# 1AC

### 1AC---Innovation

#### Advantage 1 is Innovation:

#### Standards-Setting Organizations (SSO’s) are industry members who jointly establish standards for information tech defined by the adoption of standard-essential patents (SEP’s), which are licensed to companies who wish to implement the tech in their product, called implementers, on Fair, Reasonable, and Non-Discriminatory (FRAND) terms. Current standards promote price gouging, FRAND enforcement is critical.

Melamed & Shapiro 18, \*A. Douglas Melamed is Professor of the Practice of Law at Stanford Law School; \*Carl Shapiro is the Transamerica Professor of Business Strategy at the Haas School of Business at the University of California at Berkeley; (May 2018, “How Antitrust Law Can Make FRAND Commitments More Effective”, https://www-cdn.law.stanford.edu/wp-content/uploads/2018/05/How-Antitrust-Law-Can-Make-FRAND-Commitments-More-Effective.pdf)

I. Standard Setting and the Competitive Process The fundamental economics in the information technology sector, driven by network effects, implies that there is enormous value associated with establishing compatibility standards. Popular standards include the mobile broadband standards used in cell phones, which are established by the 3rd Generation Partnership Project (3GPP), and the Wi-Fi technology for wireless local area networks, which is enabled by the 802.11 standard established by the Institute of Electrical and Electronics Engineers (IEEE).4 There are many SSOs, and their rules and procedures differ considerably. In addition to IEEE, leading SSOs include the International Organization for Standardization (ISO), the International Telecommunication Union (ITU), the European Telecommunications Standards Institute (ETSI), the Internet Engineering Task Force (IETF), and the World Wide Web Consortium (W3C).5 SSOs generally establish standards by holding a series of committee meetings among industry participants. These meetings culminate in a vote on a technical specification that describes what features or attributes a product must have in order to comply with the standard. Most SSOs are open to all industry participants and seek to operate on a consensus basis, applying certain voting rules. SSOs do not normally engage in patent licensing, nor do they specify how patent royalties will be divided up among patent holders. They leave that to their members, which in some cases form patent pools to address these issues.6 SSOs adopt specific policies relating to intellectual property rights (IPRs).7 These IPR policies are generally intended to enable the SEP holders to obtain reasonable royalties for licensing their patents, while prohibiting them from charging excessive royalties after other industry participants have committed to the standard. At that point, firms committed to implementing the standard— which we call “implementers”—would find it very costly to avoid using the patented technology. For this purpose, most SSOs require SEP owners to license their SEPs on FRAND terms.8 FRAND policies are especially necessary because negotiations between SEP holders and implementers generally take place only after the implementers have used and infringed the technologies claimed by the SEPs. Standards involving information and communications technology can involve hundreds or even thousands of SEPs, many with uncertain boundaries for infringement. In addition, a time lag exists between patent application and patent issuance. For these and other reasons, it is impractical for implementers to enter into negotiations for patent licenses with all SEP owners prior to the establishment of a standard and to their implementation of it.9 The fact that patent negotiations generally do not take place until after implementers have used and infringed the technologies has several critical implications. First, at the time of negotiation, implementers are locked into the standard and the technologies claimed by the SEPs—that is, the cost to switch to an alternative technology or standard at that point—ex post—is much greater than it was ex ante, before the patented technology was first included in the standard. Ex post, the patent holder is no longer competing to have its technology included in the standard, nor is it competing to have implementers of the standard use its technology. Instead, because the patent holder owns an asset that is essential to the standard, implementers have no choice but to use the patented technology. If the standard is commercially successful, implementers are willing to pay a much larger royalty for use of the patented technology than they would have paid ex ante, when the SEP holder faced competition from other technologies. In these circumstances, the SEP holder can be said to have obtained monopoly power in the market in which the patented technology is licensed for use in implementing the standard.10 Second, because of lock-in and the implementer’s ongoing infringement, the potential for litigation looms large in licensing negotiations. In effect, the parties are negotiating about how to settle an infringement suit, and that negotiation is heavily influenced by their predictions as to what the court will do if they cannot agree. This situation is not unique to SEPs; it arises frequently when firms are faced with patent infringement claims for products they have independently developed or technologies they have inadvertently infringed. Patent law addresses such instances by specifying that patent holders are entitled to “reasonable royalties,” defined as the royalties that the parties would have negotiated prior to the infringement and thus prior to lock-in.11 Those hypothetical ex ante royalties reflect the market value of the patent license. Notwithstanding the law’s embrace of this principle, however, as a practical matter, patent holders are generally able to recover more than the ex ante value of the patent when litigation occurs after the implementers are locked in. Further, negotiations in the shadow of litigation after lock-in tend to result in royalties in excess of the ex ante or market value of the patented technology.12 Third, the shadow of litigation is particularly problematic in the communications and technology sector, in which products typically include hundreds or thousands of patented technologies. A court-ordered injunction involving such products would deprive the implementer of not only the value of the technology covered by the patent-in-suit, but also the value of the entire product.13 Implementers that are forced to bear the risk of an injunction are thus induced to agree to royalties greater than those that would be appropriate if only the value of the patented technology were at stake. Those royalties systematically provide SEP holders with excessive compensation in comparison with the benchmark of ex ante royalties. These implications of lock-in and ex post dealings are well-understood: they represent an example of the general concept of lock-in and opportunism developed by Oliver Williamson.14 The Federal Circuit has also recognized the market distortions caused by the inclusion of patented technologies in public standards and the resulting danger of patent holdup involving SEPs.15 For these and other reasons, the SEP holder has ex post monopoly power that, if left unchecked, would enable it to obtain royalties far in excess of the royalties that it could earn in a competitive market.16 To address this common problem and limit ex post opportunism by SEP holders, SSOs typically require participants that own SEPs to make certain FRAND commitments. In particular, by requiring a commitment to license on “fair and reasonable” terms, the FRAND requirement aims to prevent, or at least reduce, the extent of monopoly pricing by SEP holders. And by requiring a commitment to license on “nondiscriminatory” terms, the FRAND requirement can prevent SEP holders from extracting monopoly premiums by selective licensing or, more important, migrating their monopoly power from the FRAND-regulated market to unregulated standard-implementing product markets by licensing to only one or a few implementers or licensing to selected implementers on discriminatorily favorable terms.

#### Weakened antitrust enforcement emboldens firms to follow Qualcomm’s lead, which collapses FRAND integrity.

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While the FRAND process has been highly productive, it is also fragile. Firms are tempted to make commitments at the beginning when the incentive to join is large, but renege on them later when they can profit by doing so. At least in this particular case, private FRAND enforcement had not worked very well. Qualcomm had been able to violate FRAND commitments in order to exclude rivals and obtain higher royalties than FRAND would permit, largely with impunity. Other firms will very likely follow Qualcomm’s lead. If that happens the FRAND system will fall apart, doing irreparable injury to the modern wireless telecommunications network or, at the very least, diminishing the leadership role of the United States in preserving effective network competition. While governments can be heavily involved in standard set-ting,9 the implementation of technical standards in information technologies is largely the work of private actors. Government involvement is limited mainly to enforcement of contract, intellectual property, or antitrust law. As private actors, those involved in standard setting or compliance are fully subject to the federal antitrust laws. This Article addresses one question: when is an SSO participant’s violation of a FRAND commitment an antitrust violation, and if it is, of what kind and what are the implications for remedies? It warns against two extremes. One is thinking that any violation of a FRAND commitment is an antitrust violation as well. In the first instance FRAND obligations are contractual, and most breaches of contract do not violate any antitrust law. The other extreme is thinking that, because a FRAND violation is a breach of contract, it cannot also be an antitrust violation. The question of an antitrust violation does not de-pend on whether the conduct breached a particular agreement but rather on whether it caused competitive harm. This can happen because the conduct restrained trade under section 1 of the Sherman Act, was unreasonably exclusionary under section 2 of the Sherman Act, or amounted to an anticompetitive condition or understanding as defined by section 3 of the Clay-ton Act.10 The end goal is to identify practices that harm com-petition, thereby injuring consumers. The Ninth Circuit’s Qualcomm decision will make antitrust violations in the context of FRAND licensing much more difficult to prove, even in cases where anticompetitive behavior and consumer harm seem clear.11 Indeed, in this case the court itself acknowledged the harm to consumers but appeared to think that they were not entitled to protection.12 If this decision stands, FRAND obligations will to a larger extent have to be settled through private litigation and the federal antitrust enforcement agencies will have a diminished role. Anticompetitive behavior by one firm that is not effectively disciplined will lead others to do the same thing.

#### Monopoly pricing and selective licensing undermines 5G innovation---FRAND enforcement is key.

Actonline 20, the App Association represents more than 5,000 app companies and information technology firms across the mobile economy; (August 26th, 2020, “Save Our Standards: The Ninth Circuit Court of Appeals Reverses Decision in FTC v. Qualcomm”, <https://actonline.org/2020/08/26/save-our-standards-the-ninth-circuit-court-of-appeals-reverses-decision-in-ftc-v-qualcomm/>)

* Ability edited

Moreover, the FRAND agreement is a critical tool used by standard setting organizations to ensure the process enhances competition and does not run afoul of antitrust laws. Generally, a collaboration between competitors to choose market winners or set prices raises significant questions for competition regulators. Royalty free and FRAND licensing requirements were created by standards bodies to avoid potential antitrust scrutiny by limiting the market power and the potential for abuse by those involved in developing a standard. This is why the American National Standards Institute (ANSI) will not accredit any standards developing organization (SDO) that does not require standard-essential patent holders to provide licensing terms at least as favorable as FRAND. The most important beneficiary of open interoperability standards and FRAND licensing requirements are the entrepreneurs and small businesses that have long fueled America’s innovation engine. They don’t have giant patent portfolios, market power, or the resources to hire legions of lawyers and spend years battling SEP abusers in civil court. Without some level of certainty about their ability to obtain licenses—let alone what they may cost—entrepreneurs will have trouble justifying the pursuit of any innovation that uses a standard and will certainly struggle to raise money from investors for such innovation. And Qualcomm’s vague and toothless promise simply “not to sue” smaller companies and component makers is no substitute for a license. The adoption of 5G technology is expected to open unprecedented opportunities for innovation and economic growth as we move toward a world where everything from cars to tractors to buildings will connect to wireless networks. At every stage of the information technology revolution, America has been the undisputed leader because of the unparalleled entrepreneurial innovation ecosystem that we have built. If 5G SEP holders are able to arbitrarily refuse licenses to smaller firms, it would ~~cripple~~ undermine America’s innovation ecosystem at the start of the next big wave of innovation. As economic tensions continue to rise with China, Chinese-based companies could use their 5G SEPs as international economic weapons to thwart U.S. competitors. The 5G standard is supposed to be a platform for competition, innovation, and entrepreneurship, but if the Ninth Circuit decision is allowed to stand, it will become a chokepoint for snuffing out competitors and demanding monopoly rents. Open standards and FRAND licensing commitments are fundamental to competition in the modern economy, and the idea that they aren’t a subject for antitrust enforcement is patently absurd.

#### The absence of domestic 5G competition cedes leadership in technical standards to China.

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There is little doubt today that American superiority in the next generation of mobile communications, commonly called 5G, is a matter of extraordinary national concern. There is also little doubt that China is a strong competitor, already having outspent the United States by [$24 billion](https://www2.deloitte.com/content/dam/Deloitte/us/Documents/technology-media-telecommunications/us-tmt-5g-deployment-imperative.pdf#page=3) and planning [$411 billion](https://www.scmp.com/tech/china-tech/article/2098948/china-plans-28-trillion-yuan-capital-expenditure-create-worlds) in 5G investment over the next decade. The Chinese government has also laid out multiple national plans for establishing the country as a leader in mobile technology, and the Chinese firm Huawei is poised to be the [top smartphone manufacturer](https://www.cnbc.com/2018/11/16/huawei-aims-to-overtake-samsung-as-no-1-smartphone-player-by-2020.html) by 2020. And what are United States companies doing about this? Bickering over patents. For years, the leading American supplier of advanced mobile communications chips has been the San Diego-based Qualcomm. The company has been an innovator of mobile technology, but it has also been a remarkable innovator of convoluted legal strategies. As an ongoing Federal Trade Commission [lawsuit alleges](https://www.ftc.gov/news-events/press-releases/2017/01/ftc-charges-qualcomm-monopolizing-key-semiconductor-device-used), Qualcomm has used its dominant position as a chip supplier and its extensive patent holdings to weave an intricate web of patent licensing across the mobile industry. The effect of that complex licensing scheme, the FTC claims, has been to force competitor chipmakers out of the market and to extract concessions and high patent royalties from smartphone and mobile-device makers. Qualcomm today faces only one major U.S. competitor—Intel, whose chips Apple recently [started using](https://www.cultofmac.com/484250/intel-reaping-rewards-apples-scrap-qualcomm/) instead of Qualcomm’s. Not surprisingly, Qualcomm has leveraged its patents to force a retaliatory investigation against Apple, the effect of which could be, as an administrative judge [recently determined](http://www.fosspatents.com/2018/10/itc-judge-didnt-buy-testimony-for-which.html), to boot Intel out of the mobile-chip market and leave Qualcomm as a monopoly. It is hard to imagine that this infighting among Apple, Intel and Qualcomm is getting the United States very far in 5G, and it is harder to imagine that Qualcomm’s desired outcome would do so, either. The best path, instead, is the obvious one: allowing competition and expanding the number of firms working on 5G. Competition encourages companies to out-innovate each other in order to grab market share. Of particular importance to 5G, competition leads to [better cybersecurity](https://morningconsult.com/opinions/in-the-race-to-5g-monopoly-considered-harmful/) in products, making them less vulnerable to hacking or misuse. Competition is especially crucial when it comes to the technical standards that define how 5G works. These standards are the work of 3GPP, an international consortium of technology companies in the field. Chinese players such as Huawei and ZTE are major participants in 3GPP. Ensuring that 3GPP’s standards reflect American values requires having as many American companies at the negotiating table as possible—which is harder to achieve when those companies are trying to sue each other out of business. Certainly patents themselves, as rewards for new inventions, are a driver of innovation in areas such as 5G. The problem, though, is not the existence of a patent system but the ever-expanding power of the patent laws, which encourage companies to pour dollars into complex patent licensing and assertion schemes—as companies like Qualcomm have done—rather than to perform the hard work of building new technologies. When innovation in patent strategy is more profitable than actual innovation, we lose the race to 5G and other technologies. But don’t take my word for it. [Multiple members of Congress](https://www.patentprogress.org/2019/01/11/congress-weighs-in-on-qualcomm-and-apple-at-the-itc/), from both sides of the aisle, have denounced the use of patents to kick companies like Intel out of 5G development, predicting that such actions would “dampen the quality, innovation, competitive pricing, and in this case the preservation of a strong U.S. presence in the development of 5G and thus the national security of the United States.” Or look to what China itself is doing. The Chinese government is handing out rewards left and right to encourage technology research and development. Indeed, it grants subsidies and financial benefits (ranging from the [ordinary](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2818503) to the [imperfect](https://funginstitute.berkeley.edu/wp-content/uploads/2013/12/patent_subsidy_Zhen.pdf) to the [bizarre](https://www.scmp.com/news/china/article/1681850/how-get-out-jail-early-china-buy-inventors-idea-and-patent-it)) to encourage its citizens to file for patents. But while China specifically encourages filing for patents, it does little to encourage using them: Patent infringement awards in court are peanuts—often only [five figures](https://scholarship.law.berkeley.edu/btlj/vol33/iss2/2/)—and most Chinese patent owners drop their patents [within five years](https://www.bloomberg.com/news/articles/2018-09-26/china-claims-more-patents-than-any-country-most-are-worthless) of getting them. The message in China is clear: You will be rewarded for innovating, but not for quibbling over patents. The United States should take the same tack if it wants to match China in 5G. Ever-stronger patent rights encourage counterproductive disputes that are a drag on industry, a drag on research and development, and ultimately a drag on domestic competitiveness on the global stage. If America wants to lead in 5G, then it must clear the path for strong competition among leading American technology companies.

#### China’s standard-setting leadership enables them export 5G infrastructure globally.

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The information and biotechnology revolutions have changed our world and will heavily inform the future of society. Whoever controls these technologies controls the future, and whoever controls their standardization controls the technologies. China understands this well. For two decades, it has been working to take over international standardization rulemaking bodies to serve the goals advanced in “[Made in China 2025](https://www.pbs.org/wgbh/frontline/article/made-in-china-2025-the-industrial-plan-that-china-doesnt-want-anyone-talking-about/)” — that is, to dominate world manufacturing and then transition to become the center of the world’s technological innovation. The dangers to the United States are already present, and in forms that are not obvious. These include, first, [direct-to-consumer genetic testing](https://medlineplus.gov/genetics/understanding/dtcgenetictesting/directtoconsumer/). China may be using such testing to gain genetic information that permits the identification and tracking of Americans, including U.S. military and intelligence community personnel or their relatives. Second, health monitoring apps are able to provide geolocation data to Chinese entities, which means to the Chinese Communist Party (CCP) and its security services. This provides location data that is valuable on its own and might be compared with data from other sources to reveal key information about Americans. Third, the CCP, in cooperation with Chinese industrial entities on international bodies, are developing and setting international standards for emerging technologies. China’s influence has grown over the past two decades, and Beijing now possesses leadership roles in standards-drafting technical committees, which means it could shape outcomes to its benefit. China has formulated a four-step strategy to seek dominance in this area: plan, track, participate and take over. Beijing has boasted that it completed the first three steps and is on the last, which is to “[develop indigenous standards](https://saiscsr.org/2019/10/29/setting-a-new-standard-implications-of-chinas-emerging-standardization-strategy/) and to lead international standardization.” This means China may be replacing international standards with its own standards, in order to control technologies and the market. In 2017, China revised its [standardization law](https://share.ansi.org/Shared%20Documents/News%20and%20Publications/Links%20Within%20Stories/China%20Standardization%20Law_English%20translation_SESEC_5.17.2017.pdf), almost 30 years after its adoption in 1989. It also set up the [Standardization Administration of China](http://www.sac.gov.cn/sacen/) to implement its strategy in the early 2000s. China’s standardization strategy also has been incorporated into the [Belt and Road Initiative](https://www.beltroad-initiative.com/belt-and-road/) so that, as countries are weaved into this network, they adopt China’s standards. Beijing essentially has had the three primary standard-setting international organizations — the [International Organization for Standardization](https://www.iso.org/home.html) (ISO), the [International Telecommunication Union](https://www.itu.int/en/ITU-T/about/Pages/development.aspx) (ITU) and the [International Electrotechnical Commission](https://www.iec.ch/homepage) (IEC) — under its influence. Two Chinese government officials currently serve as president of ITU and IEC, and placed China’s proxy as the [head of the ISO](https://www.oxebridge.com/emma/latest-iso-president-has-ties-to-china-too/) after the organization was led by a Chinese official for many years. Meanwhile, Beijing has taken leadership or other influential positions in the [International Accreditation Forum](https://www.iaf.nu/) (IAF), [United Nations Industrial Development Organization](https://www.unido.org/) (UNIDO), [International Civil Aviation Organization](https://www.icao.int/Pages/default.aspx) (ICAO), [American Society for Quality](https://asq.org/) (ASQ) and perhaps others. China’s strategy to determine the world’s standards appears to be working. In 2019 alone, China submitted [830 standards proposals to the ITU](https://www.ft.com/content/858d81bd-c42c-404d-b30d-0be32a097f1c). According to [Zhang Xiaogang](https://www.chinadaily.com.cn/m/qingdao/2017-06/23/content_29862586.htm), former president of the ISO, China planned to initiate 395 international standards by 2020 but, in actuality, [it set 495](https://www.sohu.com/a/412713490_362042#:~:text=%E5%A4%AE%E5%B9%BF%E7%BD%91%E5%8C%97%E4%BA%AC8,%E5%87%BA%E6%9C%80%E5%A4%A7%E8%B4%A1%E7%8C%AE%E7%9A%84%E5%9B%BD%E5%AE%B6%E3%80%82). Zhang claims that “China has made the greatest contribution in the field of international standardization in the past five years.” Indeed, China has dominated 5G standard-setting, for example, in the [3rd Generation Partnership Project](https://www.3gpp.org/) (3GPP), an organization to develop mobile broadband standards, and 90 percent of standard proposals in the 5G super uplink field is done by China Telecom. Unfortunately, Western countries fail to see the importance of China’s strategic move. Zhang states, “Whoever leads in standard-setting will be the leader of the technology and the controller of the market.” China’s dominance in 5G standards-setting enables it to avoid the West’s sanctions against its tech giants such as Huawei, continue to expand globally, and to dominate the market. This could be a paramount communication-security problem for the U.S. Of particular importance is China’s standardization strategy — as identified in “[China Standards 2035](https://www.cfr.org/blog/china-standards-2035-and-plan-world-domination-dont-believe-chinas-hype)” — on international bodies engaged in developing and setting standards for select emerging technologies. These include advanced communication technologies and cloud computing and cloud services. The United States and its allies must ensure that international standards for emerging technologies are not being designed to promote the interests of China. If China is successful, it would lead to the exclusion of other participants; China would be the architect, builder and maintainer of the 21st century’s information technology infrastructure.

#### Standards leadership allows China to export digital authoritarianism.

Drew et al. 21, \*Dr Alexi Drew, Research Associate, The Policy Institute, King’s College London; (May 7th, 2021, “The Critical Geopolitics of Standards Setting”, https://www.transatlantic-dialogue-on-china.rusi.org/article/the-critical-geopolitics-of-standards-setting)

However, this previously ‘western’ domain is challenged by a Chinese bloc of private industry actors with centrally directed, strategic motivations for their efforts who have managed to leverage the flaws of this system for political and economic advantage. The market-driven self-regulation model of technical standards has proven itself unsustainable given the geopolitical power achievable through the control of these standards. The marketised approach is easily abusable by a technologically developed nation-state with geopolitical intentions firmly in mind. Obscurity Through Complexity Technical standards have the immediate appearance of being both apolitical and ethically neutral. This seems to set them apart from the debate over standards of state behaviour in [cyber space concerning espionage and actions below the threshold of armed conflict](https://www.cfr.org/blog/unexpectedly-all-un-countries-agreed-cybersecurity-report-so-what). Yet, technological standards are unequivocally connected to normative practices of international behaviour and ethics. The extremely complex nature of the standards under consideration in bodies such as the International Organization for Standardization, the International Electrotechnical Commission (IEC), the International Telecommunications Union (ITU), and the Third Generation Partnership Project (3GPP) obscures the very tangible real-world impact that the standards they set have. The 3GPP is responsible for standards setting for mobile telecommunications. It covers everything from 5G through to autonomous vehicles and the Internet of Things. These are the bodies defining how the modern world is constructed. On the one hand they appear quite benign, responsible for such banalities as the use of Universal Serial Bus (USB) connectors versus proprietary standards. This hardly seems a matter of national security importance. But the same process is responsible for what ultimately shape the basic operating parameters of facial recognition technology in closed circuit television systems, the level of centralised state control at the technical foundations of the internet, and the protections of personally identifiable data. These generate profound implications for international policy and ethics. Internal Competition vs Strategic Direction Technical standards setting processes have, historically, been dominated by private sector actors who have had both the capacity to develop a particular technology to the point of holding a significant market share, and the ability to use that market share to advocate for the standardisation of the technology in line with their own production. The market led approach has continued to be the prevailing model by which American companies have globalised the technical standards behind US dominated technological innovation. This privatised form of self-regulation for technology companies is only partially influenced by the approach taken within the EU where [some licensing of standards are controlled by state or EU led institutions.](https://www.ui.se/globalassets/ui.se-eng/publications/ui-publications/2019/ui-brief-no.-2-2019.pdf) In contrast to this approach the Chinese model has involved a high level of state-oriented direction, oversight, and direct engagement on the creation and signing off technical standards. Efforts to harmonise and centralise technical standards domestically have become increasingly internationalised as the CCP takes this centralised, strategic approach to technical standards setting bodies such as the ITU, 3GPP, and IEC. Technical standards have also become an increasingly central component of the Digital Silk Road with the openly expressed goal of increasing uptake of Chinese technical standards in partner countries. The implications of this clash between a system of technical standardisation that is driven by the market versus one driven by an authoritarian government subsidised model are a direct challenge to the development of free, open, and ethical technology. Standardisation mechanisms have become political, or rather there has been a gradual realisation of the political power to be gained from the control of technical standards. While the PRC might have come to this awareness first, the US and Europe have since had a rude awakening about the missed opportunity. The privatised model of technical standards setting favoured by European and US markets relies upon the dynamics of financial competition to regulate behaviour. This is in stark contrast to the statist Chinese model.

#### That compromises U.S. military superiority.

Borghard et al. 19, \*Erica D. Borghard is an Assistant Professor at the Army Cyber Institute at West Point. Shawn W. \*Lonergan is a U.S. Army Reserve officer assigned to 75th Innovation Command and a Research Scholar at the Army Cyber Institute. (April 25th, 2019, “The Overlooked Military Implications of the 5G Debate”, https://www.cfr.org/blog/overlooked-military-implications-5g-debate)

There are economic implications for which entities can secure the [greatest global market share](https://www.reuters.com/brandfeatures/venture-capital/article?id=61837) of 5G technology. Technological innovation drives economic growth, job creation, and global economic influence. Huawei may have a long-term market advantage over U.S and Western telecoms because the former has been able to offer 5G products at [far cheaper](https://www.nytimes.com/2019/01/26/us/politics/huawei-china-us-5g-technology.html) rates than the latter. Furthermore, there are also concerns that Chinese-built 5G technology is likely to [contain backdoors](https://www.wired.com/story/huawei-case-signals-new-us-china-cold-war-tech/) that could be used to enable [Chinese economic or national security espionage](https://www.cnbc.com/2019/03/05/huawei-would-have-to-give-data-to-china-government-if-asked-experts.html). It is unlikely that Beijing would actively monitor all of the content of the data that comes across Huawei owned or operated infrastructure (although it may collect and analyze metadata). However, it is conceivable that Huawei would get a proverbial “tap on the shoulder” from Beijing to share pertinent information in specific instances. This may include individually targeting senior corporate executives, which is enabled by the millimeter wave frequency that 5G networks employ. The military applications of 5G technology have vital strategic and battlefield implications for the U.S. Historically, the U.S. military has reaped enormous advantages from employing cutting edge technology on the battlefield. 5G technology holds similar innovative potential. Perhaps most obviously, the next generation of telecommunications infrastructure will have a direct impact on improving military communications. However, it will also produce cascading effects on the development of other kinds of military technologies, such as robotics and artificial intelligence. For instance, artificial intelligence and machine learning capabilities, such as those used in the Department of Defense’s [Project Maven](https://dod.defense.gov/News/Article/Article/1254719/project-maven-to-deploy-computer-algorithms-to-war-zone-by-years-end/), could be greatly enhanced when leveraging the data processing speeds made possible through 5G infrastructure. As an [era of great power competition](https://dod.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf) emerges between the United States and China, the United States has a compelling strategic interest in being at the forefront of these new technologies. The United States and its allies must also consider the tactical and operational implications on the battlefield of conducting conventional or counterinsurgency operations in an area with Chinese owned or operated 5G infrastructure. This concern stems from the nature of the relationship between Huawei, an [ostensibly private company](https://www.itnews.com.au/news/analysis-who-really-owns-huawei-175946), and the Chinese Communist Party (CCP). While Huawei’s founder and CEO, Ren Zhengfei proclaimed in a February 2019 interview on [CBS This Morning](https://www.cbsnews.com/news/ren-zhengfei-huawei-ceo-says-we-will-never-provide-chinese-government-with-any-information/) that the company never has and never would provide information to the Chinese government, many experts are [skeptical](https://www.cnbc.com/2019/03/05/huawei-would-have-to-give-data-to-china-government-if-asked-experts.html). Under China’s [2017 National Intelligence Law](https://www.reuters.com/article/us-china-security-lawmaking-idUSKBN19I1FW), the CCP has the authority to monitor and investigate domestic and international companies as well as direct organizations to assist with government espionage efforts. As such, it is conceivable that Huawei will be required to hand over its data to the Chinese government for collection and analysis. Due to this reality, the United States must consider and be prepared to conduct overseas contingency or counterterrorism operations in areas where Chinese telecommunications infrastructure is widely proliferated, thus restricting the United States’ ability to rely on indigenous telecoms. As [noted](https://www.africom.mil/media-room/transcript/31604/gen-joseph-votel-gen-thomas-waldhauser-and-acting-asd-for-international-security-affairs-kathryn) by US AFRICOM Commander General Thomas Waldhauser, this has already become an issue in Africa where Chinese telecommunications companies are poised to dominate. The integrity of U.S. military communications systems that rely on 5G networks could be undermined at key phases of an operation. For example, if the United States is conducting a military operation in an area of interest to China, it is plausible that the Chinese government could leverage Huawei to intercept or even deny military communications. Furthermore, Chinese telecom infrastructure dominance in a theater of operations may limit the U.S. military’s ability to conduct precision targeting that leverages signals intelligence collection on 5G telecommunications networks. The strategic and battlefield implications of who owns and operates 5G infrastructure around the world underscores the national security importance of 5G. The U.S. government and its allies should more systematically assess both the opportunities and risks associated with conducting future military operations in environments that rely on Chinese technology. To date, the U.S. government has devoted significant energy to persuading its allies and partners to follow the United States in prohibiting Chinese telecoms, particularly Huawei, from building and/or operating 5G infrastructure. However, its diplomatic approach has been met with varying degrees of success. While some countries such as [Australia](https://www.ft.com/content/e90c3800-aad3-11e8-94bd-cba20d67390c) and [Japan](https://www.reuters.com/article/us-usa-china-huawei-japan/japans-top-three-telcos-to-exclude-huawei-zte-network-equipment-kyodo-idUSKBN1O90JW) have fallen in line with the U.S. stance on Huawei, many others have not. The European Commission’s recent 5G [recommendations](https://www.cyberscoop.com/5g-eu-huawei-cybersecurity-recommendations/) for member states dismissed a ban on Chinese telecoms. British intelligence has reportedly maintained that the security risks associated with Huawei can be [sufficiently managed](https://www.ft.com/content/619f9df4-32c2-11e9-bd3a-8b2a211d90d5), and New Zealand, after [initially bandwagoning](https://www.nytimes.com/2018/11/28/business/huawei-new-zealand-papua-new-guinea.html) with the United States in December 2018, abruptly [reversed course](https://www.bloomberg.com/news/articles/2019-02-18/new-zealand-says-china-s-huawei-hasn-t-been-ruled-out-of-5g-role) in February 2019. This is concerning for the United States because New Zealand and the UK are members of the Five Eyes intelligence-sharing alliance. Many allies have refused an outright ban of Huawei because of the company’s ability to offer 5G products at far cheaper rates than Western telecoms. It is clear that U.S. diplomatic efforts are not working. The reality is that the bottom line is largely driving decision-making. Therefore, rather than take a purely negative approach, the United States should consider using positive inducements to make its 5G products more appealing. While the United States should not strive to mirror China’s top-down approach to innovation, it should work with allies to use market incentives to make U.S.- and Western-developed 5G infrastructure and products more competitive. Furthermore, the U.S. military needs to anticipate that its use of native telecommunications infrastructure in a future operating environment may be compromised, limited, or denied. The U.S. military will inevitably need greater bandwidth on the tactical edge and this should be an imperative that drives investment in research and development to address this challenge. Technological innovation was at the crux of the United States’ comparative military and economic advantage in the twentieth century. In this contemporary great power competition, U.S. failure to innovate at the scientific and technological frontier will have direct (and deleterious) effects for the United States on the distribution of power in the international system over the long term.

#### Chinese tech superiority upends deterrence and emboldens them to risk conflict over Taiwan---extinction.

Kroenig 18, Deputy Director for Strategy, Scowcroft Center for Strategy and Security Associate Professor of Government and Foreign Service, Georgetown University (Matthew, Nov 12, 2018, “Will disruptive technology cause nuclear war?” *BAS*, <https://thebulletin.org/2018/11/will-disruptive-technology-cause-nuclear-war>)

Rather, we should think more broadly about how new technology might affect global politics, and, for this, it is helpful to turn to scholarly international relations theory. The dominant theory of the causes of war in the academy is the “bargaining model of war.” This theory identifies rapid shifts in the balance of power as a primary cause of conflict. International politics often presents states with conflicts that they can settle through peaceful bargaining, but when bargaining breaks down, war results. Shifts in the balance of power are problematic because they undermine effective bargaining. After all, why agree to a deal today if your bargaining position will be stronger tomorrow? And, a clear understanding of the military balance of power can contribute to peace. (Why start a war you are likely to lose?) But shifts in the balance of power muddy understandings of which states have the advantage. You may see where this is going. New technologies threaten to create potentially destabilizing shifts in the balance of power. For decades, stability in Europe and Asia has been supported by US military power. In recent years, however, the balance of power in Asia has begun to shift, as China has increased its military capabilities. Already, Beijing has become more assertive in the region, claiming contested territory in the South China Sea. And the results of Russia’s military modernization have been on full display in its ongoing intervention in Ukraine. Moreover, China may have the lead over the United States in emerging technologies that could be decisive for the future of military acquisitions and warfare, including 3D printing, hypersonic missiles, quantum computing, 5G wireless connectivity, and artificial intelligence (AI). And Russian President Vladimir Putin is building new unmanned vehicles while ominously declaring, “Whoever leads in AI will rule the world.” If China or Russia are able to incorporate new technologies into their militaries before the United States, then this could lead to the kind of rapid shift in the balance of power that often causes war. If Beijing believes emerging technologies provide it with a newfound, local military advantage over the United States, for example, it may be more willing than previously to initiate conflict over Taiwan. And if Putin thinks new tech has strengthened his hand, he may be more tempted to launch a Ukraine-style invasion of a NATO member. Either scenario could bring these nuclear powers into direct conflict with the United States, and once nuclear armed states are at war, there is an inherent risk of nuclear conflict through limited nuclear war strategies, nuclear brinkmanship, or simple accident or inadvertent escalation. This framing of the problem leads to a different set of policy implications. The concern is not simply technologies that threaten to undermine nuclear second-strike capabilities directly, but, rather, any technologies that can result in a meaningful shift in the broader balance of power. And the solution is not to preserve second-strike capabilities, but to preserve prevailing power balances more broadly. When it comes to new technology, this means that the United States should seek to maintain an innovation edge. Washington should also work with other states, including its nuclear-armed rivals, to develop a new set of arms control and nonproliferation agreements and export controls to deny these newer and potentially destabilizing technologies to potentially hostile states. These are no easy tasks, but the consequences of Washington losing the race for technological superiority to its autocratic challengers just might mean nuclear Armageddon.

