### 1AC – FW

#### Ethics must begin a priori:

#### [1] Naturalistic fallacy—experience only tells us what is, not what ought to be. However, it’s impossible to derive an obligation from descriptive premises, so there needs to be a priori premises. The alternative is relativism—you can’t measure something constantly changing with a ruler.

#### [2] Empirical uncertainty—evil demon could deceive us, dreaming, simulation, and inability to know others’ experience make empiricism unreliable. Outweighs on bindingness since people can say they don’t experience the same.

#### [3] Constitutive Authority—practical reason is unescapable since to ask why we should be reasoners concedes its authority by using reason – anything else is nonbinding and arbitrary.

#### [4] Action theory—only evaluating action through reason solves since it evaluates intent, otherwise we could infinitely divide actions. Only our intention unifies actions – otherwise, we could never classify certain actions as moral since those actions would be infinitely divisible.

#### That means we universally will maxims—any non-universalizable norm justifies someone’s ability to impede on your ends.

#### Thus, the standard is consistency with the categorical imperative.

#### Prefer:

#### 1] TJFS for Non-extinction intent based frameworks - A] Inclusion- autonomy is a procedural for allowing any argumentation in the debate space which controls the internal link to inclusion which is an impact multiplier B] Resource Disparities- Discursive frameworks ensure big squads don’t have a comparative advantage since debates become about quality of arguments rather than quantity and require a higher level of analytic thinking that small schools have.

#### 2] only universalizable reason can effectively explain the perspectives of agents – that’s the best method for combatting oppression.

Farr 02 Arnold Farr (prof of phil @ UKentucky, focusing on German idealism, philosophy of race, postmodernism, psychoanalysis, and liberation philosophy). “Can a Philosophy of Race Afford to Abandon the Kantian Categorical Imperative?” JOURNAL of SOCIAL PHILOSOPHY, Vol. 33 No. 1, Spring 2002, 17–32.

**One** of the most popular **criticism**s **of Kant’s moral philosophy is that it is too formalistic.**13 That is, the universal nature of the categorical imperative leaves it devoid of content. Such a principle is useless since moral decisions are made by concrete individuals in a concrete, historical, and social situation. This type of criticism lies behind Lewis Gordon’s rejection of any attempt to ground an antiracist position on Kantian principles. The rejection of universal principles for the sake of emphasizing the historical embeddedness of the human agent is widespread in recent philosophy and social theory. I will argue here on Kantian grounds that **although a distinction between the universal and the concrete is** a **valid** distinction, **the unity of the two is required for** an understanding of human **agency.** The attack on Kantian formalism began with Hegel’s criticism of the Kantian philosophy.14 The list of contemporary theorists who follow Hegel’s line of criticism is far too long to deal with in the scope of this paper. Although these theorists may approach the problem of Kantian formalism from a variety of angles, the spirit of their criticism is basically the same: The universality of the categorical imperative is an abstraction from one’s empirical conditions. **Kant is** often **accused of making the moral agent an abstract, empty**, noumenal **subject. Nothing could be further from the truth. The Kantian subject is** an embodied, empirical, concrete subject. However, this concrete subject has a dual nature. Kant claims in the Critique of Pure Reason as well as in the Grounding that human beings have an intelligible and empirical character.15 It is impossible to understand and do justice to Kant’s moral theory without taking seriously the relation between these two characters. The very concept of morality is impossible without the tension between the two. By “empirical character” Kant simply means that we have a sensual nature. We are physical creatures with physical drives or desires. **The** very **fact that I cannot simply satisfy my desires without considering the rightness** or wrongness **of my actions suggests that my empirical character must be held in check** by something, or else I behave like a Freudian id. My empiri- cal character must be held in check **by my intelligible character**, which is the legislative activity of practical reason. It is through our intelligible character that **we formulate principles that keep our** empirical **impulses in check.** The categorical imperative is the supreme principle of morality that is constructed by the moral agent in his/her moment of self-transcendence. What I have called self-transcendence may be best explained in the following passage by Onora O’Neill: In restricting our maxims to those that meet the test of the categorical imperative we refuse to base our lives on maxims that necessarily make our own case an exception. The reason why a universilizability criterion is morally signiﬁcant is that it makes our own case no special exception (G, IV, 404). In accepting the Categorical Imperative we accept the moral reality of other selves, and hence the possibility (not, note, the reality) of a moral community. **The Formula of Universal Law enjoins no more than that we act only on maxims that are open to others also.**16 O’Neill’s description of the universalizability criterion includes the notion of self-transcendence that I am working to explicate here to the extent that like self-transcendence, universalizable moral principles require that the individ- ual think beyond his or her own particular desires. The individual is not allowed to exclude others **as** rational **moral agents** who have the right to act as he acts in a given situation. For example, if I decide to use another person merely as a means for my own end I must recognize the other person’s right to do the same to me. I cannot consistently will that I use another as a means only and will that I not be used in the same manner by another. **Hence,** the **universalizability** criterion **is a principle of consistency and** a principle of **inclusion.** That is, in choosing my maxims **I** attempt to **include the perspective of other moral agents.**

#### 3] Actor specificity – governments use Kantian conceptions of the state.

RIPSTEIN 15 Arthur Ripstein (Professor of Law and Philosophy at the University of Toronto). “Just War, Regular War, and Perpetual Peace” (2015). AS 7/16/15

Sophisticated contemporary legal systems work either implicitly or explicitly with some version of this Kantian idea of the state as a public rightful condition. Constitutional courts review legislation to make sure that it is properly within the state's legitimate mandate, and throughout the world recent awareness of problems of institutional corruption reflect the recogni[ze]tion of the fundamental importance of the distinction between properly public and improperly private purposes in the internal management of states. Conversely, its widely appreciated that the proper role of the state is not simply to bring about as much good as possible in the world, and that states have a special responsibility to their own citizens and residents.

#### 4] Consequences fail- A] They judge actions after they occur which fails guidance B] Butterfly effect- every action has infinite consequences because every consequence can cause another C] Probability doesn’t solve because it relies on inductive knowledge, but induction from past events can’t lead to deduction of future events and it assumes causation, but we can’t assume every act was actually the cause D] Aggregation fails- there’s no arbiter of consequences because ten headaches don’t make a migraine

#### 5] There is no objective reality – different worlds can exist at the same time and the aff is logical in one which is sufficient.

MIT ’19 (Emerging Technology from the arXiv archive page; Covers latest ideas from blog post about arXiv; 03/12/2019; “Emerging Technology from the arXiv archive page”; <https://www.technologyreview.com/2019/03/12/136684/a-quantum-experiment-suggests-theres-no-such-thing-as-objective-reality/>; *MIT Technology Review*; accessed: 11/19/2020; MohulA)

Back in 1961, the Nobel Prize–winning physicist Eugene Wigner outlined a thought experiment that demonstrated one of the lesser-known paradoxes of quantum mechanics. The experiment shows how the strange nature of the universe allows two observers—say, Wigner and Wigner’s friend—to experience different realities. Since then, physicists have used the “Wigner’s Friend” thought experiment to explore the nature of measurement and to argue over whether objective facts can exist. That’s important because scientists carry out experiments to establish objective facts. But if they experience different realities, the argument goes, how can they agree on what these facts might be? That’s provided some entertaining fodder for after-dinner conversation, but Wigner’s thought experiment has never been more than that—just a thought experiment. Last year, however, physicists noticed that recent advances in quantum technologies have made it possible to reproduce the Wigner’s Friend test in a real experiment. In other words, it ought to be possible to create different realities and compare them in the lab to find out whether they can be reconciled. And today, Massimiliano Proietti at Heriot-Watt University in Edinburgh and a few colleagues say they have performed this experiment for the first time: they have created different realities and compared them. Their conclusion is that Wigner was correct—these realities can be made irreconcilable so that it is impossible to agree on objective facts about an experiment. Wigner’s original thought experiment is straightforward in principle. It begins with a single polarized photon that, when measured, can have either a horizontal polarization or a vertical polarization. But before the measurement, according to the laws of quantum mechanics, the photon exists in both polarization states at the same time—a so-called superposition. Wigner imagined a friend in a different lab measuring the state of this photon and storing the result, while Wigner observed from afar. Wigner has no information about his friend’s measurement and so is forced to assume that the photon and the measurement of it are in a superposition of all possible outcomes of the experiment. Wigner can even perform an experiment to determine whether this superposition exists or not. This is a kind of interference experiment showing that the photon and the measurement are indeed in a superposition. From Wigner’s point of view, this is a “fact”—the superposition exists. And this fact suggests that a measurement cannot have taken place. But this is in stark contrast to the point of view of the friend, who has indeed measured the photon’s polarization and recorded it. The friend can even call Wigner and say the measurement has been done (provided the outcome is not revealed). So the two realities are at odds with each other. “This calls into question the objective status of the facts established by the two observers,” say Proietti and co. That’s the theory, but last year Caslav Brukner, at the University of Vienna in Austria, came up with a way to re-create the Wigner’s Friend experiment in the lab by means of techniques involving the entanglement of many particles at the same time. The breakthrough that Proietti and co have made is to carry this out. “In a state-of-the-art 6-photon experiment, we realize this extended Wigner’s friend scenario,” they say. They use these six entangled photons to create two alternate realities—one representing Wigner and one representing Wigner’s friend. Wigner’s friend measures the polarization of a photon and stores the result. Wigner then performs an interference measurement to determine if the measurement and the photon are in a superposition. The experiment produces an unambiguous result. It turns out that both realities can coexist even though they produce irreconcilable outcomes, just as Wigner predicted. That raises some fascinating questions that are forcing physicists to reconsider the nature of reality. The idea that observers can ultimately reconcile their measurements of some kind of fundamental reality is based on several assumptions. The first is that universal facts actually exist and that observers can agree on them. But there are other assumptions too. One is that observers have the freedom to make whatever observations they want. And another is that the choices one observer makes do not influence the choices other observers make—an assumption that physicists call locality. If there is an objective reality that everyone can agree on, then these assumptions all hold. But Proietti and co’s result suggests that objective reality does not exist. In other words, the experiment suggests that one or more of the assumptions—the idea that there is a reality we can agree on, the idea that we have freedom of choice, or the idea of locality—must be wrong. Of course, there is another way out for those hanging on to the conventional view of reality. This is that there is some other loophole that the experimenters have overlooked. Indeed, physicists have tried to close loopholes in similar experiments for years, although they concede that it may never be possible to close them all. Nevertheless, the work has important implications for the work of scientists. “The scientific method relies on facts, established through repeated measurements and agreed upon universally, independently of who observed them,” say Proietti and co. And yet in the same paper, they undermine this idea, perhaps fatally. The next step is to go further: to construct experiments creating increasingly bizarre alternate realities that cannot be reconciled. Where this will take us is anybody’s guess. But Wigner, and his friend, would surely not be surprised.

### 1AC – Plan

#### Plan – The appropriation of outer space through the production of space debris by private entities is unjust.

#### Resolved is defined as[[1]](#footnote-1) firm in purpose or intent; determined and I’m determined.

#### Affirm is defined as : to show or express a strong belief in or dedication to (something, such as an important idea) and I strongly believe in my aff.

