism in its myriad forms depends on shifting towards the structural, the generalised, and the non-localised’40, and this is something that Testo Junkie rarely achieves. While the main focus of the book is (quite self-consciously) micropolitical experimentation, there are moments at which Preciado hirself appears to express a desire for larger-scale social change, and it is at these points that the non-scalabilty of hir project demands critical consideration.

In those instances, Preciado tends to veer rather dramatically from the micropolitical towards the other extreme. S/he jumps from toying with the hormonal metabolism of hir own discrete body to species-wide ‘endocrinal reprogramming’41, making the leap from an individualized micropolitics of embodiment to a wider-reaching political vision no less radical than ‘the transformation of the species’42. Again, there is an obvious issue with scale here – from tinkering with individual bodies to re-engineering humanity, with little in between. The sphere of the mesopolitical – a space we might associate with the advance of pragmatic and actionable activist tactics – is entirely absent. Of course, Preciado never claims that hir pharmaceutical and theoretical protocols should be read as a practical handbook for Promethean politics, and as such it would be somewhat unfair to censure hir for failing to engage in feasible counter-hegemonic strategizing. However, it remains instructive to consider how hir rhetoric (with all its intoxicating glimmers of sociopolitical opportunity) might ultimately ‘cash out,’ as well as to reflect upon what we might actually do with Testo Junkie.

In Testo Junkie, the perceived dangers of coalescing into a recognisable movement – of thinking beyond the individual in order to make collective demands – constrain the text’s horizons of possibility. Preciado appears all too aware of the fact that the discourses of feminism can be (and have been) co-opted by the pharmacopornographic regime, just as the tools of said regime can be seen to lend themselves to co-option by hir technologically-minded transfeminism; after all, as s/he points out, this regime ‘exploited the revolutionary and emancipatory rhetoric of the feminist movement of the 1960s to pass off the chemical and contraceptive management of the female body as a step toward sexual liberation’43. It is perhaps for this reason that s/he decides hir proposed movement of gender self-experimentation will have ‘no single name that can be transformed into brand’44 – hence, no brand identity to be recuperated, appropriated or seized; but also little explicit sense of cooperative, collective, or counter-hegemonic purpose.

#### 3] alt alone denies reclamation

-prefer our reading – it’s from an interview with KM’s author and best reflects intent

Preciado 13, Beatriz Preciado, professor of Political History of the Body, Gender Theory, and History of Performance at Paris VIII, Pharmacopornography: An Interview with Beatriz Preciado, Interview conducted by Ricky Tucker, http://www.theparisreview.org/blog/2013/12/04/pharmacopornography-an-interview-with-beatriz-preciado/

Do you think tools like Testogel and estrogen create more of a democracy in the hands of the marginalized?

We don’t have to be afraid of questioning democracy, but I’m also very interested in disability, nonfunctional bodies, other forms of functionality and cognitive experiences. Democracy and the model of democracy is still too much about able bodies, masculine able bodies that have control over the body and the individual’s choices, and have dialogues and communications in a type of parliament. We have to imagine politics that go beyond the parliament, otherwise how are we going to imagine politics with nonhumans, or the planet? I am interested in the model of the body as subjectivity that is working within democracy, and then goes beyond that. Also, the global situation that we are in requires a revolution. There is no other option. We must manage to actually create some political alliance of minority bodies, to create a revolution together. Otherwise these necropolitical techniques will take the planet over. In this sense, I have a very utopian way of thinking, of rethinking new technologies of government and the body, creating new regimes of knowledge. The domain of politics has to be taken over by artists. Politics and philosophy both are our domains. The problem is that they have been expropriated and taken by other entities for the production of capital or just for the sake of power itself. That’s the definition of revolution, when the political domain becomes art. We desperately need it.

#### The K’s anarchic agenda reinforces the neoliberal project of dismantling social welfare and wealth redistribution in favor of a free-market-oriented approach to reducing poverty and social disparities.

Footnote in the article: “Social security” is used here in its French meaning, to refer to all social insurance. For example, France’s national health insurance is part of its “social security” system.

Zamora 14 – Daniel Zamora, postdoctoral fellow at the University of Illinois at Chicago, PhD in Sociology from Université Libre de Bruxelles (“Can We Criticize Foucault?” *Jacobin*, December 10th, interview with Ballast – a French journal – translated from French to English by Seth Ackerman, https://www.jacobinmag.com/2014/12/foucault-interview/#\_ftn1)

Daniel Zamora: It’s practically an unexplored issue within the immense corpus of the “Foucauldians.” To tell the truth, I didn’t think I’d be working on this when I was thinking up the plan of the book. My interest in social security wasn’t originally connected to Foucault directly, but my research on this issue led me to think about how over the past forty years we’ve gone from a politics aimed at combatting inequality, grounded in social security, to a politics aiming to combat poverty, increasingly organized around specific budget allocations and targeted populations.

But going from one objective to the other completely transforms the conception of social justice. Combatting inequalities (and seeking to reduce absolute disparities) is very different from combating poverty (and seeking to offer a minimum to the most disadvantaged). Carrying out this little revolution required years of work delegitimizing social security and the institutions of the working class.

It was while reading closely through the texts of the “late” Foucault (from the late seventies and early eighties) that it became clear to me that he himself fully took part in this operation. So, he not only challenged social security, he was also seduced by the alternative of the negative income tax proposed by Milton Friedman in that period. To his mind, the mechanisms of social assistance and social insurance, which he put on the same plane as the prison, the barracks, or the school, were indispensable institutions “for the exercise of power in modern societies.”