#### Taiwan war goes nuclear---entanglement and both sides underestimate escalation risks.

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Alternately, if China did use conventionally armed missiles against U.S. bases in Japan and Guam, perhaps killing not only U.S. and Japanese military personnel, but also local civilians and U.S. dependents, what reaction would that spark? Is it so far-fetched to consider the United States initiating nuclear use under those circumstances? The United States does have viable tactical options, which it has sought to make more robust in accordance with the findings of 2018 Nuclear Posture Review (NPR).45 These include the deployment of the submarine-launched low-yield W76-2 warhead and development of an upgraded version of the B61 tactical gravity bomb.46 Chinese observers have expressly noted that these systems could make U.S. nuclear use more likely, a situation compounded by diminishing U.S. conventional superiority in the Western Pacific.47 To be clear, as with all aspects of this discussion, the point is not to state with certainty that the United States would resort to nuclear use. It might not be even likely. But it is worth acknowledging that it is possible. That is the element that needs to be injected into the debate not only over the future of strategic ambiguity, but over defense planning for Taiwan scenarios more broadly. The preferred U.S. style of warfare—to conduct attacks deep throughout an enemy’s territory rather than simply meeting them at a forward line of engagement—also presents problems and contains the prospect that non-nuclear strikes might unintentionally trip Chinese redlines regarding nuclear use. Within the U.S. academic community, this has produced a small, but important body of literature focused on the subject of “entanglement,” or the co-mingling of systems with both conventional and nuclear applications.48 This discussion has primarily focused on China’s ballistic missile force, as most of its systems are capable of firing both nuclear and non-nuclear warheads.49 China’s increasing reliance on road-mobile ICBMs (such as the DF-31 variants and the new DF-41) complicates this problem, creating the potential for their misidentification as shorter-range systems, such as the road-mobile DF-21 and DF-26, that might be used against U.S. ships or regional bases.50 Analysts have also expressed concern over the potential for U.S. forces to inadvertently sink a Chinese SSBN as part of its ASW campaign during a Taiwan conflict, a fear that echoes similar worries from the U.S.-Soviet struggle.51 Recall again the private comments of Chinese officials about conventional attacks on nuclear systems nullifying its NFU policy. The potential for mutual miscalculation Entanglement issues are far from the whole of the problem. There is still a fundamental misreading—perhaps on both sides—of the ability to manage escalation in Taiwan contingencies for reasons beyond strict operational matters. The very fact of China attempting something as complex and challenging as an amphibious invasion of an island of 24 million people would show an unwelcome tolerance for risk. For that matter, U.S. efforts to defend said island—halfway around the world on another nuclear power’s doorstep—also shows a fair amount of audacity. Put differently, the act of aggression against Taiwan and the effort to repel such an attack both demonstrate that each side is willing to take actions which could be viewed as inherently risky. Through that lens, the additional step to unwanted nuclear escalation is not a great leap. States act rationally, right up until they do not. In considering how a Taiwan contingency would play out, it would therefore be prudent to assume that nuclear use is more viable than cold assessments of each side’s pre-conflict intentions suggest. If academic surveys of Chinese strategic literature are correct, overoptimism on the ability to manage escalation once hostilities commence is not confined to the U.S. side.52

#### Patent holdup is real and necessitates intervention, even if it can’t be systemically proven.

Contreras 19, \*Jorge Contreras, Professor, University of Utah S.J. Quinney College of Law; (2019, “MUCH ADO ABOUT HOLD-UP”, <https://www.illinoislawreview.org/wp-content/uploads/2019/08/Contreras.pdf>)

III. CAN WE PLEASE STOP SEARCHING FOR SYSTEMIC HOLD-UP? It is not the purpose of this article to critique the data or methodologies used by researchers who claim that there is no evidence of systemic hold-up. Though questions remain, the data presented in the cited studies finding no empirical evidence of systemic hold-up present plausible descriptions of current markets for products such as smart phones and other connected technology devices. Instead, this critique is directed at the core assumption that runs through each of these studies: that a lack of evidence of systemic hold-up means that hold-up does not represent a threat that justifies policy intervention. In this Part, I argue that, notwithstanding the findings of these studies, patent hold-up in standardized product markets may indeed be a threat that merits preventative policy measures, but that those measures should be directed toward the prevention of well-understood and actionable forms of anticompetitive conduct rather than the economic phenomenon of hold-up. A. The Absence of Systemic Hold-Up Does Not Mean that Hold-Up Does Not Occur In a 2017 article, Galetovic and Haber utilize an extended analogy drawn from the field of Mayan archeology to make the point that scholars sometimes ignore the facts in front of them in order to cling to pre-formed (and empirically unsupported) beliefs.92 In this analogical tradition, I will use a hypothetical from public health epidemiology to illustrate a related point. Let us consider the often fatal and highly contagious viral infection Ebola. U.S. public health officials, aware of the dangerous effects of Ebola, might propose the implementation of prophylactic measures to prevent the spread of Ebola in the United States. Such measures might include early detection systems at U.S. hospitals, a network of Ebola experts ready to investigate suspected cases, and potential vaccines for particularly vulnerable populations. All of these measures, of course, would come at a cost. Those opposing the incurrence of this cost might argue that such measures are unjustified because there is no empirical evidence that Ebola is a problem in the U.S. After all, there are no documented outbreaks of the disease, and the only reported cases have been sporadic and linked to other factors (such as health workers returning from abroad). In fact, both lifespan and overall health in the United States have been improving steadily over the past several decades. Most declines in population health can be traced to causes such as tobacco use, poor dietary choices, lack of exercise and the like, but not to Ebola. Thus, because there is no evidence that Ebola outbreaks have occurred in the United States nor any linkage between decreased health and Ebola, and because the overall health of the United States population continues to improve, there is no justification for preventative measures to stop Ebola outbreaks in the United States. This reasoning is, of course, fallacious and, in the case of a disease like Ebola, dangerously so. In the field of public health, prophylactic measures are often taken before a health risk affects a significant portion of the population. This is the reason for prophylactic measures in the first place. In the field of public health, it is widely recognized that risks arising from any number of environmental and pathogenic sources can be assessed based on laboratory analysis and test cases, without population-level epidemiological data. In fact, once population level data for such outbreaks is available, it is often too late: an epidemic has broken out and millions are at risk. Luckily, it is doubtful that public health officials would apply the fallacious reasoning outlined above to important public health decisions. Curiously, however, this “Ebola fallacy” has taken root in the debate over patent hold-up. As discussed above, the purported lack of empirical evidence of system-wide patent hold-up is used as a justification for abandoning or forestalling policy interventions aimed at reducing the risk of hold-up. Because hold-up has not been detected at a systemic level, so the argument goes, it must not be a problem. Therefore, measures designed to prevent hold-up from occurring must be the result of gratuitous or over-zealous policy making. The logical fallacies in this argument should be apparent. In fact, there are numerous examples of anticompetitive conduct by individual firms in markets that are not otherwise overrun by anticompetitive behavior. For example, in 2009, the Federal Trade Commission brought an action against pharmaceutical manufacturer Solvay and a group of generic drug manufacturers for violating Section 5 of the FTC Act by entering into an arrangement whereby the generic manufacturers agreed not to challenge Solvay’s patent on its AndroGel product and not to market their generic versions of AndroGel, in exchange for a significant payment by Solvay to each of the generic manufacturers (a so-called “pay for delay” scheme).94 The Supreme Court held in 2013 that such conduct was actionable and reversed the Eleventh Circuit’s dismissal of the FTC’s claim.95 Yet even in 2009, the year in which the FTC brought its action, of the 68 agreements settling patent disputes filed by pharmaceutical manufacturers with the FTC,96 the FTC estimated that only 19 of these (28%) were potential pay for delay agreements; and by 2014, the year after the Actavis decision, only 21 out of 160 such agreements (13%) were deemed by the FTC likely to represent illegal pay for delay schemes.97 Thus, while pharmaceutical industry patent settlements have attracted significant attention as potentially anticompetitive arrangements, most such settlements do not merit investigation by the FTC.98 An even more telling example is found in the area of mergers and acquisitions. During fiscal year 2016, a total of 1,832 merger and acquisition transactions were reported to the FTC and DOJ under the Hart-Scott-Rodino Antitrust Improvements Act.99 Of these, the FTC challenged only twenty-two (1.2%). 100 Thus, while some anticompetitive mergers may exist, the vast majority are not anticompetitive.101 But the absence of market-wide anticompetitive conduct in the area of mergers and acquisitions hardly excuses the handful of transactions that do present antitrust risks, nor does it suggest that mergers should not be subject to governmental monitoring and, when merited, enforcement. B. Protective Measures May Already Be Working to Reduce Hold-Up Another important factor that should be considered regarding the purported lack of empirical evidence of systemic hold-up is the effect that existing policy measures have already had in reducing hold-up. As noted above, the threat of patent hold-up was a primary motivating factor for many SDOs to adopt policies requiring the disclosure and licensing of SEPs. These policies have been in place for decades. In the United States, the first such policy was adopted in 1959 by the American Standards Association (the predecessor to today’s American National Standards Institute (ANSI).102 Today, every one of the more than 200 ANSI-accredited developers of American National Standards must adhere to ANSI’s essential requirements, including the adoption of such a licensing policy for SEPs. Similar policies have existed in European and international standards organizations since at least the 1980s.103 These policies, which were developed by SDOs in large part to reduce the likelihood of hold-up within standard-setting systems, have had several decades to work, and it is likely that the lack of observed hold-up in some studies can be attributed to the successful operation of these policies. Similarly, antitrust and competition enforcement agencies in the U.S. and Europe have been aware of the potential for hold-up connected with standardization for many years. Accordingly, they have brought enforcement actions when it has been alleged that hold-up behavior has resulted in a violation of the antitrust laws. High-profile enforcement actions against patent holders such as Rambus, 104 Google 105 and Qualcomm106 send powerful deterrent signals to the market and warn others not to engage in similar behavior lest they, too, become the subject of agency enforcement. Like SDO policies, it is likely that the general market awareness of agency interest in standard-setting and hold-up has, to a degree, limited the amount of hold-up that is actually attempted in the marketplace, thereby limiting the direct evidence of hold-up as a systemic problem. But do the deterrent effects of SDO and agency efforts to reduce hold-up signify that hold-up is not a problem? Certainly not. To reach such a conclusion would be perverse: akin to claiming that burglary is not a problem in a neighborhood that experiences reduced burglary rates after it has implemented an active neighborhood watch program and enhanced policing. C. Indicia of Healthy Markets do not Prove the Absence of Anticompetitive Conduct As noted above, one of the principal arguments advanced by commentators seeking to refute the “hold-up theory” is that markets for telecommunications products, namely smart phones, are robust – evidenced by increasing product functionality, decreasing consumer prices and rapid innovation -- and that this degree of robustness indicates that hold-up cannot be a problem in these markets.107 If hold-up were a problem in these markets, they reason, we would see product stagnation, stable (but high) prices, and a lack of competition – features associated with classic examples of hold-up in markets for products such as natural resources and agricultural goods.108 But this argument relies on a false syllogism: hold-up results in market dysfunction; if a market functions well, then it cannot be subject to hold-up. The weaknesses in this argument are multifold. First, hold-up may exist in individual instances without sufficient weight to affect overall market characteristics, particularly in a large global market such as mobile telecommunications. Thus hold-up may exist, even in a market that outwardly appears to be functioning well. Second, there is no valid counterfactual to use to compare the health and robustness of the market for mobile telecommunications products.109 Other consumer electronics devices, such as televisions and DVD players, do not compare well with mobile telecommunications devices, which have taken on a unique character in the modern networked economy. Thus, observing the strength of the market fails to answer the critical questions “compared to what?” and how much stronger the market might be (through more product diversity, functionality, price reduction) without hold-up? A simple historical illustration is useful in this context. During the decade leading up to the enactment of the Sherman Antitrust Act of 1890, several major U.S. commodity markets (e.g., steel, salt, petroleum, coal, sugar, lead, and others) came under intense scrutiny for a variety of allegedly anticompetitive industrial arrangements. One might have argued that these markets, had they been subject to the sorts of anticompetitive collusion that the Sherman Act sought to address, should have seen reductions of output and increases in price. Yet, between 1880 and 1890, U.S. output of salt, petroleum, steel, and coal all increased significantly, and prices of steel, sugar and lead all dropped significantly.110 Do these positive market indicia demonstrate that the subject markets were not subject to anticompetitive collusion, and that the Sherman Act was not necessary? Certainly, investigations of these industries revealed significant cartel behavior. I would suggest that few commentators today would argue that the coal, steel, sugar and other major industrial producers of the late nineteenth century were innocent of collusive and anticompetitive conduct, or that the Sherman Act was not a necessary and beneficial measure for the U.S. economy.111 Yet, had we relied solely on the positive characteristics exhibited by these markets as proof that anticompetitive conduct did not exist, then perhaps the Sherman Act never would have been enacted. By the same token, the fact that global markets for standardized products such as computers and smart phones appear to be thriving does not itself refute the possibility of hold-up nor the existence of anticompetitive conduct in these markets. Nor does it allow regulators and policy makers to drop their guard or cease to monitor these important industries.

### 1AC---Cybersecurity

#### Advantage 2 is Cybersecurity:

#### Aggressive patent strategies create structural flaws in 5G standardization that imperils domestic cybersecurity---market competition reduces the incidence of vulnerability and severity of attacks.

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III. COMPETITION AND CYBERSECURITY In addition to the historical review done so far, another approach to understanding the relationship among patents, competition, and national security is to consider the role of cybersecurity. There is little doubt that computer system vulnerabilities that enable hacking and spread of computer exploits are a threat to the nation’s defenses, so better cybersecurity is a key part of national security strategy.155 Strong competition can thus complement national security by enhancing domestic cybersecurity, and patent assertion that unduly weakens competition detracts from cybersecurity.156 Competition promotes better cybersecurity in at least two ways. First, multiple studies show that competition encourages firms to improve their products on multiple vectors including cybersecurity. Second, competition avoids a situation that security experts call a “monoculture,” which increases vulnerability to severe cyberattacks. As former Secretary of Homeland Security Michael Chertoff wrote recently, “We need competition and multiple providers, not a potentially vulnerable technological monoculture,” to guarantee national security.157 Thus, cybersecurity provides a useful lens for understanding how unfettered patent assertion and licensing can detract from national security. A. Cybersecurity as Competitive Value-Add Competition enhances national security by reducing the incidence of technical vulnerabilities. That effect is especially important for security sensitive systems such as mobile telecommunications. Intuitively, a causal chain from competition to cybersecurity makes logical sense. Computer security is a value-added benefit to consumers, so firms in competitive markets are likely to use security to gain an edge over their competitors.158 In monopolized markets, though, there may be less external impetus to test products for flaws, and the monopolist may choose to focus less on security and more on new product features or increased product quality. Economic research confirms these hypotheses about competition leading to better cybersecurity. A 2009 empirical study of web browsers considered the impact of market concentration on the amount of time that vendors took to fix security vulnerabilities as they were discovered.159 The study found that the presence of more competitors correlated with faster cybersecurity response—a reduction of 8–10 days in response time per additional market rival.160 Similarly, business researchers in 2005 modeled incentives for firms to engage in sharing of cybersecurity information, and concluded that the “inclination to share information and invest in security technologies increases as the degree of competitiveness in an industry increases.”161 Another study found that, where two software firms are in competition, at least one will be willing to take on some degree of risk and responsibility for cybersecurity, whereas a monopoly software firm will consistently fail to accept such responsibility.162 To be sure, an unpublished study from 2017 found that some market concentration can make firms more responsive to cybersecurity issues, but only to a point: “being in a dominant position reduces the positive effect of having less competitors on the responsiveness of the vendor,” and indeed the “more dominant the firm is, the less rapid it is in releasing security patches.”163 This research confirms that competition is more conducive to cybersecurity. It is not hard to see how this applies to emerging communication technologies markets. In the absence of competition, the above research suggests that device manufacturers, chip makers, and software developers will lack incentives to respond to vulnerabilities, to share information about cybersecurity practices and issues, and to take responsibility for security matters. Mobile phone chips have had their share of cybersecurity failures already.164 The best way to flush out ongoing and future cybersecurity issues is to maintain competitive pressure at all levels of the supply chain. B. Vulnerabilities of “Monocultures” A second reason why monopoly undermines cybersecurity is that monopoly leads to a “monoculture” of single-vendor products, opening the door to massive systemic failure in the case of a cyberattack. Computer researchers developed the theory of software monocultures in the early 2000s, in response to the regular phenomenon of computer viruses and other attacks spreading rapidly by exploiting flaws in the dominant operating system at the time, Microsoft Windows.165 Where a computer system such as Windows has a commanding share of users, a virus that exploits a flaw in that system can quickly spread to infect a whole interconnected ecosystem. An operating system monopoly thus enables fast and easy spread of cyberattacks, and better cybersecurity would be achieved through greater diversity in online systems.166 As one research group posited, “a network architecture that supports a collection of heterogeneous network elements for the same functional capability offers a greater possibility of surviving security attacks as compared to homogeneous networks.”167 There has been considerable study of the theory that computer monocultures are naturally more vulnerable to attacks.168 In one study, computer science researchers reviewed a catalog of 6,340 software vulnerabilities recorded in 2007, to compare whether comparable software would share the same flaws.169 Of the 2,627 vulnerabilities applicable to application software (as opposed to operating systems, web scripts, and other software components), only 29 (1.1%) applied to substitute products from different vendors but providing the same functionality.170 By contrast, different versions of a single software product were found to share vulnerabilities 84.7% of the time.171 Thus, software monocultures share exploitable flaws even when there is some variation in versions across the monoculture; by contrast, diversity in software is almost guaranteed to prevent a single flaw from affecting all users. In the case of 5G and wireless mobile communications, a monoculture is an especially concerning possibility. To the extent that systems such as smart city sensors or communication networks are widely deployed in a monoculture fashion, a widespread attack could have devastating consequences, potentially blacking out a region and affecting essential services such as 911.172 A monoculture that is vulnerable to so-called “rootkits” or “backdoors”—maliciously installed software that enable bad actors to commandeer systems—could also enable mass surveillance or spying by private hackers or foreign governments.173 The presence of systems from multiple vendors would mitigate these possibilities. The monoculture theory is not without critics, but a review of those criticisms shows them to be inapplicable to contemporary communication technologies. Some critics suggest that software diversity imposes unwarranted costs on firms who must forego economies of scale and devise seemingly duplicative yet different setups of computer systems.174 But those concerns largely focus on the situation where a single firm produces and manages heterogeneous systems, concerns that are avoided where heterogeneity arises naturally through competition between two unrelated firms. Critics also argue that technological measures can create “artificial diversity” through automated randomization of software code, so software engineers can purportedly solve monoculture issues and device users need not worry about the issue.175 But even these critics acknowledge that artificial diversity techniques are often insufficient because they must make assumptions about what aspects of the technology are most vulnerable to attack, and they concede that artificial diversity cannot stop attacks involving operation of legitimate software functions in undesirable ways (sending spam emails or deleting document files, for example).176 It is widely recognized that a monoculture is unavoidable in at least one respect: Most connected devices will need to conform to technical standards.177 5G, for example, is a technical standard developed by a private industry consortium called 3GPP.178 A flaw in any such standard would render all mobile devices implementing the standard vulnerable to an identical attack.179 Avoiding these sorts of systemic flaws in standards requires rigorous development, analysis, and testing of the standard in the development process, which in turn requires ensuring that as many firms as possible, especially firms that share basic American values, are involved in the development of those standards.180 Thus, the necessary standardization of information and communication technologies is perhaps the most important reason why a competitive communication technology market is essential to cybersecurity and national security.

#### Cyber escalation is more likely now than ever---empirics don’t assume intensified competition and acute geopolitical conditions.

Jervis et al. 20, \*Robert Jervis (Ph.D., California at Berkeley, 1968) is the Adlai E. Stevenson Professor of International Politics and has been a member of the Columbia political science department since 1980; \*Jason Healey is a senior research scholar and adjunct professor at the School of International and Public Affairs, Columbia University. He is also a senior fellow with the Cyber Statecraft Initiative at the Atlantic Council, where he was the program's founding director; (Fall 2020, “The Escalation Inversion and Other Oddities of Situational Cyber Stability”, https://tnsr.org/2020/09/the-escalation-inversion-and-other-oddities-of-situational-cyber-stability/)

Situational Cyber Stability: When Cyber Capabilities Can Be Destabilizing To sum up: Cyber conflict has not escalated and there are strong, theory-backed reasons why it provides negative feedback, acting as a pressure release pushing back against geopolitical crises. We agree with these conclusions, which explain why cyber conflict has not yet escalated and may not in the future. However, we believe they hold only if the next few decades generally resemble the past few. This stability is situational and we see three major, interrelated mechanisms by which it may change. Cyber conflicts and competition are intensifying over increasing stakes and might inadvertently or intentionally spark a larger conflict; there is a higher likelihood of acute crises, far worse than the relatively bland geopolitical conditions of the past decades; and in times of acute crisis, the dynamics go through an inversion, encouraging rather than suppressing escalation. Spark: Cyber Conflict Can Cause Acute Geopolitical Crises As cyberspace becomes increasingly existential for economies and societies, states compete more aggressively over the same cyber terrain and treasure. In such circumstances, cyber capabilities add positive feedback, intensifying conflict within cyberspace. Ben Buchanan has featured some of these dynamics in his book, The Cybersecurity Dilemma. If a “potential adversary bolsters its own security by increasing its methods of secrecy and ratcheting up intrusive collection of its own — or by shooting back at the collectors — the first state will often feel a need to respond” with “still more intrusive collection.”[34](https://tnsr.org/2020/09/the-escalation-inversion-and-other-oddities-of-situational-cyber-stability/" \l "_ftn34) This situation is one which can easily notch upward but only with great difficulty be reversed. This section will summarize the relevant dynamics of cyber conflict, establish that conflict is escalating in cyberspace, and discuss how this dangerous mix of factors can spark war. Escalation in Cyberspace Cyber conflict and competition are intensifying. A cyber incident might cross the threshold into armed conflict either through a sense of impunity or through miscalculation or mistake. Alternatively, the cyber attack might be brazen or reckless enough to demand a muscular response from the target state. Libicki’s framework of cyber escalation requires three elements: an increase in intensity, the crossing of significant thresholds, and causal links between cyber incidents (i.e., “one attack is in response to another”).[35](https://tnsr.org/2020/09/the-escalation-inversion-and-other-oddities-of-situational-cyber-stability/" \l "_ftn35) A cyber incident might cross the threshold into armed conflict either through a sense of impunity or through miscalculation or mistake. We believe the first two elements are important and it is not necessary to balance each incident with its tit-for-tat response. Cyber conflict can be escalatory even if there is not a direct retaliation (“you did A, so we will do X”) but rather a trend over time (“we caught you doing A and B, and suspect you of C … so we’ll do X and Y and for good measure see no reason to further hold off on Z”). It is through this larger picture, the series of campaigns and capabilities, that the escalatory mechanics become obvious. Despite no provable chain of causation from A to Z, the series can show evidence of intensification and ignored thresholds, if the direction and magnitude of the vector are consistent over a long period of time. A full analysis of escalation requires its own paper, but as an initial analysis we have selected four points each separated by a decade over forty years in order to illustrate this trend: In 1988, nations did not have major cyber organizations. Within the U.S. Department of Defense, there were small groups planning and conducting offensive operations, but there was no dedicated civilian defensive team in the United States until the creation of the Computer Emergency Response Team, funded by the Defense Department, in November 1988. There were significant incidents — such as the Morris Worm of 1988 and a case known as the Cuckoo’s Egg of 1986 which involved German hackers who searched for information on U.S. ballistic missile defense technologies and then passed their findings along to the Soviet KGB. However shocking at the time, those incidents still had quite modest scope, duration, and intensity.[36](https://tnsr.org/2020/09/the-escalation-inversion-and-other-oddities-of-situational-cyber-stability/" \l "_ftn36) Ten years later in 1998, the world’s first combat cyber unit — established in the U.S. Air Force — had already been in existence for three years, with 93 officers and enlisted.[37](https://tnsr.org/2020/09/the-escalation-inversion-and-other-oddities-of-situational-cyber-stability/" \l "_ftn37) The first major cyber bank heist was in 1995 against Citibank, while the U.S. military created the first cyber command in 1998 in response to the internal Eligible Receiver exercise and Solar Sunrise incident.[38](https://tnsr.org/2020/09/the-escalation-inversion-and-other-oddities-of-situational-cyber-stability/" \l "_ftn38) This command was staffed by about two dozen defenders (including one of the authors) and worked with the larger Computer Emergency Response Team and similar teams in the military services to defend against and trace the major Moonlight Maze espionage case to Russia.[39](https://tnsr.org/2020/09/the-escalation-inversion-and-other-oddities-of-situational-cyber-stability/" \l "_ftn39) Within two years, the command expanded and took on responsibilities to coordinate offensive operations, growing to 122 personnel with a $26 million budget.[40](https://tnsr.org/2020/09/the-escalation-inversion-and-other-oddities-of-situational-cyber-stability/" \l "_ftn40) Only 10 years after that, in 2008, Estonia suffered a debilitating cyber attack from Russia. Espionage against the United States from Russia became increasingly worrisome, including a case known as Buckshot Yankee, where Russian spies breached classified networks. Chinese theft of intellectual property would be known as the “greatest transfer of wealth in history” by 2012.[41](https://tnsr.org/2020/09/the-escalation-inversion-and-other-oddities-of-situational-cyber-stability/" \l "_ftn41) In direct response to these incidents, the Department of Defense combined their dedicated offensive and defensive task forces into a single U.S. Cyber Command in 2010.[42](https://tnsr.org/2020/09/the-escalation-inversion-and-other-oddities-of-situational-cyber-stability/" \l "_ftn42) What had been a defensive-only command with 25 people in 1998 grew to cover both offense and defense with a staff of over 900 by 2011.[43](https://tnsr.org/2020/09/the-escalation-inversion-and-other-oddities-of-situational-cyber-stability/" \l "_ftn43) In the decade leading up to 2018, the United States launched a sophisticated cyber assault on Iranian uranium enrichment facilities; Iran conducted sustained denial of service attacks on the U.S. financial system; North Korea attacked Sony; and Russia disrupted the Ukrainian power grid in winter (twice) and the opening ceremony of the Olympics.[44](https://tnsr.org/2020/09/the-escalation-inversion-and-other-oddities-of-situational-cyber-stability/" \l "_ftn44) U.S. Cyber Command grew to 6,200 personnel just in the operational element.[45](https://tnsr.org/2020/09/the-escalation-inversion-and-other-oddities-of-situational-cyber-stability/" \l "_ftn45) Iran and China created their own cyber commands as did the Netherlands,[46](https://tnsr.org/2020/09/the-escalation-inversion-and-other-oddities-of-situational-cyber-stability/" \l "_ftn46) the United Kingdom,[47](https://tnsr.org/2020/09/the-escalation-inversion-and-other-oddities-of-situational-cyber-stability/" \l "_ftn47) France,[48](https://tnsr.org/2020/09/the-escalation-inversion-and-other-oddities-of-situational-cyber-stability/" \l "_ftn48) Singapore,[49](https://tnsr.org/2020/09/the-escalation-inversion-and-other-oddities-of-situational-cyber-stability/" \l "_ftn49) Vietnam,[50](https://tnsr.org/2020/09/the-escalation-inversion-and-other-oddities-of-situational-cyber-stability/" \l "_ftn50) Germany,[51](https://tnsr.org/2020/09/the-escalation-inversion-and-other-oddities-of-situational-cyber-stability/" \l "_ftn51) and others. If intensification is measured as worsening levels of violence, then cyber conflict has intensified across all periods. By 2018, the problems faced in 2008 seemed minor and the organizations small and limited, while the cyber incidents from 1998 and 1988 appeared positively trivial. Operations that had appeared risky 20 years beforehand were now routine. The intensification trend is also clear according to the measurement of Libicki’s “number of troops committed to the fight.” The Defense Department expanded the central cyber warfighting force from zero troops in 1988 to 25 in 1998, 900 in 2011, and at least 6,200 in 2018. The first commander of the U.S. Cyber Command noted in 2011 that its creation “garnered a great deal of attention from other militaries,” which he hoped was not a sign of militarization but rather “a reflection of concern.”[52](https://tnsr.org/2020/09/the-escalation-inversion-and-other-oddities-of-situational-cyber-stability/" \l "_ftn52) Nations must indeed be concerned, as there are now dozens of copycats. Jensen, Valeriano, and Maness, using more quantified methods, have similar findings to this qualitative assessment, tracking a strong growth of latent cyber power by Russia and China from 2001 through 2014.[53](https://tnsr.org/2020/09/the-escalation-inversion-and-other-oddities-of-situational-cyber-stability/" \l "_ftn53) There is no obvious evidence pointing to a decrease or even a plateau in the intensity of cyber conflict, or that fewer thresholds are being passed now than 10, 20, or 30 years ago. The direction and magnitude of the change over four decades has marched in only one direction: a relentless increase as nations build their organizations and employ them in more frequent and more dangerous incidents.

#### 5G rollout is inevitable and vastly broadens America’s cyber vulnerabilities.

Durbin 20, \*Managing Director of the Information Security Forum (ISF); (August 11th, 2020, “5G Brings Benefits, But Also Heralds Fresh Security Threats”, https://www.forbes.com/sites/forbesbusinesscouncil/2020/08/11/5g-brings-benefits-but-also-heralds-fresh-security-threats/?sh=2277006b77f1)

The continuing rollout of the fifth generation of mobile networks and technologies, known collectively as 5G, is set to radically transform the business world. Incredible new speeds, dramatically reduced latency and fresh swathes of bandwidth will allow real-time connectivity on a whole new scale. Smart cities, autonomous vehicles and augmented reality present amazing opportunities, so it’s no surprise that investment in 5G technologies from governments and businesses is enormous and growing. Amid the excitement of all this technological promise, significant new dangers are being overlooked. As digital connectivity soars to new heights and internet of things devices expand to rapidly become the internet of forgotten things, organizations will face a number of serious security challenges. As someone who specializes in cybersecurity and technology, I believe it’s crucial that organizations start to consider the threats posed by a vastly broadened attack surface, machine learning manipulation and parasitic malware. Securing The Infrastructure From my perspective, organizations, businesses and individuals will quickly become reliant on 5G networks for daily life. Inevitably, 5G technologies and infrastructure will be a prime target for foreign governments and cybercriminals. The line between protectionism and concern about espionage is blurry. Any uncertainty about the technology that forms critical infrastructure should be of major concern to business leaders. While the explosion of digital connectivity presents new opportunities, it also massively increases potential attack surfaces. Many more devices and sensors will be connected by millions of new 5G masts, and these new 5G networks have a heavier reliance on software. What this means is an explosion of new attack vectors, possible vulnerabilities and weaknesses that can be exploited by a range of bad actors. All the benefits that 5G promises in terms of greater speeds and lower latency will also benefit hacktivists, enabling them to carry out attacks more rapidly and at greater scale. Fresh Threat Landscape Spoofing and jamming of 5G networks could cause serious disruption for supply chains and dependent infrastructure. By targeting embedded IoT devices, determined attackers could put vital networks under threat. Greater speed, higher bandwidth and lower latency will enhance the potency of distributed denial of service attacks. Many traditional techniques will find fresh life in the 5G future, and the impact on business could be catastrophic. As more organizations come to rely on machine learning, I predict attackers will find new ways to exploit neural networks and subvert these systems for their own gain. Manipulated machine learning could enable attackers to enrich themselves, obfuscate and deceive, ultimately sowing confusion on a grand scale. What’s worrisome is the opportunity for parasitic malware to burrow into 5G networks and systems to steal processing power and degrade the performance or even shut down critical services like water and power. Any adoption of 5G must include a proper assessment of the risks involved and plans for protection, vigilance and remediation of security incidents.

#### NC3 systems are technically vulnerable, attractive targets.

Klare 19, \*Michael T. Klare is a professor emeritus of peace and world security studies at Hampshire College and senior visiting fellow at the Arms Control Association; (November 19th, “Cyber Battles, Nuclear Outcomes? Dangerous New Pathways to Escalation”, https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation)

The Nuclear-Cyber Connection These links exist because the NC3 systems of the United States and other nuclear-armed states are heavily dependent on computers and other digital processors for virtually every aspect of their operation and because those systems are highly vulnerable to cyberattack. Every nuclear force is composed, most basically, of weapons, early-warning radars, launch facilities, and the top officials, usually presidents or prime ministers, empowered to initiate a nuclear exchange. Connecting them all, however, is an extended network of communications and data-processing systems, all reliant on cyberspace. Warning systems, ground- and space-based, must constantly watch for and analyze possible enemy missile launches. Data on actual threats must rapidly be communicated to decision-makers, who must then weigh possible responses and communicate chosen outcomes to launch facilities, which in turn must provide attack vectors to delivery systems. All of this involves operations in cyberspace, and it is in this domain that great power rivals seek vulnerabilities to exploit in a constant struggle for advantage. The use of cyberspace to gain an advantage over adversaries takes many forms and is not always aimed at nuclear systems. China has been accused of engaging in widespread cyberespionage to steal technical secrets from U.S. firms for economic and military advantages. Russia has been accused, most extensively in the Robert Mueller report, of exploiting cyberspace to interfere in the 2016 U.S. presidential election. Nonstate actors, including terrorist groups such as al Qaeda and the Islamic State group, have used the internet for recruiting combatants and spreading fear. Criminal groups, including some thought to be allied with state actors, such as North Korea, have used cyberspace to extort money from banks, municipalities, and individuals.[4](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote04) Attacks such as these occupy most of the time and attention of civilian and military cybersecurity organizations that attempt to thwart such attacks. Yet for those who worry about strategic stability and the risks of nuclear escalation, it is the threat of cyberattacks on NC3 systems that provokes the greatest concern. This concern stems from the fact that, despite the immense effort devoted to protecting NC3 systems from cyberattack, no enterprise that relies so extensively on computers and cyberspace can be made 100 percent invulnerable to attack. This is so because such systems employ many devices and operating systems of various origins and vintages, most incorporating numerous software updates and “patches” over time, offering multiple vectors for attack. Electronic components can also be modified by hostile actors during production, transit, or insertion; and the whole system itself is dependent to a considerable degree on the electrical grid, which itself is vulnerable to cyberattack and is far less protected. Experienced “cyberwarriors” of every major power have been working for years to probe for weaknesses in these systems and in many cases have devised cyberweapons, typically, malicious software (malware) and computer viruses, to exploit those weaknesses for military advantage.[5](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote05)

#### Compromised NC3 escalates to nuclear war---instills use-it or lose-it pressures that upend crisis stability.

Klare 19, \*Michael T. Klare is a professor emeritus of peace and world security studies at Hampshire College and senior visiting fellow at the Arms Control Association; (November 19th, “Cyber Battles, Nuclear Outcomes? Dangerous New Pathways to Escalation”, https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation)

Although activity in cyberspace is much more difficult to detect and track than conventional military operations, enough information has become public to indicate that the major nuclear powers, notably China, Russia, and the United States, along with such secondary powers as Iran and North Korea, have established extensive cyberwarfare capabilities and engage in offensive cyberoperations on a regular basis, often aimed at critical military infrastructure. “Cyberspace is a contested environment where we are in constant contact with adversaries,” General Paul M. Nakasone, commander of the U.S. Cyber Command (Cybercom), told the Senate Armed Services Committee in February 2019. “We see near-peer competitors [China and Russia] conducting sustained campaigns below the level of armed conflict to erode American strength and gain strategic advantage.” Although eager to speak of adversary threats to U.S. interests, Nakasone was noticeably but not surprisingly reluctant to say much about U.S. offensive operations in cyberspace. He acknowledged, however, that Cybercom took such action to disrupt possible Russian interference in the 2018 midterm elections. “We created a persistent presence in cyberspace to monitor adversary actions and crafted tools and tactics to frustrate their efforts,” he testified in February. According to press accounts, this included a cyberattack aimed at paralyzing the Internet Research Agency, a “troll farm” in St. Petersburg said to have been deeply involved in generating disruptive propaganda during the 2016 presidential elections.[6](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote06) Other press investigations have disclosed two other offensive operations undertaken by the United States. One called “Olympic Games” was intended to disrupt Iran’s drive to increase its uranium-enrichment capacity by sabotaging the centrifuges used in the process by infecting them with the so-called Stuxnet virus. Another left of launch effort was intended to cause malfunctions in North Korean missile tests.[7](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote07) Although not aimed at either of the U.S. principal nuclear adversaries, those two attacks demonstrated a willingness and capacity to conduct cyberattacks on the nuclear infrastructure of other states. Efforts by strategic rivals of the United States to infiltrate and eventually degrade U.S. nuclear infrastructure are far less documented but thought to be no less prevalent. Russia, for example, is believed to have planted malware in the U.S. electrical utility grid, possibly with the intent of cutting off the flow of electricity to critical NC3 facilities in the event of a major crisis.[8](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote08) Indeed, every major power, including the United States, is believed to have crafted cyberweapons aimed at critical NC3 components and to have implanted malware in enemy systems for potential use in some future confrontation. Pathways to Escalation Knowing that the NC3 systems of the major powers are constantly being probed for weaknesses and probably infested with malware designed to be activated in a crisis, what does this say about the risks of escalation from a nonkinetic battle, that is, one fought without traditional weaponry, to a kinetic one, at first using conventional weapons and then, potentially, nuclear ones? None of this can be predicted in advance, but those analysts who have studied the subject worry about the emergence of dangerous new pathways for escalation. Indeed, several such scenarios have been identified.[9](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote09) The first and possibly most dangerous path to escalation would arise from the early use of cyberweapons in a great power crisis to ~~paralyze~~ undermine the vital command, control, and communications capabilities of an adversary, many of which serve nuclear and conventional forces. In the “fog of war” that would naturally ensue from such an encounter, the recipient of such an attack might fear more punishing follow-up kinetic attacks, possibly including the use of nuclear weapons, and, fearing the loss of its own arsenal, launch its weapons immediately. This might occur, for example, in a confrontation between NATO and Russian forces in east and central Europe or between U.S. and Chinese forces in the Asia-Pacific region. Speaking of a possible confrontation in Europe, for example, James N. Miller Jr. and Richard Fontaine wrote that “both sides would have overwhelming incentives to go early with offensive cyber and counter-space capabilities to negate the other side’s military capabilities or advantages.” If these early attacks succeeded, “it could result in huge military and coercive advantage for the attacker.” This might induce the recipient of such attacks to back down, affording its rival a major victory at very low cost. Alternatively, however, the recipient might view the attacks on its critical command, control, and communications infrastructure as the prelude to a full-scale attack aimed at neutralizing its nuclear capabilities and choose to strike first. “It is worth considering,” Miller and Fontaine concluded, “how even a very limited attack or incident could set both sides on a slippery slope to rapid escalation.”[10](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote10) What makes the insertion of latent malware in an adversary’s NC3 systems so dangerous is that it may not even need to be activated to increase the risk of nuclear escalation. If a nuclear-armed state comes to believe that its critical systems are infested with enemy malware, its leaders might not trust the information provided by its early-warning systems in a crisis and might misconstrue the nature of an enemy attack, leading them to overreact and possibly launch their nuclear weapons out of fear they are at risk of a preemptive strike. “The uncertainty caused by the unique character of a cyber threat could jeopardize the credibility of the nuclear deterrent and undermine strategic stability in ways that advances in nuclear and conventional weapons do not,” Page O. Stoutland and Samantha Pitts-Kiefer wrote in 2018 paper for the Nuclear Threat Initiative. “[T]he introduction of a flaw or malicious code into nuclear weapons through the supply chain that compromises the effectiveness of those weapons could lead to a lack of confidence in the nuclear deterrent,” undermining strategic stability.[11](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote11) Without confidence in the reliability of its nuclear weapons infrastructure, a nuclear-armed state may misinterpret confusing signals from its early-warning systems and, fearing the worst, launch its own nuclear weapons rather than lose them to an enemy’s first strike. This makes the scenario proffered in the 2018 NPR report, of a nuclear response to an enemy cyberattack, that much more alarming.