<https://www.merriam-webster.com/dictionary/affirm>

#### Orbital debris is

NASA.gov 21 [NASA – 5/26/21. “Space Debris and Human Spacecraft.” <https://www.nasa.gov/mission_pages/station/news/orbital_debris.html>] Justin

Orbital Debris

Space debris encompasses both natural meteoroid and artificial (human-made) orbital debris. Meteoroids are in orbit about the sun, while most artificial debris is in orbit about the Earth (hence the term “orbital” debris).

Orbital debris is any human-made object in orbit about the Earth that no longer serves a useful function. Such debris includes nonfunctional spacecraft, abandoned launch vehicle stages, mission-related debris, and fragmentation debris.

#### The aff interprets enforcement as an OUF (Orbital Use Fee). Proportionality in relation to the space industry solves best without harming it and any other solution only worsens the threat – models.

Rao et al 20. Akhil, Matthew Burgess, and Daniel Kaffine \*Department of Economics, Middlebury College, Middlebury \*\*Cooperative Institute for Research in Environmental Sciences, University of Colorado, Environmental Studies Program, and Department of Economics \*\*\*Department of Economics. 2020 [PNAS, “Orbital-use fees could more than quadruple the value of the space industry,” <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7293599/>] Justin

The space industry’s rapid recent growth represents the latest tragedy of the commons. Satellites launched into orbit contribute to—and risk damage from—a growing buildup of space debris and other satellites. Collision risk from this orbital congestion is costly to satellite operators. Technological and managerial solutions—such as active debris removal or end-of-life satellite deorbit guidelines—are currently being explored by regulatory authorities. However, none of these approaches address the underlying incentive problem: satellite operators do not account for costs they impose on each other via collision risk. Here, we show that an internationally harmonized orbital-use fee can correct these incentives and substantially increase the value of the space industry. We construct and analyze a coupled physical–economic model of commercial launches and debris accumulation in low-Earth orbit. Similar to carbon taxes, our model projects an optimal fee that rises at a rate of 14% per year, equal to roughly $235,000 per satellite-year in 2040. The long-run value of the satellite industry would more than quadruple by 2040—increasing from around $600 billion under business as usual to around $3 trillion. In contrast, we project that purely technological solutions are unlikely to fully address the problem of orbital congestion. Indeed, we find debris removal sometimes worsens economic damages from congestion by increasing launch incentives. In other sectors, addressing the tragedy of the commons has often been a game of catch-up with substantial social costs. The infant space industry can avert these costs before they escalate.

In 2017, 466 new satellites were launched—more than double the previous year’s launches and more than 20% of all active satellites in orbit in 2017 (1, 2). Rapid space industry growth is projected to continue, driven largely by commercial satellites (Fig. 1). This growth is driving buildup of debris in low-Earth orbit, currently including over 15,000 objects (3). Collision risk from debris is costly; collisions damage or destroy expensive capital assets that are difficult or impossible to repair. Debris buildup could eventually make some low-Earth orbits economically unviable and other orbits difficult or impossible to access (4). In the worst case—although uncertain and occurring over long time sshorizons—debris growth could become self-sustaining due to collisions between debris objects, a tipping point called Kessler Syndrome (4, 5).

Proposed solutions have so far largely been technological and managerial, aimed at mapping, avoiding, and removing debris (6, 7). These include end-of-life deorbit guidelines and “keep out” zones for active satellites and nets, harpoons, and lasers to deorbit debris (6). However, with open access to orbits, reducing debris and collision risk incentivizes additional satellite launches, which eventually restore the debris and risk. For instance, if firms were willing to tolerate a 0.1% annual risk of satellite loss before a technological improvement in debris removal, they will be willing to launch more satellites until the 0.1% annual risk of satellite loss was restored.

Thus, the core of the space debris problem is incentives, not technology. Since satellite operators are unable to secure exclusive property rights to their orbital paths or recover collision-related costs imposed by others, prospective operators face a choice between launching profitable satellites, thereby imposing current and future collision risk on others, or not launching and leaving those profits to competitors. This is a classic tragedy of the commons problem (1, 3, 8, 9). It can be economically efficiently addressed via incentive-based solutions, such as fees or tradable permits per year in orbit, analogous to carbon taxes or cap and trade (8, 10–12). Incentives should target objects in orbit—rather than launches—because orbiting objects are what directly imposes collision risk on other satellites (13). We quantify the economic benefits of implementing such incentives to correct the underlying open-access problem.

We use a coupled physical–economic model combining rich physical dynamics with satellite economics to quantify the benefits of an internationally harmonized “orbital-use fee” (OUF) relative to a business as usual (BAU) open-access scenario and relative to a scenario with active debris removal. An OUF is a type of Pigouvian tax—a well-known economic instrument for addressing externality problems (14). Our model accounts for the effects of each scenario on satellite launch decisions (Materials and Methods and SI Appendix). While we focus on an OUF for analytical convenience, it is conceptually equivalent to other mechanisms for pricing orbits, such as tradable permits.

Our physical model of satellite and debris evolution in orbit obeys relevant accounting identities and utilizes reduced form approximations of physical processes validated in other works (15, 16). We fit and calibrate the model using data on collision risk and orbital debris from the European Space Agency (ESA) (17) and data on active satellites from the Union of Concerned Scientists (UCS) (2) (Materials and Methods and SI Appendix). The ESA dataset covers 1958 to 2017, and the UCS dataset covers 1957 to 2017. Our physical model assumes runaway debris growth (Kessler Syndrome) cannot occur, which likely leads our model to understate the benefits of OUFs (Materials and Methods). Our economic model assumes that satellites are launched and operated to maximize per satellite private profits, net of any fees, subject to collision risk. We calibrate the model by fitting the BAU scenario (no fees or debris removal) to historical industry data and launch trends (1, 2) (Materials and Methods and SI Appendix).

We project future launch rates to 2040 under the BAU scenario using our fitted model and published projections of future growth of the space economy (18). The projections in ref. 18 were developed by projecting how the industries constituting the space sector—telecommunications, imaging, etc.—would grow from 2017 to 2040 under different assumptions on their individual profitability over time, then aggregating up to obtain projections for the space sector. We then calculate launch rates that would maximize the long-run value of the industry, and we calculate the time series of OUFs that would incentivize these optimal launch rates. The industry value is measured as net present value (NPV)—the long-run value of the entire fleet of satellites in orbit, accounting for both the financial costs of replacing satellites due to natural retirement and collisions as well as the opportunity cost of investing funds in satellites rather than capital markets. For instance, an NPV of $1 trillion in 2020 means the sum total of the stream of net benefits, looking from 2020 into the future and accounting for the timing of the net benefits, is $1 trillion.

Although our models are deliberately simplified for tractability, they are based on previously validated approaches to orbital object modeling (15, 16), and our calibrations allow us to reproduce observed trends and magnitudes in the growth of orbital debris and satellite stocks as well as the calculated collision risk (Fig. 3). Nonetheless, our projections should be interpreted as order of magnitude approximations that can be refined as needed by more detailed models. In these respects, our approach mirrors integrated assessment modeling approaches that have been useful in developing solutions to other natural resource management problems (e.g., ref. 19).

RESULTS

We project that shifting from open access to the optimal series of OUFs in 2020 would increase the NPV of the satellite industry from around $600 billion under BAU to around $3 trillion—a more than 4-fold increase (4.18- to 6.49-fold increases in 95% of parameter sets randomly drawn from their calibrated distributions) (Fig. 2D). Assuming a 5% market rate of return, an increase of $2.5 trillion in NPV would be equivalent to annual benefits of approximately $120 billion in perpetuity. The large immediate increase in NPV that we project in each OUF scenario, relative to BAU (Fig. 2A), comes primarily from the immediate effect of reducing launch activity while the satellite and debris stocks are suboptimally high (SI Appendix).

Based on our calculations (Materials and Methods), the optimal OUF starts at roughly $14,900 per satellite-year in 2020 and escalates at roughly 14% per year (aside from some initial transition dynamics) to around $235,000 per satellite-year in 2040. Rising optimal price paths are common in environmental pricing such as carbon taxes (20), although declining optimal price paths are also possible (21). The rising price path in this case partly reflects the rising value of safer orbits (resulting in rising industry NPV) (Fig. 2A) from the OUF. For comparison, the average annual profits of operating a satellite in 2015 were roughly $2.1 million. The 2020 and 2040 OUF values we describe amount to roughly 0.7 and 11% of average annual profits generated by a satellite in 2015.

Forgone NPV from the satellite industry in 2040—which is the cost of inaction under BAU—escalates from around $300 billion if optimal management begins in 2025 to around $700 billion if optimal management begins in 2035. Without OUFs, losses remain substantial even when active debris removal (implemented in the model as removal of 50% of debris objects in orbit each year) is available. In a best-case analysis where we assume debris removal is costless (i.e., it requires no payments nor additional satellites to implement), debris removal can only recover up to 9.5% of the value lost under open access. (The satellite industry’s willingness to pay for debris removal is not easily calculable in our model [SI Appendix, section 1.9.2].) At worst, debris removal can exacerbate orbital congestion via a rebound-type effect, causing additional losses on the order of 3% of the value already lost from open access (Fig. 4 and SI Appendix). The inability of debris removal to induce efficient orbit use is driven by open-access launching behavior and underscores the importance of policies to correct economic incentives to launch satellites.

DISCUSSION

The costly buildup of debris and satellites in low-Earth orbit is fundamentally a problem of incentives—satellite operators currently lack the incentives to factor into their launch decisions the collision risks their satellites impose on other operators. Our analysis suggests that correcting these incentives, via an OUF, could have substantial economic benefits to the satellite industry, and failing to do so could have substantial and escalating economic costs.

Escalating costs of inaction are a common feature of the tragedy of the commons, evident in several other sectors in which it went unaddressed for lengthy periods (22). For example, tens of billions of dollars in net benefits are lost annually from open-access or poorly managed fisheries globally (23). Similarly, open access to oil fields in the United States at the turn of the century drove recovery rates down to 20 to 25% at competitively drilled sites, compared with 85 to 90% potential recovery under optimal management (24). Open access to roadways—somewhat analogous to orbits—is estimated to create traffic congestion costs in excess of $120 billion/y in the United States alone (25). In contrast, there is still time to get out ahead of the tragedy of the commons in the young space industry.

The international and geopolitically complex nature of the space sector poses challenges to implementing orbital-use pricing systems, but these challenges need not be insurmountable. Theory suggests countries could each collect and spend OUF revenues domestically, without losing economic efficiency, as long as the fee’s magnitude was internationally harmonized (20). Engaging in such negotiations would be in the economic interests of all parties involved (26). An example of such a system is the Vessel Day Scheme (VDS) used by the Parties to the Nauru Agreement (PNA) to manage tuna fisheries. Under the VDS, PNA countries each lease fishing rights within their waters, using a common price floor (27). The European Union’s Emissions Trading System provides an example of an internationally coordinated tradable permit system (28). Notably, each of these pricing programs is built on a preexisting international governance institution (the Nauru Agreement and the European Union).

An OUF could also be built within existing space governance institutions, such as the Outer Space Treaty (29). For example, Article VI states that countries supervise their space industries, which provides a framework for OUFs to be administered nationally. Article II prohibits national appropriation of outer space but does not prohibit private property rights, potentially allowing for tradable orbital permitting.