It’s also interesting to note that in François Ewald’s central work, he doesn’t hesitate to write that “the welfare state fulfills the dream of ‘biopower.’” No less! [Ewald was Foucault’s disciple and assistant, now a leading intellectual aligned with France’s insurance industry and the Medef, the main French business federation.]

Given the many defects of the classical social security system, Foucault was interested in replacing it with a negative income tax. The idea is relatively simple: the state pays a benefit to anyone who finds themselves below a certain level of income. The goal is to arrange things so that without needing much administration, no one will find themselves below the minimum level.

In France this debate begins to appear in 1974, through Lionel Stoléru’s book Vaincre la pauvreté dans les pays riches (Conquering Poverty In the Rich Countries). It’s also interesting to note that Foucault himself met with Stoléru several times when Stoléru was a technical advisor on the staff of [right-wing French president] Valéry Giscard D’Estaing. An important argument runs through his work and directly attracted Foucault’s attention: in the spirit of Friedman, it draws a distinction between a policy that seeks equality (socialism) and a policy that simply aims to eliminate poverty without challenging disparities (liberalism).

For Stoléru, I’m quoting, “doctrines. . . can lead us either to a policy aiming to eliminate poverty, or to a policy seeking to limit the gap between rich and poor.” That’s what he calls “the frontier between absolute poverty and relative poverty.” The first refers simply to an arbitrarily determined level (which the negative income tax addresses) and the other to overall disparities between individuals (which social security and the welfare state address).

In Stoléru’s eyes, “the market economy is capable of assimilating actions to combat absolute poverty” but “it is incapable of digesting overly strong remedies against relative poverty.” That’s why, he argues, “I believe the distinction between absolute poverty and relative poverty is in fact the distinction between capitalism and socialism.” So, what’s at stake in moving from one to the other is a political issue: acceptance of capitalism as the dominant economic form, or not.

From that point of view, Foucault’s barely masked enthusiasm for Stoléru’s proposal was part of a larger movement that went along with the decline of the egalitarian philosophy of social security in favor of a very free-market-oriented fight against “poverty.” In other words, and as surprising as it may seem, the fight against poverty, far from limiting the effects of neoliberal policies, has in reality militated for its political hegemony.

So it’s not surprising to see the world’s largest fortunes, like those of Bill Gates or George Soros, engaging in this fight against poverty even while supporting, without any apparent contradiction, the liberalization of public services, the destruction of all these mechanisms of wealth redistribution, and the “virtues” of neoliberalism.

Combatting poverty thus permits the inclusion of social questions on the political agenda without having to fight against inequality and the structural mechanisms that produce it. So this evolution has been part and parcel of neoliberalism, and the objective of my text is to show that Foucault had his share of responsibility in this development.

Ballast: The question of the state is omnipresent in your book. Whoever critiques its raison d’être is allegedly a liberal. But isn’t that forgetting the traditions of anarchism and Marxism, from Bakunin to Lenin? Aren’t you overlooking that dimension?

I don’t think so. I think the critique from the Marxist or anarchist tradition is very different from the one Foucault was formulating, and not only him but also a significant swath of the Marxism of the 1970s.

First, for the simple reason that all those old anarchist and Marxist writers knew nothing of social security or the form the state would take after 1945. The state Lenin was addressing was effectively the state of the dominant class, in which workers played no real role. The right to vote, for example, wasn’t really generalized — for men — until the interwar era. So it’s hard to know what they would have thought of these institutions and their so-called “bourgeois” character.

I’ve always been very irritated by this idea, which is relatively popular within the radical left, that social security is ultimately nothing more than a tool of social control by big capital. This idea demonstrates a complete misunderstanding of the history and origins of our systems of social protection. These systems were not established by the bourgeoisie to control the masses. On the contrary, it was totally hostile to them!

These institutions were the result of the strong position held by the workers’ movement after the Liberation. They were invented by the workers’ movement itself. From the nineteenth century onward, workers and unions had established mutual societies, for example, to pay benefits to those unable to work. It was the very logic of the market and the enormous risks it imposed on the lives of workers that pushed them to develop mechanisms for the partial socialization of income.

In the early phase of the industrial revolution, only property owners were full citizens, and as the sociologist Robert Castel emphasizes, it was only with social security that the “social rehabilitation of non-property-owners” really took place. It was social security that established, alongside private property, a social property, intended to usher the popular classes into citizenship. This is the idea Karl Polanyi advances in The Great Transformation, which sees in the principle of social protection the aim of withdrawing the individual out of the laws of the market and thus reconfiguring relations of power between capital and labor.

One can, of course, lament the statist form in which social security is managed, or say, for example, that it ought to be run by collectives — though I don’t really buy that — but criticizing the tool and its ideological basis as such, that’s very different. When Foucault goes so far as to say it’s “clear that there is hardly any sense in speaking of a ‘right to health,’” and asks, “should a society seek to satisfy individuals’ need for health? And can those individuals legitimately demand the satisfaction of those needs?” we are no longer really within the anarchist register.

For me, and contrary to Foucault, what we should do is deepen the social rights that we have already, we should “build on what already exists,” as Bernard Friot says. And social security is an excellent tool that we should both defend and deepen.

Along the same lines, when I read the philosopher Beatriz Preciado, who writes in Libération that “we’re not going to cry over the end of the welfare state, because the welfare state is also the psychiatric hospital, the disability office, the prison, the patriarchal-colonial-heteronormative school,” it makes me think that neoliberalism has done much more than transform our economy; it has profoundly reconfigured the social imagination of a certain “libertarian” left.