#### Attacks on vital infrastructure cause accidental escalation.

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Yet another pathway to escalation could arise from a cascading series of cyberstrikes and counterstrikes against vital national infrastructure rather than on military targets. All major powers, along with Iran and North Korea, have developed and deployed cyberweapons designed to disrupt and destroy major elements of an adversary’s key economic systems, such as power grids, financial systems, and transportation networks. As noted, Russia has infiltrated the U.S. electrical grid, and it is widely believed that the United States has done the same in Russia.[12](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote12) The Pentagon has also devised a plan known as “Nitro Zeus,” intended to immobilize the entire Iranian economy and so force it to capitulate to U.S. demands or, if that approach failed, to pave the way for a crippling air and missile attack.[13](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote12) The danger here is that economic attacks of this sort, if undertaken during a period of tension and crisis, could lead to an escalating series of tit-for-tat attacks against ever more vital elements of an adversary’s critical infrastructure, producing widespread chaos and harm and eventually leading one side to initiate kinetic attacks on critical military targets, risking the slippery slope to nuclear conflict. For example, a Russian cyberattack on the U.S. power grid could trigger U.S. attacks on Russian energy and financial systems, causing widespread disorder in both countries and generating an impulse for even more devastating attacks. At some point, such attacks “could lead to major conflict and possibly nuclear war.”[14](https://www.armscontrol.org/act/2019-11/features/cyber-battles-nuclear-outcomes-dangerous-new-pathways-escalation#endnote14) These are by no means the only pathways to escalation resulting from the offensive use of cyberweapons. Others include efforts by third parties, such as proxy states or terrorist organizations, to provoke a global nuclear crisis by causing early-warning systems to generate false readings (“spoofing”) of missile launches. Yet, they do provide a clear indication of the severity of the threat. As states’ reliance on cyberspace grows and cyberweapons become more powerful, the dangers of unintended or accidental escalation can only grow more severe.

#### Cracking down on anticompetitive patent licensing post-*Qualcomm* reintroduces cybersecurity-enhancing competition to the market.

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IV. LESSONS AND POLICY DIRECTIONS The above discussion shows that patent protection can have mixed effects on national security: On the one hand, patents can encourage innovation that ensures domestic technological leadership and produces useful security-protective technologies; on the other hand, patents can stifle innovation-producing and cybersecurity-enhancing competition and can stymie the government’s own ability to achieve national security goals. To navigate the complex effects of patent policy on national security, policymakers may consider the following recommendations as guideposts. A. Anticompetitive Patent Licensing An area of particular concern should be the use of patents and patent licensing strategies to diminish competition or put up roadblocks to new entrants. Policymakers should certainly not support these abuses of the patent system, and indeed should take steps to prevent them. In the mobile communications space, patent licensing already plays an outsized role. There are reportedly between 250,000 and 314,000 patents on the smartphone alone, and litigation over cell phone technologies has lasted decades by now. Patents will thus inevitably have an impact on technologies like 5G or the Internet of Things, so the question is what that impact will be. Patents are supposed to encourage innovation, but research finds that patents alone will not do so; competition is another requirement. A 2015 study considered the impact of competition policy and patent strength on innovation among European firms, measured in terms of research and development spending.183 Initially, the study compared firms in countries with strong patent laws against those in countries with weaker patent laws, and found that patent protection has “no effect on R&D intensity,” a conclusion consistent with multiple other studies.184 However, the study found that when a major competition reform went into effect, strong-patent countries enjoyed a boost in innovation greater than that experienced in weak-patent countries.185 In other words, strong patent protection is complementary to strong competition; the former does not promote innovation without the latter. The practical import of this research is that patent protection is beneficial up to a point, but to the extent that patents—or, more commonly, legal strategies involving patents—overreach to suppress competition, that overreach should be cause for concern. Yet today, strategic patent behavior contrary to competition is prevalent. The Federal Trade Commission’s ongoing lawsuit against mobile phone chip manufacturer Qualcomm, for example, challenges Qualcomm’s practice of refusing to sell chips to any phone manufacturer who does not first pay a hefty sum for patent licenses—even if the manufacturer does not actually have need for all those licenses.186 To the extent that Qualcomm’s “no license, no chips” practice is in fact anticompetitive—that is what the courts overseeing the case will decide—monopolization of that market could substantially harm cybersecurity for the reasons noted above.187 The company’s about-50% market share in the advanced mobile chip market 188 means that there is a virtual monoculture of Qualcomm chips already, and there are ongoing concerns about security vulnerabilities in those chips.189 It is thus puzzling that some have opposed the FTC litigation on the grounds that it is making the United States “less competitive in the global 5G arms race.”190 As one scholar explains, this rhetoric “smacks of ‘national champion’ thinking” and ultimately fails to ensure that “national security warnings are being balanced against competitive imperatives.”191 With respect to emerging information technologies, policymakers should be concerned that a leading firm could undertake similar patent licensing strategies to control the market. Indeed, the district court in the Qualcomm litigation found that Nokia and Ericsson already “have imitated Qualcomm’s practice” because it is “more lucrative.”192

### 1AC---Plan

#### Plan: The United States federal judiciary should substantially increase prohibitions on private sector conduct that is more restrictive of competition than reasonably necessary to enable creation of information technology standards.

#### The plan requires SSO’s to administer reasonable action to prohibit ex post opportunism---that strengthens FRAND effectiveness while enabling SEP holders to capture appropriate royalties---which is the best competition-innovation balance.

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3. Application of the Basic Legal Principles The antitrust principle is straightforward: industry-wide collaboration through SSOs to establish procompetitive standards is permitted only if it is no more restrictive of competition than reasonably necessary to enable creation of the standards. When standard setting predictably creates technology monopolies that, if unrestrained, will enable anticompetitive ex post opportunism that would otherwise not occur, an SSO that does not take effective measures to pre- vent or minimize such ex post opportunism engages in conduct that is more restrictive of competition than necessary. In that case, the SSO and, in appropriate cases, its members, may well violate Section 1 of the Sherman Act. Under this principle, SSO procedures and FRAND rules should be evaluated based on whether they lead to reasonable SEP royalties, using the competitive ex ante licensing standard discussed above, which has been adopted by the courts in patent law. Put differently, FRAND rules should be evaluated based on their ability to prevent SEP holders from obtaining more than the ex ante value of their technology from implementers. This limitation would not prevent a SEP holder from proﬁting, perhaps greatly, from participating in the SSO and having its patented technology included in the standard. The SEP holder continues to be rewarded for its technology because the inclusion of its technology in the standard can still greatly increase the volume of licensing opportunities available to the SEP holder. Whether a particular set of FRAND rules are sufficiently effective in preventing ex post opportunism will depend on the particular circumstances. The procedural unfolding of the case will also depend upon the circumstances. As a general matter, the case would probably be structured as an ordinary Rule of Reason case.82 First, the plaintiff would have to demonstrate harm to competition as a result of the collaboration of the SSO’s members, many of which compete with one another. In this case, the harm to competition would stem from the ability of the SEP holder to exercise monopoly power by obtaining royalties in excess of the competitive, ex ante level. The decision to include patented technologies in the standard would be the allegedly unlawful agreement. Notably, the court need not determine what a FRAND royalty is; it would suffice to determine that market power has been created or exercised, and that existing SSO rules and policies were not adequate to prevent the competitive harm. The defendant, which could be the SSO or perhaps one or more SSO members, would win at this point if the plaintiff failed to show harm to competition. If might fail if the standard faces substantial competition and the court concludes that the SEP holder therefore does not have market power or if the SSO’s rules and policies are found to be effective in preventing ex post opportunism, even if the plaintiff or even the court thinks that other rules and policies would be preferable. Second, if the plaintiff makes the requisite showing of harm to competition, the defendant(s) would then have to show some procompetitive justiﬁcation— in this case, the beneﬁts of the standard. These two initial steps should be straightforward. Third, if as is likely the defendant is able to show a procompetitive justiﬁcation, the plaintiff would have to show that the SSO could have used available, reasonable alternatives to realize the efficiency beneﬁts with less or none of the competitive harms. The plaintiff might identify reasonable alternatives that would have led to a different standard, based on including unpatented technology in the standard or perhaps involving fewer SEPs or fewer owners of SEPs, which would be less subject to patent holdup. More likely, the plaintiff could suggest alternative SSO rules that would not change the standard, but would reduce the likelihood or extent of ex post opportunism. For example, the plaintiff might suggest more rigorous FRAND-type rules, such as rules that set forth more precise principles on which FRAND royalties are to be determined and the circumstances under which SEP holders might seek injunctions. Fourth, the burden would then shift to the defendant(s) to show that the beneﬁts of the standard could not have been realized if the SSO had adopted any of the proffered alternatives or that those alternatives were unrealistic.83 The plaintiff would be entitled to judgment if the court concludes that those beneﬁts could have been realized with less competitive harm if the SSO had adopted the standard with different IPR rules or policies. Our overall sense, based on experience and the empirical literature, is that the extant FRAND rules are generally useful, but tend to be inadequate because they are imprecise and leave unresolved such critical issues as (a) the meaning of a reasonable royalty, even conceptually; (b) the meaning of “non-discriminatory;” (c) to whom licenses must be offered; and (d) under what circumstances may a SEP holder obtain an injunction.84 These imprecise FRAND commitments are therefore not sufficient to adequately prevent ex post opportunism. The recent revisions to IEEE’s FRAND policy represent a signiﬁcant step in the right direction, but even this advance leaves important questions unanswered.85 If FRAND rules are inadequate in these ways, litigation involving extant FRAND rules would likely be resolved only at the ﬁnal, fourth step. The defendant would be able to demonstrate the beneﬁts created by the standard; the plaintiff would be able to demonstrate the creation of market power and that other reasonable and practical rules or policies would ameliorate the problem. The case would thus turn on whether the defendant is able to demonstrate that signiﬁcant beneﬁts associated with standardization could not have been realized if the SSO had adopted those other rules or policies. The court would have available a variety of possible remedies if the plaintiff prevails. Implementers that paid supracompetitive royalties or were unlawfully excluded in whole or in part from product markets as a result of the inadequate FRAND policies would be entitled to damages and, in some cases, to treble damages.86 If the unlawful SSO conduct is regarded as the collective action of the SSO and its members, which is likely to be the case in most instances, SSO members would be jointly and severally liable for the damages. Forward-looking injunctive relief aimed at restoring competition would need to be fashioned to the requirements of the individual case. For example, a court could order the SSO to adopt a new rule or policy proposed by the plaintiff. If the court is reluctant to take on that governance role, it might give the SSO a period of time—maybe ninety days—to develop a rule, subject to the court’s ultimate approval, which would adequately ameliorate the competitive problem created by the SSO. Alternatively or in addition, the court might order the parties to attempt to negotiate a rule or policy on which they can agree. And, depending on the circumstances, the court might order SEP holders, including at least those that were defendants in the case, to comply with the new SSO rules and policies.

#### Threatening antitrust liability lures SSO’s into adopting best practices.

Lemley & Shapiro 13, \*Mark Lemley is the William H. Neukom Professor at Stanford Law School and a partner at Durie Tangri LLP; \*Carl Shapiro is the Transamerica Professor of Business Strategy at the Haas School of Business, University of California at Berkeley and a Senior Consultant at Charles River Associates; (2013, “A SIMPLE APPROACH TO SETTING REASONABLE ROYALTIES FOR STANDARD-ESSENTIAL PATENTS”, (https://faculty.haas.berkeley.edu/shapiro/frand.pdf)

Under our approach, many of these issues should become moot, since the patentee cannot obtain an injunction (or transfer the patent to someone who can) against a willing licensee, and since competitors are not involved in jointly setting the reasonable royalty rate. If SSOs set clear, reasonable rules following the best practices we recommend, and parties follow those rules, there should be little or no need for antitrust to intervene. Indeed, even the risk of non-disclosure of a patent is lessened, since the patentee has committed to license its essential patents whether or not it discloses them. For the most part, the rules we have described are self-executing, meaning that even if a party tries to break the rules set by the SSO there still may be no need for antitrust to intervene. Thus, we suggest that parties who abide by these procedures—patentees, implementers, and the SSOs themselves—should be immune from antitrust liability for activities that merely follow those rules.107 They have entered into an arrangement that is on balance good for competition, one that allows patentees to receive reasonable royalties but prevents holdup and reduces the risk of monopolization by trickery. The fact that antitrust remains a last resort available when SSOs don’t follow best practices may have two practical benefits, however. First, under our approach the promise of avoiding the risk of antitrust liability will be a powerful incentive for both SSOs and patent owners to adopt the best practices we propose. Second, the risk of antitrust liability may be relevant when an individual patentee wants to adopt best practices but the SSO governing the standard has not yet done so. We propose that a patentee that unilaterally commits to the FRAND procedures we describe here should be immune from antitrust liability for following these procedures.108 A patentee’s unilateral binding commitment to arbitration could be enforced whether or not it was elicited by an SSO. Thus, just as the prospect of antitrust immunity might lure SSOs to adopt best practices, it might also lure patentees to implement those practices even if the SSO has not done so. Given the large number of standard-essential patents based on preexisting standards,109 and given that SSOs tend to update their IP rules rather slowly,110 this is not a small matter.

#### Only antitrust enforcement creates a consumer-action feature that counterbalances SSO’s conspiratorial incentives---private action fails.

Melamed & Shapiro 18, \*A. Douglas Melamed is Professor of the Practice of Law at Stanford Law School; \*Carl Shapiro is the Transamerica Professor of Business Strategy at the Haas School of Business at the University of California at Berkeley; (May 2018, “How Antitrust Law Can Make FRAND Commitments More Effective”, <https://www-cdn.law.stanford.edu/wp-content/uploads/2018/05/How-Antitrust-Law-Can-Make-FRAND-Commitments-More-Effective.pdf>)

2. Why Antitrust Enforcement Is Necessary Some SSO members have an interest in ensuring that the SSO takes steps to minimize the potential harms from the SEP holders’ monopoly power, and this undoubtedly explains in part why most SSOs have adopted FRAND policies or similar requirements. But, as shown in the economic model in the Appendix,73 SSOs cannot in general be counted on to adopt effective FRAND policies. The bases for this conclusion, which is central to our argument for the applicability of Section 1 to SSO FRAND rules, can be summarized as follows.74 First, the SSO members collectively have an interest in permitting SEP holders to charge supracompetitive royalties that elevate the downstream price of compliant devices to the monopoly level. Doing so will enable the members in aggregate to collect increased revenues from consumers, and thus to generate increased profits that in theory could be shared by all the members. In other words, supracompetitive royalties can enrich industry participants as a group at the expense of final consumers. This fact alone should serve as a clear and strong signal regarding the dangers of counting on SSOs to implement effective FRAND policies: if the SSO members negotiate efficiently, the outcome will be just as bad for consumers as if the members agreed to fix downstream prices.75 The fundamental problem is that final consumers are not at the table when the SSO rules are negotiated. Second, SSO members that own SEPs but earn little or no profits as implementers have a powerful self-interest in being able to exercise the ex post monopoly power associated with their SEPs. Because SSO policies are usually determined by a consensus process, these members will likely be able to block the adoption of fully effective FRAND policies. Moreover, these SSO members often have the greatest interest in SSO patent policies. Since much of their income may be attributable to patent licensing, they can be expected to devote substantial resources to block the adoption of FRAND policies that effectively prevent patent holdup. Third, even SSO members that earn significant profits as implementers may have mixed incentives if they also own SEPs, which can also lead to weak or in-effective FRAND rules. In the Appendix, we show that, if the requisite share of votes in the SSO are cast by firms whose share of SEP royalties is at least as large as their share of downstream profits, and if these firms can coordinate their voting over the FRAND rules, then an SSO unconstrained by antitrust laws will establish FRAND rules leading to an outcome no better for consumers than would result from an integrated monopolist controlling all SEPs and all downstream sales.76 Fourth, even SSO members that are downstream implementers and own few, if any, SEPs may have only a modest interest in promoting effective policies to restrict ex post opportunism. Because all implementers will be subject to the opportunism, all of them will face increased licensing costs, and therefore will likely be able to pass on most or all of the increased costs to their customers.77 Furthermore, these implementers might not be especially active or effective in the standard-setting process for free-riding or public-good reasons, especially if SEP royalties constitute only a relatively small portion of the costs of their standard-implementing products. Public choice theory predicts that the highly motivated SEP holders are likely to have the greatest influence over patent policies. Empirical evidence bears out these concerns. As a starting point, we find it striking that SSO FRAND rules are almost always quite vague.78 Notably, SSOs in which SEP holders are more prevalent tend to have weaker FRAND rules.79 Further, to our knowledge, SSOs have made almost no effort to enforce their FRAND rules and have, instead, left enforcement efforts to others.80 This evidence raises serious doubts about the effectiveness of the existing FRAND rules in preventing ex post opportunism.

#### Antitrust fervor is at an all-time high---thumps.

Zanfagna 9/7/21, \* [Gary Zanfagna](https://www.paulhastings.com/professionals/garyzanfagna) is an antitrust and competition partner at Paul Hastings LLP; (September 7th, 2021, “Antitrust isn't headed to an inflection point; it's already there”, https://thehill.com/opinion/judiciary/571087-antitrust-isnt-headed-to-an-inflection-point-its-already-there)

The truth is most companies have not had to think too much about antitrust regulations. The basic rules are pretty well known. But that is potentially changing quickly as antitrust concerns focus on not only high-tech companies, but businesses across the economy, from startups to global conglomerates. It means antitrust is at an important inflection point. Changes are occurring at multiple levels — from [rule reform](https://www.klobuchar.senate.gov/public/_cache/files/e/1/e171ac94-edaf-42bc-95ba-85c985a89200/375AF2AEA4F2AF97FB96DBC6A2A839F9.sil21191.pdf) to [new applications](https://www.hawley.senate.gov/senator-hawley-introduces-trust-busting-twenty-first-century-act-plan-bust-anti-competitive-big) of existing rules to [increased enforcement](https://www.klobuchar.senate.gov/public/index.cfm/news-releases?ID=A4EF296B-9072-4244-90AF-54FE43BB0876). Some of these changes are a reflection of the economic upheaval ushered in by the digital economy, which has prompted businesses and governments to look to antitrust rules to solve their problems. Witness [President Biden](https://thehill.com/people/joe-biden)’s [July 9 executive order](https://www.whitehouse.gov/briefing-room/presidential-actions/2021/07/09/executive-order-on-promoting-competition-in-the-american-economy/) whose 72 provisions include requests ranging from asking the FCC to reinstate net neutrality rules to directing the FDA to issue rules to allow more competition in the hearing aid market. It’s a reflection of a general zeitgeist whose goal is to slow the onslaught of consolidation in technology across industries, from news media to healthcare to agriculture. And it’s gathering momentum as new rules are being proposed from both sides of the aisle. Many look to the 449-page [“Investigation of Competition in Digital Markets”](https://www.nytimes.com/interactive/2020/10/06/technology/house-antitrust-report-big-tech.html?action=click&module=RelatedLinks&pgtype=Article) report from the judiciary committee on antitrust as the opening salvo. The report took aim at Amazon, Apple, Facebook, and Google, outlining how those once scrappy startups now leverage their market position in ways not seen since “the era of oil barons and railroad tycoons.” The judiciary report’s conclusion: prevent big tech from acquiring smaller tech with tougher policing — and reform antitrust laws. Both Democrats and Republicans have since voiced their support for such ideas. Aimed at the seemingly intractable challenges of the digital era, Sen. [Amy Klobuchar](https://thehill.com/people/amy-klobuchar)’s (D-Minn.) “[Antitrust Law Enforcement Reform Act”](https://www.congress.gov/bill/117th-congress/senate-bill/225/text) would create barriers to prevent consolidation across industries, not just in tech, but in any business that might be connected to “dominant digital platforms.” The legislation would have a prescriptive force, creating a presumption against certain mergers, whether they be in biotech or burgers. Meanwhile, on the Republican side, Sen. [Josh Hawley](https://thehill.com/people/joshua-josh-hawley) (R-Mo.) has rolled out a bill that looks even more severe, blocking some mergers and acquisitions outright. The [“Trust-Busting for the Twenty-First Century Act”](https://www.hawley.senate.gov/senator-hawley-introduces-trust-busting-twenty-first-century-act-plan-bust-anti-competitive-big) would ban any acquisitions by companies with a market cap of more than $100 billion. The act would also make it easier for the FTC to classify a company’s behavior as anti-competitive, and then extract penalties (including profits) based on that behavior. And it’s not just the Federal government. Several states have proposed their own legislation to prevent and punish what they see as anti-competitive behavior. Arizona narrowly passed initial legislation that would prevent app store operators, specifically Apple and Google, from forcing developers to use their payment systems. Meanwhile in New York State, the [Twenty-First Century Anti-Trust Act (S933)](https://www.nysenate.gov/legislation/bills/2019/s8700/amendment/a) includes a first-of-its-kind state merger notification of any deal in which the buyer would end up with more than $8 million in assets of the target. It would also create an “abuse of dominance” offense and give the N.Y. attorney general rulemaking authority — whether or not the company was based in New York. These proposals have a long way to go before becoming law, but they demonstrate potentially significant antitrust adjustments coming. Expanding antitrust view The ripple effects will be profound, affecting transportation, communications, banking and healthcare companies. Incumbents looking to diversify their business are vulnerable, as are startups looking for profitable partners. Unhappy competitors who feel stymied may look to antitrust rules for remediation. And private equity moves to consolidate fledgling, fragmented industries will face tougher questions about overlap and industry concentration. So, we are going to see antitrust being used in industries and in ways that haven’t been considered in many years, with views about market concentration expanding to encompass what used to be considered diverse or vertical markets. In fact, both Sen. Klobuchar’s and Sen. Hawley’s proposals specifically target consolidation across industries. Sen. Hawley’s $100 billion ban explicitly targets vertical acquisitions. It would certainly prevent deals like Facebook’s acquisition of WhatsApp or Google’s purchase of Fitbit.

#### Apple case thumps---it’s politicized, and has ripple effects across antitrust.

Albertgotti 9/10/21, \*[Reed Albergotti](https://www.washingtonpost.com/people/reed-albergotti/), Washington Post; (September 10th, 2021, “Judge’s ruling may take a bite out of Apple’s App Store, but falls short of calling the iPhone maker a monopolist”, https://www.washingtonpost.com/technology/2021/09/10/apple-epic-decision-judge-market-monopoly/)

A federal judge fundamentally altered Apple’s App Store business model on Friday in a landmark ruling that accused the iPhone maker of illegal anticompetitive behavior and is likely to have ripple effects across the U.S. antitrust landscape. In a decision on an antitrust lawsuit brought by Fortnite maker Epic Games, U.S. District Judge Yvonne Gonzalez Rogers ruled that Apple must allow app developers to “steer” customers to alternatives to the tech giant’s payment processing service, which collects a 30 percent fee on most digital transactions. That was previously not allowed by the company, and marks a major victory for developers which have long complained of the tight grip the tech giant holds over its App Store on the roughly one billion iPhones currently in use. [The blockbuster trial between Apple and the maker of ‘Fortnite’ goes out with a ‘hot tub’ session](https://www.washingtonpost.com/technology/2021/05/24/apple-epic-trial-hot-tubbing/?itid=lk_interstitial_manual_5) Gonzalez Rogers also found that Apple was in violation of California state competition laws because of the way it forces developers into using Apple’s payment processing service without allowing them to tell customers there are alternatives, which are often cheaper. She stopped short of ruling in favor of Epic‘s claims that Apple is a monopolist, although she left the door open by suggesting more evidence could have changed her decision. “The court does not find that it is impossible; only that Epic Games failed in its burden to demonstrate Apple is an illegal monopolist,” she wrote. Epic spokeswoman Elka Looks said the company plans to appeal the ruling. Tim Sweeney, chief executive of Epic, said in a tweet that, “Today’s ruling isn’t a win for developers or for consumers.” Apple did not respond to requests for comment. The ruling, one of the first major legal actions taken against a tech giant in a new era of antitrust scrutiny, is sure to echo loudly both in Washington, where a legislative effort to rein in the power of Big Tech is underway, and in the courts, which are facing the biggest test of existing antitrust laws in decades. Tech giants have come under the microscope in recent years as it became clear that current antitrust law does not effectively address their power, and regulators and lawmakers have been pushing to change that.

#### Biden executive order outweighs.

Posner 21, professor at the University of Chicago Law School (Eric, 7-21-2021, "The Antitrust War’s Opening Salvo", Project Syndicate, <https://www.project-syndicate.org/commentary/biden-antitrust-executive-order-what-it-does-by-eric-posner-2021-07>)

CHICAGO – US President Joe Biden’s new executive order on “Promoting Competition in the American Economy” is more significant for what it says than for what it does. In fact, the order doesn’t actually order anything. Rather, it “encourages” federal agencies with authority over market competition to use their existing legal powers to do something about the growing problem of monopoly and cartelization in the United States. In some cases, the relevant agencies are asked merely to “consider” ramping up enforcement; in others, they are directed to issue regulations, but the content of those regulations remains largely up to them. Nonetheless, it would be a mistake to dismiss the order’s tentative language as mere rhetoric. Antitrust is the main body of law governing market competition in the US, and it has been the object of sustained attack by business interests and conservative intellectuals for more than 50 years. Biden is the first president since Harry Truman to take a strong public [anti-monopoly stand](https://www.project-syndicate.org/commentary/new-brandeisians-antitrust-for-big-tech-by-eric-posner-2021-06), and he has backed it up by [appointing](https://www.politico.com/news/2021/07/20/biden-picks-doj-antitrust-chief-500310) ardent anti-monopoly advocates to his government. The executive order is ambitious in its scope and style. In strongly worded passages, it accuses businesses of monopolistic and unfair practices in major industries, including technology, agriculture, health care, and telecommunications. It laments the decline of government antitrust enforcement, and identifies numerous harms that have resulted – including economic stagnation and rising inequality. The order also establishes a new bureaucratic organization in the White House to lead the anti-monopoly effort. Demanding a “whole-of-government” approach, it calls on the vast resources of numerous agencies, and not just the two that traditionally oversee antitrust (the Department of Justice and the Federal Trade Commission).

#### The DOJ is already prepared to engage in more antitrust litigation over SEP’s.

Love 21, \*Bruce Love, writer at the National Law Journal; (June 15th, 2021, “As DOJ Confirms a Change in Antitrust Patent   
Policy, Lawyers Prepare for Shifting Demand”, https://www.mckoolsmith.com/assets/htmldocuments/2021%2006%2016%20As%20DOJ%20Confirms%20a%20Change%20in%20Anittrust%20Patent%20Policyk%20Lawyers%20Prepare%20for%20Shifting%20Demand%20-%20The%20National%20Law%20Journal.pdf)

The Justice Department has confirmed it is looking to develop new policies surrounding how standard-essential patents might be used as tools for anticompetitive practices. The change in policy will mean big business for law firms that can combine highly technical IP advice with their antitrust and litigation practices, with one lawyer likening the demanding skill set to “three-dimensional chess.” Standard-essential patents, or SEPs, are a fundamental piece of intellectual property for business and innovation because they are used under license so frequently by manufacturing companies other than the patent owners. The policy change was hinted at during an online event in late May, when Richard Powers, the acting attorney general of DOJ’s antitrust division, gave an indication that the government might be walking back the relaxed approach implemented by the DOJ under the Trump administration. A DOJ spokesperson confirmed in an email Tuesday to Law.com that it will change its policy on SEPs and antitrust behavior, with the agency still working out the details. The new administration, said the DOJ spokesperson, is rethinking what policies at the intersection of IP and anti- trust will best serve competition and consumers. “New Department leadership is working with career staff on developing a more balanced approach,” said the DOJ spokesperson. “The department wants to develop neutral and balanced policies in this area that recognize the importance of both antitrust enforcement and JUNE 15, 2021 As DOJ Confirms a Change in Antitrust Patent Policy, Lawyers Prepare for Shifting Demand BY BRUCE LOVE U.S. law has often shied away from enforcing essential patent obligations. That’s set to change. The result could be “a significant change in the volume and nature of business for IP trial lawyers and their clients,” one lawyer said. Office of the Attorney General at the U.S. Department of Justice in Washington, D.C. June 6, 2020. THE NATIONAL LAW JOURNAL JUNE 15, 2021 intellectual property protection to our economy and that do not favor one set of interests over others.” Such policy changes could result in a swell of business for law firms with deep, technical IP benches and strong experience representing the industry in enforcement actions, lawyers said. Trump’s DOJ had “taken its foot off the gas” when it came to SEPs as the focus of anti-competitive behavior, said one Washington-based lawyer, speaking on the condition of anonym- ity because he currently has active cases that involve both SEP enforcement and defense. “It didn’t mean we weren’t busy as litigators. There was a lot of work enforcing SEPs against infringers and defending against infringement allegations,” he said. “But we weren’t busy in the antitrust arena. A greater focus on SEPs—not just by the DOJ but also other agencies—might mean more litigation, but it will also mean a more transparent field of play. It doesn’t do companies any good for there to be unfettered SEP enforcement.”

# 2AC

## AT: T---Private Sector

### 2AC---AT: T---Private Sector = All

#### The private sector includes subsets---refers to many different actors.

Waler and Hofstetter 16 (Katharina Walker is Advisor for vocational skills development and Helvetas’ youth focal person. Sonja Hofstetter joined Swisscontact in Cambodia in July 2016. She is the Quality Assurance Manager and Deputy Team Leader of the Skills Development Programme. “ Study on Agricultural Technical and Vocational Education and Training (ATVET) in Developing Countries” Federal Department of Foreign Affairs FDFA, Swiss Agency for Development and Cooperation SDC, Global Programme Food Security, 25.1.2016, <https://www.shareweb.ch/site/Agriculture-and-Food-Security/focusareas/Documents/ras_capex_ATVET_Study_2016.pdf> , date accessed 7/19/21)

In many developing countries, the private sector1 [[BEGIN FOOTNOTE 1]] 1 The private sector is not perceived as a homogenous mass even though the terminology might suggest this to be the case. In this study, the term “private sector” is used to circumscribe the various actors such as small and medium sized companies, large companies, sectorial associations, business associations, chambers of commerce, etc.[[END FOOTNOTE 1]] faces challenges in finding adequately skilled employees. This also holds true for sectors linked to agriculture, e.g. processing, distribution, marketing, etc. The development of ATVET from a purely productivity-oriented approach to provide broader and more specialised skills sets along agricultural value chains is likely to raise the interest of private sector actors. This incentive can result in a stronger and more sustainable financial and conceptual engagement of employers in ATVET.

## AT: T---Per Se

### 2AC---AT: T---Prohibit = Per Se---TL

#### We meet---the plan still increases prohibitions on anticompetitive conduct, the rule of reason is simply a test that decides whether certain conduct actually violates said prohibition.

Fishman 19, \*Todd Fishman, [Allen & Overy LLP](https://www.jdsupra.com/profile/Allen_Overy_docs/); (January 31st, 2019, “The Rule of Reason as a Bar to Criminal Antitrust Enforcement”, https://www.jdsupra.com/legalnews/the-rule-of-reason-as-a-bar-to-criminal-87406/)

Antitrust law’s rule of reason was born of technical necessity. By its terms, §1 of the Sherman Act prohibits “[e] very contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade.” 15 U.S.C. §1. Despite the expansive language of the statutory prohibition, the Supreme Court has held that §1 prohibits only agreements that unreasonably restrain trade. *Board of Trade of Chicago v. United States*, 246 U.S. 231, 238 (1918); *Standard Oil Co. of N.J. v. United States*, 221 U.S. 1, 58-60 (1911). With the rule of reason, antitrust courts assumed a prudential role in administering the scope of antitrust violations, applying a factual inquiry weighing legitimate justifications for a restraint against any anticompetitive effects. Under the rule of reason, “the factfinder weighs all of the circumstances of a case in deciding whether a restrictive practice should be prohibited as imposing an unreasonable restraint on competition.” *Continental T.V. v. GTE Sylvania,* 433 U.S. 36, 49 (1977).