### 1AC – Offense

#### Cosmopolitan obligations prove Kant affirms.

Walla 16 [(Alice Pinheiro, Department of Philosophy at Trinity College Dublin) “Common Possession of the Earth and Cosmopolitan Right” Kant-Studien Volume 107 Issue 1, 2016] TDI

Similarly to Grotius and Pufendorf, Kant tells us how external objects of choice can become the property of persons, that is, how the original suum can be extended to external objects. For Kant, this is far from being obvious. He assumes that we are born with a right to be free from unjustified interference in the exercise of our agency. This innate right also entails our physical integrity, but does not originally extend to objects outside us. The fundamental assumption which Kant shares with Grotius and Pufendorf is that rights can only be derived from something the person already has, that is, from the suum. Kant’s argument for the inclusion of external objects under the notion of right is that we must assume a legal capacity to become owners of objects, in order to avoid a contradiction. External freedom (and with it pure practical reason) would be depriving itself of the possibility of using objects of choice and thus contradicting itself (ein Widerspruch der äußeren Freiheit mit sich selbst). We must thus introduce a postulate of practical reason, assuming the possibility of becoming legal owners of objects.

Once it has been established that external objects can become the matter of rights (i.e., that the suum can be extended to external objects), the next question Kant’s theory must address is the problem of acquisition of external objects. Acquisition is the empirical deed through which an external object is incorporated into a person’s suum. First or original acquisition is when an object becomes for the first time the possession of someone. Explaining the possibility of original acquisition is extremely important since all further acts of acquisition are derived from it.

Interestingly, Kant argues that acquisition of land must be conceived as prior to the acquisition of objects. Possession of anything on a territory presupposes the possession of the territory itself, since objects are regarded as mere accidents of the substance on which they “inhere”, i.e. the land on which are located. Kant’s claim relies on the ontological dependence of accidents on the substance: just as the accidents cannot exist independently of the substance, movable objects cannot be acquired without the prior acquisition of land on which they are located. However, one may wonder if this ontological dependence can be extended to the relation between land and movable objects. Is it not possible to possess movable objects without possessing the land on which they are located? Katrin Flikschuh argued that unless one has some control over the land on which one’s possessions are situated one’s right to those possessions would be easily compromised. One would be at the mercy of others while pursuing one’s ends. While possession of external objects does not require that I myself possess the land on which these objects are placed, I must at least be able to enter some form of agreement with someone who owns or has control over the land lest I be in the situation of a squatter: someone who can be permanently pushed away with one’s possessions from one place to the other. If so, some kind of ownership of land or at least a right to control the land is necessary to secure one’s right to things. Because I can in principle occupy the space on which your object is situated by displacing your object from its location, displacing your object without your consent would be in principle no infringement upon your possession. We could think of a scenario where you would have to look for your car every time you leave work because it keeps being moved around from where you parked it in the morning. The car would still be yours, but you have no control over its location. However, secure possession of objects must entail the possibility of determining the location of one’s possessions.

Although this is certainly correct, it seems to miss Kant’s fundamental point, which is not merely about the empirical conditions necessary for securing possession of objects, but about the normative priority of acquisition of land over acquisition of objects. Acquisition of land must be understood as normatively prior to acquisition of objects due to the spatial character of Kant’s theory of property and of his legal theory in general. Right has to do with external freedom, an aspect of freedom which would be irrelevant if we were not embodied rational beings, not only in space, but also confined with each other to the limited surface of the earth. The limited dimension of the planet (which also defines the limits of human expansion) renders the interaction and the possibility of impact on the mutual exercise of external freedom inevitable. Our agency can have, and will most likely have, an impact on the agency and rights of others. Nowadays we do not even need to travel to distant lands to do this: climate change proves that my external deeds can have a considerable impact on your agency and way of living wherever you are. In other words, we are globally interconnected, whether we want it or not. Therefore, there would be no problem of Right without the possibility of interaction which arises from our embodiment and the limited space to which we are confined. The problem of Right in Kant’s theory is thus essentially a spatial problem: we must bring the external exercise of freedom of a plurality of persons under a system of external freedom, that is, in accordance with universal laws which can regulate these interactions. Without universal laws, that is, a priori principles, there can be no necessity and consequently no rights and obligations that deserve the name. Therefore, although the problem of Right has an empirical component, namely the facts about the human condition mentioned above, the solution to the problem of right must nevertheless be provided by rational principles. The project of Kant’s legal philosophy in the Doctrine of Right is to provide the a priori principles capable of addressing the problem of right, taking into account the different levels of possible interaction and institutionalization of right: within individuals in a common polity (state right), between polities (international right) and as citizens of the world (cosmopolitan right).

Although we can conceive possession of objects as separate from possession of land, this independence is only normatively possible through the idea that the first proprietor of land can dispose of the objects acquired via his acquisition of land. The idea is that persons were able to enter contractual relations with whoever first possessed the land and thus acquire movable objects independently of possessing the land themselves. Kant’s point is to explain where acquired rights to movable objects come from, normatively speaking. Once acquisition of objects becomes independent from possession of land, we need contracts regulating the location of objects, that is, agreements between possessors of land or those with jurisdictional rights over land and proprietors of movable objects. I can park my car in the street, even though the street does not belong to me, provided I satisfy certain requirements (I might need to pay a parking ticket or refrain from parking at certain areas at certain times and so on).

Acquiring land for the first time must be regarded as a realization or “particularization” of innate right. But this is the beginning of another problem. First acquisition of a piece of land involves both singling out a specific part of land as my “dominion” and excluding others from access to it. However, Kant’s legal theory does not assign a right conferring function to empirical acts. If acquisition is to have a legal quality, its lawfulness cannot be grounded on an empirical act. Further, if empirical acquisition justified possession, we would have to regard possession as a legal relationship between a thing and a person. This is not an option in Kant’s theory, according to which legal relations pertain only between persons as beings capable of obligation and consequently as subjects of rights. Therefore, the legal foundation or title (Rechtsgrund, titulus possessionis) enabling the acquisition of land must be understood as follows: it must precede the empirical act of acquisition and is not created by it; is a relation between persons in regard to external objects, and finally it is able to impose an obligation on all others to respect one’s acquisition. The idea of the original community of the earth is what constitutes this Rechtsgrund:

All human beings are originally in common possession of the land of the entire earth (communio fundi originaria) and each has by nature the will to use it (lex iusti) which, because the choice of one is unavoidably opposed by nature to that of another, would do away with any use of it if this will did not also contain the principle for choice by which a particular possession for each on the common land could be determined (lex iuridica) But the law which is to determine for each what land is mine or yours will be in accordance with the axiom of outer freedom only if it proceeds from a will that is united originally and a priori (that presupposes no rightful act for its union). Hence it proceeds only from a will in the civil condition (lex iustitiae distributivae), which alone determines what is right (recht), what is rightful (rechtlich), and what is laid down as right (Rechtens). But in the former condition, that is before the establishment of the civil condition, but with a view to it, that is provisionally, it is a duty to proceed in accordance with the principle of external acquisition. Accordingly, there is also a rightful capacity of the will to bind everyone to recognize the act of taking possession and of appropriation as valid, even though it is only unilateral.

A unilateral will cannot impose an obligation on others. It is a contingent exercise of freedom and has no authority to impose an obligation. For this, we would need the consent of all others whose exercise of freedom is restricted by that unilateral act. Omnis obligatio est contracta: all obligation must be self-imposed. The idea of a united will of all therefore extends the scope of Kant’s reason based legal philosophy, introducing what seems to be a voluntaristic element in his theory. A unilateral will can only impose an obligation on others if it is the will of everyone that it be so. However, for Kant it is not enough that this be the will of all (as a contingent matter of fact), but that it is a priori the will of all. In Kant’s reason based legal theory, only reason can impart necessity. The necessity of respecting unilateral acts of acquisition is thus derived not from the unilateral acts themselves (which are empirical and therefore contingent), but from the united will of all, which is a priori and therefore necessary.

### 1AC – Adv – Debris

#### The space sector is trending towards privatization – that drives feedback loops of technology creating cascading collisions.

BERNAT 20. Pawel @ Military University of Aviation. 11/4/20. [SAFETY ENGINEERING OF ANTHROPOGENIC OBJECTS, “ORBITAL SATELLITE CONSTELLATIONS AND THE GROWING THREAT OF KESSLER SYNDROME IN THE LOWER EARTH ORBIT,” Volume 4, PDF] Justin

The second decade of the 21st century has brought a dynamic and somewhat surprising development of the space industry. Since 1972 – the Apollo 17 crew mission to the Moon, the humankind has not left the safe environment of Earth’s orbit, and for years the global space sector has been progressing in slow but steady pace run by a few largest space agencies like American NASA, European ESA, Japanese JAXA, and Chinese CNSA. The most significant achievement of the “old ways” of managing outer space exploration is the International Space Stations (ISS) that has facilitated more than 20 years of continuous crewed operations.

The situation started to change at the turn of the century when new generations of private entrepreneurs began to invest in and develop space technologies like rocket boosters, spaceships, and what most important for the subject of the paper – satellites and their constellations. This new shift is known among the space industry as “Space 2.0”, and its emergence is dated around 2000-2002 when the companies like SpaceX, Blue Origin, and Virgin Galactic were established. (Pyle, 2019). The real change, however, came in 2012 when the first SpaceX commercial mission was successfully launched to the ISS (NASA, 2012).

Since then, the participation of the private sector in the space industry has skyrocketed, especially in the United States. Today, SpaceX is the only entity that provides reusable rockets (first stage and fairings) that is capable of vertical launch and landing. Their current flagship rocket – Falcon 9 has carried out 23 successful missions in 2020 (SpaceX, 2020) and another four are planned for December of that year (Weitering, 2020). Moreover, thanks to Crew Dragon spaceship developed by the company, Americans have regained this year the capacity of sending astronauts from their own soil after nine years of buying the seats on Russian Soyuz capsule. SpaceX is now in the process of building a communication satellites constellation that will be addressed and analyzed in the paper.

Nowadays, in the space industry, we witness a very productive cybernetic feedback look between the development of space technologies, the democratization of those technologies, and a substantial reduction of prices. The latter is even more significant if we compare the cost of launching cargo into orbit now and 20 years ago – Falcon 9 is over ten times cheaper than Space Shuttle (Jones, 2018). This, of course, directly translates into the mass and number of objects that we are able to put in the orbit viably. Once the constellations consisting of thousands of satellites were unthinkable, but in the current environment, they become a reality.

Space 2.0 also has brought new threats and challenges in the sphere of national and international security. The increase in launch capacity, among other factors, has led to progressive militarization and weaponization of space and new arms race (Bernat, 2019), which has also contributed to the growing numbers of orbiting objects.

The goal of the paper is to present the argumentation that the threat posed by the cascading collisions in the Earth’s orbit (Kessler syndrome) is becoming more severe due to the construction of orbital satellite constellations; the threat that presents a real danger for people during their EVAs and orbital infrastructure, which may bare immediate consequences for safety and security systems on Earth. In order to provide the theoretical context for the above claim, the following issues will be presented and discussed: (1) space debris, (2) the Kessler syndrome, (3) orbital debris models, (4) the legal issues related to space debris and mitigation actions against their proliferation, and (5) the planned and being currently developed orbital satellite constellations and how they contribute to the growing threat of the Kessler syndrome.