#### Counter-interpretation---rule of reason is a prohibition.

Light 19, Sarah E. Light Assistant Professor of Legal Studies and Business Ethics, The Wharton School, University of Pennsylvania., The Law of the Corporation as Environmental Law, 71 Stan. L. Rev. 137, 2019, Lexis/Nexis

While antitrust law can serve as an environmental mandate by prohibiting collusive behavior that keeps environmentally preferable goods from the market, there is also conflict between antitrust law's goals of promoting competition and environmental law's goals of promoting [\*177] conservation. 192 Because antitrust law's per se rule and rule of reason operate on a somewhat fluid continuum, 193 this Subpart discusses the two doctrines together. The per se rule operates as a prohibition, whereas the rule of reason operates as both a prohibition and a disincentive. As noted above, antitrust law generally prohibits certain types of market activity - price fixing, horizontal boycotts, and output limitations - as illegal per se, and harm to competition is presumed. 194 For example, if an industry association declines to award a seal of approval necessary for a product's sale without any good faith attempt to test the product's performance, but rather simply because that product is manufactured by a competitor, such an action would be illegal per se. 195 Under this Article's framework, a per se violation is thus a prohibition. The more fact-intensive inquiry under the rule of reason tests "whether the restraint imposed is such as merely regulates and perhaps thereby promotes competition or whether it is such as may suppress or even destroy competition." 196 While this extremely broad statement might suggest that any fact is relevant to the inquiry, the salient facts under the rule of reason are "those that tend to establish whether a restraint increases or decreases output, or decreases or increases prices." 197 If an anticompetitive effect is found, then the action is illegal and the rule of reason operates, like the per se rule, as a prohibition. 198 The rule of reason can also operate as a disincentive, even if no [\*178] court finds an anticompetitive effect, as uncertainty and litigation risk may discourage firms from undertaking legally permissible, environmentally positive industry collaborations. 199 Associations of firms have adopted numerous mechanisms of private environmental governance to address the management of common pool resources like fisheries, forests, and the global climate. 200 Examples include the Sustainable Apparel Coalition's Higg Index 201 and the American Chemistry Council's Responsible Care program. 202 But private industry standards raise special antitrust concerns. An agreement among competitors with respect to product or process specifications may exclude competitors who fail to meet such standards, raising the specter that such industry collaborations really constitute output limitations or efforts to limit competition. 203 While the U.S. Supreme Court has scrutinized private standard-setting associations carefully, 204 it has noted that if associations "promulgate … standards based on the merits of objective expert judgments and through procedures that prevent the standard-setting process from being biased by members with economic interests in stifling product competition … , those private standards can have significant procompetitive advantages." 205 In the absence of price fixing or a boycott, a rule of reason analysis generally applies to product standard setting by private associations. 206 The uncertain outcome [\*179] inherent in the application of antitrust law in this context could therefore serve as a potential disincentive to the adoption of private industry standards. 207 The challenge of course is that some form of explicit sanctions on noncompliant industry members may be necessary for private industry standards to be effective. In the context of private reputational mechanisms like the New York Diamond Dealers Club, 208 Barak Richman has pointed out that the Club's use of reputational sanctions and voluntary refusals to deal with actors who flout industry norms, while welfare enhancing, could nonetheless amount to violations of antitrust law. 209 This echoes the concern raised by Andrew King and Michael Lenox in their extensive empirical analysis of the Responsible Care program created by the Chemical Manufacturers Association (now the American Chemistry Council). 210 King and Lenox concluded that the absence of explicit sanctions on members who failed to meet the standards set by the program left the program vulnerable to "opportunism." 211 While they suggested that industry associations could look to third parties to enforce the rules, 212 an alternative way to facilitate the long-term environmental benefits of stronger sanctions would be to interpret antitrust law in conformity with the environmental priority principle presented below. 213 [\*180] In some instances, the conflict between the values of promoting competition and conserving environmental resources can be stark. 214 Jonathan Adler, for example, has identified this conflict in the context of fisheries - a tragedy of the commons situation in which some form of collective action is required to avoid overfishing. 215 He cites as an example Manaka v. Monterey Sardine Industries, Inc., in which a fisherman was excluded from a local fishing cooperative. 216 The fisherman sued the cooperative under the Sherman Act, and the court found an antitrust violation in his exclusion. 217 While the fishing cooperative's policies were no doubt exclusionary, Adler contends that they also promoted conservation by restricting catch. 218 The fishery collapsed by the 1950s, a collapse Adler hypothesizes might have been "inevitable" but that perhaps might not have occurred in the absence of the antitrust suit. 219 While a court performing a rule of reason analysis must consider whether a restraint on trade suppresses or destroys competition, Adler points out that courts may also "consider offsetting efficiencies from otherwise anticompetitive arrangements." 220 It is not clear, however, that the courts have consistently taken these factors into account. 221 Among other potential remedies, Adler argues that to resolve this tension between antitrust law, on the one hand, and private collective action to conserve environmental resources, on the other, courts should more actively consider the "ancillary conservation benefits of otherwise anticompetitive conduct." 222 Recognizing the long-term health of a fishery would be consistent with antitrust law's purpose of ensuring viable markets exist in the future, and consistent with the environmental priority principle introduced below. 223

#### Prohibit can mean ‘severely hinder’---doesn’t necessitate a ban.

Washington Court of Appeals 19 (KORSMO-judge. Opinion in State v. Kimball, No. 35441-5-III (Wash. Ct. App. Apr. 2, 2019). Google scholar caselaw. Date accessed 7/13/21).

His argument runs counter to the meaning of the word "prohibit." It means "1. To forbid by law. 2. To prevent, preclude, or severely hinder." BLACK'S LAW DICTIONARY 1405 (10th ed. 2014). As "severely hinder" suggests, a "prohibition" need not be an all or nothing proposition.

#### The ‘per se’ distinction is meaningless---rules always devolve into standards.

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Before proceeding much further, it is worth pausing to consider the possibility that a world of antitrust rules would be illusory because, in practice, rules always fade into standards. Take H.L.A. Hart's observation that "[n]atural languages like English are... irreducibly open-textured" when specifying "general classifying terms,' ' 0 0 or Wittgenstein's point that the problem with rules is that they do not tell you when they should be applied.' 0 ' Because language is irreducibly open-textured and indeterminate and because rules lack internal mechanisms to specify when they should be applied, even when the law is formally framed as a rule, it requires penumbral rules, canons of interpretation, and other secondary decisional criteria which end up swallowing the apparent simplicity of the rule. 10 2 Specifying the governing law as a simple, bright-line rule may merely conceal the fact that important balancing of social interests, weighing of probabilities, and choosing between competing ends and means lurk in the shadow of the rule. Declaring a legal rule thus appears misleading or even dishonest because it hides the social preferences that animate the decision-maker's conclusion. Under one interpretation, antitrust law provides the perfect illustration for Hart and Wittgenstein's point. In this view, there never have been such things as case-determinative antitrust rules-only standards clad in rule-bound rhetoric. The current march toward standards, then, is not so much a change in liability determinants as a dissipation of the mystery surrounding antitrust's concealed methodology. In a moment, I will dispute this possibility and argue that the specification of antitrust law as rule or standard has very important practical consequences. But first, it is worth acknowledging the extent to which Hart and Wittgenstein's observation rings true in antitrust. A case in point is antitrust law's long-standing per se prohibition against "price fixing." As any antitrust practitioner will recognize, price fixing appears in quotation marks because application of the per se rule depends not on the fact that competitors have literally fixed prices but that the challenged conduct falls within the antitrust category known as "price fixing." The judicial decision often thought to have established the per se rule against price-fixing did not involve price fixing either literally or figuratively but rather a gentleman's agreement by dominant oil producers to buy up distressed oil from small refineries and thereby stabilize the wholesale market. 1 03 The defendants never came close to agreeing on price. Nonetheless, the Supreme Court held that any "combination formed for the purpose and with the effect of raising, depressing, fixing, pegging, or stabilizing the price of a commodity in interstate or foreign commerce" amounts to "price fixing" in the relevant legal sense, whether or not the defendants have actually done the act that a lay person might suppose "price fixing" to be-fixing a price. 1 On the other hand, the Supreme Court has described an act of apparent price fixing by competitors-an agreement on prices for blanket licensing of musical repertoires-as something other than "price fixing" and hence subject to the rule of reason. 0 5 In BMI v. CBS, the Supreme Court rejected textual "literalism" and held that application of the per se rule against price fixing is not as "simplistic" as "determining whether two or more potential competitors have literally 'fixed' a 'price.'" 06 Rather, "[a] s generally used in the antitrust field, 'price fixing' is a shorthand way of describing certain categories of business behavior to which the per se rule has been held applicable."' 0 7 Application of the per se rule turns not on whether the conduct amounts literally to price fixing but on whether the "particular practice is one of those types or that it is 'plainly anticompetitive' and very likely without 'redeeming virtue."" 8 This flexibility in the per se rule invites endless pages of briefing on whether the conduct at issue should be properly characterized as "price fixing" because it unjustifiably tampers with the market mechanism for determining prices or as something else because it can be justified by efficiencies, a standard-favoring way of doing law.'0 9 Hence, Hart explains that rules inevitably dissolve into standards and Wittgentsein explains that rules do not tell us when to apply them.

## AT: T---Moral Error Theory

#### “Should” doesn’t mean “morally desirable”

Dvorsky 15, Senior staff reporter at Gizmodo (George Dvorsky, 12-14-2015, “A Single Typo Nearly Killed the Paris Climate Accord,” Gizmodo, a-single-typo-nearly-killed-the-paris-climate-accord-1747908970)

Hours before the historic Paris climate accord was to be ratified in a final vote, someone noticed that a word had been changed in the final draft of the text—a single word that threatened to derail the entire deal. As reported in the Washington Post, someone changed the word “should” to “shall.” Now, it seems like a little thing, but given that the words were in reference to sweeping new legal and financial obligations, it mattered. A lot. When it comes to legally binding terminology, there’s a big difference between “should” and “shall.” Whereas “should” is a kind of wishy-washy call to action, the word “shall” implies an obligation, and this is why Secretary of State John Kerry could not abide the unexpected change. The New York Times reports: Throughout the process, the longer and less binding “should” was a deliberate part of the international agreement, put there to establish that the richest countries, including the United States, felt obligated to pony up money to help poor countries adapt to climate change and make the transition to sustainable energy systems. “Shall” meant something altogether different, American officials said. When “shall” was spotted in the document on Saturday, Secretary of State John Kerry called his French counterpart and made it clear that unless a switch was made, France could not count on American support for the agreement. “I said: ‘We cannot do this and we will not do this. And either it changes, or President Obama and the United States will not be able to support this agreement,’ ” Mr. Kerry told reporters after delegates had accepted the deal by consensus Saturday night, amid cheering and the celebratory stamping of feet. Thankfully, cooler heads prevailed, and within hours the wording within the 31-page text was reverted back to the original “should.” A subsequent vote affirmed the Paris Accord, and all was saved.

#### They’re wrong ⁠— the plan uses evidence, while contextual decisions are valuable; it assumes the neg’s best justifications for moral error theory

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III Absolutism and meaning

I have argued that the error theorists fail to make their case, because their argument to the best explanation fails to establish their thesis that moral discourse is characterized by an assumption of absolutism. But suppose we yield to the error theorist here, and concede that most or even all moral judges make the erroneous absolutist assumption. I shall now argue that we nonetheless have good reason to conclude that moral concepts and judgements are not absolutist and hence that moral discourse is potentially successful, because we should deny that this assumption contaminates the meaning and truth-conditions of moral claims. To make the argument more compelling, I begin by bolstering the error theorist's case. Rather than appealing to the forms of evidence surveyed above, the error theorist can turn to the very absence of fundamental moral disagreement for which I have argued. Since subscription to the dominant moral standards or ends is ubiquitous and implicit, would it not be natural for people in society—particularly in homogeneous societies—to fail to notice the role these standards or ends play in determining the extension of moral right and wrong? Could we not expect them to possess simple, absolute moral concepts, rather than more complex, relational concepts? We find analogous tendencies to absolutism in people's assumptions about motion and names. Motion, we now accept, is a relational matter: there can be motion only relative to a frame of reference. But this is something that needed discovery: for most of history, motion has been taken to be something absolute. But if people in earlier times had no awareness that motion was relational, surely (it may be argued) they could not have been employing a concept of relational motion, but only a flawed concept of absolute motion. Paul Boghossian writes, It is not … plausible to claim that any competent user of the predicate ‘moves’ knows that it expresses the concept of a relation rather than the concept of a monadic property … . Some perfectly competent possessors of the concept of motion were unaware that the only truths there are about motion are relational ones and so had no reason to mean only the relational judgment. [2006: 15] Naming presents a similar phenomenon. George Santayana offers an anecdote about a German woman who maintained that ‘Englishmen called a certain object bread, and Frenchmen called it pain, but that it really was Brod’ 1970: 133]. Here we have a case of mistaking a triadic relation (a is called ‘b’ in language L) for a dyadic relation (a is called ‘b’). What these cases have in common is that the near universal constancy of one parameter (the framework of motion relative to the surface of the earth, the language spoken by everyone around) in a person's experience means that it hides in plain sight; it is ubiquitous and therefore unnoticed. People therefore fail to recognize its indispensability. The analogue in the moral case is then clear: when subscription to a moral code is ubiquitous, people in that society are likely to fail to recognize its role [Harman and Thomson 1996: 13]. The analogy is a good one, I think. Many people will be disposed to overlook the relational character of value, owing to the ubiquity of the dominant moral code. This would explain why the product of reflection on our moral practice is often an absolutist metaethical theory. But it is a mistake to find in this any vindication of error theory. Error theorists propose that we attribute this error to the very concepts with which ordinary moral judgements are formed, and that accordingly we should agree that ordinary moral judgements are systematically false. 17 The analogies here give us reason to pause. If the error theorist is right, then it would seem that we must also attribute an absolutist error to the very concepts employed in ordinary judgements of motion made prior to (and even today in the absence of) acceptance of the relational character of motion, and agree that these ordinary motion judgements are systematically false. This is just preposterous. Suppose an ancient mariner surveys the ocean, and sees that two ships have changed position relative to each other. The first happens to be anchored, the second is adrift. If the mariner asserts that the first has stayed still while the second has moved, has he said and thought something false or incoherent? Surely not, even if he would espouse an absolutist theory of his judgement when questioned. It is no less preposterous, I think, to suggest that when an ordinary person asserts in the context of an everyday conversation that Fred West's acts of incestuous rape, child abuse, and murder were wrong, what she says is false or incoherent. But as this is what the error theorist contends, we need an argument to establish that morality is here like motion. The difficult question we cannot avoid here is: how is the (semantic and conceptual) content of our language and thought determined? The error theorists’ arguments we have been investigating have turned on considerations of people's reflective understanding of their moral thought and speech, and of what they may be conscious of when they engage in this thought and speech. This evinces an assumption of the truth of a local form of content-internalism: what we mean morally is fixed by something internal to our mental states, particularly our intentions. Mackie writes, ‘the ordinary user of moral language means to say something … that involves a call for action … that is absolute’ 1977: 33]; we saw Joyce stressing our ‘desire to … imbue the moral imperative with a greater authoritative force’, and Boghossian emphasizes the implausibility of claiming that in asserting nonrelativized sentences, ‘ordinary speakers … intend their remarks to be elliptical for some relational sentence’ [2006: 16]. 18 While moral content-internalism doesn't entail that our reflective understanding of our practices is infallible (we can be mistaken about our own intentions and can thereby misunderstand our own concepts and language), it is what supports the view that reflective evidence can be decisive in establishing which theory of moral judgement is correct. Should we accept this moral content-internalism? It suffices to show that the error theorists have so far failed to prove moral judgement systematically erroneous, that content-externalist views—on which semantic and conceptual content is determined largely independently of individual persons’ mental states—enjoy widespread favour today. If moral terms rigidly designate certain properties (perhaps certain natural or moral kinds—a popular metaethical view in recent decades [Boyd 1988; Sayre-McCord 1997) then the content of someone's thought and speech could radically diverge from what they intend to say or believe themselves to be saying. This is why people can have wildly mistaken views about what water is, but still say true things about it. This could also be the case if moral terms acquire their semantic values from the usage of a network of experts, like medical, mechanical, botanical, and technological terms. As significant an objection as this is to the error theorists’ arguments, I shall put no stock in it, since I happen to agree with the error theorist that moral content is determined largely internally rather than externally. 19 Moral value is significantly different to water; it lacks metaphysical depth. Moral goodness doesn't present us with a robust presence that we can point to and say, ‘I'm talking about that stuff there, whatever it is’; it's absurd to suggest that it might have a complex molecular structure; and we enjoy seemingly a priori epistemic access to facts about what has it and what doesn't. Moral concepts are also nothing like technical concepts fixed by the usage of experts: there is no uncontroversially recognized group of moral authorities, and people generally use their moral terms without deference to the usage of others. I shall rather argue from within a moral content-internalist view that the error theorists are mistaken. Joyce draws a contrast between witch- and phlogiston-discourse on one hand, and water- and motion-discourse on the other. All four discourses were for significant periods characterized by ubiquitous false assumptions: respectively, (i) of the existence of supernatural powers, (ii) of the existence of a substance contained in all flammable materials that is released during combustion, (iii) that the wet stuff covering much of the earth is an element, (iv) of the existence of absolute location. An error theory seems obviously right for witches and phlogiston, but obviously wrong (Joyce believes) for water and motion. Once we understand why, he claims, we can see that moral discourse is like the former and not the latter. The determinative factor, Joyce suggests, is the ‘point’ of the discourse: the intentions with which we use the term and without which we would have no use for it. The ‘whole point’ of witch discourse ‘was to refer to women with supernatural powers’ 2001: 96]; the whole point of phlogiston discourse was to refer to the substance contained in all flammable materials and released during combustion. The falsity of the assumptions that there are such entities is therefore sufficient to render the discourse systematically false. On the other hand, the point of water discourse is ‘to refer to a stuff we believed to be united by a common microphysical constitution’, and the point of motion discourse was ‘to refer to the change in position of objects in space over time’. False assumptions about water and motion therefore didn't prevent success in talking about real water and motion. Joyce's error theory is therefore premised on the claim that the whole point of moral discourse is to refer to value with absolute authority: ‘our ordinary use of the concept of motion is not much affected when we let go of absolutism; our ordinary use of the concept of moral rightness, by contrast, is completely undermined without absolutism’ 2001: 97]. It may come as a surprise, therefore, to find that Joyce, like Mackie, seeks to preserve moral discourse, or something remarkably similar to it—Joyce recommends continued employment of moral discourse as a convenient fiction. This is not because he prizes pointless activities, but because he, like Mackie, does believe that there is an important point to engaging in moral discourse. Joyce's consistency here is to be rescued in the following manner: the point of ordinary use of moral concepts is to make reference to absolutely authoritative moral properties. Because there are none, this use is undermined. But the fictionalist use has a different point, which isn't undermined by the falsity of absolutism. There are two related problems for Joyce here. First, he doesn't believe that the fictionalist gives moral discourse a new point and use; rather, fictionalism advises that we continue using moral discourse because it is worth retaining a use that ordinary, flawed moral discourse always had. It follows that it is incorrect to claim that the falsity of absolutism undermines the whole point of moral discourse. But this is threatening to the error theory: if the content and truth conditions of moral discourse are functions of its point, Joyce may have to concede that moral claims can be true. 20 Second, fictionalism itself seems undermined as a coherent option; if the whole point of fictionalist discourse is legitimate, then it would seem to follow from Joyce's criterion that the fictionalist's moral claims can be true. But in that case there would be no point in maintaining an attitude of mere make-believe towards moral claims! Joyce presumably means to invoke only the referential point (i.e. intentions to refer) behind a discourse. Any discourse might have several distinct points. The point of witch discourse might include the preservation of villagers’ health, the detection and punishment of sinners, and the suppression of female power and autonomy. But only intentions to refer are properly taken as determinative of content—insofar as we are cognitivists about the target discourse, as error theorists are. According to error theory, the whole referential point of the use of moral terms is to refer to absolutist moral properties (fictionalist use, on the other hand, doesn't involve any referential intentions). This is part of what I am denying in this paper. Once we distinguish the referential point of a discourse from its point more generally, the possibility emerges that the absolutist features of moral discourse are to be explained in terms of some other, nonreferential point that it has—which, I suggested in the previous section, is in fact the case. The content of moral thought and speech is determined neither by our reflective understanding of it (we can be mistaken about such things), nor simply by what we intend to communicate by our use of it (this fails to distinguish semantic from pragmatic intentions). It would be too ambitious to advance a full-fledged theory here: what is needed is to locate a difference between (a) cases like judgements of motion and water, where intuitively we ought to resist imputing systematic error to ordinary judgements, and (b) cases like judgements applying the concepts witch and phlogiston, where an error theory seems appropriate; a difference which must be plausibly determinative for conceptual and semantic content. We can then determine whether moral discourse belongs with the former or the latter. The element to which we should appeal is the essential application conditions embodied in competent first order use of the concepts and terms: approximately, the criteria on which a concept or term is applied. The concept witch is applied to an individual if and only if it is supposed that (approximately) she is a woman with supernatural powers. The concept phlogiston is applied to a substance if and only if it is supposed that (approximately) that kind of substance is contained in all flammable materials and is released during combustion. It is because these suppositions are never true of any actual entities that an error theory of witches and phlogiston is in order. By contrast the essential application conditions employed for motion and moral wrongness are (I believe) relational—even in the use of those who avow absolutist theories of motion and morality. An object is judged to have moved if and only if it is supposed that it has changed position relative to some frame of reference. An action is judged to be morally wrong if and only if it is supposed that it frustrates certain ends or violates certain standards. 21 After all, the absolutist about motion makes (what look like) substantially the same first-order motion judgements as the rest of us, and the absolutist about morality makes (what look like) substantially the same first-order moral judgements as the rest of us. Assuming there is no genuine absolute motion, or genuine absolute moral properties, the absolutist's judgements could not be responsive to these fictional properties. Rather, his judgements about motion are responsive to his sensitivity to motion relative to particular frameworks, and his judgements about moral wrongness are responsive to his sensitivity to the relation of actions to certain moral standards or ends. 22 It is because of this that we rightly attribute relational moral and motion concepts and terms even to the absolutist, and justifiably claim that he misunderstands his own language and thought. Two objections need responses here. First, this account may be thought to have the unacceptable implication that necessarily coextensive concepts, like trilaterality and triangularity, are identical: they share the same necessary and sufficient conditions. But we must distinguish between the conditions for a concept's possible realization, and the conditions for meaningful application of that concept, which extend to its application to merely imaginary, impossible worlds. We understand what it would mean for a polygon to have three sides but not have three angles, even if we cannot conceive of such a polygon itself. By contrast, we cannot even understand what it would mean for there to be a married bachelor, or a genuine witch without supernatural powers, or phlogiston that is not the kind of stuff stored in and released from flammable materials. Second, there is the inconvenient fact that people do (or did) apply the concepts witch and phlogiston. My argument against an error theory of motion and morality can therefore be parodied: Assuming that there are not genuinely any women with supernatural powers, the believer in witches could not be responding to this property in making his witch judgements. And assuming there is not genuinely any substance that is stored in all flammable materials and released during combustion, the believer in phlogiston could not be responding to this property in making his phlogiston judgements. Rather, witch judgements are responsive to sensitivity to a complicated disjunctive property including, for example, the property of being a woman whose enemies have suffered illness and misfortune. Phlogiston judgements are responsive to sensitivity to (in part) the property flammable objects have of acquiring additional weight through combustion. It is because of this that we rightly attribute concepts of witch and phlogiston that have realizations in the actual world even to people whose theory of witches and phlogiston construes these things as such that they have no actual realizations. Clearly something has gone wrong here. Our application of concepts is often responsive and sensitive to what we take to be evidence of—but not constitutive of—their instantiation. My proposal has the resources to make this distinction, however. If even that which is necessarily coextensive need not be part of the essential application conditions, then certainly merely evidentiary factors will not be: competent users of the concept witch will have no trouble conceiving of a situation where the standard evidence of witchcraft obtains, but the accused is not a witch, or of a situation where none of the standard evidence obtains (no wart, no black hat, no sick enemies) but in which a woman is a witch nonetheless. Might it be the case that the moral error theory can be rescued in the same way? Moral judgements cannot be sensitive to nonexistent absolute moral properties, but they could be sensitive to what a person takes to be merely evidence for the realization of such properties. Motion judgements, likewise, could be sensitive to what a person takes to be merely evidence for the occurrence of absolute motion. But these moves are not nearly as plausible as in the case of witches and phlogiston. Consider that the ‘evidence’ in each case is the relational property that the relational theory identifies with morality or motion. This presents the error theorist with several serious problems. First, error theory now seems gratuitously uncharitable: it claims that ordinary judgements of moral wrongness and of motion track awareness of actual value relative to moral standards and actual relational motion, but are nonetheless systematically false because they take the real thing to be merely evidence of fantastical counterparts. Second, it is quite unclear why relational value or motion would be taken as sufficient evidence for absolute value or motion. If people were genuinely employing absolute moral and motion concepts, wouldn't they rather be sceptical that relational value or motion was any indication of the real thing? They may, of course, arrive at philosophical scepticism by reasoning from their absolutist theories, but that is a different kind of scepticism. Arguably the inference from relational to absolute would be explained by an assumption that the relational parameter tracks the absolute state of affairs: that the moral standards or ends subscribed to are the absolutely right ones to subscribe to, and that the framework of motion relied upon happens to be absolutely at rest. We might wonder where this assumption arises from. Another problem is that basic moral truths are generally considered not to be in need of evidence, or possibly even to admit of it: they are self-evident. This is even considered platitudinous by many metaethical absolutists. We should be suspicious of any theory that claims that despite this platitude, even our beliefs in the most basic moral truths are reached inferentially. Finally, this defence of error theory undermines the very argument in its favour that I have been discussing in this section: the claim that ordinary judgement is absolutist by default because we are not ordinarily sensitive to the significance of the relevant parameters. If, as this defence maintains, we actually infer absolute moral value and motion from the evidence of the relational facts, then we are after all sensitive to the relevant parameters in our application of our concepts, even if not in our reflection on that application. It is therefore error theories, rather than relational theories, that impute unnecessary complexity to ordinary practice and judgement. There is therefore no justification for the denial that awareness of relational properties is ‘internal’ enough to play a central role in determining the content of our concepts and terms. The error theorist will likely resist the claim that the essential application conditions for ordinary moral concepts are relational in the way I have suggested. Mackie and Joyce both take the view that these conditions include the presence of genuine practical reasons that are important (rationally authoritative) for any agent regardless of his commitments or ends. They suggest, in other words, that competent use of moral concepts entails the following: if a monster like Fred West were (perhaps per impossibile) to have no genuine reasons that made it irrational for him to perform his crimes of child abuse, rape, and murder, then those acts could not coherently be considered morally wrong for him to perform. I think we should deny that the ordinary concept of moral wrongness entails any such thing. Even if we grant that moral judges usually assume that everyone has (and must necessarily have) genuine conclusive reasons to avoid morally wrong actions, we should not suppose that they would withhold hypothetical moral appraisals of the actions of an agent who lacked such reasons. Our moral concepts allow us coherently to contemplate the figure of the rational villain, and also to contemplate coherently the question, ‘Ought I rationally to act as I morally ought?' 23 These considerations seem to me decisive against the error theory. Our moral concepts are relational concepts, I conclude, even if our own reflective understanding of them is as absolute. This is so because even people who take moral value to have absolute authority employ essentially relational application conditions in forming their judgements of what has moral value: if they consider an action to satisfy certain moral standards or promote certain ends, then they judge it to be morally right. Their reflective theories are beside the point, because they do not genuinely capture the basis for their application and use of those concepts. Even philosophers who adhere to absolutist metaethical theories do not form their first-order moral judgements by exercising sensitivity to nonrelational value properties: they are no more able to detect such nonexistent features of the world than those of us who deny their existence. Even if some people genuinely do assume absolute authority in their practice of moral judgement, therefore, Mackie and other error theorists still err in maintaining an error theory about such persons’ moral judgements, for the reason that this absolutist error does not infect their concepts or the meanings of their words. They continue to employ relational moral concepts and terms, sometimes succeeding in making true moral judgements, even while holding onto a mistaken understanding of their own practice—just as our ancient mariner employs relational motion concepts and terms, often succeeding in making true motion judgements, even while holding onto a mistaken understanding of his own practice. To conclude, the point of this paper has been to argue that ordinary moral judgement is innocent of the charge of systematic falsity, brought against it by the error theory. Error theory is based on a characteristic perceived in moral discourse: treatment of moral value as having absolute authority. We have seen that the most compelling evidence for this is found in only one kind of moral discourse: fundamental moral discourse or disagreement between people with transparently different moral standards, ends, or concerns. Whereas any familiarity with the metaethical literature would give the impression that this is the norm for moral discourse, I have argued that it is rather the exception. Indeed, it could with fairness be described as the breakdown condition of moral discourse [Anscombe 1958; MacIntyre 1984. Error theory therefore takes as the paradigm of moral discourse its exceptional, defective form. I have argued that it misunderstands the nature of that defect, but its error is natural and understandable. If I may be indulged some unscientific speculation, I venture the hypothesis that the curious antipodean proclivity for the error theory has some philosophical significance as a clue towards the nature of its error. There will be more occasion for the exceptional, defective form of moral discourse, and less occasion for nonfundamental moral discourse, in the experience of those living in communities with the greatest diversity of cultural heritages and moral viewpoints: in countries like New Zealand and Australia, which are melting pots made up of immigrants from a wide variety of backgrounds. This may lead a reflective person to mistake an exceptional, derivative form as definitive of moral practice, have a more acute appreciation of the contingency of moral standards and more sympathy towards rival moral viewpoints, and naturally gravitate towards error theory as a result—reasonably, but erroneously. 24

## AT: CP---CIL

### 2AC---CIL CP

#### Perm do the plan and the CP’s justification — solves precedent

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Even if customary international law does not have the status of self-executing federal law, it does not mean that its role in the US legal system is unimportant. Congress can incorporate customary international law into US law, and it has done so in a number of ways, such as by codifying the standards for foreign sovereign immunity, providing a civil cause of action for acts of torture committed under color of foreign law, and allowing for criminal prosecution of acts of piracy “as defined by the law of nations.” Courts also have long applied a canon of construction – known as the “Charming Betsy canon” – whereby they will construe federal statutes, where reasonably possible, to avoid violations of customary international law. In addition, it is possible that in developing some rules of federal common law relating to foreign affairs, courts will take account of a mixture of international law and domestic law considerations, even if they do not apply customary international law directly. This may be happening, for example, with respect to the law governing the immunity of foreign government officials, something that the US Supreme Court in its 2010 Samantar decision indicated should be developed as a matter of federal common law.

#### Perm do both — it solves AND no net benefit

Kammerhofer 4, University of Freiburg - Faculty of Law (Jörg Kammerhofer, 6-1-2004, "Uncertainty in the Formal Sources of International Law: Customary International Law and Some of Its Problems," European Journal of International Law, Vol. 15, Issue 3, pp. 523-553, https://doi.org/10.1093/ejil/15.3.523)

3 Conclusion

We have reached the end of my study. The reader might feel a certain unease about what I have actually accomplished by approaching the problem in this — admittedly peculiar — fashion. It may well be argued that none of the problems I have taken up in the course of the discussion have been treated with the necessary attention they deserve and the reader might feel that the topics have merely been ‘skirted’. That is true, but a fuller discussion would neither have been economical nor was it necessary for the purpose the article was meant to fulfil. That purpose is to show the reader what uncertainty looks like and what causes it. Customary international law just happens to be a topic where uncertainties abound. The results are now in and I can draw tentative inferences from the various ‘test-trenches’ to ascertain the layout of the hidden structure called ‘uncertainty’. Uncertainty is multi-phenomenal; we have seen throughout this study that it can take many different forms. Let me remind the reader what we have seen:

(a) There is considerable disagreement amongst international lawyers as to the scope and formation (and even existence) of customary international law. While no question of law is undisputed and while international law is especially notorious in this respect, debates on customary international law have been marked with a high degree of latitude in the ‘solutions’ proposed by scholars and judges.

(b) Sometimes the law cannot be concretized in a sufficient manner to make it ‘work’ in practice. This ‘inoperationalizability’ of certain formulae which scholars happen to generally agree on can be seen clearly in the case of the quantity of state practice needed to constitute a behavioural regularity sufficient to constitute the material element.

(c) Due to the peculiar nature of customary international law as a law-making law (a formal source), we may be faced with a problem of self-referral: if customary international law’s meta-meta-level is at the same time its meta-level (i.e. if customary law were made by rules that govern their own creation) we potentially have to know the meta-law before we can ascertain what the meta-law looks like.

(d) Very often, uncertainties simply refer us to hierarchically higher — legal theoretical — questions. The difficulty of arguing for or against the relevance of acts and statements as state practice, for example, results from the unsolved question of the nature of state practice.

These are merely examples of what kinds of uncertainties may be abstracted from this article and this list is by no means exhaustive. Uncertainty is not only multi-phenomenal, but also multi-causal. Section 2 of this article served a dual purpose; not only did I intend to continue unearthing manifestations of uncertainty on the theoretical level, but I also wanted to expose some of the reasons why law — and international law in particular — is uncertain:

(a) There is a marked absence of authoritative texts regarding customary international law. While the presence of such texts may give rise to different problems — the reader will be aware of the problems of interpreting the United Nations Charter, for example — customary law is a law without authoritative texts.

(b) International law does not have a dominant theory, ideology or assumption, not even a dominant legal culture. This is perhaps the most damning of all reasons and it is certainly responsible for the high degree of academic disagreement. If it were simply taken for granted and not seriously disputed, for example, that elements x, y and z make customary international law, or that 24 instances of state practice suffice, the dominance of the theory would smother criticism. While the ‘real’ law may be different from the dominant theory, it can conveniently be ignored — as is the case with other normative systems vis-à-vis a dominant written constitution in municipal law (Sections 2E1 and 2E3). If international law had a dominant legal culture, if it were to be placed squarely within the family of continental legal systems or if it were a common-law jurisdiction, jurists could employ the dominant default theories of their culture. According to the maxim, ‘every international lawyer a national lawyer first’ our colleagues often bring their preconceptions of how a legal system works — their ‘cultural prejudice’ — in arguing an international legal case.

(c) Because of the absence of a dominant theory and because there is no written constitution of international law, the structure of the highest echelons of international law is very unclear. This structural uncertainty is not merely a matter for the international legal theorist. It is also relevant for so-called ‘technical’ questions, because problems of substantive or meta-law often point directly to an unsolved question, an uncertainty, of international constitutional law.

As scholars of international law, we must make assumptions of how we think the highest echelons of international law are shaped. At this level of abstractness, we have no legal argument left, because we are, so to speak, peering over the edge of the disc that is the subject of our study. Our ‘anchors’, our ‘arbitrary origins’ that connect international law to other concepts cannot be legal. They might be political or philosophical, practical or logical, but a determination of an object of study by reference to itself is not possible. In the end, a legal order must be based on an arbitrary determination by humans of what it is. The law, like all ideas, remains intangible and empirically incognizable — a fiction. Like any ideal, law only exists because we choose to think it. This figment of our collective imagination would only become certain, if all humans thought about the same thing when they thought about ‘norms’ or ‘law’. But this will not happen, not as long as our consciousness is individual consciousness.

#### Can’t enforce it

Walt 13, American professor of international affairs at Harvard University's John F. Kennedy School of Government (Steven Walt, February 2013, “Why Jurisprudence Doesn’t Matter for Customary International Law, William & Mary Law Review, Vol. 54 (2012-2013), Issue 3 (Law Without a Lawmaker Symposium), Article 10)

For the same reason, custom has no necessary priority over other norms. While customary law, unlike simple custom, creates legal obligations, those obligations may not be superior to other legal obligations. Whether customary law operates only at the state level or also domestically can depend on the content of the particular custom. Although customary international law does not require recognition by a domestic legal system to create legal obligations, these obligations need not have priority over domestic law or automatic effect domestically. There is nothing in the bare notion of customary international law that gives it priority over inconsistent domestic law or makes customary international law applicable in domestic law without domestic implementation. The mere fact that international and domestic law are part of the same or different legal orders does not by itself give international law priority over domestic law or make it self-executing. Put another way, even if customary international law and domestic law are parts of a single legal order, international law might give priority to domestic law over customary international law, or domestic law might give priority to customary international law over domestic law. The priority or effect of customary international law depends on particular facts: facts about the priority or effect international law gives it. This is a contingent matter. Finally, if customary international law is not self-executing, so that its domestic application requires incorporation into domestic law, domestic law controls the recognition of customary international law. Erie’s limit on federal judicial law making extends to customary international law, requiring a source of authority in federal or state law for its application. Customary international law might be federal law for purposes of the Supremacy Clause in Article VI of the Constitution. Alternatively, its recognition might be authorized by legislation.127 In both cases, the limits on the judicial recognition of customary international law are constitutional or statutory, not jurisprudential.

#### \*\*\*Lack of credibility

Joyner 19, Elton B. Stephens Professor of Law, University of Alabama School of Law (Daniel H. Joyner, 2019, “Why I stopped believing in Customary International Law,” Asian Journal of International Law, Vol. 9, Issue 1, pp. 14-15)

Conclusion

So again, I think there is a big problem here. The problem is that the agencies that are looked to as identifiers of CIL – international courts, the ILC, and academics - have been demonstrated to typically go about that exercise in methodologically bankrupt ways. And we don’t just do it because we are lazy or incompetent, we do it so that we can use the resulting assertions of CIL obligations in instrumentalist ways, typically to expand international law to apply in areas where states have not given their explicit consent to be bound through agreed treaty text. The asserted rules of CIL which the shortcut methodologies of identification creates, are therefore of low credibility in the ~~eyes~~ of states, who are understandably reluctant to have judges and academics creating new legal obligations for them. This problem is so difficult to address because it is so institutionally entrenched. Courts and the ILC and many academics have every reason to continue to support the orthodox approach to CIL identification, which is so susceptible to this methodological mischief, because it serves their instrumentalist purposes. The ILC’s ongoing study on this topic, which will almost certainly provide yet another reaffirmation of the orthodox approach, will only further institutionalize the problem. Again, my problem is not with CIL itself as a source of law. In a theoretical sense, I have no problem with the idea that states can collectively make law that governs their interactions with each other, through an evolving process that is not necessarily written down in one lawmaking moment. Particularly under the modern approach that places emphasis and priority upon opinio juris, states can manifest their recognition of an obligation, and their consent to be bound thereby, through their subjective statements of legal understanding. The problem is that we simply do not currently have a structural framework within the international legal system that can support this methodological approach to law creation in a manner that satisfies concerns about objectivity and empirical verifiability of that positivistic manifestation of affirmation and consent. And without this institutional structure, the black magic that stands in for identification of CIL in practice undermines the credibility of every assertion of CIL. It also, by extension, undermines the credibility of the international legal system itself. In order for CIL to survive as a supportable source of international legal obligation, we need to create such a system structure for the objective manifestation and empirical verifiability of positive manifestations of affirmation and consent to be bound by states, resulting in the identification of CIL obligations. This structure must have in place an agreed set of rules and procedures for how this is to happen. Exactly what this institutional structure should look like, I don’t know. The conceptually easy proposal would be to create some sort of legislative body for the international legal system. Perhaps by amending the U.N. Charter to build on the existence and functions of the U.N. General Assembly. But frankly, this prospect is so unlikely, it hardly seems deserving of serious consideration.

#### \*\*\*Rollback

Kundmueller 2, Ph.D. candidate, Department of Political Science, University of Notre Dame, former attorney at Wildman, Harrold, Allen & Dixon, specializing in constitutional law, Ph.D., M.A. Political Science, University of Notre Dame, J.D. University of Notre Dame Law School, B.A. Politics and Law, Flagler College (Michelle M. Kundmueller, 2002, "The Application of Customary International Law in US Courts: Custom, Convention, or Pseudolegislation?," The Journal of Legislation, Vol. 28, pp. 369-372, Hein Online)

The argument against direct incorporation of customary international law focuses on several perceived evils, with the primary focus resting on lack of constitutional justification and incompatibility with constitutional principles such as separation of powers and democratic rule. In a Note that focuses specifically on the question of whether customary international law supersedes federal statutes, Garland A. Kelley takes a moderate position, claiming that customary international law should not supercede federal law, but that "American courts must attempt to reconcile U.S. federal statutory law with conflicting international norms and standards, whenever possible.",42 In the course of explaining why federal law ought not be superseded by customary international law, based on constitutional interpretation, Kelley makes an argument for how customary international law has the potential to threaten some of the most basic premises of American constitutional government. Kelley challenges the claim that the last-in-time doctrine applies to customary international law, pointing out that the Supremacy Clause leaves ambiguous "how conflicts between separate classes of supreme laws are to be resolved., 43 While conflicts between different types of federal law would normally be resolved through the last-in-time doctrine, Kelley notes that with customary international law this does not result in a comfortable outcome." The precise date of a doctrine of customary international law becoming effective, because of the nature of customary international law, is impossible to determine; hence, any date chosen is entirely arbitrary. Unless one is willing to accept the premise that customary law is constantly in the process of being renewed-and, thus, that customary international law always trumps legislative federal law-this issue presents a serious practical obstacle to the application of the last-in-time rule. In a discussion of jus cogens, a specific form of customary international law, Kelley discusses two more fundamental problems of incorporation. Not only is the literature on jus cogens conflicting as to the substance of jus cogens, but the issue of who, in the arena of domestic law, will determine both the substance and applicability of jus cogens does not have an obvious answer.45 The issue of where to lodge the power of applying customary international law creates a dilemma, but this is not the most daunting problem. Kelley claims that "the most serious objection" is "that ceding peremptory power to jus cogens norms is fundamentally at odds with basic American constitutional values."46 Modern customary international law conflicts with domestic legal issues, issues concerning the self-governance of Americans. Kelley explains that the heart of the problem lies in the potential for customary international law, over which Americans have no direct control, to undermine democracy and the consent of the governed. If our form of constitutional government stands for anything, it is the belief that no law is law without the consent of the governed, as expressed through our elected representatives. Preempting domestic statutory law with norms of customary international law, particularly customary international law based not on the practice of nations, but on declarations that are purposeful and hopeful, is to apply law that has been generated by non-United States law-making procedure.47 Kelley contends that the loss of a truly consent-based government would not be the only casualty of customary international law's dominance over federal legislation: such implementation would necessarily come at "considerable cost, upsetting the safeguards inherent in at least three basic U.S. constitutional values and assumptions ....",48 Because directly incorporating customary international law as dominant over federal law would necessitate using the courts as the applying and interpreting body, such incorporation by definition gives previously unknown power to the courts. This power, as Kelley points out, comes at a price. The judicial branch's gain would come at the expense of the President, Congress, and state governments. According to Kelley, such costs are "excessive and illegitimate."49 In an article on the authoritative sources of customary international law in the United States, Harold G. Maier argues that both the governmental structure of the United States and the functional nature of international law itself compel the conclusion that the authoritative source of public international law in the United States is the will of the United States body politic as reflected in federal law ... not the will of the world community of nations. 50 Maier bases much of his argument on the role of territorial sovereignty. Territorial sovereignty and nationhood both require "possession of the internal authority to decide whether to violate international obligations."51 Not only is the authority to choose whether to follow international norms vested in the body politic of each nation, but, as a practical matter, this is the only method through which international law can be translated to the domestic front. In the words of Maier, "[i]t is this functional reality, as much as any language of the courts or of the Constitution, that supports the proposition that United States decision makers are not bound by the Constitution to apply rules of customary international law in domestic fora."52 In practice, this theory demands "active affirmative participation" of a nation's "authoritative decision-makers" for customary international law to have "applicability within a nation's legal system."53 Maier explains what this means within the framework of the U.S. legal system, stating that the "principles of international law are accessible to the federal courts when they decide cases by the common law method. 5 4 While available to courts, "those principles are given domestic legal effect by the authority of the court applying them in its traditional common law process, not by some metaphysical omnipresence of the international legal regime."5 The courts exercise their discretion in applying and interpreting customary international law. Customary international law is further checked and, ultimately in the scheme of U.S. law, balanced by the legislative branch. As the will of the people of the United States-as determined through our own law-making process-dominates the common law findings of the judiciary, so the legislative findings of Congress, when they contravene a court's holding concerning customary international law, reverse the holding of the court system. In the words of Maier, when there is "conflict between the will of the people, reflected by the act of their government institutions, and the will of the international community reflected in customary international law, the municipal will must necessarily control .... 56 Maier believes that, within pal will must necessarily control .... ."" Maier believes that, within the U.S. political and legal systems, customary international law can and rightfully does have a guiding role to play; ultimately, however, the decision-making authority is still retained by the people and government, none of whom are "subject to the limitations created by an international legal regime."57

### !---AT: CIL

#### No impact ⁠— CIL lacks coordination, support, enforcement, and allows for auto-interpretation; treaties solve their internal link

Alford 14, general editor of Kluwer Arbitration Blog and on the Executive Committee of the Institute for Transnational Arbitration, Concurrent Professor at the Keough School of Global Affairs, Faculty Fellow at the Kellogg Institute for International Studies, Faculty Fellow at the Nanovic Institute for European Studies, served as the Deputy Assistant Attorney General for International Affairs with the Antitrust Division of the U.S. Department of Justice from 2017-2019 (Roger Alford, 11-29-2014, "Customary International Law is Obsolete," OpinioJuris, in association with the International Commission of Jurists, http://opiniojuris.org/2014/11/29/customary-international-law-obsolete/)

Trachtman examined 300 different CIL rules and found that only 13 (4.33%) have not been either incorporated in treaties or codified. Trachtman argues that the move toward treaties is because CIL cannot respond effectively to the great modern challenges of international society: global environmental protection, international public health, cybersecurity, financial cataclysm, and liberalization of movement of goods, services, and people. Trachtman also argues that CIL is incapable of addressing enduring challenges of regulating war, protecting human rights, and reducing poverty. According to Trachtman, the reasons for CIL’s obsolescence are manifold. CIL (1) cannot be made in a coordinated manner; (2) cannot be made with sufficient detail; (3) cannot be made with sufficiently heterogeneous reciprocity; (4) cannot be made with specifically-designed organization support; (5) is not subject to national parliamentary control; (6) purports to bind states that did not consent but failed to object to its formation, and (7) provides excessive space for auto-interpretation by states or undisciplined judges. For Trachtman, the obsolescence of CIL should lead states to stop arguing about CIL and start legislating mutually beneficial transactions. It should also lead NGOs and advocates to stop trying to “bootstrap a desired CIL past a target state” and instead engage with those states in treatymaking. Academics should “focus our analysis on the politically immanent, interdisciplinary, work of developing proposed rules that are administratively workable and effective, and that achieve actual social goals.” He suggests that the international legal system could survive just fine without CIL. So stop worrying about custom and learn to love treaties.

## AT: K---Death

### 2AC---Framework---Long

### 2AC---Death K

#### Impact’s wrong AND detachment’s inevitable, but they link harder under guise of “neg flex”

Williams 11, International Affairs Professor at University of Ottawa (Michael Williams, 2011, “Securitization Theory: How Security Problems Emerge and Dissolve,” pp. 219-220)

Fear has generally had a bad name in modernity. It has been seen as something to be banished -freedom from it was the target of one of Franklin Roosevelt's 'four freedoms', and it is today one of the unifying elements of the Human Security agenda and, in certain forms at least, of Critical Security Studies. From a different but equally hostile perspective, some philosophic accounts see modernity as based in fear, and its (generally destructive) preoccupation with security as a consequence of this more basic foundation. To still others, fear is an instrument which, far from being part of the existential condition of modernity, has been made more powerful and effective by the structures of modem politics. 5 Each of these three views, despite their apparent (and by no means insubstantial) differences, are united in their basic vision off fear as negative. And there is no doubt that their assault on the politics of fear and its negative effects is an indispensable element of any serious analysis of security. Yet it is also the case that to reject fear completely, or to see it as wholly antithetical to security is both analytically and politically ~~blinding~~[ineffective]. In contrast to these modem views of fear, many older traditions of thought exhibit a rather different sensibility, and provided a more nuanced and potentially more productive view of the politics offer. To take one example, in the eyes of perhaps the greatest political philosopher of fear, Thomas Hobbes, the human condition was dominated by multiple and often contradictory and competing forms of fear: the fear of death itself; the fear of violent death at the hands of others, which marked a fear of dishonor ( of Pride and the sense of self) more than it did of mere mortality;6 fear of the unknown and unknowable future and its potential hazards (Blits 1989).7 Fear, in short, was everywhere, and while Hobbes freely admitted that he might have felt its effects more acutely than many people, he was convinced nonetheless that it dominated the human condition, and that a complete escape from fear was possible only temporarily in sleep, and ultimately, in death. Yet Hobbes did not view fear wholly negatively. Indeed, he believed that the absence of fear could be as dangerous as its over-abundance. Disregard of the fear of death as a result of vanity and the search for glory or honour, he believed, could lead to the worst forms of conflict, while misplaced certainly (belief in the security of knowledge) could result in dogmatism, intolerance and violence in the name of universal truths. Recognizing these dangerous beliefs and fearing their consequences, however, could act as a positive constraint on human excesses, and foster peace. Fear arising from the absence of specific forms of fear (of, for instance, conflicts arising from Vain-glory or religious zealotry that overwhelmed the fear of death, or that arose from a failure to acknowledge the limits human knowledge and an unwillingness to live with the fear presented by the inability to control an essentially uncertain future) could lead to a politics that restrained these beliefs and behaviours. In other words, the fear off fear (and of the practices likely to lead to extreme fear) could act as a check upon the politics of fear. However difficult it might be to achieve, fear was in principle capable of supporting forms of positive, pacific action.

#### Perm: do both

#### It’s education, not “death culture”

<<debating existential risk and its underlying assumptions is important>>

<<magnitude-based impact calculus maximizes cost-benefit analysis, nuanced impact calc, impact turns, critiques of existential risk, argument innovation, prevents stale debates, limits impact scenarios, and targeted research>>

Crisp 21, Uehiro Fellow in philosophy at St Anne’s College, Oxford, and professor of moral philosophy at the University of Oxford, the author of "Mill on Utilitarianism", "Reasons and the Good", "The Cosmos of Duty: Henry Sidgwick’s Methods of Ethics", and "Sacrifice Regained: Morality and Self-interest in British Moral Philosophy from Hobbes to Bentham” (Roger Crisp, 8-10-2021, “Would extinction be so bad?,” NewStatesman, https://www.newstatesman.com/international/2021/08/would-extinction-be-so-bad)

In recent decades it has often been said that we are living at the “hinge of history”, an unprecedented period during which a catastrophic event such as rapid climate change, nuclear war or the release of a synthesised pathogen may bring an end to human and perhaps all sentient life on the planet. Most people think that such extinction would be bad, in fact one of the worst things that could happen. It’s plausible that the process leading to various forms of extinction, and extinction itself, would be bad for many of us, given that our lives are, overall, good for us and that, all else being equal, the longer they are the better. But it’s also plausible that extinction would be good for some individuals – those in the final stages of an agonising terminal illness, for example, whose pain can no longer be controlled by drugs. This means one key factor in judging the overall value of non-extinction will involve weighing these disparate interests against each other. How might we do that? Let’s focus on sudden extinction. Imagine that some huge asteroid is heading to earth, which if it hits will remove any possibility of life on Earth. If you have the power to deflect it, should you do so, from a moral point of view? If extinction would be bad for all sentient beings, both now and in the future, the answer “yes” seems hard to argue with. But, as we just saw, that’s not the case. Consider the huge amount of suffering that continuing existence will bring with it, not only for humans, and perhaps even for “post-humans”, but also for sentient non-humans, who vastly outnumber us and almost certainly would continue to do so. As far as humans alone are concerned, Hilary Greaves and Will MacAskill at the University of Oxford’s Global Priorities Institute estimate that there could be one quadrillion (1015) people to come – an estimate they describe as conservative. These numbers, and the scale of suffering to be put into the balance alongside the good elements in individuals’ lives, are difficult to fathom and so large that it’s not obvious that you should deflect the asteroid. In fact, there seem to be some reasons to think you shouldn’t. How can we make comparisons like these? CI Lewis, a leading Harvard philosopher in the mid-20th century, offered an intriguing thought-experiment. To judge the value of some outcome, you have to imagine yourself going through the relevant experiences. Usually when we think about extinction, because we are not in great pain, we focus on the good things we’ll miss. But if God were to offer you the choice of living through all the painful and pleasurable experiences that will ever occur without extinction, would you jump at the opportunity? I have to say I wouldn’t. There are, of course, many other ways of measuring value, more technical and precise than Lewis’s thought experiment. Most of them assume that values can be compared against one another on a continuous scale. Imagine that you want the pleasure of being admired on the beach for your impressive tattoo. But getting it will hurt. So you balance the pleasure against the pain, and decide to go ahead only if the first outweighs the second. But perhaps there are discontinuities in value. John Stuart Mill, for example, used to claim that some pleasures – such as enjoying some great work of art – are “higher” than others, in the sense that no amount of “lower” pleasure – such as that of eating peanuts – could equal the higher pleasure in overall value. Likewise, some pains might seem discontinuous in value with others. Imagine that the Devil offers you a choice between a year of the most appalling agony imaginable, and some period with a barely perceptible headache. Some would take the second option, however long the headache lasted, perhaps even if it were to last for eternity. Since we are considering whether extinction might be better than continuing to exist, the question arises whether some pains could be so great that they outweigh any number of pleasures and other goods. To avoid the worries that arise from imagining large numbers, consider just one kind of pain, undoubtedly among the worst that any sentient being could experience: that of torture by electric shock. One recent victim of such torture described it as “like they are breaking every bone of every joint in your body at the same time”. Along with the sheer physical agony of such torture go many emotional horrors: dread, terror, panic, humiliation, degradation, despair. Now consider some relatively short period of such torture – an hour, say – and return to CI Lewis’s thought-experiment. Imagine a choice between, on the one hand, the non-existence of immediate extinction and, on the other, an hour of electric shock torture followed by some period of pleasure and other goods. What would you choose? Not (I hope) having been tortured, you might want to ask one of its victims just how bad it is. Unfortunately, it is common for such victims to say that it is impossible to convey this badness. Jacobo Timerman, for example, who was tortured in Argentina, said: “In the long months of confinement, I often thought of how to transmit the pain that a tortured person undergoes. And always I concluded that it was impossible. It is a pain without points of reference, revelatory symbols, or clues to serve as indicators.” Another problem is that it appears to be hard to remember the true nature of agony. Harriet Martineau, who suffered terribly throughout her life from a uterine tumour, once said during a period of remission: “Where are these pains now? – Not only gone, but annihilated. They are destroyed so utterly, that even memory can lay no hold upon them.” Perhaps one reason we think extinction would be so bad is that we have failed to recognise just how awful extreme agony is. Nevertheless, we have enough evidence, and imaginative capacity, to say that it is not unreasonable to see the pain of an hour of torture as something that can never be counterbalanced by any amount of positive value. And if this view is correct, then it suggests that the best outcome would be the immediate extinction that follows from allowing an asteroid to hit our planet. Of course, allowing an asteroid to hit the Earth would probably be bad for you and those close to you. But given what’s at stake, it may well be that you should pay these costs to prevent all the suffering. As the philosopher Bernard Williams once said: “[I]f for a moment we got anything like an adequate idea of [the suffering in the world] … and we really guided our actions by it, then surely we would annihilate the planet if we could.” The question of whether extinction would be good or bad overall is obviously very important, especially in the face of potential catastrophic events at the hinge of history. But this question is also very difficult to answer. Ultimately, I am not claiming that extinction would be good; only that, since it might be, we should devote a lot more attention to thinking about the value of extinction than we have to date.

## ADV---Cyber

### 2AC---!---Cyber

## ADV---Innovation

### 2AC---!---Taiwan

### 2AC---Theory---Perfcon

### AT: Impact

### AT: Labs

#### Anti-natalism is a bad faith prediction of future conditions ⁠— contingent moments of happiness justify existence

Janning 14, Ph. D., Copenhagen Business School (Finn Janning, December 2014, “True Detective: Pessimism, Buddhism or Philosophy?,” Journal of Philosophy of Life Vol.4, No.4, pp. 121-141)

Yet, the antinatalist arguments that Benatar unfolds in Better Never To Have Been are based on moral abstractions. The problem is that he wishes to create a universal method of evaluating life, although it only functions to fulfill his claim that reproduction is never morally acceptable, because coming into existence is always harmful. Instead, one could claim that when Cohle experiences nothing but love at the end of the serial, then at that moment (not before) he knows what he has been doing all along. However, one can never know that from the beginning. Cohle’s experiences do not necessarily follow his claim; he remains open. This contrasts with Benatar’s conclusion that follows his claim: Coming into existence is always a harm; therefore, it is better never to have been. Furthermore, the absence of pain may be good in some circumstances, e.g., serious illnesses, but not in others, e.g., being forced to think (i.e., change). Also, the absence of pain may be good, but never good in the sense that joy is good. For example, it is good that I did not fall off my bike this morning; however, this is an abstract experience that has nothing to do with the joy of experiencing overcoming an actual bike accident. The antinatalist approach, although it raises relevant issues of whether reproducing is a human right or not, is a variation of former American president George W. Bush’s moral doctrine. Let me quote some of the former President’s ideas: Either you are with us, or you are with the terrorists … We will not hesitate to act alone, if necessary, to exercise our right of self-defense by acting preemptively against such terrorists; to prevent them from doing harm against our people and our country … Nations need not suffer an attack before they can lawfully take action to defend themselves against forces that present an imminent danger of attack ... The greater the threat, the greater the risk of inaction – and the more compelling the case for taking anticipatory action to defend ourselves, even if uncertainty remains as to the time and place of the enemy’s attack.31 For President Bush, it was morally right to attack a nation before it might strike you, because it presented a possible danger. Similar, Benatar claims that either one knows that coming into existence is a harm, or one is being naïve. This premise is apparently unquestionable, even though people who suffer from severe illnesses or impairment often believe that their life is still worth living. Benatar believes that the human being per se suffers from the “Pollyanna Principle” that says that people tend to assess the quality of their life as more positive than it really is.32 Furthermore, apparently it is our moral duty not to reproduce, because “815,000 people are thought to have committed suicide in 2000.”33 And the rest of the human populations who refrain from committing suicide do so because they were self-seduced? Still, claiming that coming into existence is always harmful seems impotent. It neglects the fact that life is dynamic. “Sometimes a man undergoes such changes that I should hardly have said he was the same man,” Spinoza writes.34 Changes happen, especially if there is someone who actually cares. This is not to say that the world is not brutal. It is. Torture, rape, murder, severe illnesses, inequalities between gender, etc., exist. Still, Victor Frankl and Imre Kertesz, to mention two prominent writers, have mentioned that even in one of the worst places, a concentration camp during the Second World War, there were moments of happiness – small gestures where people took care of one another and showed levels of strength that some antinatalists cannot imagine. The approach that I call philosophical is not a matter of being an optimist or pessimist, but of viewing the world as unchangeable or changeable. A philosopher asks the right questions, the kind of questions that are not part of a quiz show where we already know the right answer to begin with. Rather, the questions that invent new problems by acknowledging that our present is a potential constantly being actualized. Many pessimists suggest that the human being refers to the existence of a higher and idealized being as a security blanket.35 Such a blanket is problematic. A part of the suffering, though, is due to a too rigid belief in unchangeable certainties that decrease our sensitive and perceptive capacity for being aware, whether one claims that a God exists or that being alive is harmful. This basically goes for all kinds of normative ideals, related to spirituality, beauty, weight, job titles, opinions, etc. Today, we live in what Deleuze calls “control societies” where each one manages his or her life according to the norms and ideals that few are incapable of turning their backs to. The problem of today’s control society is that too few dare to say “no” – to step out of the dominant ideals and norms related to the prestige of having a title, a career, and social identity, and ask “whose ends these serve.”36 The control society is basically our own fault, because only a small number of people leave the scene of rigid performance evaluation. However, both detectives in True Detective get out. Cohle leaves his work as a detective in 2002, and Hart does so some years later. Afterwards, Cohle vanishes. A Buddhist may call it a retreat; a pessimist may call it just another delusion. Nevertheless, he is silent. Cohle transforms during his absence. He becomes more compassionate. “We left something undone. We gotta fix it,” he tells Hart.37 Thus, Cohle shows compassion, not for a God, but for life. He is concerned. Even after they have caught the killer, Cohle is suffering. “What’s your problem?” asks his partner Hart, whereupon Cohle answers, “Not a care in the world.” The mystery, therefore, is why there is so little compassion. However, neither the kind of strategic compassion that is controlled by divine laws, nor the pseudo care that basically neglects how the human nature is inventive. It invests in the future by repeating what facilitate future innovations. Rather, the kind of compassion that cares about life and the life to come. It is an action-concept, a power to affirm what is coming into being.

### 2AC---Extinction Bad

#### Embrace the existentialist ethic---we can craft meaning through freedom, revolt, compassion, and authenticity despite absurdity and suffering

John Pollard 16, integrative counsellor, graduated from the Philosophy Department at Essex University, 8/4/16, “Depressive Realism: an existential response,” <https://doi.org/10.1080/03060497.2016.1202401>

\*DR = Depressive Realism, This author cites Ligotti and Benatar as core advocates of that approach

\*\*”Man” replaced with “humans” in final paragraph

Given an acute sensitivity towards inherent difficulties in being human, there are various arguments within DR for a pessimistic view of procreation. Indeed, the question of population growth and natural resources worries many depressive realists to the extent that ‘antinatalism’ becomes a serious position for them. However, on the radical wing of DR you not only have the advocating of a personal decision not to reproduce, but an argument for the phasing out of the human race (Zapffe, 1933/ 2004), based on what seems to be the utilitarian goal of reducing suffering: ‘no human beings equals no suffering’ seems to be the preferred situation, rather than the inherent suffering involved in continuing human existence.

However, there is a problem of logic here. Phasing out the human race seems to be utopian, an ideal situation to bring about, because of the desire to rid ourselves of suffering. This utopian ‘non-human’ earth would have to come about because enough human beings chose this. But this makes little sense: how would that happen? It would imply a huge change in our humanity and a realization of suffering (and the truth of DR) that would, in itself, undermine the need to put in place a process of human extinction.

It makes much more sense to look seriously at the issue of natural resources, population and population control, along with environmental concerns. A purely existential view on procreation would probably limit a response to an individual’s own reflective decision, perhaps with authenticity in mind: looking at one’s individual motives and reasons behind this decision. Perhaps most existentialists would at least think a considered exploration of procreation would make sense, rather than a simple assumption about its rightness or wrongness.

Nihilism and meaninglessness

The title of a 2006 book by David Benatar, Better Never to Have Been: The Harm of Coming into Existence, is an example of an extreme view in DR, but there seems to be an inherent irrelevance and absurdity in terms of an existing individual exploring for themselves whether it would be better if they hadn’t been born. How can the question be asked logically? The poser of the question cannot logically answer the question as they have already been born – it is not a state they can now choose. If you ask the question based on your own suffering and experience, you then have to decide what your answer means to you now: granted, it might help you look at what is important and meaningful. It may lead to the question of whether one’s life is worthwhile and whether one should end it or not, a question Albert Camus took seriously in The Myth of Sisyphus (1986).

Camus sees the meaning of life as the ‘most urgent of questions’, as believing that life has no meaning undermines our very existence and can lead to the question of suicide. Absurdity comes into this quandary, with the apparent indifference of the world to our desire for clear meaning: ‘the confrontation of the irrational and the wild longing for clarity whose call echoes in the human heart’ (1986, p. 26).

The absurdity of our existence would resonate with many within DRwho would view an ‘optimistic progressive’ position as ‘absurd’, as there is a huge gap between an optimistic view of the future and the depressive reality of the human condition. But Camus remains optimistic; he draws from the absurd three consequences, which are ‘my revolt, my freedom and my passion’ (1986, p. 62). These three areas are classic existential concerns; a freedom to revolt passionately against the levelling down of everyday life. JeanPaul Sartre, a contemporary and sometime colleague and friend of Camus, founded his version of existentialism on engagement and commitment, and it is this active nature of existential philosophy that is useful when exploring the question of meaning.

John Gray’s take on this is interesting: ‘It is practical men and women who turn to a life of action as a refuge from insignificance’ (2002, p. 194). Perhaps refuge is only one possible motive for action, which might actually be ‘for’something positive. Gray does say that ‘[s]earching for meaning in life may be useful therapy, but it has nothing to do with the life of the spirit. Spiritual life is not a search for meaning but a release from it’ (2002, p. 197). Throughout his recent writings, Gray argues for a kind of Heideggerian releasement from conflict, a letting go, an approach that has something in common with Buddhism and the later writings of Heidegger (2010). Gray takes issue with our relentless drive for meaning: ‘Other animals do not need a purpose in life. A contradiction to itself, the human animal cannot do without one. Can we not think of the aim of life as being simply to see?’ (Gray, 2002, p. 199).

An existential view may be to affirm some kind of dynamic, or integrated, relationship between ‘active’ and ‘meditative’ being: Sartrean ‘doing’ and Heideggerian ‘being’ are perhaps compatible (see Cooper, 1999). The existential psychotherapist Irvin Yalom argues that pursuing meaning directly is limiting and can be self-defeating:

When it comes to meaninglessness, the effective therapist must help patients to look away from the question: to embrace the solution of engagement rather than to plunge in and through the problem of meaninglessness … . One must immerse oneself in the river of life and let the question drift away. (Yalom, 1980, p. 483)

A response to the question of meaninglessness may also involve an ironic standpoint and, I would argue, should also include the associated experience of ‘humour’ – something understandably lacking from most DR, but also, alas, existential writing.

Self-deception and sublimation

An important work in DR is ‘The Last Messiah’ (1933/2004) by Peter Wessel Zapffe, who refers to our evolution as problematic; for Zapffe, it is how we differ from animals that marks out our central problem. ‘One night in long bygone times, man awoke and saw himself.’ Central to his diagnosis of human existence is our over-developed consciousness, the ‘parent of all horrors’, according to Thomas Ligotti (2010, p. 15), which involves a heightened and imaginative awareness of all our negativities, including suffering, our exploitation of nature, and our own certain deaths.

Zapffe cites four ways in which we deal with the problems associated with our existence, all of which involve ‘artificially limiting the content of consciousness’. The first way is‘isolation’, whereby we dismiss from consciousness‘all disturbing thought and feeling’.

Second is ‘anchoring’, which gives us a false sense of security – perhaps through family, God, material objects, wealth, work, etc. Third is by ‘distraction’ and fourth ‘sublimation’, where we transform what is fearful into something manageable; a popular way would be by creative means. Zapffe includes himself in this category: ‘The author does not suffer, he is filling pages and is going to be published in a journal’ (1933/2004) The question of illusion and self-deception can be seen throughout DR. The difficulty of acknowledging the depressive truth of being human is dealt with in various ways. It seems that, a bit like Heidegger’s inauthenticity, we cannot resist ways of immersing ourselves back into the everyday world, so perhaps it is more about being aware of our own actions and the ways in which we are being inauthentic, or anchoring or sublimating. Gray writes that ‘[h]umans cannot live without illusion.

For the men and women of today, an irrational faith in progress may be the only antidote to nihilism’ (2002, p. 29). An alternative response may be to look seriously at the question of meaning: if nothing matters, then surely that doesn’t matter either. Given the view that my life will end, and indeed everyone else’s, this either makes my decisions meaningless or incredibly meaningful. DR veers towards the former, while existentialism holds out for the latter.

Freedom and determinism

The question of meaning connects with a fundamental difference between DR and existentialism: that of freedom and free will. Sartre’s more provocative slogans have become central to the existential view of freedom: ‘man is condemned to be free’ and the ‘incontestable author of their lives’ (Sartre, 2003, p. 553). Indeed, for Sartre, freedom is not a possession: ‘it is not a quality added on or a property of my nature. It is very exactly the stuff of my being’ (2003, p. 553).

Gray’s recent writing on free will and freedom is complex; at times he certainly sees them as being part of our illusions: ‘It is not true that our experience compels us to think of ourselves as free agents. On the contrary, if we look at ourselves truthfully we know we are not’ (2002, p. 43). However, in a more recent work, The Soul of the Marionette (2015), Gray does describe a kind of ‘inner freedom’relating to embracing uncertainty and mystery. He also states that ‘for the present and the future that can be clearly foreseen, it is only freedom that can be realized with each human being that can be secure’ (2015, p. 162).

If indeed it is an illusion, free will is one with some illusory evidence and practical support. The argument against freedom and for determinism seems to make best sense in hindsight, or from a standpoint that views the human being as simply a physical entity like any other, and hence definable by cause and effect. One could argue that while there are many arguments on both sides of the free will/determinism debate, the best argument for believing in free will might be the practical one: imagine trying to live as though you had no free choices. How might that practically work for you?

Death and authenticity

Death plays a central part in DR and for many existentialists. For DR, death is a depressing fact, bringing into question what happens after our death (DRs tend to be atheists), the question of loss (of self and others), the fear of how we might physically suffer, of our fragility and impotence, and the possible undermining of any meaning. For Heidegger, death ‘is possible at any moment’ (1962, p. 302) and the uncertainty of its timing can create a debilitating anxiety. Much of this DR could affirm as evidence for a depressing reality.

However, not only could one argue that without death our lives would have little point, or meaningfulness, but it is death which many existentialists, most famously Heidegger in Being and Time (1962), view as the main path to authenticity. Authenticity is not an overwhelmingly positive joy but a sober one. He describes an authentic attitude to our death as ‘an impassioned freedom towards death – a freedom which has been released from the Illusions of the “they”, and which is factical, certain of itself, and anxious’ (1962, p. 311, original emphasis).

Heidegger’s ‘the they’ or ‘the one’refers to our everyday communal life, a world of shared meanings, objects and practices. For Heidegger, the tendency is that ‘the they’ reduces ‘the possible options of choice to what lies within the range of the familiar, the attainable, the respectable – that which is fitting and proper’ (1962, p. 239). This encourages a conformity, a ‘tranquilization’, although it is important to note that we all act in the everyday world in shared conformist ways (e.g. I drive a car like ‘they’ do, read a book like ‘they’ do, even ‘rebel’ like ‘they’ do); we cannot constantly resist the way we ‘fall’ into this everyday practical world, although there are degrees and different attitudes we can take towards it.