#### Privatization exponentially increases debris – lack of regulations spikes it – models.

BERNAT 20. Pawel @ Military University of Aviation. 11/4/20. [SAFETY ENGINEERING OF ANTHROPOGENIC OBJECTS, “ORBITAL SATELLITE CONSTELLATIONS AND THE GROWING THREAT OF KESSLER SYNDROME IN THE LOWER EARTH ORBIT,” Volume 4, PDF] Justin

5. Orbital satellite constellations and the growing threat of the Kessler syndrome

Space 2.0 – the new era of space exploration that we witness now in the 21st century means, in words of Buzz Aldrin, “moving human enterprise into space” (Pyle, 2019, p. xiv). The process of commercialization of outer space has already begun and is not limited to private companies providing technologies and services for national or international space agencies, as it was in the past. On the contrary, private companies from the space sector have now matured to carry out their own independent projects.

As for 2020, SpaceX is a company that serves as the best example – it launches satellites to the orbit, both for state and private contractors, it successfully realized two crew missions to the International Space Station, and is in the process of constructing Starlink satellite constellation that will provide high-speed internet access across the planet.

Each satellite weighs around 260 kg, is equipped with an ion propulsion system, autonomous collision avoidance system, and orbits Earth at approximately 540-560 km altitude (Starlink, 2020). At the beginning of November 2020, more than 860 Starlink satellites were orbiting the Earth (Jewett, 2020). Immediate plans include launching 12,000 satellites, but they assume a potential later extension to 42,000 (Henry, 2019a). Of course, SpaceX has employed, at least declaratively, all necessary measures to keep the space clean – the satellites are equipped with the deorbiting system, and in the event of inoperability of the propulsion system (Starlink, 2020). The orbital collisions are, however, inevitable. As it was shown before, the possibility of collisions grows with the number of orbital objects. Bastida Virgili with the team compared (2016, p. 154-155) orbital debris environment development without and with a large hypothetical constellation consisting of merely 1080 satellites, distributed across 20 orbital planes at 1,100 km altitude (Fig. 5).

Chart, line chart

Description automatically generated

Figure 5. Comparison of long term evolution of the number of objects in LEO with and without the constellation (Virgili et al., 2016, p. 155)

It has to be noted that although SpaceX’s Starlink is the only constellation that is being built in orbit, it is not the only one planned. There are at least a few initiatives aiming at the same goal – to construct internet infrastructure at the Earth’s orbit. The planned Kuiper Systems LLC, which is a subsidiary of Amazon and intends to place 3,236 broadband satellites in the LEO, is one of Starlink’s biggest competitors (Henry, 2019b). Now, there is even a rivalry between the two companies because Kuiper’s lowest orbital shell is planned to be 590 km, with a tolerance of 9 km either above or below (Cao, 2020), which is the altitude of Starlink satellites. Moreover, the race for space in orbit is now at the beginning.

The outer space is vast. It increasingly becomes more cluttered with both operational satellites and space debris. The threat of collisions increases and no institution or body has enough power to license, coordinate and regulate what is sent to the orbit. The UNOOSA has not such power. National states decide what the companies from the space industry can launch to space. In the United States, which is most advanced in the area of private constellations, it is the Federal Aviation Administration (FAA) that issues the appropriate approvals. The race to put broadband internet satellites bears similarities to the gold rush – there are no rules, at the global level, apart from first-come, first-served.

#### Models are rigorous – inserted below.

Virgili et al. 16 – Bastida, J.C. Dolado, H.G. Lewis, J. Radtke, H. Krag, B. Revelin, C. Cazaux b , C. Colombo, R. Crowther, M. Metz. 4/26/16. [Act Astranautica “Risk to space sustainability from large constellations of satellites,” <https://sci-hub.se/10.1016/j.actaastro.2016.03.034>.] Justin

1.3. Simulation approach and result analysis A Monte Carlo (MC) approach was used to simulate the evolution of the object population over a period of 200 years under different post-mission disposal requirements, with four different tools (MEDEE – Modelling the Evolution of Debris on Earth's Environment [9], LUCA – Long Term Utility for Collision Analysis [10], DAMAGE – Debris Analysis and Monitoring Architecture to the Geosynchronous Environment [11] and DELTA – Debris Environment Long Term Analysis [12]). For analysis purposes, the effective number of objects was used where the contribution to the population by each object was weighted by the proportion of the orbital period spent in LEO. In a first step, four different evolutionary models performed an analysis of two reference scenarios. One scenario considered only the evolution of the background population and non-constellation traffic. The second scenario augmented the first with the addition of the representative constellation, with the requirement that 90% of the constellation satellites achieved post-mission disposal to orbits with remaining lifetimes of 25 years. The manoeuvres performed at the mission end to meet the disposal requirement are assumed to be impulsive (i.e. instantaneous) and result in an eccentric orbit with the apogee near the original (constellation) altitude and the perigee at an altitude such that the effects of atmospheric drag would cause the orbit to decay within 25 years. Two of the models considered an apogee remaining at the operational constellation altitude, while the other two reduced the apogee by 50 km. The purpose of these scenarios is to provide a cross-comparison of the models in terms of their predictions of the total object population, which take into account the effects of the constellation. As the distribution of the MC results for the models is of the same nature and the results are independent, a bootstrapping [20] approach is used to derive the mean, the standard deviation and the confidence levels at 95% of the combined results of all the MC runs from the four models (cf. Fig. 1), although not all the models performed the same number of MC runs (see Table 1). The main source of variation inside a particular model's MC runs included the randomness in collision activity, while the different models used their own solar activity forecast.

#### Fragmentation leads to speedy debris – that’s laws of physics.

Aerospace.org n.d. [As an independent, nonprofit corporation operating the only FFRDC for the space enterprise, The Aerospace Corporation performs objective technical analyses and assessments for a variety of government, civil, and commercial customers. “SPACE DEBRIS 101.” AEROSPACE. <https://aerospace.org/article/space-debris-101>] Justin

Can you see space debris coming at you?

It is very unlikely that you would see space debris. Relative to a person in orbit, space debris is moving about ten times faster than a bullet, and the vast majority of debris is as small as or smaller than a bullet. No one can see a bullet coming, let alone an object moving ten times faster.

What is an on-orbit collision like?

It looks more like an explosion of each object, as if they passed through each other and exploded on the other side. A hyper-velocity collision like those at orbital speed doesn’t behave like collisions that we are used to seeing. The objects are moving so fast that they travel through each other faster than the shock waves can travel. The shock waves in the structures of each object then shatter them into fragments of varying sizes and, in the process, give each fragment a boost in a different direction. Each one of these fragments is then in a different orbit than the original object and will move away according to the laws of orbital motion. With thousands of fragments, each moving in slightly different directions, it looks a lot like an explosion.

Do breakups look like the movies?

For dramatic purposes, movies, TV, and commercials tend to show space breakups at a much slower speed than they would happen at in real life. A breakup in space, especially a collision, can involve a lot of energy, and the pieces are flung away at extremely high speeds. Since there is no air to slow the pieces down the fragments would all fly away from one another and rapidly disappear from view. For many breakups, a softball-sized fragment would fly the length of the space station (a little less than a football field) in less than half a second. If you were watching it from nearby, you would see a flash, and the object that broke up would just disappear and be gone. It would be very unlikely for you to see pieces drifting away. Similarly, a low orbit space collision is unlikely to look much like a car crash — the speeds are much too high. The collisions would look like explosions to a nearby observer.

#### That destroys astronomical research AND creates a host of logistical problems.

Blake 2/16/22 [James Blake \* Department of Physics and Centre for Space Domain Awareness, University of Warwick, Coventry. “Looking out for a sustainable space.” Astronomy & Geophysics Journal. <https://arxiv.org/pdf/2202.06994.pdf>] Justin

Numerous studies have highlighted the negative effects that large LEO constellations are likely to have on ground- and space-based astronomical observations across a range of wavelengths (Hainaut & Williams 2020; Levchenko et al. 2020; McDowell 2020). Satellite streak contamination in astronomical imaging is by no means a new issue, but the vast numbers and low altitudes involved in maintaining LEO constellations look set to exacerbate the problem, particularly for wide-field systems such as the upcoming Vera C. Rubin Observatory, which will look to study large parts of the sky at any one time, thus resulting in a high probability of field contamination (Massey et al. 2020). An example of a contaminated wide-field image is provided in Figure 6.

While the lowest-altitude constellations are likely to be the brightest, those in higher-altitude bands will perhaps be of greater concern to astronomers; low-altitude satellites will spend much of the night eclipsed in the Earth’s shadow, while satellites in the upper bands of the LEO region will remain visible for larger portions of the night. This will be the case for nodes of the OneWeb constellation, now part-owned by the UK government. OneWeb satellites reside in altitude bands around 1200 km, to take advantage of a local minimum in the debris population. Seitzer (2020) has recommended that constellation operators take precautions to keep their satellites faint, and opt for altitude bands below roughly 600 km, to best combat the issue.

To add to the logistical challenges associated with monitoring a sky that is getting busier every year, surveillance networks may soon be tasked with tracking and cataloguing objects far beyond the ‘high-altitude’ GSO region, namely those in the cislunar domain. The expansion of launch traffic into cislunar space in the wake of NASA’s Artemis programme will undoubtedly pose problems for existing SDA architectures (Bolden et al. 2020): the increased range will result in diminished signal-to-noise, calling for more sensitive instruments; the much larger volume of space in need of monitoring will necessitate a more extensive array of ground- and space-based SDA capabilities; and observations will often be obstructed by the Moon, or eclipsed in shadow, calling for more sophisticated algorithms for object detection and orbital state prediction with sparse or diminished information (Yanagisawa & Kurosaki 2012; Virtanen et al. 2016; Hickson 2018; Nir et al. 2018; Pirovano et al. 2020). It is likely that a variety of astronomical techniques developed for data reduction, classification, fusion, tracking, and association, may prove transferable when applied to many of the upcoming challenges for SDA, from cislunar surveillance to the monitoring of rendezvous and proximity operations for on-orbit servicing and ADR missions.

#### Astronomical research solves every existential threat.

Harvard 17 [Harvard & Smithsonian. No exact date but most recent image cited is from 2017. “How can astronomy improve life on earth?.” Center for Astrophysics. <https://www.cfa.harvard.edu/big-questions/how-can-astronomy-improve-life-earth>] Justin

Our Work

The need for extremely precise instrumentation in astronomy can often be transferred into the medical field. Beyond pure research, which benefits humanity through various technological applications, some laboratories at the Center for Astrophysics pursue research that’s more directly beneficial.

High-energy and neutron optics laboratories design mirrors for the next generation of space-based telescopes. But with a simple modification, these optics can accurately aim high-energy particles for radiation treatment, focusing on destroying tumors while leaving surrounding tissue unharmed. Engineers are working on mirrors that can both focus neutrons from across the Universe, as well as those from a radioactive source sitting in the same room.

Work on nuclear magnetic resonance, which can be used to study molecular physics, can also be used to scan the human body. When used for imaging, this is known as magnetic resonance imaging, or MRI. Scientists at the CfA are developing an open-access, low-magnetic-field human MRI instrument, that can be used for molecular imaging and the study of traumatic brain injury.