To ‘find’ ourselves in this everyday world involves a conscious awareness and resolve. It is an awareness and confrontation with one’s own death that, particularly for Heidegger, makes authenticity possible, although the tendency is for us to flee from the anxiety this provokes, back into the everyday world of ‘the they’. It is important to note here that death does not play a central part in Sartre’s concept of authenticity or good faith: ‘death is always beyond my subjectivity, there is no place for it in my subjectivity’ (2003, p. 548).

The concept of authenticity in existential literature provides some positive responses to a pessimistic outlook on life, as it opens up future possibilities in a more reflective and personal way. Authenticity is not about being true to a fixed, core inner self; it is a process and ongoing struggle. It offers some ways of addressing what the philosopher David Cooper describes as our alienation from ‘the world, from one’s fellows, from oneself’ (1999, p. 8), perhaps an alienation that DR argues for.

However, as authenticity is a kind of openness to ‘being’, including our beingtowards-death, some anxiety comes along with it. Therefore, while arguing that existential philosophy ultimately rejects an essential DR, its description of authenticity could be described as an ‘anxious realism’.

Of course, while for Heidegger ‘the non-relational character of death, as understood in anticipation, individualizes Dasein down to itself’ (1962, p. 308), we remain with others:

Resoluteness, as authentic Being-one’s-self, does not detach Dasein from its world, nor does it isolate it so that it becomes a free-floating ‘I’ … [it] brings the Self right into its current concernful Being-alongside … and pushes it into solicitous Being with Others. (1962, p. 344; original emphasis)

Therefore, any committed struggle for authenticity involves our attitude towards, and relationships with, others. For Charles Guignon:

authenticity is a personal undertaking insofar as it entails personal integrity and responsibility for self. But it also has a social dimension insofar as it brings with it a sense of belongingness and indebtedness to the wider social context that makes it possible. (2004, p. 163)

Ethics and compassion

This last reference to our social nature and the possibility of an ethics of authenticity brings us to the question of how DR addresses our relational nature and its views on ethics and moral values. As noted, the position of DR can be seen as an alienated one and it may be partly due to this state that writing on relationships, and hence ethical concerns, is largely absent. This was illustrated by my feelings when I read the acknowledgements section in Ligotti’s The Conspiracy against the Human Race. After the relentless, overwhelming negativity of the book, I was aware of my surprise at Ligotti’s positive acknowledgements, expressing ‘appreciation’, ‘encouragement’, ‘counsel’ and ‘responsibility’ (2010, p. 6). In fact, one can read a lot of DR and easily forget the place of relationships inherent in our everyday lives. So what happens to the value of relationships in the life and theories of a depressive realist?

The place of both existing and potential, positive relationships might offer some challenge to the negativity in DR. Feltham declares himself a ‘depressive realist’ (2015, p. 61), although his position also entails what you might call positive elements: his response to DR involves a ‘compassionate nihilism’ (2015, p. 82). What might this compassion entail? He also talks of a Camus-like revolt against ‘social systems that do not work’, and ‘greed, deception, and illusion’, as well as appealing to his readers to ‘vigilantly take inventory of your own prejudices, biases and blind spots to the human condition’ (2015, p. 205).

Perhaps the kind of compassion Feltham refers to here is similar to a notion of kindness as a continual temptation in everyday life that we resist. Not a temptation to sacrifice ourselves, but to include ourselves with others. Not a temptation to renounce or ignore the aggressive aspects of ourselves, but to see kindness as being in solidarity with human need, and with the very paradoxical sense of powerlessness and power that human need induces. (Philips & Taylor, 2009, p. 117)

Robert Stolorow, one of the best therapists writing on Heidegger, speaks of a ‘kinshipin-finitude’ (2011, p. 65) and a new form of ‘human solidarity’ (2011, p. 78). Our being-with-others is also a being-towards-death, and our recognition of the issue of another’s authenticity is also an awareness of our shared mortality: ‘If we can help one another bear the darkness rather than evade it, perhaps one day we will be able to see the light – as individualized, finite beings, finitely bonded to one another’ (2011, p. 78). The question of ethics is one that writers within the world of DR should respond to.

Conclusion

One thing that DR shares with its opposite standpoint – what we could call ‘happy realism’ (positive psychology?) – is ‘certainty’ and a difficulty with ‘uncertainty’. It seems that committed depressive realists have to keep focused on the negativities just as much as the ‘happy realists’ need to keep focused on positivity.

Along with this certainty comes another problem for DR: its essentialism. That is, on DR terms, reality is essentially depressing, negative, and not mixed or dependent on a particular individual’s life. How can one define DR clearly and then commit to it without undermining the negativity due to some positive experiences, attitudes, feelings, etc.? Why these should be any more illusory than their negative counterparts is not clear. We then come back to the existential ‘truth’ of DR being situated within an individual life – hence DR truths become partial and contingent ones Writers within DR imply that anything that suggests that our existence is not essentially and comprehensively depressing is an example of denial in action. If all of human existence, apart from a confirmation of the issues in DR, is a kind of Zapffean defence, how do we rate the meaningfulness or rightness of any sublimation? As depressive realists will also tend to live in denial at times, how is one defence better than another?

While a therapist subscribing to DR makes little sense, a therapist with some serious empathy with DR (and not just seeing it as some kind of irrational ‘condition’ that needs to be treated) does make sense, and given some of their shared concerns, some existential therapists may be in this position. The view from within humanistic therapy on DR might be interesting, particularly those therapists with a fundamentally positive view of human nature. I would argue that existential philosophy’s view of human being allows a serious and open exploration of the concerns of DR rather than a simple rejection based on positive prejudices about what it means to be human.

It would be dangerous and naive to simply dismiss DR. In existential terms it may be a seductive pull into a pessimistic ‘they’, but existential authenticity gives us a committed, albeit anxious way to resist as well as being open to both negative and positive possibilities.

In his famous 1945 lecture Existentialism and Humanism, given at the end of the Second World War in Paris, Jean-Paul Sartre argued against some of his critics that existentialism was not an ‘over-emphasis upon the evil side of human life’ and not ‘an invitation to people to dwell in quietism of despair’, precisely because it ‘confronts ~~man~~ {Humans} with a possibility of choice’ (1973, p. 25). This is a good example of the existential response to DR: even given a depressive realist outlook, how do you want to respond as a being-with-others? What are you to think? How are you going to be? What are you to do with the time you have left?

#### Extinction’s the worst possible impact---it causes the painful death of billions, destruction of future generations, and loss of all value

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Would it be wrong if humanity were to go extinct like most species that have so far existed? If so, how wrong, and for what reasons? The present paper aims to synthesize a wide range of arguments for why human extinction would be *very bad*, if not *one of the worst things that could possibly happen*. We will call this “Conclusion C.” Although there are some moral and axiological positions that see the extinction of humanity as desirable, such as Benatarian anti-natalism, our aim will be to show that there are multiple independent lines of reasoning that all converge upon Conclusion C, and thus imply that humanity ought to make the avoidance of extinction a top global priority this century and beyond. Here it is useful to distinguish between (E) the event or process of going extinct, and (S) the state or condition of being extinct. At the very least, all of the most prominent moral theories identify (E), if caused or allowed by moral agents, as wrong; other theories, however, affirm the moral badness of both (E) and (S), even going so far, in certain cases, to assert that most of what is bad about human extinction is the subsequent loss of value that could have been realized if only we had survived.

This topic is not one of mere philosophical curiosity. As one of us has elsewhere shown, the very idea of human extinction is a quite recent addition to our shared conceptual repertoire; e.g., not even Charles Darwin entertained the idea in his work on human evolution. Consequently, very little scholarly 3 attention has focused on the ethical implications of either (E) or (S). Yet the most informed probability estimates of human extinction occurring this century suggest that this could be the most dangerous moment of our species’ 200,000-year history. For example, Nick Bostrom (2005) estimates that the likelihood of extinction before 2100 is not less than 20 percent; an informal survey of experts at the Future of Humanity Institute (FHI) yields a median probability of 19 percent (Sandberg and Bostrom 2008); and Toby Ord conjectures a 1-in-6 chance of extinction before 2100 (see Wiblin 2017; author). For ease of discussion, we can call this the “unique hazards hypothesis,” defined as follows:

*Unique hazards hypothesis*: Humanity finds itself in a period of historically unprecedented dangers to our survival.

If this hypothesis is even remotely accurate, then the question of whether and to what extent Conclusion C is well-supported by cogent philosophical argumentation is not only of paramount importance but extremely urgent as well. Thus, the present paper aims to fill-in a significant lacuna in the contemporary 4 literature on existential risks, offering a robust point-of-departure for future discussions of whether and to what extent human extinction would be tragic.

This paper will proceed as follows: Section 2 examines five potential reasons why human extinction might be tragic. Section 3 explores how the four main classes of moral theories would evaluate these reasons. Section 4 addresses the issue of normative uncertainty in the context of human extinction. It should become clear by the end of this fairly exhaustive tour through a philosophical labyrinth of argumentation that one need not espouse any particular moral or axiological perspective to see human extinction as a tragedy of immense proportions. Indeed, some lines of reasoning that converge upon Conclusion C are not only independent but mutually exclusive, meaning that people with incompatible moral or axiological commitments can still agree that ensuring our survival into the far future should constitute a global priority for human civilization.

Section 2. Five Potential Tragedies of Human Extinction

There are at least five aspects of human extinction that moral and axiological theories could appeal to in arguing that such an event would constitute a tragedy of the highest order. These are:

2.1 *Human extinction will very likely harm those alive at the time*. Although no scientific surveys of normative beliefs about human extinction have been conducted, there are reasons for suspecting that most people would pre-theoretically see (E) as tragic for at least one morally relevant reason, namely, that it would entail the death of ~7.6 billion people (as of this writing); yet many would also see this as only slightly worse than a catastrophe that kills a much smaller number of people. Even more, most probably wouldn’t view (S) as being bad at all.5 Taking these in reverse order, many philosophers and non-philosophers alike hold “person-affecting” intuitions according to which we should care most, or only, about the effects of our actions on currently existing people and consequently little, or not at all, about those who will only exist in the future. Thus, since no one will be around to bemoan the non-existence of humanity, who cares? On the other hand, while many agree that any bodily or psychological harm that going extinct causes would be bad, the badness of such harm does not scale multiplicatively as the number of deaths increases due to cognitive biases like “scope neglect” and “psychophysical numbing” (see Slovic 2017). The first bias refers to our inappropriate emotional responses to large numbers and the second denotes the rapid decline in compassion for other humans as the absolute number of casualties rises above one. Thus, most people interpret the difference between 0 and 1 deaths as greater than the difference between 2,154,489,204 and 2,154,489,205 deaths; most people would rather spend some quantity of resources to prevent a single death rather than to prevent 2,154,489,204 deaths from becoming 2,154,489,205. Yet there is no reason why this should be carried over into our moral evaluations as such, and once we evaluate human extinction according to the actual number of people who will die it seems that, even if we do hold person affecting views, an extinction event would still be one of the worst things that could ever happen.

Furthermore, even if people preserve such biases, there remains the fact that an event of this sort could, depending on the timing, cause the death of oneself or living creatures that one cares about, such as parents, siblings, friends, pets, or celebrities. Consider that if the risk of human extinction were only 0.1 percent per year—a relatively conservative estimate—and if the only life one cared about was one’s own, then one should still be willing to take precautions against such extinction that are at least as costly as those one takes against dying in a road traffic accident, since the chance of death from both causes would be comparable (Global Challenges Foundation 2017; author) But death itself isn’t the only personal harm 6 that the scenario above could entail. People often seek to acquire a form of “vicarious immortality” by contributing in some way to culture, sports, academia, and so on; the thought of such accomplishments, or “traces,” persisting through time give many people a deep sense of meaning in life. Or, as Wilhelm Ostwald’s put it in 1906, “every man leaves after his death certain things in the world [that are] changed by his influence,” adding that “there is a very general desire in mankind to leave such impressions.” Along 7 these lines, Ernest Partridge (1981) argues that human beings manifest a

desire to extend the term of one’s influence and significance well beyond the term of one’s lifetime—a desire evident in arrangements for posthumous publications, in bequests and wills, in perpetual trusts (such as the Nobel Prize), and so forth. In such acts and provisions, we find clear manifestations of a will to transcend the limits of personal mortality by extending one’s self and influence into things, associations, and ideals that endure.8

This gestures at yet another idea that Janna Thompson (2009) calls “lifetime-transcending concerns,” or “interests concerning states of affairs that will, or could, occur in the future beyond one’s lifetime.” It follows that merely believing that humanity will go extinct in the foreseeable future could lead to a sense of despondency by undercutting the promise of vicarious immortality. In the words of Allen Tough (1991), if humanity fails to survive, “then most other values and goals will lose their point. No other goals are more important than humanity’s survival at a satisfactory level.” Elsewhere he writes that “if humanity goes out of existence or back to the caves, then our personal efforts and achievements also disappear. Career success, national prestige, battlefield victories, business as usual, books, paintings, and children will not provide any of us with long-lasting benefits if human civilization destroys itself.”9 Thus, not only would human extinction entail actual mortality, but it would also eliminate vicarious immortality.

2.2 *Human extinction will cause a great loss in the quantity of human welfare and other values*. Many of the scholars and philanthropists who are most committed to averting human extinction are motivated not only by the harm of (E), but also by considerations of the lost value inherent in (S). There are several possible routes to this conclusion depending on one’s interpretation of the astronomical value thesis:

*Astronomical value thesis*: The potential value of the future could be astronomically huge, if only

we play our cards right.

The question immediately arises as to what “value” means, and one answer is: “Whatever you would like it to mean.” The point is that if humanity survives and spreads through the universe, there could be far more of whatever one values in the future than in the contemporary world. In fact, philosophers have argued that, insofar as one genuinely values a property P, one should strive to ensure its continued existence into the future, if not work to multiply the number of instances of the universal (see Scheffler 2007, 2018). It follows that one should see human extinction as bad not just because of the possible bodily and 10 psychological harm that going extinct could cause, but because of the loss of potentially astronomical amounts of value that we could actualize. In this way, given what it means to value something and that 11 people do value thing, the descriptive proposition of the astronomical value thesis yields the normative proposition of Conclusion C.

A popular moral interpretation of the axiological component of the astronomical value thesis comes from what is called the “Total View.” This identifies value as a property of individual lives, 12 where “value” can be defined in very many ways including hedonistic, desire-satisfaction, or objective list-theoretic terms. The central idea is that morally good acts are those that increase the total amount of value across all lives, present and future. A weaker interpretation of “astronomical value” arises from what is called the “Simple View.” On this view, value is still a property of individual lives, but one is not necessarily committed to maximizing it. Rather, all this view implies about morally good acts is that some lives are “good” and that the addition of any of these lives would always be in itself good and make the world better in at least one way. It follows that, on either of these views, since human extinction would 13 permanently preclude the realization of potentially vast amounts of future value, “to end the human race would be about the worst thing it would be possible to do,” a sentiment that goes back at least to Henry Sidgwick (1907). From this perspective, the difference between 99 and 100 percent of humanity dying out is far greater than the difference between 1 and 99 percent perishing (Parfit 1984). The reason is that, as H.G. Wells—the founder of future studies —put it in 1902, is that 14

all the past is but the beginning of a beginning, and that all that is and has been is but the twilight of the dawn. It is possible to believe that all that the human mind has ever accomplished is but the dream before the awakening. We cannot see, there is no need for us to see, what this world will be like when the day has fully come. We are creatures of the twilight.

Indeed, according to Carl Sagan, if humans remain on Earth with an average lifespan of 100 years, there could come to exist 500 trillion humans in the future. But it appears likely that, if we survive the next few centuries, humanity will spread into the cosmos, which could vastly increase the total number of people— and thus the total amount of well-being in the universe. For example, Bostrom (2003b) calculates that if a single star can sustain ~10 billion people, then the Virgo Supercluster could house ~100 sextillion future humans per century; yet there are about 10 million superclusters in the observable universe and 1 billion trillion stars in total. (We will leave it to readers to do the math!) Even more, if mind-uploading is possible, then based on calculations of the computational capacity of planets that are converted into giant supercomputers, there could exist ~100 decillion (or 1038) people per century in the Virgo Supercluster alone, although Milan Ćirković (2002) puts the number even higher at 10 quattuordecillion (or ~1046). If such people have worthwhile lives, then the potential well-being that our descendants could realize in the future could be truly astronomical. Notice here that even if one highly discounts future lives, the sheer 15 number that could come into existence still suggests that existential risk reduction ought to be highly prioritized.

2.3 *Human extinction will cause a great loss in the quality of human welfare and other values*. The astronomical waste thesis, though, does not need to be understood solely in terms of the total number of people with worthwhile lives that could come to exist in the future. Indeed, it should also take account of the potential for people in the future to acquire lives that are not merely worthwhile but *extraordinarily*, perhaps *unimaginably* (from our current vantage point), good. There are two trends worth mentioning here, the first being societal: As Steven Pinker (2011) outlines in great detail, humanity has made significant moral progress throughout history, and especially since the end of World War II. One happy symptom of this is the steady, if uneven, decline of violence. According to Pinker, humanity is not only in the midst of the “Long Peace” but also the “New Peace,” during which organized conflicts of all kinds—civil wars, genocides, repression by autocratic governments, and terrorist attacks—[have] declined throughout the world.” Although Pinker does not extrapolate these trends into the future, there are some reasons for expecting them to continue. For example, Pinker identifies the primary driver of moral progress in recent decades as the Flynn effect, the long term increase in human intelligence observed during the twentieth century. While this appears to have slowed, stopped, or reversed in certain regions of the world (see, e.g., Bratsberg and Rogeberg 2018), it is very likely that future innovation will yield safe and effective cognitive and moral enhancements. If the former augments our capacity for “abstraction from the concrete particulars of immediate experience,” which is “the cognitive skill that is most enhanced in the Flynn effect,” then we might expect a further expansion of our circles of moral concern (Pinker 2011). There could be similar gains from moral bioenhancement, which Ingmar Persson and Julian Savulescu (2012) describe as any biomedical intervention that augments our moral dispositions of altruism and a sense of justice (or fairness). The first consists of empathy—the cognitive property that Pinker focuses on—and sympathetic concern—the motivational element of moral action. Although Persson and Savulescu’s proposal has proven to be controversial for both philosophical and practical reasons (see author), it is not unthinkable that future breakthroughs yield highly effective *mostropics*, i.e., morality-boosting drugs, and that these drugs become as commonly ingested as fluoride is via the public drinking water.

This leads to the second trend, which is transhumanist: Human enhancement technologies could enable a phase transition from humanity to posthumanity, where posthumans are beings with significantly augmented capacities in the broad domains of cognition, emotion, and healthspan (see Bostrom 2008). For example, nootropics, transcranial magnetic stimulation, brain-computer interfaces (BCIs), genetic modifications, iterated embryo selection, mind-uploading, and so on, could potentially increase our intellectual abilities, while advanced biotechnology and molecular nanotechnology could stop or even reverse aging, thus enabling people to live indefinitely long lives. The result could be a population of beings 16 who experience degrees of well-being that far exceed the intensity and amount that any current human

could possibly attain. Even more, enhancement technologies could expand our “cognitive space” such that our posthuman progeny have mental access to concepts that are in principle beyond our ken (see author). It follows that, insofar as (say) some theory T requires a concept C to understand, and insofar as C falls outside of our current cognitive space but within the cognitive space of a species of posthuman, then that species could devise T—a theory about which we might be second-order ignorant, meaning that we can’t even know that we can’t know T. Thus, insofar as one values knowledge, there could be any number of marvelous new ideas in the future that forever linger beyond our epistemic reach.

This being said, people have been speculating about utopian futures in which people live qualitatively (much) better lives since at least the nineteenth century, and it has become natural to view these with a strong degree of skepticism. Yet 200 years ago, very few individuals were permitted the freedom of thought and self-expression that many now take for granted; violence, sickness, and disability where far more common than they are today; people’s understanding of the world around them was quite impoverished and their access to science, art, and technology almost unimaginably lower than such access is today. Even if twenty-first century utopian visions remain unrealized, the prospects for a qualitative improvement in future people’s lives, we would argue, ought not be underestimated. Thus, there both quantitative and qualitative aspects to, at the very least, a Totalist interpretation of the astronomical value thesis.

2.4 *Human extinction will remove our rational/moral agency from the earth/universe*. The physicist Enrico Fermi once observed that the sheer size of the universe should entail that interstellar civilizations are relatively common, and we should be able to detect them with our current technology, however so far we have found no real evidence of their existence. This is known as the “Fermi Paradox.” Yet there is a growing body of research that resolves (or dissolves) the paradox by arguing that intelligent life could be rare in the universe; at the extreme, humanity could be something of a cosmic *hapax os*, i.e., a “thing existing only once.” Peter Ward and Donald Brownlee (2000), for example, defend a version of the “rare 17 Earth hypothesis,” and a more recent analysis calculates that there is a 38 to 85 percent chance that humanity is alone in the observable universe and a 53 to 99.6 percent chance that humanity is alone in our galaxy (Sandberg et al. 2018). It follows that, as Toby Ord declares, “it’s very possible that we might be the most amazing and rare part of the whole universe, the only part of the universe capable of understanding the universe itself and appreciating its wonders” (quoted in Wiblin 2017).

For some, this observation provides additional support for the notion that humanities extinction would be a tragedy of cosmic proportions. As Derek Parfit (2016) argues,

if we are the only rational beings in the Universe, as some recent evidence suggests, it matters even more whether we shall have descendants or successors during the billions of years in which that would be possible. Some of our successors might live lives and create worlds that, though failing to justify past suffering, would give us all, including some of those who have suffered, reasons to be glad that the Universe exists (emphasis added)18

### 2AC---Animals

#### Humans outweigh

Juan Carlos Marvizon 16, PhD, Member of the Brain Research Institute, UCLA, 12/6/16, “Not just intelligence: Why humans deserve to be treated better than animals,” https://speakingofresearch.com/2016/12/06/not-just-intelligence-why-humans-deserve-to-be-treated-better-than-animals/

However, modern neuroscience has in fact uncovered many differences between humans and the rest of the animals that makes us unique. These differences are not limited to a quantitative difference in intelligence but extend to many other mental and behavioral abilities that make us completely unique (Penn et al., 2008), a qualitatively different type of being. Below I provide a list of the most important of those abilities.

Theory of Mind is the ability to understand what other people are feeling and thinking [pp. 172-178 in (Blackmore, 2004); pp. 48-54 in (Gazzaniga, 2008)]. We do that by running inside our heads a model of what is happening in other person’s mind. Of course, the model is not always right, but nevertheless it is extremely valuable because it lets us predict the behavior of people around us. Theory of mind seems to require the right anterior insula, a part of the brain cortex that evolved very rapidly in apes. The function of the right anterior insula is to create hypothetical models of the internal state of our body in different circumstances (Craig, 2010, 2011). For example, when we imagine what it would feel like to stab our toe, is the right anterior insula doing that. Likewise, the right anterior insula can make a model of the internal state of the body of another person. Of course, theory of mind is much more than that and involves the cognitive abilities of many other parts of the brain. Research on theory of mind has revealed it to be uniquely human (Penn and Povinelli, 2007), although some studies claims to have found it in rudimentary form in chimpanzees (Call and Tomasello, 2008; Yamamoto et al., 2013). One negative aspect of theory of mind is that it often creates the delusion of attributing human consciousness to inanimate objects or animals. The same way we project our thoughts and feelings to a person that we see behaving in a way similar to us, we project human thoughts and feelings to an animal or an object we see doing something that resembles human behavior. This delusional form of theory of mind is responsible for the anthropomorphizing of animals that is so common in modern culture.

Episodic memory. There are two basic forms of memory: procedural and declarative [pp. 303-306 in (Gazzaniga, 2008)]. Procedural memory is present in both humans and animals and consists in the retention of perceptual, motor and cognitive skills that are then expressed non-consciously. For example, when we walk, swim, ski, listen to music, type on a keyboard or process the visual information we get from a television screen, we use procedural memory. Declarative memory stores information about facts and beliefs about the world, and can be further divided into semantic and episodic memory. Semantic memory is about facts in the world that stand by themselves, independently of our self, whereas episodic memory is remembering things that happened to us. That is, episodic memory retains events as they were experienced by ourselves in a particular place and time. Episodic memory appears to be uniquely human, because it involves subjective experiences, a concept of self and subjective time. This is important because it allows us to travel mentally in time through subjective experiences, while animals are locked in the present of their current motivational state.

Humans emotions. Mammals, birds and some other animals have a set of six basic emotions listed by Ekman: anger, fear, disgust, joy, sadness and surprise. However, we humans are able to feel many other emotions that regulate our social behavior and the way we view the world: guilt, shame, pride, honor, awe, interest, envy, nostalgia, hope, despair, contempt and many others. While emotions like love and loyalty may be present in mammals that live in hierarchical societies, emotions like guilt, shame and their counterparts pride and honor seem to be uniquely human. There is much controversy these days on whether dogs feel guilt and shame, there is evidence that they do not, but they may also have acquired this emotion as a way to interact with humans. What is clear is that many of the emotions that we value as human are not present in animals.

Empathy and compassion. Empathy is defined as the capacity to feel what another person is feeling from their own frame of reference. It is a well-established fact that many animals react to distress by other animals by showing signs of distress themselves. However, this does not seem to represent true empathy as defined above, but a genetically encoded stress response in anticipation of harm. Since empathy requires feeling what the other person is feeling from their own frame of reference, it seems to require theory of mind. Only if we stripe the requirement of adopting the other’s frame of reference we can say that animals have empathy. Empathy involves the newly evolved anterior insula in humans (Preis et al., 2013), bonobos and chimpanzees (Rilling et al., 2012). Compassion is currently thought to be different from empathy because it involves many other parts of the brain. It seems to be associated with complex cultural and cognitive elements. Therefore, it seems safe to assume that animals are not able to feel compassion.

Language and culture. Although animals do communicate with each other using sounds, signs and body language, human language is a qualitative leap from any form of animal communication in its unique ability to convey factual information and not just emotional states. In that, human language is linked to our ability to store huge amounts of semantic and episodic memory, as defined above. The human brain has a unique capacity to quickly learn spoken languages during a portal that closes around 5-6 years of age. Attempts to teach sign languages to apes has produced only limited success and can be attributed to a humanization of the brain of those animals, raised inside human culture. The effectiveness of spoken and written language to store information across many generations gave raise to human cultures. The working of the human brain cannot be understood without taking culture into account. Culture completely shapes the way we think, feel, perceive and behave. Although there are documented cases of transmission of learned information across generations in animals, producing what we could call an animal culture, no animal is as shaped by culture as we are.

Esthetic sense or the appreciation of beauty also seems to be uniquely human. Of course, animals can produce great beauty in the form of colorful bodies, songs and artful behavior. What seems to be lacking is their ability to appreciate and value that beauty beyond stereotypical mating and territorial behaviors. Even attempts to teach chimps to produce art by drawing have largely failed.

Ethics is the ability to appreciate fairness, justice and rights. It is at the very core of our ability to form stable societies and to cooperate to achieve common goals. It depends on theory of mind (which allows us to “put ourselves in somebody else’s shoes”); on social emotions like guilt, shame, pride and contempt; on empathy and compassion, and on cultural heritage. Lacking all those mental abilities, animals have no sense of ethics. Even though some studies have shown that monkeys have a primitive sense of fairness (particularly when it applies to their own interest), it is but a pale anticipation of our sense of justice. It simply goes to show how that ethics is rooted in our evolutionary history. The fact that animals cannot even remotely comprehend the concept of rights is a strong argument for why they should not have rights. What sense does it make to give animals something that they do not know that they lack?

Extended consciousness. They question of what is consciousness has been called by scientists and philosophers “the hard problem” due to the difficulty of answering it (Blackmore, 2004). Therefore, the related question of whether animals have consciousness, or what animals have it, remains similarly unanswered in the strict sense. However, based on their behavior, we commonly assume that animals like cats, dogs and horses are conscious and able to make some autonomous decisions. On the other hand, unless we invoke some mystical definition of consciousness, it is safe to assume that animals with small nervous systems, like jellyfish, worms, starfish, snails and clams have no consciousness whatsoever. They are like plants: living beings able to react to the environment as automatons. That leaves a lot of animals for which it is hard to guess whether they are conscious or not: insects, fish, octopi, lizards and small mammals like mice and rats. What has been becoming clear is that we humans possess a kind of consciousness that no other animal has: the ability to see ourselves as selves extending from the past to the future [pp. 309-321 (Gazzaniga, 2008)]. This special kind of consciousness has been called by neuroscientist Antonio Damasio “extended consciousness” [Chapter 7 in (Damasio, 1999)] and allow us a sort of “mental time travel” to relive events in the past and predict what may happen to us in the future (Suddendorf and Corballis, 2007). Extended consciousness is based on our ability to have episodic memory and theory of mind. Episodic memory configures remembered events around the image of the self, whereas theory of mind allows us to create a model of our own mind as it was during a past event or to hypothesize how it would be in a future event. I should also point out that a few animals (apes, dolphins and elephants) may turn out to have episodic memory, theory of mind and hence extended consciousness. However, this is still very much in doubt.

Suffering and happiness. It is a common mistake to confuse suffering with pain and happiness with joy. Pain is the representation of a bodily state and the emotion associated with it (Craig, 2003). Likewise, joy is an emotion associated with an excited but pleasant body state in an agreeable environment. Suffering and happiness are much deeper than that, and refer to the totality of a mental state, encompassing cognition, emotion and state of consciousness. Although suffering and happiness are normally associated with certain emotions, there is not always a correspondence with them. For example, one can be happy while feeling scared or sad, or suffer even in the presence of a passing joy. The error of philosophers like Peter Singer (Singer, 1991) and Tom Reagan (Reagan, 1985) is that they consider suffering as something that occurs independently of cognition and other mental abilities, when it does not. Arguably, happiness and suffering require some continuity in time, which would seem to require extended consciousness. Furthermore, conceptions of happiness extending to antiquity refer to lifelong attitudes like hedonism (the quest for personal pleasure) and eudemonia (working to acquire virtue or to achieve goals that transcend oneself), pointing to the fact that human happiness depends on cultural values. In view of all this, we need to wonder whether happiness and suffering can exist in beings that have no episodic memory, no extended consciousness, no sense of self, and no culture. Can happiness and suffering really be attributed to animals lacking these mental abilities? Or is this an illusion

, an anthropomorphizing caused by the overreaching of our theory of mind? Without going to that extreme, it is quite clear that we humans have a capacity to be happy and to suffer that goes far beyond what animals can experience. So human suffering counts more than any suffering than an animal could have.

There are many more differences between human and animals. However, the ones that I have listed here are important because they give us our special feeling of humaneness. All of them are based on scientific facts about the human mind that are slowly being unraveled by neuroscience, not on religious beliefs or on ideology. However, what cannot be based on science is the value we attribute to those differences. Ultimately, this is a decision based on our ethical intuition. Still, for most people what determines how much consideration we should give to a being is its ability to be conscious; to feel empathy; to feel guilt and pride and shame and all other human emotions; to be happy as we are happy and to suffer like we suffer.

An important corollary of the ideas proposed here is to utterly refute the “marginal case” argument. Thus, even when a human brain is damaged by disease, accident or old age, most of the properties that I have listed here remain because they are deeply engrained in the way the human brain works. Theory of mind and extended consciousness appear early in human life and are the last things to go in a deteriorating brain. It takes coma to deprive us of them. A person may have a reduced intelligence or other cognitive disabilities, but s/he still has theory of mind, empathy, compassion, extended consciousness and all those human emotions. That is why when we encounter those people we recognize them as humans and we know we should treat them as humans. They are not animals and should never be treated as such. Intelligence is just a tiny part of what it means to be human.

#### Moral and tech evolution will inevitably stop animal exploitation and prevent wild animal suffering---that outweighs

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I often hear people entertaining the thought of making humanity disappear from the universe because, as a species, we are causing a lot of suffering, to ourselves and other sentient beings and the planet. One thought experiment goes like this: if you could make humanity painlessly disappear with the pressing of a button, would you press it? Or, slightly reframing the experiment so that you can make an abstraction of your own responsibility: would you stop someone else from pressing the button?

In the animal rights/vegan movement, more people seem to be in favor of human extinction than among the general population (just my anecdotal experience). That’s not hard to understand. People become animal rights activists and/or vegans because they have learned about the horrible suffering humans inflict on animals, for food, clothing, research or entertainment. It is tempting to think that the planet would be a better place without Homo sapiens, and given that in our thought experiment, no humans would really suffer (it’s just a matter of an instant, and no humans are left to deplore the new situation), we might say: where’s the harm?

Now, from the viewpoint of the notoriously tricky field of population ethics, there’s a lot of stuff to say here. Apart from the consequences for other species and the environment, we could talk about whether the universe in general is a worse or a better place with humans gone. If there is, on average, more value than disvalue in humans’ lives, it might seem that the net result is negative. But if there’s more misery than happiness, this could be good. We could also think about the value of future people being born. They will obviously not be born if we let humanity go extinct. I won’t go into this minefield here, because I do not have strong opinions about these issues, because I can’t seem to wrap my head around them, and mainly because here I want to touch on some other factors.

These are the reasons why I would not press the button.

1. Humans may do a lot of damage, but they’re also wonderful.

We all know the horrors that we cause in the world: to other people and annually to 65 billion farmed animals (excluding fish). We screw up our environment and use a lot of finite natural resources. There’s no need to write a long and depressing list here. However, we can also focus on all the good that we do. Never in the history of our planet – or, as far as we know, the universe – has there been a species that invests so much time in making things better for others. Look at the millions of people active in the non-profit sector. Look at those trying to help the weakest and the poorest. Look at all the beautiful things we do. Seeing Homo sapiens in this light, it becomes really problematic and unfair to just call us a shipwreck of a species that only does damage.

2. Humans still have a lot of potential to improve.

In many ways our history is just beginning. Moments ago we were mere apes in trees. We developed culture, learning and education only recently. We – in the richer countries at least – only recently managed to create comfortable environments where we no longer need to worry about food and shelter, so that we can spend more time on other things. Violence is declining and this era is, counterintuitively to some, the most peaceful era in history (read Steven Pinker’s The Better Angels of Our Nature). We’re still expanding the circle of our moral concern. We’ll probably have to work less in the future and will devote even more time to creating change for ourselves and others. And there is the promise (at least for techno-optimists) of future technological advancements that can help us have a huge positive impact on ourselves and our planet.

3. Humans might be able to help other species further down the road.

In the future, given more moral growth and technological improvements, rather than having a net negative impact on other species, our impact could become net positive. Arguably the biggest source of suffering for animals is nature/the natural condition. Animals die by the billions because of hunger, disease, parasitism, the climate, predation (see my post The extremely inconvenient truth of wild animal suffering). Maybe in the future, we can limit some of this suffering. The same applies if at some point in our more distant future, we bump into sentient life on other planets.

Chances are there is suffering there, and if by that time we have advanced enough morally and technologically, we may be able to help. Of course there is the chance that some other species in our corner of the universe is already at that level, thus making our own progress less important. But certainly in the event that we’re the only “advanced” ones around (in this region of the universe), it becomes very important that we survive and grow to help. It would be a pity if everything we have and everything we are was lost, and the universe would need to restart with another species to reach our level of development. Lots of time and lives lost.

As you see, I’m thinking a bit ahead. And why not? Some will believe this is speculation and science fiction that has no relevance for the problems and suffering at hand. But if we don’t destroy ourselves, we have to assume we’re going to be here for a long, long time still. And in that time, a lot is possible.

We’re on our way. We’re children still, growing up, getting better. It’s going to take ages or millennia, but we humans might just turn out to be the best thing for the universe. Let’s not press that button just yet.

#### The end of animal exploitation is inevitable, even without a moral revolution

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In Steven Pinker’s new book out this month, Enlightenment Now, the Harvard professor catalogs reams of data to show that the world has actually gotten much better over time, despite what you hear on the news. The book looks at increased life spans, decreased inequality, and even a 37-fold reduction in deaths from lightning bolts as cause for optimism in humanity. After more than 500 pages, it’s hard not to be convinced.

But the question remains whether Pinker’s seemingly exhaustive treatment is neglecting some entire category of negative trends, such as the experiences of nonhuman animals who share this planet with us. The human population is around seven billion today, and will perhaps be ten billion by 2050. Yet here are over 100 billion domestic animals (the vast majority of whom are in the food system) and a quadrillion wild vertebrates (with many more invertebrates).

Unfortunately, their current situation is unimaginable suffering.

Over 99% of animals raised for food in the US currently live in factory farms (over 90% globally), many of them enduring horrific conditions like intense confinement in tiny cages so small they can barely turn around. The number of these animals has vastly increased over the past century. It’s even increased over the past decade, mainly due to rising incomes and trends of Westernization in countries like China and India, though US numbers have remained fairly stable.

At the Sentience Institute, a nonprofit think tank focused on the expansion of humanity’s moral circle where I work as research director, we try to better understand the state of affairs for animals (who make up the bulk of excluded sentient beings) and how it can be improved.

Given the abundant neuroscientific and behavioral evidence of these animals’ sentience, not to mention the environmental devastation and public health harms caused by animal farming, does this issue undercut the upward trend documented by Pinker? I think the answer is yes, if we’re considering only the state of human and animal welfare today.

However, I think a better metric is human attitudes towards animals, because it’s a bigger driver of future trends. Polls on this topic are fascinating. Despite the fact that less than 1% of US consumers usually eat meat from animals from non-factory farms, a poll we ran in November suggested 47% “support a ban on slaughterhouses.” In a 2015 Gallup poll, 32% of respondents said “[a]nimals deserve the exact same rights as people to be free from harm and exploitation.”

Why the apparent gulf between values and behavior? First, misleading marketing from animal agriculture has portrayed the industry as humane and picturesque, despite numerous undercover investigations and reports showing a horrific reality. Second, we want to believe we’re good people, and we’ll go to great lengths to justify our behavior, including the creation of a psychological refuge whereby we take shelter in the mistaken belief that the animals were treated well. Finally, it’s just a much greater cost to make personal change than to support institutional change: if I go vegan, I have to sort through restaurant options to ensure my needs are met, but if the world goes vegan, then I can pick anything on the menu just like I could before.

This is good reason for optimism. With virtually every social movement—from environmentalism, children’s rights, antislavery, to feminism—we’ve seen people transcend the limitations of individual consumer choices via institutional change. Indeed, we’ve already seen companies around the world commit to cage-free eggs, despite only a tiny fraction of consumers selecting cage-free eggs when given the option at a grocery store. The most recent campaign to ban the sale of cage eggs in Massachusetts received 77.7% of the popular vote.

These consumer attitudes suggest that Pinker’s optimism about human welfare actually might apply—at least with great caution—to animal welfare.

The ethical costs of animal farming also portend its downfall. The industry exploits complex, sentient beings as resources, which is a woefully inefficient process. To process plant calories into animal calories, the animal does a lot more than just produce meat, eggs, and dairy. She grows hair, teeth, bones. She walks around. And most importantly, she has a brain with the capacity for sentient experience — no small metabolic task. This means that for every ten calories of plant-based food we feed a farmed animal, we get around one calorie of meat in return.

Humanity tends towards efficiency for better or worse, which suggests that, in the long run, we will transcend the animal, even if individuals fail to muster sufficient moral motivation. We’ll produce meat, eggs, and dairy without the costly middleman. Scientists and chefs are already working on so-called “clean meat,” real meat made without the ethical and food safety costs of animal slaughter. They do this by taking a small sample of cells from a living animal and mixing them with food, energy, and growth factors—in the same process that happens inside an animal’s body. In fact, the first products are expected to roll out to select restaurants over the next couple of years.

#### New tech is key to de-extinction---that solves existential biodiversity loss

Abby Norman 18, Journalist, 3-1-2018, 3 reasons why it's a good idea to resurrect a species, Futurism, https://futurism.com/reasons-why-resurrect-species

So, bringing species back from the dead is feasible, if improbable and resource-intensive. But the question remains: why revive extinct species at all? If we’ve learned anything from Jurassic Park (which, let’s be honest, we all have) it’s that “just because we can, doesn’t mean we should.” Here are some reasons that scientists have used to justify their work.

To Improve Our Science

Every time scientists make sense of an extinct species’ genetic information, they get better at doing it. Yes, the human researchers improve, but so do the computer algorithms that help them parse out the data. With each attempt, researchers learn more about the sequencing process, and can train the technology to perform its tasks more accurately and efficiently. And the genomes researchers are reconstructing now could be useful for assembling the DNA of other species in the future. Little by little, they’re assembling a genetic Rolodex for nearly every species on Earth.

Science for science’s sake is a noble effort, but there are also many arguments for “resurrection biology,” which frame the effort as being less about the de-extinction of species that have been lost to us, and more about preventing the extinction of endangered species

As humans have taken up more space and resources, we’ve destroyed natural habitats and endangered species. Many of those species eventually go extinct, pushing biodiversity levels below the “safe” threshold — the level at which the ecosystems can regenerate and sustain us — around the globe. The less biodiversity in an ecosystem, the greater chance species after species will go extinct.

We’ll feel the effects of biodiversity loss, especially when it comes to plants. The medications that we take are produced from or with plant extracts; the textiles and fabrics that we use in our clothing, and much of what we eat, all come from plant species. Plants depend the animals and insects in their environments for pollination and propagation. In return, those critters rely on crops for nutrition and housing just as we do. If those pollinators go extinct, the plants — and the species, like us, that rely on those plants —also go extinct.

Some species, called keystone species, are more important than others in maintaining that biodiversity. The passenger pigeon, for example, (a relatively recent extinction and thus a good candidate for resurrection) shaped many of North America’s forests. When the species was lost, the forests lost the main driver of their regulation cycle and have never been the same.

Reviving extinct keystone species, then, could help us preserve biodiversity, and, possibly, the ecosystems as a whole.

### \*\*\*\*\*AT: Neg Util ⁠— 2AC

#### util fails ⁠— the asymmetry’s wrong, the absence of bad isn’t good, and good offsets bad

Smuts 14, Assistant Negative Professor, Department of Philosophy, Temple University (Aaron Smuts, August 2014, “To Be or Never to Have Been: Anti-Natalism and a Life Worth Living,” Ethical Theory and Moral Practice, Volume 17, Issue 4, pp. 711-729)

Even if we grant Benatar his most controversial premise—the asymmetry between the absence of good and bad—his anti-natalist conclusion does not follow. Benatar miscalculates according to the most plausible version of his own schema. If we assume that the absence of bad is good for those who would have existed, it still might be far better to exist. It will help to get a bit more precise. To be concrete, I will assume that we can talk about commensurable units of prudential bad and good.24 Consider the life of X. It has 10 units of bad and 30 units of good. If you think that the order in which the goods arrive in the narrative of a life is important, make any necessary adjustments: arrange more of the goods near the end.25 The net good of X’s life is 20. Now, we should ask, would it be better for X never to have been, as Benatar suggests? Does "coming into existence, far from constituting a net benefit, always constitute a net harm"? In order to perform the calculation, we need to know how good the absence of bad is. For the sake of argument, assume that it is of equal positive value. Accordingly, the absence of 10 units of bad would be worth 10 units of good. Hence, the scenarios look like this: Scenario B is worth a mere 10 units of prudential good, whereas Scenario A is worth a net 20. According to the prudential calculation that Benatar suggests—a calculation performed while assuming the good and bad asymmetry—Scenario A is better for X. It is twice as prudentially valuable. Hence, it is fair to say that there is no (net) harm done in bringing X into existence. Benatar draws the wrong conclusion. Although never being born might always constitute a net benefit, it is not the case that coming into existence is always a net harm. A formalization of Benatar's argument will help expose the error. Here is the core argument: (1) The absence of bad is prudentially good for the non-existent person who would have lived. (2) The absence of good is neither prudentially good nor bad for the non-existent person who would have lived. (3) Hence, "coming into existence, far from constituting a net benefit, always constitutes a net harm." The flaw should be apparent. The conclusion does not follow. Rather than (3), Benatar should have concluded: (3') Hence, not coming into existence always constitutes a net benefit for the nonexistent person who would have lived. But this conclusion does not get us anti-natalism, not even close. It does not tell us that coming into existence is always better than not existing. It simply tells us that not coming into existence is always a net good. This does not mean that coming into existence could not be better, that the net good could not be greater. To the contrary, it most certainly can. Benatar anticipates something much like this objection: 26 Now some people might accept the asymmetry represented [. . .], agree that we need to compare Scenario A with Scenario B, but deny that this leads to the conclusion that B is always a harm. The argument is that we must assign positive or negative (or neutral) values to each of the quadrants, and that if we assign them in what those advancing this view take to be the most reasonable way, we find that coming into existence is sometimes preferable. [. . .] Doing this, we find that A is preferable to B where (2) is more than twice the value of (1).27 In reply, he says that there are numerous problems with the objection, but he only refers to two quick issues.28 Neither adequately addresses the problem. I will start with the second. Benatar argues that favoring existence over non-existence, as I did above, is much like saying that it is better to be sick and have the capacity for quick recovery than it is to never to get sick.29 But, of course, it is better not to get sick. It does not matter if the person who never gets sick lacks the capacity for quick recovery. It is still better to never get sick. In this analogy, never existing is compared to never getting sick (Scenario B). Conversely, existing with a net good life is supposed to be akin to getting sick and having a capacity to recover quickly (Scenario A). Benatar argues that the kind of reasoning that led to the conclusion that it is better to exist, would also suggest that it is better to get sick if one would have the capacity to recover quickly. Clearly this is not the case. So, the reply concludes, we should reject this mode of reasoning. But what other mode do we have? How should we do the comparison? There is no other candidate on the table. Surely we should not ignore the goods of life when assessing whether it would be better to be than not be. Surely the good matters when trying to determine whether a life is worth starting. Would Benatar have us only compare quadrants 1 and 3, just the pain and the absence of pain? That would indeed support anti-natalism, but the asymmetry does not suggest anything of the sort. The problem is not in the reasoning behind my objection, but in Benatar’s analogy. Having the capacity to recover quickly is not analogous to the goods of life. The capacity to recover quickly is merely instrumentally prudentially good. It is good merely because it allows us to regain health and enjoy life, both of which are intrinsically good.30 Hence, the sickness example does not contain any intrinsic prudential good in the equivalent of quadrant 2—the quadrant where the goods of life appear in the objection. There is nothing in quadrant 2 worth having that makes up for the bads of quadrant 1. This is not the case with existence. Therefore, the analogy is inapt. Benatar’s reply does not meet the objection. Benatar recognizes this problem and defends the analogy in an obscure paragraph. He argues that if the analogy had used an intrinsic good, then one might think its absence in quadrant #4 would be a deprivation. This would bias the analogy. So, he is forced to use an instrumental good—the capacity to recover quickly. Remember, he is trying to come up with a case where there is no bad in quadrant #4. The asymmetry tells us that the absence of pleasure is not bad for the non-existent. However, a deprivation would be bad. So, quadrant #4 cannot include a deprivation. Instead, the analogy needs the mere absence of a deprivation. He argues that there is no way to indicate an absence of a deprivation for a living person except by using instrumental goods. Again, the worry is that absence of an intrinsic good for an existing person is a deprivation. But the absence of a deprivation is not. The lack of the capacity to recover works because it is a mere absence of a deprivation. That is why he uses it in the analogy. Since this avoids the potential problem of using an intrinsic good, he thinks that the analogy is fair.31 Benatar's defense of the analogy is not convincing. The chief problem is that the absence of a defect does not make an analogy apt. The analogy is most certainly inapt. There is no way around that. Just because it does not have additional flaws does not mean that it does not have others. Further, the motivation for the use of instrumental goods is questionable. The absence of a good is not always, perhaps not even typically, a deprivation, if by "deprivation" we mean bad. The absence of a good is not always bad; sometimes it is just less good. Consider an analogy: Lucky has a mild headache, but finds a good deal of cash on the way home. Not-So-Lucky does not have a headache, but he does not find a pile of cash on the way home. Who is better off? It is not entirely clear. If the pile of cash is big enough, then it sure seems that Lucky is better off, despite the headache. If not, then Not-So-Lucky looks to be better off. This does not provide support for Benatar's claim, but it is not for the reasons he mentions. There is no worry here that the absence of the cash is bad for Not-So-Lucky. No, it is just not as good. It is akin to the absence of pleasure for the non-existent. It is "not bad, but not good either."32 Hence, the analogy tracks the asymmetry and avoids the problems Benatar was trying to side-step, but it does not support antinatalism. It takes a false analogy to do that. The problems with Benatar's analogy are not confined to worries about intrinsic and instrumental goods. There is a more significant defect. The value of the capacity to recover quickly is exhausted by the amount of health that it saves. Someone who never gets sick will have more health than someone who does, other things being equal. Hence, in lives of equal length, column A could never have more goods than B. The problem is that when we compare existence with non-existence, there is no reason to think that the situation is the same as it is between Sickly and Healthy. Sickly can never have more of the relevant good than can Healthy. But there can be more net good on the existence side than the non-existence side of the original chart. Since the Sickly vs. Healthy analogy does not allow for this, the analogy is false. It fails to properly model the comparison between existence and non-existence. This gives us an additional reason to reject Benatar's reply. As a further line of defense, one might object that the asymmetry does indeed suggest that we should zero out the pleasure in quadrant 2 and just compare the boxes in the top row—the pain and the absence of pain. This would indeed get Benatar an anti-natalist result, but the asymmetry does not support such a move. At times Benatar seems to suggest that the asymmetry has this implication. He claims that existence is not a "real advantage."33 Here he seems to be stating the conclusion of his argument in different terms that imply more than he has earned. (Benatar thinks that a "real advantage" is an advantage that it would be bad to lack. But I see no reason to adopt this terminology. There are real advantages that it would just be less good to lack. The problem is that antinatalism does not follow from the asymmetry alone. Benatar also requires this dubious notion of what constitutes an advantage. I will return to this point shortly.) What is important to recognize is that the analogy does not give us reason to think that the goods of existence do not count towards the value of the life for the person. No plausible asymmetry could do that. The asymmetry does not imply that pleasure is not better than no pleasure. Again, no plausible asymmetry could do that. Here is what the asymmetry does imply: The asymmetry holds that that the absence of good is bad for the existent, but not for the non-existent. This does not imply that goods of life are not good for the living. It would be absurd to suggest otherwise. The asymmetry holds that the absence of the goods of life is not bad for the non-existent in the way that it would be bad for someone who exists to be deprived. But this does not get us what Benatar needs. He needs it to be the case that the goods could never outweigh the bads. However, the asymmetry does not get you this. How could it? If Benatar thinks it does, he is mistaken. The goods of life can outweigh the bads. Accordingly, the goods of life can be greater than the good that is the absence of bad for the non-existent. Here is another way to think about the problem: The absence of pleasure might not be bad for the non-existent. Sure. This is what the asymmetry says. But this does not mean that the presence of pleasure is not good for the existent. Of course the goods of life are good. Benatar argues that "for the good to be an advantage over non-existence, it would have to have been the case that its absence were bad."34 But this is simply not so. Benatar is wrong. A good can be better than something that is not bad. Lots of a good is better than just a little. And a little good is better than no good at all. This mistake leads Benatar to incorrectly conclude that the asymmetry has larger implications than it actually does. It leads to the misleading talk of "real advantages." There are two issues here: (1) Is it bad for the non-existent to not get the goods of life? And, (2) is it better to get some goods rather than no goods? I agree that we might want to say that the absence of pleasure is not bad for the non-existent.35 But something that is not bad can still be less good than an alternative. In the case of a life of pronounced net good, it is less good to not exist, but it is not bad.36 That's all the asymmetry implies. Hence, even if we accept the asymmetry, the anti-natalist conclusion does not follow.

#### Even if they win this, it’s try-or-die aff to prevent suffering for the living

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The logic of Benatar’s asymmetry also allows the creation of examples centered on human agency (as opposed to accidents) that still view death as preferable to birth, while avoiding a deontological prohibition on murder. Suppose one was in a situation where they could either save a 20-year-old man from falling from a ledge to his certain death or convince a friend not to have a child. Benatar’s asymmetry means a utility maximizer should talk her or his friend out of childbirth and leave the 20 year old to die. Even if a situation like this never occurs, the logic that justifies prevention of the birth over saving the life has important implications for resource allocation. If governments accept Bentar’s asymmetry, it would justify them spending the vast majority of their resources on efforts to reduce the population at the expense of programs that could alleviate the suffering of those who already exist. Benatar does not address the dramatic shift in how individuals and governments should allocate resources between the prevention of births and prevention of pain to people that exist, which logically results from his asymmetry. Benatar argues that rejection of his asymmetry leads to the unacceptable conclusion that those who currently exist must consider the potential happiness of non-existent people. Benatar’s asymmetry overvalues potential people’s unhappiness, which leads to equally absurd conclusions for those currently alive. The reception of Benatar’s book suggests that most people have enough difficulty accepting his asymmetry when it dictates that an extremely happy person would be better off never having been born, when it justifies increased suffering for the already existent for the sake of preventing relatively happy potential people it becomes virtually impossible to endorse. A two-part test to justify the creation of any particular child would address both Benatar’s concern about an obligation to have happy children and my own concern about comparing the interests of people that currently exist and potential people. The first part of the test would be to ask if the creation of a child would increase the net utility in the world absent consideration of the child’s own happiness. In other words, would the parents be happier with the child and would the child not negatively impact the lives of others. The second part of the test would be to ask if the child would be likely to lead a life with more happiness than unhappiness, a utilitarian version of Strong’s “no net harm” argument (2005). If the answers to both of these questions are yes, then there is nothing morally problematic with the creation of a new person. On the other hand, if the answer to either one of these questions is no, then it would be better if the child never exists. The two-part test operates on a milder and thus more palatable version of Bentar’s asymmetry.11 Benatar argues nonexistent people cannot be deprived of happiness by their nonexistence so their happiness should never be weighed in utilitarian calculations over whether to give birth to a child. Potential people made actual, can feel pain and thus their pain should count in a utilitarian calculus. At the heart of the two-part test lies a less restrictive edict. Existent people do not have a duty to maximize total utility by creating new people at the expense of their own happiness, because nonexistent people cannot be deprived of happiness. Existent people do have a duty to increase total utility when they bring new people into existence. This revision recognizes the distinction between pain and pleasure for potential people that Benatar so effectively argues for, without totally removing future positive utility from calculations over whether to have a child. My version of the asymmetry also means that one does not necessarily harm a child by creating her or him. Positive utility can count against the negative utility in calculations about a potential person’s life, it just does not impose obligations to give birth to happy people. The two-part test addresses Benatar’s concern that a rejection of his asymmetry requires one to feel loss at the absence of potential people and would ultimately lead to the “repugnant solution,” where utility is maximized by the creation of many lives barely worth living. One would not need to feel saddened over the absence of potential children unless those children would have increased her or his happiness. Similarly, there is no impulse to maximize utility by the creation of a huge number of lives barely worth living, because each new child must increase utility absent consideration of its own happiness The two-part test also addresses my concerns with a framework for decisions that favors potential persons over people who currently exist, which arises out of Benatar’s asymmetry. The vast majority of children that are born would meet both parts of the test (increasing net utility absent their own happiness and leading a net happy life). This means that if an expectant mother died in a car crash, it would be appropriate to say that it was a tragedy. It also means that there is no justification for the massive transfer of resources from the welfare of people that exist to prevention of potential people. The two-part test also has the benefit of synchronizing much more closely with common sense views of when it is appropriate to have a child, which is something Benatar readily admits his argument cannot achieve. One should prefer the two part-test over a simple utilitarian calculus of what will increase net happiness the most, because a pure utilitarian calculus fails to account for a fundamental difference between potential people and existent people. The nonexistence of potential people justifies not weighing a potential person’s net happiness against any net unhappiness to potential people, since a potential person does not exist she or he cannot be harmed by not coming into existence. When one chooses not to create a potential person, no subject exists to deprive of the happiness that potential person did not experience. Naverson argues along similar lines to make the case that the creation of happy children does not increase utility, because any new person shifts, “the base upon which the average utility was calculated” (1967, p. 66). Given potential people’s immunity to deprivation, it makes no sense to use an ethical framework that could allow a potential person’s potential happiness to justify net unhappiness to existent people. Maximizing utility for currently existing persons absent consideration of the child also proves problematic. Even though a potential person’s unactualized happiness should not concern the existent, once someone gives birth to a child that potential person becomes actual and his or her happiness does matter. Suppose, for example, a person had a child for the sole purpose of having a cute baby to dress up in order to impress her friends, even though she knew her child would have a genetic disease that would ensure the child lived a miserable life. Despite the fact that the parent benefits marginally, the pain of the child would be greater than both the child’s happiness and the happiness provided to the mother by the child’s service as a fashion accessory. A calculus that examines only the interests of the existent and not those of a potential child can lead to outcomes of seriously reduced total net utility and thus should be rejected. The establishment of a utility calculation that preferences existing people (PEP) represents another alternative. If the creation of a child would increase the net utility in the world absent consideration of the child’s own happiness and the child’s net suffering does not outweigh the benefits brought to existent people, there is nothing morally problematic with the creation of a new person. PEP offers a far better solution than either total utility maximization or only maximizing utility for currently existent people. However, PEP has three problems that make it less desirable than the two-part test.

#### Case outweighs, even under negative util

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Ethicists have distinguished between many types of negative utilitarianism (NU), including strong or absolute, lexical, lexical threshold, weak, negative ideal preference, negative hedonistic, consent-based, and negative average preference utilitarianism (Chao, 2012, Ord, 2013, Pearce, 2017, Tomasik, 2016). The version relevant to the present discussion is strong/absolute NU, or the view that reducing suffering is all that matters. This leads to some dubious conclusions, such as that a world full of near-infinite pleasure and a single pinprick is less good than a world that doesn’t exist at all (the “pinprick argument”) and that there is no fundamental difference between (a) a world with zero suffering and near-infinite joy, and (b) a world that contains neither suffering nor joy (the “indifference argument”; Ord, 2013). But the most famous objection is R.N. Smart’s claim that exponents of strong NU should endorse a “world-exploder” who simply destroys the universe, and therefore eliminates all possible suffering (Smart, 1958). In fact, there are some NUs who accept this conclusion but argue that one should not attempt to destroy the world for the merely practical reason that doing so would likely fail and, in the process, cause sentient life even more pain and misery. Given the metaethical distinction between moral judgment and moral motivation, we could be even more precise about this agential risk subtype. First, if moral internalism is true and moral judgment subsumes moral motivation, then adopting the theory of strong NU could be sufficient for one to qualify as an agential risk on the above definition. But second, if moral internalism is false—which most philosophers believe is the case (see Bourget & Chalmers, 2014)—then we can distinguish between strong NU and radical NU. The former is simply the conviction that nothing matters morally except the reduction of suffering, whereas the second adds the “moral ambition” needed to actively pursue the annihilatory prescriptions of this position. In this case, it is the combination of judgment plus motivation that could lead one to pass the doomsday button test and thus destroy the world. But radical NU isn’t the only form of utilitarianism that could pose an existential threat to humanity. Consider David Pearce’s argument that “a thoroughgoing classical utilitarian is obliged to convert your matter and energy into pure utilitronium, erasing you, your memories, and indeed human civilisation.” Here “utilitronium” denotes a matter-energy configuration that is specifically designed to maximize (to the physical limits) whatever property one believes that a “util” measures; in other words, it is an organized state of physical stuff that is capable of realizing “the good” better than any human brain possibly could. It follows that thoroughgoing classical utilitarians (TCUs) are obliged to erase . . a rich posthuman civilisation with a utilitronium shockwave. . . The “shockwave” in utilitronium shockwave alludes to our hypothetical obligation to launch von Neumann probes propagating this hyper-valuable state of matter and energy at, or nearly at, the velocity of light across our Galaxy, then our Local Cluster, and then our Local Supercluster. Although I know of no philosophers who explicitly endorse the creation of a utilitronium shockwave, TCU does appear to prescribe doing this. Thus, insofar as there exist defenders of TCU in the future, such agents could pose a threat to the perpetuation of our lineage. (3) Ecoterrorists. The present typology adopts a liberal semantics of this term, using it to denote a range of overlapping but distinct agent subtypes, i.e., deep ecology extremists, radical environmentalists, eco-fascists, anti-civilization fanatics, anarcho-primitivists, violent technophobes, militant neo-Luddites, and fringe eco-anarchists (or green anarchists). This is where the cross-cutting distinction between omnicidal and anti-civilizational agents is perhaps most applicable: at one extreme are individuals who believe that the “Gaian system” would be better off without Homo sapiens, while at the other extreme one finds individuals primarily concerned with the negative externalities of advanced technological civilization. For example, the neo-Luddite Ted Kaczynski argues in his 1995 manifesto that the megatechnics of industrial civilization have stripped humanity of essential freedoms. The only way to regain these freedoms is to dismantle and discard the “organization-dependent technologies” upon which contemporary society depends and return to local communities in which “small-scale technologies” satisfy our physiological and social needs (Kaczynski, 1995). For Kaczynski, the destruction of industrial civilization may or may not result in human casualties—the ultimate target isn’t Homo sapiens but the large-scale technical structures that we have built up around ourselves. In recent years, Kaczynski has inspired a terrorist group called “Individuals Tending to the Wild (or Savagery)” (ITS), which has a nominal presence across Central and South America. ITS has specifically targeted scientists working on biotechnology and nanotechnology, claiming that “they must pay for what they are doing to the earth” (Beckhusen, 2013). In particular, ITS has voiced concerns that ecophagic nanobots could be accidentally released from a laboratory—a fear that is unfounded. The result has been a number of attacks, injuries, and deaths.3 In contrast to the anti-civilizational focus of Kaczynski and ITS, the deep ecology movement and its principle of biospheric egalitarianism has spawned a number of ecoterrorist groups that see humanity itself as the problem. According to biospheric egalitarianism, all living organisms have moral value in their own right; according to some radical environmentalists, all living organisms have the exact same intrinsic moral value. If one combines this view with the eschatological narrative that Homo sapiens is ruining the biosphere, one gets an anti-humanistic ideology that sees human extinction as desirable. Whereas some who accept this line of reasoning maintain that humanity should die out voluntarily—such as the Voluntary Human Extinction Movement and the Church of Euthanasia—others endorse a form of involuntary omnicide. For example, the Toronto-based Gaia Liberation Front (GLF) argues that humanity should be understood as an “alien species” that must be exterminated for the good of Earth-originating life (GLF, 1994). They suggest that a designer pathogen—or several different pathogens, released sequentially—could be uniquely suited to this task. This echoes an idea put forth in a 1989 article published in the Earth First! Journal, which states that “contributions are urgently solicited for scientific research on a species-specific virus that will eliminate Homo shiticus from the planet. Only an absolutely species-specific virus should be set loose” (Anonymous, 1989). According to Lee (1995), the Earth First! group that published the journal was initially “a small, tightly-knit millenarian movement,” but when its co-founder David Foreman left, he was followed by his “apocalyptic biocentrist” acolytes. Finally, the founder of the Church of Euthanasia, Chris Korda, quotes her friend “Pete” in a “sermon” as follows: It becomes more and more clear to me every day that mass sterilization is the only answer to our environmental problems. . . I’m ready to hop in a B-52 with a payload of genetically-tailored-virus smart-bombs, enough to sterilize 99% of the world’s population in one trans-globe flight. Someone need only invent the hardware, train me, and present me with the opportunity. Maybe in 10 years it will be possible (see Torres, 2017b). The point is that a plethora of groups and individuals exist at both extremes within this category: some harbor fantasies of civilizational collapse, which Rees (2004) estimates has a 50 percent chance of occurring before 2100; others dream about the total annihilation of humanity, given our deleterious impact on the natural environment. As the capacity for unilateral destructive action becomes more ubiquitous, ecoterrorists could become a major agential threat to our collective prosperity and survival. (4) Idiosyncratic actors. This neologism refers to agents motivated by idiosyncratic beliefs and desires that do not clearly place them within any of the above categories. The paradigmatic case is rampage shooters, a demographic of violent malefactors that Peter Langman divides into three groups. (i) The psychopaths (or sociopaths). Estimates suggest that between 1 and 4 percent of the population suffers from psychopathy, meaning that there could exist some 300 million psychopaths in the world today and about 372 million by 2050 (Stout, 2005). Not all psychopaths are violent, of course, but they do comprise a disproportionate percentage of the prison population (∼20 percent). The primary feature of psychopathy is the lack of a conscience, or “an inner feeling or voice viewed as acting as a guide to the rightness or wrongness of one’s behavior” (Oxford, 2017). (ii) The psychotics. Individuals who suffer from psychosis, such as schizophrenia or schizotypal personality disorder, typically suffer from hallucinations or delusions that can compel them to lash out violently. While few people diagnosed with schizophrenia are dangerous (an important point to note given the risk of stigmatizing the condition), some rampage shooters have killed because the “voices in their head” commanded them to. And (iii) the traumatized. Individuals in this group have suffered from tragic histories of severe physical and/or psychological abuse. Many rampage shooters have simply wanted to kill or injure as many people as possible before dying, thus leading them to shoot into crowds at random in hopes of maximizing casualties. Langman argues that rampage shooters are often motivated by what he calls “existential rage,” meaning that “these were young men who were raging against the conditions of their existence. They were not just angry with a person or a group of people; they were angry at life, angry at the world” (Langman, 2009a, Langman, 2009b). This implies that rampage shooters would be good candidates for passing the doomsday button test. In fact, the personal journals and other records left behind by actual rampage shooters suggests that many had disturbingly omnicidal ideations. For example, the mastermind behind the 1999 Columbine High School massacre, Eric Harris, wrote about his urge to “burn the world.” As he scribbled in his journal, “if you recall your history the Nazis came up with a ‘final solution’ to the Jewish problem. Kill them all. Well, in case you haven’t figured it out yet, I say ‘KILL MANKIND’ no one should survive.” He also wrote that “I think I would want us to go extinct,” adding, “I just wish I could actually DO this instead of just DREAM about it all.” Elsewhere he declared, if I can wipe a few cities off the map, and even the fuckhead holding the map, then great. Hmm, just thinking if I want all humans dead or maybe just the quote-unquote “civilized, developed, and known-of” places on Earth, maybe leave little tribes of natives in the rain forest or something. Hmm, I’ll think about that. Similarly, the rampage shooter Pekka-Eric Auvinen wrote, “I wish that death to mankind comes soon.” In an online manifesto, he claims that “death and killing is not a tragedy” and that “human life is not sacred. Humans are just a species among other animals and [the] world does not exist only for humans.” Auvinen further limned his homicidal attack in Finland as “an operation against humanity with the purpose of killing as many people as possible” and “one man’s war against humanity.” Yet another shooter, Matti Saari, penned a suicide note in which he opined, “I hate the human race, I hate mankind, I hate the whole world and I want to kill as many people as possible.” Finally, Elliot Rodger declared in a video just days before his mass shooting: I hate all of you. Humanity is a disgusting, wretched, depraved species. If I had it in my power, I would stop at nothing to reduce every single one of you to mountains of skulls and rivers of blood. And rightfully so. You deserve to be annihilated. And I’ll give that to you. What’s notable about these examples—a small handful sampled from a much larger set—is that they involve individuals who both (a) repeatedly expressed ghoulish visions of total human annihilation, and (b) actually engaged in catastrophic acts of violence. It follows that if such agents had access to WTDs rather than conventional weapons, the result could have been an existential disaster.4 Two additional subtypes of idiosyncratic actors are also worth mentioning. First, whereas a dictator cannot rule the world if the world doesn’t exist (as mentioned above), there may be some militaristic autocrats who embody the following preference ordering: (i) total victory resulting in global domination, (ii) the complete destruction of the world, and (iii) defeat. In other words, there could be a “madman” who would rather live than die, controls WTDs, comes to believe that his military operations are doomed to failure, and thus presses a doomsday button to achieve (ii) rather than (iii), given the infeasibility of (i). A future Hitler could potentially instantiate such a person—after all, Hitler directed violence toward his own people as it became clear that the war was lost (for him). To quote Sagan (1994), in the winter and spring of 1945, Hitler ordered Germany to be destroyed—even “what the people need for elementary survival”—because the surviving Germans had “betrayed” him, and at any rate were “inferior” to those who had already died. If Hitler had nuclear weapons, the threat of a counterstrike by Allied nuclear weapons, had there been any, is unlikely to have dissuaded him. It might have encouraged him. Another subtype of idiosyncratic actor is in certain respects the mirror opposite of this. Imagine that at some future time an altruistic agent who genuinely cares about the well-being of humanity comes to believe that a “suffering risk,” or “s-risk,” is about to occur, thus resulting in immense pain and misery on Earth until the sun becomes a bloated red giant (see Tomasik, 2017). If some conditions of life are worse than death—presumably an uncontroversial idea—then this individual might attempt to preempt the s-risk event by using some potent WTD to euthanize our species. This is a somewhat complicated case to analyze because, on the one hand, if the information about an impending s-risk is veridical, then at least some moral theories would prescribe the “altruistic” agent’s actions. But if the information turns out to be inaccurate, then this individual would have brought about an avoidable existential catastrophe, thus foreclosing the possibility of our descendants realizing astronomical amounts of value. This subtype of idiosyncratic actor directly relates to what Nick Bostrom, Tom Douglas, and Anders Sandberg (2016) call the “unilateralist’s curse.” No doubt there are other subtypes of idiosyncratic actors, but I will leave this topic for future papers.5 2.2. Additional issues Before proceeding to the next section, we should consider a few additional issues concerning the typology and importance of this topic. First, the typology outlined above includes only human agents. There are at least two agential risk types that are non-human in nature: (a) an artificial general intelligence (AGI) or artificial superintelligence (ASI) could instantiate the “agent” side of the agent-artifact coupling no less than any human. Indeed, one of the primary reasons for existential anxiety about AGI and ASI is precisely because of their agential status—thus the “control problem.” (b) An extraterrestrial intelligence of some sort could also instantiate the “agent” side of the coupling. As Susan Schneider (2016) argues, a spacefaring alien is much more likely to have an “artificial,” hardware-based material substrate than a “biological” one, although it is conceivable that an alien could have the latter, where this substrate is perhaps non-carbon-based. I discuss these agential risk types elsewhere and so will mostly ignore them here (see Torres, 2017d). Second, it may help to motivate the general goal of this paper to identify a number of unique insights associated with the agential risk framework: (i) The most obvious advantage of thinking about the class of anthropogenic risks associated with emerging technologies in terms of the agent-artifact ontology is that this makes explicit that there are two variables that one can intervene upon to reduce the overall level of existential risk. Thus, I have elsewhere distinguished between agent-oriented and technology-oriented risk mitigation strategies, where moral bioenhancement exemplifies the former and differential technological development exemplifies the latter (see Torres, 2017d). Yet it is precisely because of the agential risk framework that recent proposals to use mostropics (moral enhancers) to overcome the game theoretic trap of the tragedy of the commons encounters serious problems, since a closer look at the likely effects of this intervention suggests that it could nontrivially exacerbate certain types of risky agents (Torres, 2017d, Torres, 2017e). The point is that while most discussions to date about existential risks have narrowly focused on the relevant technologies and how to neutralize their potential harmful uses, the present approach emphasizes that there is another realm of possible mitigation strategies that target not the technologies but the users who would exploit them for bad ends. A combination of agent-oriented and technology-oriented strategies could even have synergistic effects that significantly improve humanity’s odds of surviving the present bottleneck of existential risk. (ii) Some types of agential risks pose a threat in and only in the specific context of “sufficiently accessible WTDs,” meaning that the existence of such risks can only be seen through the prism of “agential risks.” The most obvious example is (2) above: only once a radical NU gains access to a WTD does she or he pose a threat. Otherwise, more radical NUs in the world would likely yield a better world, all things considered, since NUs are dedicated to the alleviation of suffering, and most people would agree that less suffering is good. Similarly, until the first self-replicating von-Neumann probes capable of converting matter and energy into utilitronium becomes a reality, TCUs will pose no active dangers to the perpetuation of our species. These agents would never bleep the radar of anti-risk enforcement operations under the current status quo paradigm, which suggests that we need a new paradigm. (iii) Furthermore, there may be certain agent-artifact configurations that are more likely to obtain than others, given the specific aims of different agential risks. Understanding this could help anti-risk enforcement operations focus their energy on the most probable configurations. For example, a radical NU would almost certainly never detonate a flurry of nuclear weapons around the world because this probably would not cause human extinction, but it could significantly increase human suffering. Thus, allocating large amounts of resources to ensure that radical NUs don’t acquire weapon-grade uranium, for example, would be misguided. Instead, anti-risk programs should focus on agents of this type gaining the knowledge and skills necessary, say, to design self-replicating nanobots or, even more speculatively, weaponize a high-powered particle collider to induce a vacuum bubble. What other probable/improbable agent-artifact configurations might there be? The question has received almost no scholarly attention, so no one knows.