On the other side of the coin, astrophysics sometimes adapts technology from the medical field. The complicated debris leftover after a supernova explosion, known as a supernova remnant, can be hard to visualize. We only have our vantage point and cannot travel around the remnant to view the intricacies of its structure. But by measuring how fast the material is traveling, and whether it’s traveling towards us or away, we can create a 3D map of the material’s motion. Supernova researchers are putting this data into medical imaging software originally designed for brain scans to get a 3D model that can be viewed in 360 degrees. To take it one step further, the models can then be 3D printed, allowing you to hold a dead star in your hand.

The Center for Astrophysics | Harvard & Smithsonian sets the standard for astronomical discovery. By pursuing scientific research, our scientists never know what might be the next big breakthrough. New detector technology means better lighter cameras. Astronomical data analysis software can be reconfigured to make cars safer. Novel techniques in radio astronomy paved the way for wireless internet. We don’t know what we are going to find, but we will never know if we don’t look.

How Curiosity Drives Ingenuity

Understanding our Universe is not an easy task. It requires an incredible amount of focused effort among worldwide collaborations of dedicated experts, the constant development of new technology at great expense, and theoretical modelling that pushes the boundaries of science. Even without any guarantee of success, such an undertaking has its benefits.

Astronomy is continually innovating and progressing. Seemingly by accident, scientific and technological developments in astronomy have worked their way into our daily lives. For example, the device you’re currently reading this text on is very likely to involve components and systems that saw their first application in astronomy.

Computers, satellites and the smartphones they service, Global Positioning System (GPS), energy-efficient solar panels, digital camera sensors, airport security scanners, portable X-ray machines, and Magnetic Resonance Imaging (MRI) scanners are just a few of technological advances that are the legacy of astronomy, and that benefit us all on Earth. None of these would have happened if we hadn’t first been dedicated to simple human curiosity about what may be out in the far reaches of our Universe. As it has been throughout our history, the impulse to explore is still one of the greatest wellsprings of human ingenuity.

Protecting the Planet In 1859, the Sun launched an enormous magnetized mass of plasma at the Earth, shorting electrical lines, starting electrical fires and knocking out telegraph communication. The northern lights could be seen as far south as Mexico. If such a solar event hit the Earth today, it is estimated to cause damage measured in the trillions of dollars. Coronal mass ejections (CMEs), like the 1859 event, are giant eruptions of charged particles that threaten satellites, astronauts, and our electrical grid. A suite of CFA missions and instruments are monitoring the Sun, giving us warning of incoming CMEs, allowing time to prepare and protect people and our highly susceptible electronic and communication systems. The X-ray Telescope (XRT) aboard the Hinode spacecraft observes flares, CMEs, and the source of the highly charged flow of particles from the Sun, known as the solar wind. The Atmospheric Imaging Assembly (AIA), developed by scientists at the Center for Astrophysics | Harvard & Smithsonian (CfA), aboard the Solar Dynamics Observatory (SDO) takes fast, multi-wavelength images of the full sun. This allows scientists to watch monitor features at different temperatures and levels of the solar atmosphere. The Parker Solar Probe, will race through the Sun’s atmosphere, collecting material and measuring the solar wind at its source. It will eventually orbit seven times closer than any previous satellite, and withstand temperatures of 2,500 degrees (1,377 degrees Celsius). The Solar Wind Electrons Alphas and Protons (SWEAP) Investigation, developed by CfA scientists and engineers, is the set of instruments on the spacecraft that will directly measure the properties of the plasma in the solar atmosphere during these encounters. A special component of SWEAP is a small instrument that will look around the protective heat shield of the spacecraft directly at the Sun. This will allow SWEAP to sweep up a sample of the atmosphere and touch the Sun, our star, for the first time. Our Sun makes life on Earth possible, but is still an unpredictable, sometimes volatile star. By learning more about our Sun, astronomers can warn us about incoming solar storms and predict the next big eruption. Space Watch

Though the Solar System has certainly cleaned up its act in the 66 million years since an asteroid wiped out the dinosaurs, there have since been a couple of near misses that are too close for comfort.

The Minor Planet Center, located at the Center for Astrophysics, is tasked by the International Astronomical Union to collect and circulate positional measurements of minor planets like asteroids and comets. The Center calculates the motions of newfound objects and alerts observers when an object that might impact the Earth is detected. The orbit calculation and announcement of newly discovered Near-Earth Asteroids (NEOs) is a critically important job, ensuring that we won’t suffer the same fate as the dinosaurs.

Benefits Beyond the Balance Sheet

Astronomy has a unique ability to unite humans. Simply by asking big questions about the Universe and our place in it, we see ourselves as we are: together, voyaging through a singular moment in time on one very special but relatively minuscule planet among the vastness of space.

The sense of wonder inspired by humanity’s quest for knowledge of our Universe has its own important applications. In education, we see the teaching of astronomy at the primary or secondary level leading students to pursue careers in STEM (science, technology, engineering, and math). In international relations, we see astronomy as a scientific field that transcends borders and promotes collaboration between global teams in unified pursuit of knowledge. In our culture, we see the impact of keystone scientific discoveries creating a more informed and scientifically literate society.

And let’s not forget that astronomy offers us a glimpse into our shared future. Will our species be able to spread across the cosmos, to colonize other planets, and to preserve our heritage and legacy through the ages? If so, it will only be through the study of astronomy.

#### Satellites are an impact multiplier – specifically solves the grid.

Pellegrino & Stang 16. Massimo Pellegrino, Master’s Degree in Space Studies from ISU, with Gerald Stang, Senior Associate Analyst at the EUISS, holds BSc and MSc degrees in chemical engineering from the University of Saskatchewan and an MA in international affairs from the School of International and Public Affairs at Columbia University (“Space Security for Europe”, *EU Institute for Security Studies*, published July 2016, <https://www.iss.europa.eu/content/space-security-europe>, accessed 7-10-2019) bm

Modern societies are highly dependent on the continuous operation of critical infrastructure to ensure the provision of basic goods and services. They consist of assets, systems or parts thereof which are so vital, that their disruption would significantly impact the economy, national security, public health, safety, or social well-being. Examples of critical infrastructure include energy, water, food supply, communication, transportation, and waste processing systems. Space assets are so deeply embedded in developed economies that a day without fully functioning space capabilities would severely restrict or even endanger our lives.

Space systems are critical for running energy grids and telecommunication networks, border and maritime surveillance, crisis management and humanitarian operations, environmental and climate monitoring, verification of international treaties and arms control agreements, and the fight against organised crime and terrorism. Space assets also provide the technological backbone for other critical infrastructures. The synchronisation of power grids and telecommunication networks, for example, is heavily dependent on GNSS timing signals and any disruption would create a domino effect on other critical infrastructures (see Figure 5).

Satellites also play a central role in supporting defence systems and military operations. They are force multipliers that provide intelligence, surveillance, and reconnaissance (ISR) capabilities, as well as communication, navigation, positioning and timing signals. Armed forces do not only use their own space systems, but are also significant consumers of space services provided by private operators. In fact, about 90% of US military communications traffic passes through civilian satellites, many of which privately owned, rather than through dedicated systems designed to withstand attempted interruptions.1 The reliance of both civilian and military users on space systems therefore places them firmly in the area of critical infrastructure. Some critical space systems, such as the American GPS, are under foreign control, and the governments controlling those systems retain the authority to disrupt services, even for allies, in case of a national emergency. While the United States announced that it has no intention of ever intentionally degrading public GPS signals (also known as ‘Selective Availability’) and that the next generation of GPS satellites will not include this feature, other governments might still do so.2

These dependences engender new and growing vulnerabilities. Reliance on space is likely to increase further as space capabilities and services improve in diversity, quality and affordability. Close to 1,500 satellites with a launch mass of over 50 kg are expected to be launched over the next decade; an increase of 50% compared to 2005-2014. This estimate excludes both the expected proliferation of smaller satellites (such as CubeSats), but also the planned OneWeb and Steam mega-constellations for global internet broadband service. Advances in small satellite capabilities and in launch technology (e.g. SpaceX’s Falcon rocket family) have already lowered the cost of access to space. About 45% more CubeSats were launched in 2014 than in 2013 (130 vs. 91), accounting for 63% of all satellites launched3 . However, just as the reliance on space increases, so too do threats and vulnerabilities. Therefore, in order to realise the full potential of investments in space, critical space systems need to be adequately protected and the space environment properly managed.

#### Grid security is an impact filter.

Denkenberger 21 [David Denkenberger, Anders Sandberg, Ross John Tieman, and Joshua M. Pearce, \* assistant professor of mechanical engineering at University of Alaska Fairbanks, “Long-term cost-effectiveness of interventions for loss of electricity/industry compared to artificial general intelligence safety,” 2021, *European Journal of Futures Research*, Vol. 9, Issue 1, https://doi.org/10.1186/s40309-021-00178-z, EA]

Civilization relies on a network of highly interdependent critical infrastructure (CI) to provide basic necessities (water, food, shelter, basic goods), as well as complex items (computers, cars, space shuttles) and services (the internet, cloud computing, global supply chains), henceforth referred to as industry. Electricity and the electrical infrastructure that distributes it plays an important role within industry, providing a convenient means to distribute energy able to be converted into various forms of useful work. Electricity is one component of industry albeit a critical one. Industry provides the means to sustain advanced civilization structures and the citizens that inhabit them. These structures play a critical role in realizing various futures by allowing humanity to discover and utilize new resources, adapt to various environments, and resist natural stressors.

Though industry is capable of resisting small stressors, a sufficiently large event can precipitate cascading failure of CI systems, resulting in a collapse of industry. If one does not temporally discount the value of future people, the long-term future (thousands, millions, or even billions of years) could contain an astronomically large amount of value [18]. Events capable of curtailing the potential of civilization (existential risks, such as human extinction or an unrecoverable collapse) would prevent such futures from being achieved, implying reducing the likelihood of such events is of the utmost importance [100]. Reducing the prevalence of existential risks factors; events, systemic structures, or biases which increase the likelihood of extinction but do not cause extinction by themselves is also highly valuable. Complete collapse or degraded function of industry would drastically reduce humanity’s capacity to coordinate and deploy technology to prevent existential risks, representing an existential risk factor. Consequently, interventions preventing loss of industry, reducing the magnitude of impacts, or increasing speed of recovery could be extremely valuable.

Existential risk research is, by nature, future focused, requiring the investigation of events that have not yet occurred. Futures studies methodologies are often applied to uncover salient trends or events, and explore potential causal structures [54, 123]. Probabilistic modeling techniques can then be used to determine the likelihood of such events occurring, including adequate treatment of uncertainty [101]. The cost-effectiveness modeling approach outlined in this paper is an example of this, attempting to assess the marginal utility of losing industry interventions on improving the long-term future. This approach could guide future efforts to assess the relative cost-effectiveness of interventions for different risks, existential or otherwise. More practically, this research can inform prioritization efforts of industrialized countries by providing estimates of the cost of global industrial collapse, and the utility of resilience interventions. This is relevant to the European Union which has a highly industrialized economy, providing $2.3 Trillion USD of the $13.7 Trillion USD global total of value add manufacturing [122]. The EU has shifted toward a more proactive foresight approach about natural and man-made disasters, noting the importance of rare high-impact events, systemic risks, and converging trends requiring better data and forecasting to drive a more ambitious crisis management system [47]. Still, it is clear that most academic and institutional emphasis has been on “ordinary” rather than extreme disasters, and risks from industry to the public and environment rather than widespread failures of industrial services causing harm.

The integrated nature of the electric grid, which is based on centralized generation makes the entire system vulnerable to disruption.1 There are a number of anthropogenic and natural catastrophes that could result in regional-scale electrical grid failure, which would be expected to halt the majority of industries and machines in that area. A high-altitude electromagnetic pulse (HEMP) caused by a nuclear weapon could disable electricity over part of a continent [16, 48, 66, 93]. This could destroy the majority of electrical grid infrastructure, and as fossil fuel extraction and industry is reliant on electricity [49], industry would be disabled. Similarly, solar storms have destroyed electrical transformers connected to long transmission lines in the past [117]. The Carrington event in 1859 damaged telegraph lines, which was the only electrical infrastructure in existence at the time. It also caused Aurora Borealis that was visible in Cuba and Jamaica [70]. This could potentially disable electrical systems at high latitudes, which could represent 10% of electricity/industry globally. Though solar storms may last less than the 12 h that would be required to expose the entire earth with direct line of sight, the earth’s magnetic field lines redirect the storm to affect the opposite side of the earth [117].

Lastly, both physical [6, 8, 69, 89, 111] and cyber attacks [3, 63, 90, 96, 118, 128, 130] could also compromise electric grids. Physical attacks include traditional acts of terrorism such as bombing or sabotage [130] in addition to EMP attacks. Significant actors could scale up physical attacks, for example by using drones. A scenario could include terrorist groups hindering individual power plants [126], while a large adversary could undertake a similar operation physically to all plants and electrical grids in a region.

Unfortunately, the traditional power grid infrastructure is simply incapable of withstanding intentional physical attacks [91]. Damage to the electric grid resulting in physical attack could be long lasting, as most traditional power plants operate with large transformers that are difficult to move and source. Custom rebuilt transformers require time for replacement ranging from months and even up to years [91]. For example, a relatively mild 2013 sniper attack on California’s Pacific Gas and Electric (PG&E) substation, which injured no one directly, was able to disable 17 transformers supplying power to Silicon Valley. Repairs and improvements cost PG&E roughly $100 million and lasted about a month [10, 102]. A coordinated attack with relatively simple technology (e.g., guns) could cause a regional electricity disruption.

However, a high-tech attack could be even further widespread. The Pentagon reports spending roughly $100 million to repair cyber-related damages to the electric grid in 2009 [57]. There is also evidence that a computer virus caused an electrical outage in the Ukraine [56]. Unlike simplistic physical attacks, cyber attackers are capable of penetrating critical electric infrastructure from remote regions of the world, needing only communication pathways (e.g., the Internet or infected memory sticks) to install malware into the control systems of the electric power grid. For example, Stuxnet was a computer worm that destroyed Iranian centrifuges [73] to disable their nuclear industry. Many efforts are underway to harden the grid from such attacks [51, 63]. The U.S. Department of Homeland Security responded to ~ 200 cyber incidents in 2012 and 41% involved the electrical grid [103]. Nations routinely have made attempts to map current critical infrastructure for future navigation and control of the U.S. electrical system [57].

The electric grid in general is growing increasingly dependent upon the Internet and other network connections for data communication and monitoring systems [17, 112, 118, 127, 135]. Although this conveniently allows electrical suppliers management of systems, it increases the susceptibility of the grid to cyber-attack, through denial of webpage services to consumers, disruption to supervisory control and data acquisition (SCADA) operating systems, or sustained widespread power outages [3, 72, 118, 120]. Thus global or regional loss of the Internet could have similar implications.

A less obvious potential cause is a pandemic that disrupts global trade. Countries may ban trade for fear of the disease entering their country, but many countries are dependent on imports for the functioning of their industry. If the region over which electricity is disrupted had significant agricultural production, the catastrophe could be accompanied by a ~ 10% food production shortfall as well. It is uncertain whether countries outside the affected region would help the affected countries, do nothing, or conquer the affected countries. Larger versions of these catastrophes could disrupt electricity/industry globally. For instance, it is possible that multiple HEMPs could be detonated around the world, due to a world nuclear war [105] or due to terrorists gaining control of nuclear weapons. There is evidence that, in the last 2000 years, two solar storms occurred that were much stronger than the Carrington event [85]. Therefore, it is possible that an extreme solar storm could disable electricity and therefore industry globally. It is conceivable that a coordinated cyber or physical attack (or a combination) on many electric grids could also disrupt industry globally. Many of the techniques to harden the electric grid could help with this vulnerability as well as moving to more distributed generation and microgrids [23, 29, 75, 76, 103, 114]. An extreme pandemic could cause enough people to not show up to work such that industrial functioning could not be maintained. Though this could be mitigated by directing military personnel to fill vacant positions, if the pandemic were severe enough, it could be rational to retreat from high human contact industrial civilization in order to limit disease mortality. The global loss of electricity could even be self-inflicted as a way of stopping rogue artificial general intelligence (AGI) [124]. As the current high agricultural productivity depends on industry (e.g., for fertilizers), it has been assumed that there would be mass starvation in these scenarios [107].

Repairing these systems and re-establishing electrical infrastructure would be a goal of the long term and work should ideally start on it immediately after a catastrophe. However, human needs would need to be met immediately (and continually) and since there is only a few months of stored food, it would likely run out before industry is restored with the current state of preparedness. In some of the less challenging scenarios, it may be possible to continue running some machines on the fossil fuels that had previously been brought to the surface or from the use microgrids or shielded electrical systems. In addition, it may be feasible to run some machines on gasified wood [31]. However, in the worst-case scenario, all unshielded electronics would be destroyed.

#### Debris triggers miscalculated war.

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The recent Russian anti-satellite test didn’t tell the world anything new, but it did reaffirm the peril posed by warfare in space. Debris from explosions could make some earth orbits remarkably risky to use for both civilian and military purposes. But the test also highlighted a less visible danger; attacks on nuclear command and control satellites could rapidly produce an extremely dangerous escalatory situation in a war between nuclear powers. James Acton and Thomas Macdonald drew attention to this problem in a recent article at Inside Defense. As Acton and MacDonald point out, nuclear command and control satellites are the connective tissue of nuclear deterrence, assuring countries that they’re not being attacked and that they’ll be able to respond quickly if they are.

For a long time, these strategic early-warning satellites were akin to a center of gravity in ICBM warfare. Nuclear deterrence requires awareness that an attack is underway. Attacks on the monitoring system could easily be read as an attempt to ~~blind~~ an opponent in preparation for general war, and could themselves incur nuclear retaliation. Thus, the nuclear command and control satellites are critical to the maintenance of nuclear deterrence. They make it possible to distribute an order from the chief of government to the nuclear delivery systems themselves. Consequently, their destruction might lead to hesitation or delay in performing a nuclear launch order.

It was only later that the relevance of satellites for conventional warfare became clear. Satellites could reconnoiter enemy positions and, more importantly, provide communications for friendly forces. Indeed, the expansion of the role of satellites in conventional warfare has complicated the prospect of space warfare. States have a clear reason for targeting enemy satellites which support conventional warfare, as those satellites enable the most lethal part of the kill chain, the communications and recon networks that link targets with shooters. Thus, we now have a situation in which space military assets have both nuclear and conventional roles. In a conflict confusion and misperception could rapidly become lethal. If one combatant views an attack against nuclear command and control as a prelude to a general nuclear attack, it might choose to pre-empt.

Nuclear powers have dealt with problems in this general category for a good long while; would a conventional attack against tactical nuclear staging areas represent an escalation, for example? Would the use of ballistic missiles that can carry either conventional or nuclear weapons trigger a nuclear response? Do attacks against air defense networks that have both strategic and tactical responsibilities run the risk of triggering a nuclear response? There’s also the danger that damage to communications networks designated for conventional combat could force traffic onto the nuclear control systems, further confusing the issue.

#### No limited nuclear wars – extinction.

Webber 19 – Dr Philip Webber has written widely on nuclear issues and is Chair of Scientists for Global Responsibility (SGR) – a membership organisation promoting responsible science and technology. We will all end up killing each other and one nuclear blast could do it. 5/18/19. [METRO.UK “We will all end up killing each other and one nuclear blast could do it,” <https://metro.co.uk/2019/05/18/we-will-all-end-up-killing-each-other-and-one-nuclear-blast-could-do-it-9370115/>] Recut Justin

The nuclear armed nations have inadvertently created a global Doomsday machine, built with 15,000 nuclear weapons.

Most (93%) have been built by Russia and in the US, 3,100 of them are ready to fire within hours.

Pre-programmed targets include main cities as well as a range of military and civilian targets across the world primarily in the UK, Europe, US, Russia and China but also in Japan, Australia and South America.

One nuclear blast, one mistake, one cyber attack could trigger it.

But first a reminder about the incredible destructive power of a nuclear weapon. Modern nuclear warheads are typically 20 times larger than either of the two bombs that obliterated Hiroshima and Nagasaki at the end of the Second World War. What just one nuclear warhead can do is unimaginable. We’ve drawn some of the key features to scale against cityscapes in the UK for a Russian SS-18 RS 20V (NATO designation ‘Satan’) 500kT warhead. US submarines deploy a similar weapon – the Trident II Mk5, 475kT warhead. A deafening, terrifying noise will be created, like an intense thunder that lasts for 10 seconds or longer.

After a blinding flash of light bright destroying the retina of anyone looking, and a violent electromagnetic pulse (EMP) knocking out electrical equipment several miles away, a bomb of this size quickly forms an incandescent fireball 850 metres across.

This is about the same height as the world’s tallest building, the Burj Khalifa. Drawn against the London Canary Wharf financial district or the Manchester skyline, the huge fireball dwarfs one Canary Sq. (240m), the South Tower Deansgate (201m) and the Beetham Tower Hilton, (170m). The fireball engulfs both city centres completely, melting glass and steel and forms an intensely radioactive 60m deep crater zone of molten earth and debris. A devastating supersonic blast wave flattens everything within a radius of two to three km, the entire Manchester centre, an area larger than the City of London, with lighter damage out to eight km. Most people in these areas would be killed or very seriously injured.

The fireball quickly rises forming an enormous characteristic mushroom shaped cloud raining highly radioactive particles (fallout). It rises to 60,000 ft (18,000m) – twice the altitude of Everest – and is 15 miles, 24km across.

This is one warhead. There are 10 such warheads on each of Russia’s 46 missiles (460 in total) and 48 on each of eight US Trident submarines (384 in total). In reality, in a nuclear conflict all of these warheads and a further 956 ready-to-fire are likely to be launched.

Whilst this scale of destruction is horrific and hundreds of millions of people would be killed in a few hours from a combination of blast, radiation and huge fires, there are also terrible longer-term effects.

Scientists predict that huge city-wide firestorms combined with very the high-altitude debris clouds would severely reduce sunlight levels and disrupt the world’s climate for a decade causing drought, a prolonged winter, global famine and catastrophic impacts for all life on earth and in the seas due to intense levels of UV with the destruction of the ozone layer.

But even at the level of a few hundred nuclear warheads, the consequences of a nuclear war would be extremely severe across the world far beyond the areas hit directly. A nuclear conflict between India and Pakistan with ‘only’ 100 small warheads would kill hundreds of millions and cause climate damage leading to a global famine. The sheer destructive nature of nuclear explosions combined with long lasting radiation, means that nuclear weapons are of no military use. ‘Enemy’ territory would be unusable for years because of intense radiation – especially when nuclear power stations and reprocessing plants are hit.

Even if your own country is not hit, radiation and climate damage will spread across the globe. No one escapes the consequences.

But the nuclear nations argue that they build and keep nuclear weapons to make sure that they are never used. After all no one would be stupid enough to actually launch a nuclear weapon facing such terrible retaliation? It sounds obvious. If you threaten any attacker with terrible nuclear devastation of course they won’t attack you. That might be true most of the time. It is very unlikely that any country would launch a nuclear attack deliberately. But there are two very major problems. First, a terrorist organisation with a nuclear weapon cannot be deterred in this way. Secondly, there are several ways in which a nuclear war can start by mistake. A report by the prestigious Chatham House in 2014 documents 30 instances between 1962 and 2002 when nuclear weapons came within minutes of being launched due to miscalculation, miscommunication, or technical errors. What prevented their use on many of these occasions was the intervention of individuals who, against military orders, either refused to authorise a nuclear strike or relay information that would have led to launch. Examples include a weather rocket launch mistaken for an attack on Russia, a US satellite misinterpreting sunlight reflecting off clouds as multiple missiles firings, a 42c chip fault creating a false warning of 220 missiles launched at the United States. Such risks are heightened during political crises.

The risk of mistake is very high because, in a hangover from the Cold War, the USA and Russia each keep 900 warheads ready to fire in a few minutes, in a ‘launch on warning’ status, should a warning of nuclear attack come in.

These nuclear weapons form a dangerous nuclear stand-off – rather like two people holding guns to each other’s heads.

With only a few minutes to evaluate a warning of nuclear attack before warheads would strike, one mistake can trigger disaster. A similar nuclear stand-off exists between India and Pakistan.

### 1AC – Underview

#### 1] 1AR theory is legit – anything else means infinite abuse – drop the debater, competing interps, and the highest layer – 1AR are too short to make up for the time trade-off – no RVIs – 6 min 2NR means they can brute force me every time.

#### 2] Non-governmental action is a voting issue for reciprocity and prep skew- I defend the government taking an action so the negative should do. That’s key to reciprocal ground otherwise they get access to a ton of state bad and legalism bad turns that are functional nibs in the 1ar. We additionally can’t predict near infinite non-governmental actors while they just have to prep one; outweighs on sequencing since we need prep to debate

#### 3] The role of the ballot is to determine whether the resolution is a true or false statement – their framing collapses since you must say it is true that a world is better than another before you adopt it. Scalar methods like comparison increases intervention – the persuasion of certain DA or advantages sway decisions – T/F binary is descriptive and technical. The ballot says vote aff or neg based on a topic – five dictionaries define to negate as to deny the truth of and affirm as to prove true which means it's constitutive and jurisdictional.

**4] Presumption and permissibility affirm –**

**A. Statements are true before false since if I told you my name, you’d believe me.**

**B. Epistemics – we wouldn’t be able to start a strand of reasoning since we’d have to question that reason.**

**C. Illogical – presuming statements false is illogical since you can’t say things like P and ~P are both wrong.**

#### 5] If I win one layer, vote aff a) they have 7 minutes to uplayer and nullify my offense b) forces engagement with the aff since they have to defend all arguments which means they read better ones.

#### Gains are limited but they are still gains—denouncing action because we are on stolen land is scholarly lazy

NoiseCat 16. Julian Brave NoiseCat, enrolled member of the Canim Lake Band Tsq'escen in British Columbia and a graduate of Columbia University and the University of Oxford, “The Indigenous Revolution,” Jacobin, November 26, 2016, https://www.jacobinmag.com/2016/11/standing-rock-dakota-access-pipeline-obama/

Many Americans, Canadians, Australians, and New Zealanders believe that indigenous people are long gone and defeated. Inheritors of the imperial myth of “Manifest Destiny,” they presume the colonizers’ victory was inevitable and even [predetermined](https://books.google.com/books?id=5AaRo8c2-JYC&pg=PA83&lpg=PA83&dq=arthur+samuel+atkinson+killing+maori&source=bl&ots=GMsXrn6JNH&sig=tMvg8D1knMq2knttH3w4YyRvuJM&hl=en&sa=X&ved=0ahUKEwjCze3M_6PQAhWmsFQKHfmZAfsQ6AEIITAB#v=onepage&q=arthur%20samuel%20atkinson%20killing%20maori&f=false). This racist myth has led empires and states to underestimate indigenous power.¶ Global histories of indigenous resistance, survival, and resurgence tell another story. On these Oceti Sakowin plains in 1876, a cocksure General Custer rushed into the Battle of the Little Bighorn only to be soundly defeated by allied Lakota, Cheyenne, and Arapaho forces. Dalrymple appears poised to repeat Custer’s mistake.¶ Countless indigenous communities, nations, and confederacies from the Americas to Australasia, and South Africa to Siberia, including Aboriginal Australians, Apache, Arapaho, Cherokee, Cheyenne, Chukchi, Comanche, Cree, Creek, Diné, Hawaiian, Haudenosaunee, Kiowa, Maori, Modoc, Nez Perce, Pueblo, Salish, Sauk, Seminole, Shawnee, Tasmans, Tlingit, Ute, Xhosa, Yakima, Zulu, and others have resisted imperial powers and industrial states and prevailed.¶ Before defeating Custer, the Oceti Sakowin had a long history of settler handling. In 1862, the Dakota pushed thousands of settlers off the Minnesota frontier. Six years later, the Lakota defeated the United States Army in Red Cloud’s War.¶ Retribution followed many indigenous victories. In California, entire communities were [hunted like animals](http://www.nytimes.com/2016/05/29/books/review/an-american-genocide-by-benja.html?_r=0). After taking dozens of Dakota men as prisoners of war following the uprising of 1862, Abraham Lincoln signed an order to execute [thirty-eight](http://www.startribune.com/dec-26-1862-38-dakota-men-executed-in-mankato/138273909/) of them — the largest mass execution in American history. Later in 1890, the United States Army gunned down three hundred Lakota at [Wounded Knee](https://www.jacobinmag.com/2016/09/standing-rock-dakota-access-pipeline-protest/).¶ This history continues to devastate. Indigenous people remain the poorest of the poor and the [most likely](http://www.cjcj.org/news/8113) to be killed by law enforcement. Four of the fifteen most impoverished counties in the United States [include](https://www.census.gov/did/www/saipe/data/statecounty/data/2014.html) Lakota reservations in South Dakota. The two poorest, Oglala Lakota and Todd County, lie entirely within the Pine Ridge and Rosebud reservations, where half of all residents live in poverty. In Ziebach County, which includes parts of the Standing Rock and Cheyenne River reservations, 45 percent of the population lives at or below the poverty line.¶ Elsewhere in the United States, Canada, Australia, and New Zealand, indigenous people are among the poorest, most oppressed, and least visible. They are overrepresented in prisons and underrepresented in universities. Their economic realities are bleak. Their pain is intergenerational.¶ In short, colonialism endures.¶ Yet these same communities are uniquely positioned to resist unjust systems and force them to retreat. We must hold these two seemingly contradictory realities of devastation and resilience in our minds at the same time. The Fourth World lives in devastation. The Fourth World is unconquered and on the rise.¶ Since the 1970s, indigenous people in the United States, Canada, Australia, and New Zealand have danced impressive victories. They have compelled states to forego assimilationist policies like the involuntary removal of indigenous children to abusive residential schools and the relocation of indigenous workers to cities. Overtly coercive policies have been slowly and steadily replaced with policies that recognize indigenous rights to land, jurisdiction, and sovereignty. Gains are limited, but they are still gains.¶ At certain times over the past thirty years, indigenous claims have prevented corporations from exploiting natural resources. In New Zealand in the 1980s, Maori claims under the Treaty of Waitangi stopped a state drive to privatize [fisheries](http://vup.victoria.ac.nz/maori-and-the-state-crown-maori-relations-in-new-zealand-aotearoa-1950-2000/) and [hydroelectric power](http://duwaterlawreview.com/new-zealand-maori-council/). In [Canada](https://books.google.com/books?id=9v3HZDKUlG4C) and [Australia](https://www.dukeupress.edu/the-cunning-of-recognition), from the 1990s to the present, aboriginal claims have increased risk for prospective investors in extractive industries.¶ But the dance with the state can be perilous. In recent decades, some indigenous groups mistook [neoliberals](http://www.uhpress.hawaii.edu/p-5513-9781869692865.aspx) who denounced “big government” for allies. They [accepted](https://www.upress.umn.edu/book-division/books/red-skin-white-masks) land claims settlements, [treaty agreements](https://www.theguardian.com/commentisfree/2015/aug/03/canada-first-nation-land-rights), and business deals that enabled states to slash social services for the most vulnerable while restructuring indigenous communities as junior corporate partners in the global economy.¶ As Trump prepares to take power in the US and Brexit changes the economic calculus in Britain and across the world, it is clear that the dance with the state is entering a [new age](https://www.jacobinmag.com/2016/11/trump-victory-clinton-sanders-democratic-party/).¶ The New Colonialism¶ The new age has [precedents](http://www.history.ac.uk/reviews/review/895).¶ Any Howard Zinn reader knows that the United States is built on stolen land with stolen labor. However, this is an observation too imprecise to help us understand and predict the trajectory of a global political economy steered and shaped by the likes of Trump and Nigel Farage. If you squint hard enough, Jack Dalrymple might look like a young George Custer, but that does not make him so.¶ To prevail, indigenous people and the Left must fully understand the precise ways that emerging systems will dispossess indigenous communities. In the nineteenth century, the United States Army incarcerated indigenous people on reservations, claimed land for homesteaders, protected prospectors, and cleared the way for railroad barons. In the 1960s, a different set of historical, political, and economic forces erected the [Lake Oahe Dam](http://www.msnbc.com/interactives/geography-of-poverty/nw.html) on the Missouri River, flooding two hundred thousand acres of the Standing Rock reservation to provide power to suburban homeowners.¶ Today, the drive for independence from OPEC sees a solution in hydraulic fracturing technology. North American oil fields and infrastructure are funded by a financial system that encourages speculation, drives massive inequality, and fails to account for costs associated with human and environmental risks — passing these very real risks and consequences on to communities, workers, and indigenous nations. Inherently unaccountable capitalists are paid big money for being even more unaccountable, and indigenous dispossession continues on new frontiers.¶ Preliminary post-election forecasts indicate that Trump’s victory and Brexit will redirect capital back toward the American West and the British [Commonwealth](http://www.express.co.uk/news/politics/691826/Brexit-what-mean-for-Commonwealth-Britain-leaves-EU-impact-new-trade-deals-migration).¶ In particular, Trump — a [DAPL investor](https://www.theguardian.com/us-news/2016/oct/26/donald-trump-dakota-access-pipeline-investment-energy-transfer-partners) himself — will expedite completion of DAPL and similar projects. He will push to reopen and complete the [Keystone XL Pipeline](https://www.washingtonpost.com/news/energy-environment/wp/2016/11/09/now-that-trump-has-won-transcanada-wants-to-give-keystone-xl-pipeline-another-try/). If he keeps his campaign promises, he will support infrastructure projects and extractive industries, including [coal and fracking](http://www.wsj.com/articles/oil-coal-seen-as-winners-with-trump-victory-1478693338), in indigenous homelands across the American hinterlands.¶ At the same time, a conservative Supreme Court, an Interior Department [led by](http://www.reuters.com/article/us-usa-trump-interior-idUSKBN13G2C0) Sarah Palin or oil baron Lucas Forrest, and a Justice Department led by Jeff Sessions means limited but hard-won Native rights will be rolled back. If this gang of reactionary appointees can’t figure out how to dismantle complex legal precedents, they can just cut funding to essential services like housing, schools, and health care that are already woefully underfunded, putting tribes in a stranglehold of austerity. Native resistance will be policed by [Orwellian surveillance systems](https://www.theguardian.com/commentisfree/2016/nov/09/president-trump-national-security-nuclear-arsenal) finely tuned by the Obama administration. Militarized law enforcement will find reinforcements in the booming private security and [prison industries](https://www.washingtonpost.com/news/wonk/wp/2016/11/10/the-private-prison-industry-was-crashing-until-donald-trumps-victory/).¶ Surveillance, state law enforcement, and private security will drive mass arrests, as we’re seeing at Standing Rock. Law enforcement will have more power than ever to quash protesters and silence dissent.¶ In the former British Wests of Canada, Australia, and New Zealand, where the right-wing populist revolution has yet to take hold in the same way, suppression of indigenous resistance may be less visibly coercive — perhaps with the exception of [skyrocketing](https://www.theguardian.com/australia-news/2016/aug/24/indigenous-prison-rate-soars-52-in-decade-report-reveals) policing, incarceration, and deaths-in-custody of indigenous people, particularly Aboriginal Australians (the “[most imprisoned people in the world](https://www.washingtonpost.com/world/asia_pacific/in-australian-state-aboriginal-kids-53-times-more-likely-to-be-in-jail-than-others/2016/03/05/210dadc4-e15a-11e5-8c00-8aa03741dced_story.html)”).¶ Politicians in the Commonwealth will look to roll back or restructure indigenous rights won over the last three decades in ways that are favorable to capital.¶ Governments, like Justin Trudeau’s Liberals in Canada, are already [abandoning](https://www.theguardian.com/environment/true-north/2016/sep/19/justin-trudeaus-lofty-rhetoric-on-first-nations-a-cheap-simulation-of-justice) campaign promises to indigenous people, opting instead to grab land and resources (as seen in the ham-fisted effort to force through the [Site C Dam](http://www.cbc.ca/news/canada/british-columbia/first-nations-site-c-challenge-denied-1.3830441) against [indigenous opposition](http://bc.ctvnews.ca/thousands-protest-kinder-morgan-pipeline-expansion-in-vancouver-1.3168634)). Trudeau’s minister of natural resources has already stated that Canada will no longer ask First Nations for consent before going forward with lucrative natural resource projects like Kinder Morgan’s Trans Mountain Expansion project and Enbridge’s Northern Gateway [pipelines](http://www.ubcic.bc.ca/consent).¶ In Australia, the government is steamrolling the Wangan and Jagalingou peoples’ Native Title claims in order to move forward with the massive Carmichael Coalmine in Queensland.¶ With the Commonwealth clamoring to [cash in](https://www.theguardian.com/world/2016/oct/18/britain-and-new-zealand-agree-to-start-regular-trade-talks-in-wake-of-brexit) on opportunities created by Brexit, [new free trade deals](http://www.telegraph.co.uk/news/2016/08/31/brexit-brings-the-chance-to-build-a-new-and-better-commonwealth/) with the United Kingdom will be struck, resuscitating and rebuilding the capital networks of the former British Empire, previously weakened by globalization and the European Single Market. The Tory dream of a revived [Anglosphere](http://www.newstatesman.com/politics/2015/02/rise-anglosphere-how-right-dreamed-new-conservative-world-order), long derided as fanciful, nostalgic, and bad business by [Liberals](http://www.nybooks.com/articles/2000/05/11/the-anglosphere/), may even emerge as a legitimate principle and framework of international relations and trade. It will compete with increasingly powerful Chinese and Indian capital throughout the Commonwealth, as already witnessed in the Canadian [tar sands](https://www.theguardian.com/business/2010/feb/14/canada-china-investment-oil-sands), [Australian coalmines](https://www.theguardian.com/australia-news/2015/mar/26/aboriginal-group-fights-to-stop-16bn-carmichael-coalmine), and [New Zealand real estate and dairy](https://www.kpmg.com/NZ/en/IssuesAndInsights/ArticlesPublications/Documents/KPMG-Foreign-Direct-Investment-analysis-August-2015.pdf).¶ Combined with the rise of China and India, this will bring new waves of exploitive capital into indigenous homelands, along with increased policing and the dismantling of indigenous rights.¶ Renewed colonial and capitalist pressure on indigenous people means that the Fourth World’s adversarial relationship with the state will become more central to the struggle to transform political and economic systems for all. If the history of the indigenous dance with the state is any indication, the Fourth World will suffer tremendously while at the same time standing athwart the forces of capitalism and exploitation.¶ The Left must stand with the Fourth World in our collective struggle.¶ The Fourth World and a Fourth Way¶ On November 14, the Army Corps of Engineers temporarily halted DAPL’s progress, stating that “the history of the Great Sioux Nation’s dispossessions of lands” and the United States’ “government-to-government” relationship with indigenous nations demanded that the route of the proposed pipeline be reassessed. The Army told Energy Transfer Partners (ETP), the company building DAPL, that construction beneath the Missouri River required explicit approval, and asked the Standing Rock Sioux to negotiate conditions for the pipeline to cross tribal territory. Faced with a momentary victory for Standing Rock, Kelcy Warren, Dallas [billionaire](http://www.wsj.com/articles/SB10001424052748704141104575588721155904524) and CEO of ETP, denounced the decision as “motivated purely by politics at the expense of a company that has done nothing but play by the rules.”¶ Warren was right. Had it not been for thousands of people mobilizing behind an indigenous-led coalition, DAPL would have been business as usual. ETP would have desecrated the graves of Standing Rock ancestors unimpeded. Workers, lured by relatively high wages, would have taken on [toxic and insecure](https://www.jacobinmag.com/2016/10/standing-rock-dakota-access-pipeline-labor-trumka/) work. The tribe’s hunting and fishing grounds would have been jeopardized, and if the pipeline leaked, Standing Rock and its downstream communities would have been poisoned. Environmental degradation and runaway climate change would have pressed ahead unabated. Carbon dependency would have become even more deeply engrained in our political economy. Eventually, ETP and their investors would have cashed out, and future generations would have been robbed.¶ And all of this still will happen if President Obama doesn’t heed the water protectors and instead sides with ETP.¶ ETP spent [$1.2 million](http://www.opensecrets.org/pacs/lookup2.php?strID=C00438754) over the last five years paying politicians to legislate in its favor. Warren personally donated [$103,000](https://www.theguardian.com/us-news/2016/oct/26/donald-trump-dakota-access-pipeline-investment-energy-transfer-partners) to the Trump campaign. But when indigenous people organized, turning to direct action and the law to pressure elected officials and government systems, they wrested power from ETP’s hands.¶ DAPL is just one chapter in a much longer story of indigenous resistance to, and victories against, pipelines across North America. In 2015, the Obama administration nixed the Keystone XL Pipeline, yielding to pressure from the [Cowboy Indian Alliance](http://rejectandprotect.org/). In Minnesota, Enbridge shelved plans for the Sandpiper pipeline, after encountering tribal opposition. The Unist’ot’en camp in northern British Columbia has held out against numerous proposed pipelines through their territory, building a space where indigenous sovereignty stands tall on lands defined by industry as an “energy corridor.”¶

#### Psychoanalysis is infinitely regressive, not falsifiable, and too abstract

Gordon 1 – Paul Gordon, accomplished psychotherapist, “Psychoanalysis and Racism: The Politics of Defeat,” RACE & CLASS v. 42 n. 4, 2001, pp. 17-34.

But in the thirty years since Kovel wrote, that attempt to relate mind and society has been fractured by the advent of postmodernism, with its subsumption of the material/historical, of notions of cause and effect, to what is transitory, contingent, free-¯oating, evanescent. Psychoanalysis, by stepping into the vacuum left by the abandonment of all metanarrative, has tended to put mind over society. This is particularly noticeable in the work of the Centre for New Ethnicities Research at the University of East London, which purports to straddle the worlds of the academy and action by developing projects for the local community and within education generally.28 But, in marrying psychoanalysis and postmodernism, on the basis of claiming to be both scholarly and action oriented, it degrades scholarship and undermines action, and ends in discourse analysis a language in which metaphor passes for reality. Cohen's work unavoidably raises the question of the status of psycho- analysis as a social or political theory, as distinct from a clinical one. Can psychoanalysis, in other words, apply to the social world of groups, institutions, nations, states and cultures in the way that it does, or at least may do, to individuals? Certainly there is now a considerable body of literature and a plethora of academic courses, and so on, claim- ing that psychoanalysis is a social theory. And, of course, in popular discourse, it is now a commonplace to hear of nations and societies spoken of in personalised ways. Thus `truth commissions' and the like, which have become so common in the past decade in countries which have undergone turbulent change, are seen as forms of national therapy or catharsis, even if this is far from being their purpose. Nevertheless, the question remains: does it make sense, as Michael Ignatieff puts it, to speak of nations having psyches the way that individuals do? `Can a nation's past make people ill as we know repressed memories sometimes make individuals ill? . . . Can we speak of nations ``working through'' a civil war or an atrocity as we speak of individuals working through a traumatic memory or event?' 47 The problem with the application of psychoanalysis to social institutions is that there can be no testing of the claims made. If someone says, for instance, that nationalism is a form of looking for and seeking to replace the body of the mother one has lost, or that the popular appeal of a particular kind of story echoes the pattern of our earliest relationship to the maternal breast, how can this be proved? The pioneers of psychoanalysis, from Freud onwards, all derived their ideas in the context of their work with individual patients and their ideas can be examined in the everyday laboratory of the therapeutic encounter where the validity of an interpretation, for example, is a matter for dialogue between therapist and patient. Outside of the consulting room, there can be no such verification process, and the further one moves from the individual patient, the less purchase psychoanalytic ideas can have. Outside the therapeutic encounter, anything and everything can be true, psychoanalytically speaking. But if everything is true, then nothing can be false and therefore nothing can be true. An example of Cohen's method is to be found in his 1993 working paper, `Home rules', subtitled `Some re¯ections on racism and nation- alism in everyday life'. Here Cohen talks about taking a `particular line of thought for a walk'. While there is nothing wrong with taking a line of thought for a walk, such an exercise is not necessarily the same as thinking. One of the problems with Cohen's approach is that a kind of free association, mixed with deconstruction, leads not to analysis, not even to psychoanalysis, but to . . . well, just more free association, an endless, indeed one might say pointless, play on words. This approach may well throw up some interesting associations along the way, connections one had never thought of but it is not to be confused with political analysis. In `Home rules', anything and everything to do with `home' can and does ®nd a place here and, as I indicated above, even the popular ®lm Home Alone is pressed into service as a story about `racial' invasion.

1. http://www.dictionary.com/browse/resolved [↑](#footnote-ref-1)