### 2AC — AT: Tech

#### No impact, but tech solves extinction

Stolyarov 12 — Gennady Stolyarov II (freelance philosophy writer and blogger, Lead Actuary in Property and Casualty Insurance for the Nevada Division of Insurance, holds a B.S. in Economics, Mathematics, and German from Hillsdale College), 4-3-2012, “Technology as the Solution to Existential Risk,” Rational Argumentator, http://www.rationalargumentator.com/index/blog/2012/04/technology-existential-risk/

What is the relationship between technology and existential risk? Technology does not cause existential risk, but rather is the only effective means for countering it. I do not deny that existential risks are real – but I find that most existential risks exist currently (e.g., risks from asteroid impacts, a new ice age, pandemics, or nuclear war) and that technological progress is the way to remove many of those risks without introducing others that are as great or greater. My view is that the existential risks from emerging technologies are quite minor (if at all significant) compared to the tremendous benefits such technologies would have in solving the existential risks we currently face (including the biggest risk to our own individual existences – our own mortality from senescence). My essay “The Real War – and Why Inter-Human Wars Are a Distraction” describes my views on this matter in greater depth. In short, I am a techno-optimist, one who considers it imperative to restore the Victorian-era ideal of Progress as a guiding principle in contemporary societies. The problem, as I see it, is not in the technologies of the future, but in the barbarous and primitive condition of the world as it exists today, with its many immediate perils. As a libertarian, I believe that the entrepreneurship and innovation in even semi-free markets can address existential risks far more effectively than any national government – and bureaucratic management of these efforts would only hamper progress while incurring the risk of subverting the endeavors for nefarious objectives. (The National Security Agency’s recent attempt at a total surveillance state is a case in point.) But fears of technology are our greatest existential risk. They have a real potential of halting progress in many fruitful areas – either through restrictive legislation or through the actions of a few Luddite fanatics who take it upon themselves to “right” the wrongs they perceive in a world of advancing technology. I can point to examples of such fanatics already exploiting fears of technologies that are not even close to existing yet. For instance, in a post on the LessWrong blog, one “dripgrind” – a sincere and therefore genuinely frightening fanatic – explicitly advocates assassination of AI researchers and chastises the Singularity Institute for Artificial Intelligence for not engaging in such a despicable tactic. This is the consequence of spreading fears about AI technology rather than simply and calmly developing such technology in a rational manner, so as to be incapable of harming humans. Many among the uneducated and superstitious are already on edge about emerging technologies. A strong message of vibrant optimism and reassurance is needed to prevent these people from lashing out and undermining the progress of our civilization in the process. The Frankenstein syndrome should be resisted no matter in what guise it appears.

#### Nuclear war turns their scenario

Zelinsky 11 — Joshua Zelinsky (Yale graduate), 9-3-2011, “Impact of India-Pakistan nuclear war on x-risk?” <http://lesswrong.com/lw/7fg/impact_of_indiapakistan_nuclear_war_on_xrisk/>

The question is not the right question to ask. Large scale war whether nuclear or not regardless of the countries increases existential risk in all forms. The more resources taken up dealing with such situations the less spent on preventing existential risks such as large asteroids, superbugs and very bad AI. The increased stress levels to societies will also encourage risk taking liking it more likely that people will try to develop major new technologies without adequate safeguards. Nanotech and AI both fall into this category. (To some degree this is the worst case scenario . If technological progress is halted completely this won't be a problem. The really bad case is where technological research continues but without safeguards.) The question as phrased also emphasizes climate change rather than other issues. In the case of such a nuclear war, there would be many other negative results. India is a major economy at this point and such a war would result in largescale economic problems throughout. A slightly larger scale problem is that of total societal collapse, or human extinction. Both of these look unlikely in the Pakistan-India case but are worth discussing (although at this point seem very unlikely for any plausible nuclear war scenario). One serious problem with coming back from societal collapse that is often neglected is the problem of resource management. Nick Bostrom has pointed out that. to get to our current tech level we had to bootstrap up using non-renewable fossil fuels and other non-renewable resources. If the tech level is sufficiently reduced it isn't obvious that such a bootsrapping can occur again. As more and more resources are consumed this problem becomes more severe. (This is in my view an argument for conservation of fossil fuels that is too often neglected- we need them in reserve in case we need to climb back up the tech ladder again.) But again, this situation doesn't seem that likely. Overall, nuclear war is an example of many sorts of situations that would increase existential risk across the board. In that regard it isn't that different from a smallish asteroid impact (say 2-3 km) in a major country, or Yellowstone popping, or a massive disease outbreak or a lot of other situations. Nuclear war probably seems more salient because it involves human intent. This is similar to how terrorism is a lot scarier to most people than car crashes.

### 2AC — AT: Labs

#### Cosmic rays thump

Saplakoglu 18 — Yasemin Saplakoglu (Staff Writer, biomedical engineering bachelors from the University of Connecticut and a science communication graduate certificate from the University of California, Santa Cruz), 10-5-2018, “No Particle Accelerators Will Not Destroy the Planet, But Humans Might,” Live Science, https://www.livescience.com/63759-future-threats-to-humanity.html

"The stakes are very high this century," said British cosmologist Martin Rees. "It's the first century when human beings … can determine the planet's future." [10 Technologies That Will Transform Your Life] For the past couple of days, news outlets have been reporting that Rees' new book "On the Future: Prospects for Humanity" (Princeton University Press, 2018) makes a rather spectacular claim: If things go wrong, particle accelerators that slam subatomic particles together at immense speeds — like the Large Hadron Collider near Geneva, Switzerland,— could turn Earth into a dense sphere or black hole. In fact, Rees told Live Science in a recent interview, his book claims the opposite: The probability of this happening is very, very low. The idea of the LHC forming mini-black holes has been circulating for a while and is not something to worry about, he said. "I think people quite rightly thought about this question before they did the experiments, but they were reassured," he said. The reassurance mainly comes from the fact that nature already performs such experiments — to an extreme. Cosmic rays, or particles with much higher energies than those created in particle accelerators, frequently collide in the galaxy, and haven't yet done anything disastrous like rip space apart, Rees said. "It's not stupid to think about these things, but on the other hand, they're not serious worries," he said. But in contrast, "if you're doing something where you have no guidance from nature, then you’ve got to be a bit careful." It's in these cases that technology can be a realistic threat for the future, he said. When nature doesn't know the answer Gene editing, for example, can yield new organic products that don't exist in nature, Rees said. Sometimes, if "you tinker with a virus, then of course you can't be quite sure what the consequences are," he said. "It may well be that you can create a form of a virus which has not arisen through natural mutations." There's much conversation around gene drives, for example — modifications that are being considered for mosquitoes to reduce disease transmission. Gene drives essentially tweak the genetic code to alter the likelihood of inheriting certain traits, and can lead to "unpredictable environmental effects," he said. Technology is also making it easier for one person's actions to have far-reaching consequences, he said. "Just a few people anywhere in the world can cause something which has global consequences in a way they couldn’t [before]," Rees said. One example is a cyberattack. Technology also does incredible things, especially in medicine and space travel. And as such, "things can go extremely well," Rees said. "But there are all these hazards along the way because of misuse of technologies." The second major threat to the future is our collective influence on the climate, environment and biodiversity, he said. So, it's important to have international conversations about how to combat the pressures humanity has placed on the world, he added. And it's much easier to solve the world's problems, such as by combating climate change, than by packing up our things and going to a new planet, he said. "It’s a dangerous illusion to think that we can escape the world's problems by going to Mars," Rees said. In fact, robots — who will likely be better-adapted to space travel than humans — will mostly be the ones exploring the cosmos. [Super-Intelligent Machines: 7 Robotic Futures] Rees doesn't think robots are truly a threat for the future. "I don't worry as much as some people do about AI taking over," Rees said. Humans evolved from earlier primates because of natural selection, and the traits that were favored were intelligence and aggression, he said. Electronics "are not engaged in a struggle for survival as in Darwinian selection, so there's no reason why they should be aggressive," he said. For that reason, they probably won't kill off the human race and expand into the universe. That would be too "anthropomorphic" of them, he said. "They might just want to sit and think," he said.

#### Yet, humans can’t create that energy— assumes labs and testing

Worrall 18 — Eric Worrall (saff writer for What’s up With That), 10-2-2018, “Forget Climate Change – Large Hadron Collider Set to Destroy the World,” https://wattsupwiththat.com/2018/10/02/forget-climate-change-large-hadron-collider-set-to-destroy-the-world/

Renowned Cosmologist Professor Martin Rees thinks a particle accelerator experiment gone awry could destroy the world – though there are good reasons to doubt the significance of this risk. Fun though it is to contemplate these outlandish possibilities, there is a good reason to doubt whether any of these possibilities are a significant risk. Every day the Earth is bombarded by untold billions of cosmic ray particles emitted long ago by violent distant cosmic events such as the formation of black holes. Many of the particles which strike the Earth are orders of magnitude more energetic than anything we are ever likely to produce. Some particles like the infamous “Oh-my-god” particle which struck Earth in 1991 with an energy of 3×10^8 TeV, hitting us at 99.99999999999999999999951% of the speed of light defy explanation – we shall likely never find a way to produce particle energies of that magnitude (for comparison the Large Hadron Collider, Earth’s most powerful particle accelerator, produces particles at around the 4TeV range). The point is the Earth has already been struck many times by particles of a very broad range of energies, including the range of energies used by particle physicists. If anything bad was going to happen due to a collision between particles of a specific energy, it should have already happened long ago when a cosmic ray of that energy struck the Earth. On the other hand we have the Fermi Paradox – the mystery of the missing aliens. One possible explanation for why our universe seems so empty of intelligent alien life is that (almost?) all technological civilisations make a common mistake – they reach a level of technology which enables them to commit an act which results in their own destruction. One possible candidate for that act of self destruction is a high energy particle physics experiment which goes horribly wrong. I haven’t read Professor Rees’ book, so for all I know he has an explanation for the cosmic ray flaw in the “particle experiment will destroy the world” theory. But for now I’m not going to be losing any sleep over this alleged risk.

#### No impact to particle accelerators

Physicist 11 — Physicist (magazine), 6-25-2011, "Q: If you stood in the beam of a particle accelerator, what would happen?," Ask a Mathematician / Ask a Physicist, http://www.askamathematician.com/2011/06/q-if-you-stood-in-the-beam-of-the-lhc-what-would-happen/

If you took all of the matter that’s being flung around inside an active accelerator, and collected it into a pellet, it would be so small and light you’d never notice it. The danger is the energy. If you stood in front of the beam you would end up with a very sharp, very thin line of ultra-irradiated dead tissue going through your body. It might possibly drill a hole through you. You may also be the first person in history to get pion (“pie on”) radiation poisoning (which does the same thing as regular radiation poisoning, but with pions!). When it’s up and running, there’s enough energy in the LHC beam to flash boil a fair chunk of person (around 10-100 pounds, depending on the setting of the accelerator). However, even standing in the beam, most of that energy will pass right through you. The higher the kinetic energy of a particle, the smaller the fraction of its energy tends to be deposited. Instead, high energy particles tend to glance off of other particles. They deposit more overall than a low energy counterpart, but most of their energy is carried away in a (slightly) new direction. So instead of all the energy going into your body, the beam would glance off of atoms in your body, causing the beam to widen, and most of the energy would be deposited in whatever’s behind you (the accelerator only holds a very thin beam, so any widening will cause the beam to hit the walls).

#### But, they solve a litany of global issues, including WMDs

Zeldovich 14 — Lina Zeldovich, 6-12-2014, "10 Reasons Why You Can’t Live Without A Particle Accelerator," Nautilus, <http://nautil.us/issue/14/mutation/10-reasons-why-you-cant-live-without-a-particle-accelerator>, [accessed: 9/16/18] — JPark

Physicists use particle accelerators to answer questions of fundamental physics—how our universe was created, why objects have mass, and so on. Accelerators are huge—Fermilab’s Tevatron, near Chicago, is four miles in circumference, while the Large Hadron Collider in Geneva is more than four times that size—and extremely expensive. In some ways, they’re the epitome of the pure research instrument. But if you think these machines have no use outside of research, you’re in for a surprise. Particle accelerators have been winding their way out of research labs and into industry for decades, and new applications continue to be dreamt up. When federal money for fundamental research dwindled, scientists started to invent new funding methods. Robert Kephart, director of the Illinois Accelerator Research Center (IARC) at Fermilab, partnered with the Illinois State Department of Commerce and Economic Opportunity to fund science research and applied applications of accelerators. In its 2009 capital bill, the state allocated $20 million toward research at Fermilab, which will be raised the same way states raise money to build roads and bridges—by selling state bonds. Here are 10 applications of accelerators you probably haven’t heard of.

1. Is your milk carton sealed? An accelerator did it.

Accelerators use electromagnetic force to accelerate charged particles. The resulting particle beams can be directed along the desired path, including to the outside of the accelerator walls. When a charged particle moves past an atom, it can interact with the electrons in that atom, knocking them out of their orbits and breaking bonds. That can cause some chemical compounds to fall apart and others to polymerize. The latter ability has been used in one of the earliest industrial applications of accelerators, stretching back at least to the 1980s: sealing potato chip bags and milk cartons. The potato bag is made from two layers of aluminum foil held together by glue. That glue would take too long to dry on industrial conveyor belts. “It would be sticky forever,” says Kephart—but electron beams can make it happen instantly. “With an accelerator you can polymerize that glue and it’s set.”

2. A lot of natural gas is wasted. Accelerators can fix that problem.

Natural gas is harder to harness than oil and requires a pipeline to transport. That’s why millions of cubic feet of natural gas are flared or vented every year instead of being delivered to the market—a wasteful and polluting practice. A Western Values Project estimated that the natural gas wasted in 2013 in the United States alone could support the needs of Los Angeles or Chicago for an entire year. Chemical processes can convert gas to liquid hydrocarbons, or oil, but they require high temperatures and pressures attainable only at large plants. Accelerators can achieve the same results by using electron beams to break carbon-hydrogen bonds, causing natural gas to recombine into a polymer chain. The process, which Kephart says should work in principle, still remains a technology of the future—no prototype has been built yet.

3. Want your spinach E. coli free? Accelerators may have cleaned it.

If you see this Radura symbol (left) on its packaging, your food has been irradiated with an electron beam. Over 40 countries use this technology to kill bacteria and parasites such as salmonella or E. coli in apples, strawberries, spinach, and other products. Vladimir Shiltsev, director of the Accelerator Physics Center at Fermilab, explains that the beam is calibrated so that it destroys pathogens but doesn’t affect produce. The more complicated a molecule is, the easier it is for the beam to break it—bacterial DNA is more complex than that of a plant, so it would fall apart first. Unlike the radioactive isotopes of accidental nuclear fallout, electron beams are fully under human control, and, unlike protons or neutrons, they don’t break the atomic nuclei. “The radiation we’re talking about comes out of an accelerator, so when you turn the switch off, all radiation stops,” Kephart says. In a similar way, electron beams are used in rhodotrons, machines used for sterilization of medical devices.

4. Can coal be a clean fuel? Yes, if you attach an accelerator to the smokestack.

Burning coal produces flue gases like nitrogen and sulfur oxides: NO2, NO3, SO2, and SO3. When these gases react with atmospheric water, they turn into sulfuric and nitric acids such as H2SO4 or HNO3, eventually spilling back to earth as toxic acid rains. But when these oxides are mixed with ammonia (NH3) and exposed to electron beams, they can be turned into ammonium sulfate and ammonium nitrate, common fertilizers. The reaction creates dust-like particles that could be gathered with an electrostatic or centrifugal particle separator and put on the field. Kephart sees the idea as an opportunity to make coal a cleaner fuel. “Even with the most optimistic projection of renewable energy sources and nuclear power, coal is likely to be providing 20 percent of our energy 20 years from now,” he says. “This is a way to make it more environmentally acceptable.” PAVAC, a company in British Columbia, Canada started by Ralf Edinger,1 is working on its first installation of this technology.

5. Antibiotics harm fish? Accelerators can turn pharmaceuticals into fertilizer.

Accelerators can clean up sewage sludge by removing nitrogen and phosphorus, which cause algal blooms, and also hormones and antibiotics, which harm fish. Exposing sewage waste to electron beams breaks pharmaceuticals into harmless compounds. The beams ionize the water, producing H3O+ and OH radicals and creating a highly reactive environment in which oxidation and reduction reactions happen. This solution can break complex pharmaceutical compounds into basic elements, and kill pathogens as well. “Irradiated sludge can become a material that you could put on a lettuce field,” Kephart says. A pilot accelerator plant that cleaned municipal waste was built in Miami, Florida in the early ’90s. Although the plant worked, it wasn’t a turn-key solution, Kephart says, so the idea was never commercialized. “An organization buying a municipal waste plant needs a fully developed system,” he explains, but “it was too soon for the industry to fund it.”

6. Your new computer has arrived. Thank an accelerator for building it.

Breaking down molecules and destroying pathogens’ DNA are not the only tricks accelerators can do—they also help build new materials. The computer chip industry relies on a technique called doping, in which boron and phosphorus ions are implanted into layers of silicon using accelerators. Ions are positively charged, so accelerators can direct ion beams with electromagnetic fields. The ions penetrate the surface of the silicon wafer and are deposited at precise locations inside it. That changes the conductivity of the material.

7. Accelerators make us live longer. They kill cancer.

Electron beams aren’t the only charged particles capable of killing unwanted life. Protons can destroy tumors, and are a good match for radiation therapy because they have stronger penetrating power than electrons. They can pass through tissues causing little damage, but killing cells where they stop. “Protons lose most of their energy and produce most of the harm, radiation harm, at the very end of their path,” Shiltsev says. This allows scientists to calibrate accelerators to deliver their destructive power to the precise location of the tumor. The concept was pioneered in 1946 by Robert Wilson, Fermilab’s first director. Nearly half a century later, the first medical proton-beam accelerator began operating at Loma Linda University Medical Center. THE LOMA LINDA MEDICAL CENTER PROTON ACCELERATOR: More than 17,000 patients have received proton therapy at the Loma Linda Medical Center since it opened in 1990.Loma Linda University Medical Center

8. Can nuclear reactors be accident-proof? Yes, if particle accelerators control them.

Traditional nuclear reactors are critical reactors—they produce excess neutrons that must be absorbed by control rods to regulate the reaction. The problem is the rods are susceptible to mechanical issues, which can cause the reaction to spiral out of control. Accelerator-driven subcritical systems control the amount of neutrons that are supplied instead of consuming the excess neutrons. In accelerator-driven atomic reactors a proton beam would hit a heavy metal target such as mercury or lead, producing a “spray of neutrons,” which then drive the nuclear fission, says Kephart. That is a safer design, he points out, because “when you switch off the accelerator the nuclear reaction stops.” Accelerator-driven reactors would also be able to break the already existing nuclear waste into short-lived isotopes. No such reactors have been built yet, but Europe, India, and China are pursuing the idea, Kephart says.

9. The world still runs on oil. Accelerators can find it.

Portable Neutron Generators (or neutron tubes) help detect oil, gas, or water deposits using a technique called neutron logging. During the discovery process, neutron generators are placed into exploratory boreholes. As the neutrons produced by the accelerator pass through the ground surrounding the borehole, they interact with the atomic nuclei of various materials. That produces gamma rays which can be picked up by gamma-ray detectors. The strength of these signals reflect the type of materials buried underground. “Usually people look at the signatures of reactions,” says Shiltsev. “If there is a pore, less gammas will come out.” Oil and water will produce different amount of gamma rays, too.

10. Accelerators keep watch for weapons of mass destruction.

Muon accelerators enable us to literally see through walls. Muons—subatomic particles similar to electrons but with a greater mass—can easily pass through thick and heavy steel walls and containers, but will react with nuclear material. If a truck, perhaps driving by a border patrol, is carrying concealed fissile materials, muons sent through the truck will produce high energy gamma-rays which can be detected. This makes muon accelerators invaluable in identifying nuclear threats. For example, helicopters could fly muon accelerators over water, beaming muons down onto cargo ships. “You can remotely send the beams of radiation which selectively interact with the materials and can tell you whether a particular material is present on the boat or not,” Shiltsev says. “You can figure out whether this boat carries nuclear bomb parts.”

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## CP ⁠— CIL

#### Rollback

Kundmueller 2, Ph.D. candidate, Department of Political Science, University of Notre Dame, former attorney at Wildman, Harrold, Allen & Dixon, specializing in constitutional law, Ph.D., M.A. Political Science, University of Notre Dame, J.D. University of Notre Dame Law School, B.A. Politics and Law, Flagler College (Michelle M. Kundmueller, 2002, "The Application of Customary International Law in US Courts: Custom, Convention, or Pseudolegislation?," The Journal of Legislation, Vol. 28, pp. 369-372, Hein Online)

The argument against direct incorporation of customary international law focuses on several perceived evils, with the primary focus resting on lack of constitutional justification and incompatibility with constitutional principles such as separation of powers and democratic rule. In a Note that focuses specifically on the question of whether customary international law supersedes federal statutes, Garland A. Kelley takes a moderate position, claiming that customary international law should not supercede federal law, but that "American courts must attempt to reconcile U.S. federal statutory law with conflicting international norms and standards, whenever possible.",42 In the course of explaining why federal law ought not be superseded by customary international law, based on constitutional interpretation, Kelley makes an argument for how customary international law has the potential to threaten some of the most basic premises of American constitutional government. Kelley challenges the claim that the last-in-time doctrine applies to customary international law, pointing out that the Supremacy Clause leaves ambiguous "how conflicts between separate classes of supreme laws are to be resolved., 43 While conflicts between different types of federal law would normally be resolved through the last-in-time doctrine, Kelley notes that with customary international law this does not result in a comfortable outcome." The precise date of a doctrine of customary international law becoming effective, because of the nature of customary international law, is impossible to determine; hence, any date chosen is entirely arbitrary. Unless one is willing to accept the premise that customary law is constantly in the process of being renewed-and, thus, that customary international law always trumps legislative federal law-this issue presents a serious practical obstacle to the application of the last-in-time rule. In a discussion of jus cogens, a specific form of customary international law, Kelley discusses two more fundamental problems of incorporation. Not only is the literature on jus cogens conflicting as to the substance of jus cogens, but the issue of who, in the arena of domestic law, will determine both the substance and applicability of jus cogens does not have an obvious answer.45 The issue of where to lodge the power of applying customary international law creates a dilemma, but this is not the most daunting problem. Kelley claims that "the most serious objection" is "that ceding peremptory power to jus cogens norms is fundamentally at odds with basic American constitutional values."46 Modern customary international law conflicts with domestic legal issues, issues concerning the self-governance of Americans. Kelley explains that the heart of the problem lies in the potential for customary international law, over which Americans have no direct control, to undermine democracy and the consent of the governed. If our form of constitutional government stands for anything, it is the belief that no law is law without the consent of the governed, as expressed through our elected representatives. Preempting domestic statutory law with norms of customary international law, particularly customary international law based not on the practice of nations, but on declarations that are purposeful and hopeful, is to apply law that has been generated by non-United States law-making procedure.47 Kelley contends that the loss of a truly consent-based government would not be the only casualty of customary international law's dominance over federal legislation: such implementation would necessarily come at "considerable cost, upsetting the safeguards inherent in at least three basic U.S. constitutional values and assumptions ....",48 Because directly incorporating customary international law as dominant over federal law would necessitate using the courts as the applying and interpreting body, such incorporation by definition gives previously unknown power to the courts. This power, as Kelley points out, comes at a price. The judicial branch's gain would come at the expense of the President, Congress, and state governments. According to Kelley, such costs are "excessive and illegitimate."49 In an article on the authoritative sources of customary international law in the United States, Harold G. Maier argues that both the governmental structure of the United States and the functional nature of international law itself compel the conclusion that the authoritative source of public international law in the United States is the will of the United States body politic as reflected in federal law ... not the will of the world community of nations. 50 Maier bases much of his argument on the role of territorial sovereignty. Territorial sovereignty and nationhood both require "possession of the internal authority to decide whether to violate international obligations."51 Not only is the authority to choose whether to follow international norms vested in the body politic of each nation, but, as a practical matter, this is the only method through which international law can be translated to the domestic front. In the words of Maier, "[i]t is this functional reality, as much as any language of the courts or of the Constitution, that supports the proposition that United States decision makers are not bound by the Constitution to apply rules of customary international law in domestic fora."52 In practice, this theory demands "active affirmative participation" of a nation's "authoritative decision-makers" for customary international law to have "applicability within a nation's legal system."53 Maier explains what this means within the framework of the U.S. legal system, stating that the "principles of international law are accessible to the federal courts when they decide cases by the common law method. 5 4 While available to courts, "those principles are given domestic legal effect by the authority of the court applying them in its traditional common law process, not by some metaphysical omnipresence of the international legal regime."5 The courts exercise their discretion in applying and interpreting customary international law. Customary international law is further checked and, ultimately in the scheme of U.S. law, balanced by the legislative branch. As the will of the people of the United States-as determined through our own law-making process-dominates the common law findings of the judiciary, so the legislative findings of Congress, when they contravene a court's holding concerning customary international law, reverse the holding of the court system. In the words of Maier, when there is "conflict between the will of the people, reflected by the act of their government institutions, and the will of the international community reflected in customary international law, the municipal will must necessarily control .... 56 Maier believes that, within pal will must necessarily control .... ."" Maier believes that, within the U.S. political and legal systems, customary international law can and rightfully does have a guiding role to play; ultimately, however, the decision-making authority is still retained by the people and government, none of whom are "subject to the limitations created by an international legal regime."57

#### I-law fails

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Whenever a lawyer or historian describes how a particular action “violates international law” many people stop listening or reading further. It is a bit alienating to hear the words “this action constitutes a violation of international law” time and time again – and especially at the end of a debate when a speaker has no other arguments available. The statement is inevitably followed by: “…and it is a war crime and it denies people their human rights.” A plethora of international law violations are perpetrated by every major power in the world each day, and thus, the empty invocation of international law does nothing but reinforce our own sense of impotence and helplessness in the face of international lawlessness. The United States, alone, and on a daily basis violates every principle of international law ever envisioned: unprovoked wars of aggression; unmanned drone attacks; tortures and renditions; assassinations of our alleged “enemies”; sales of nuclear weapons; destabilization of unfriendly governments; creating the largest prison population in the world – the list is virtually endless. Obviously one would wish that there existed a body of international law that could put an end to these abuses, but such laws exist in theory, not in practice. Each time a legal scholar points out the particular treaties being ignored by the superpowers (and everyone else) the only appropriate response is “so what!” or “they always say that.” If there is no enforcement mechanism to prevent the violations, and no military force with the power to intervene on behalf of those victimized by the violations, what possible good does it do to invoke principles of “truth and justice” that border on fantasy? The assumption is that by invoking human rights principles, legal scholars hope to reinforce the importance of and need for such a body of law. Yet, in reality, the invocation means nothing at the present time, and goes nowhere. In the real world, it would be nice to focus on suggestions that are enforceable, and have some potential to prevent the atrocities taking place around the globe. Scholars who invoke international law principles would do well to add to their analysis, some form of action or conduct at the present time that might prevent such violations from happening. Alternatively, praying for rain sounds as effective and rational as citing international legal principles to a lawless president, and his ruthless military.

## Moral Error Theory

### 1AR ⁠— MAT

## Case

#### \*\*\*Identifying and responding to extreme and involuntary suffering is good — our political strategy illuminates our innate compassion for others through empathy and harmony — that link turns their offense

White 11 — associate professor of philosophy Creighton University (Richard, “Levinas, the Philosophy of Suffering, and the Ethics of Compassion,” The Heythrop Journal, 53.1)

Levinas fails to recognize that what is properly meaningful is not so much the suffering itself but our response to that suffering. For example, if my suffering leads me to commit suicide, then in what sense can it be considered meaningful? And if my awareness of the suffering of another becomes so overwhelming it paralyzes action, does it really have an issue or a point? Suffering is neither ‘meaningful’ nor ‘meaningless’ in itself. What determines the significance of suffering is the response of the one who suffers. This may be the original victim – someone like Elie Wiesel who lost his family in the Holocaust, but who sought to live a life devoted to justice; or it could be the spectator who suffers in sorrow when she contemplates these events and who may feel compelled to respond. In this respect, my suffering, the suffering of the other, and my suffering for the suffering of the other all remain quite ‘open’ in terms of their ultimate meaning. 4). Finally, then, the third question asks what should the proper response to suffering be? Of course, I should turn aside from my own self-involvement in order to help, and the refusal to help is wrong. But this does not say enough, and we must now consider another perspective. According to ordinary moral understanding, there is a difference between the one who deliberately inflicts suffering on another and the one who doesn't prevent that suffering from happening; they are both at fault, but there is a moral distinction between the perpetrator and the bystander. There are also others who are not involved in any way, and therefore innocent, at least in this case. According to Levinas, however, I am always already responsible for the suffering of the Other; and he frequently emphasizes this point: I am in reality responsible for the other even when he or she commits crimes, even when others commit crimes. This is for me the essence of the Jewish conscience. But I also think that it is the essence of the human conscience. All men are responsible for one another, and ‘I more than anyone else’. One of the most important things for me is that asymmetry and that formula: All men are responsible for each other and I more than anyone else. It is Dostoyevsky's formula which, as you see, I quote again.[46] For Levinas there is apparently no distinction between the three ethical levels – of perpetrator, bystander and innocent – at the original moment of ethical encounter. Regardless of whether I caused the suffering of another or had nothing at all to do with it, I am still ‘infinitely’ responsible for the other person. But this is problematic, and it ignores the obvious distinction between compassion and remorse. As Steven Tudor puts it: In the case of compassion, the self stands as witness to the Other's suffering, while in the case of remorse, the self stands as responsible for the Other's suffering, that is, as having wronged the Other. In both compassion and remorse, however, the self is in some way “claimed in response to” the Other: the compassionate witness to suffering is “called upon” to respond to what she sees, while the remorseful person is obligated to answer for what he did.[47] For Levinas, the only proper response to suffering is remorse or guilt, even to the point of self-abnegation and self-loathing. Of course, it may be argued that Levinas's discussion of responsibility is at a higher ‘transcendental’ level and has no bearing on the variety of ethical responses that exist in the everyday world. But to have any relevance at all, there must be a relationship of analogy between the two levels so that our everyday responses will be shaped by the description of their ultimate ground. Eagleton complains: ‘The very act that constitutes me as a subject also places me at a distance from my own being. Before the Other I am always in the wrong, always a guilty innocent’.[48] Thus, even though he refers to compassion, Levinas's ethics is essentially deontological or Kantian, insofar as it is based on responsibility and duty, rather than empathy with the feelings of those whom we take to be sentient like ourselves. For Levinas, ethics is severe and the traumatic relation to the other seems to rely entirely on duty rather than love. And even though Levinas discusses my suffering for the suffering of the other as the origin of the ethical, he does not have compassion in mind as this is typically understood. There are other accounts of compassion in which I overcome the sense of an absolute separation between myself and others by going out of myself towards the Other, putting aside my own concerns, and bearing witness to her suffering as something that brings me sorrow. Such compassion implies the desire to help the other person which may or may not be acted on; but the very recognition of someone else's suffering is itself a beneficial act. As Elaine Scarry comments, even in extreme physical suffering, An act of human contact and concern, whether occurring here or in private contexts of sympathy, provides the hurt person with worldly self-extension … By holding that world in place, or by giving the pain a place in the world, sympathy lessens the power of sickness and pain, counteracts the force with which a person in great pain or sickness can be swallowed alive by the body.[49] In this way, sympathy or compassion works to overcome the isolation that suffering imposes. In Buddhist practice, compassion requires feeling for the suffering of others. It is responsiveness to misery which includes not only the particular sorrows that others experience, but also the underlying reality of suffering which is grasped as the permanent condition of human existence. Compassion allows us to experience our affinity and our connection with all creatures; and the more committed and involved with others we become, the less preoccupied we are with our own selfish desires. As we cultivate our sense of compassion, the concerns and anxieties that characterize our everyday existence fall away, and we become more open to other people and the rhythm of life itself. Such compassion involves an overall attentiveness and availability to the other person. According to Buddhist teaching, it should be unconditional, undifferentiated and universal in scope; and it would certainly include compassion toward oneself. For Buddhists, compassion is one of the most important virtues that should be enhanced because it affirms the underlying reality of our connection with all sentient beings; while at the same time, hatred and cruelty must be diminished, since they are the opposite of compassion. According to the Dalai Lama: When we enhance our sensitivity toward others' suffering through deliberately opening ourselves up to it, it is believed that we can gradually extend our compassion to the point where the individual feels so moved by even the subtlest suffering of others that they come to have an overwhelming sense of responsibility towards those others. This causes the one who is compassionate to dedicate themselves entirely to helping others overcome both their suffering and the causes of their suffering.[50] In the Mahayana tradition of Buddhism, such a focus on compassion inspires the ideal of the Bodhisattva, or the saint who refuses Nirvana until all other creatures have been released from their suffering. Thus, instead of emphasizing the opposition and distinction between self and other – in terms of radical alterity which is finally irreducible to conceptual thought – this account of compassion calls upon us to see the other person as someone who is basically like ourselves, who has the same capacity for suffering and joy. There is no absolute difference between myself and the other person, for there is nothing that separates me from the affliction of the other that cannot be destroyed by a change of circumstances. Through compassion I affirm my sense of belonging to the human community insofar as I show my care for another person; while at the same time, the one who is afflicted and isolated by suffering is brought back into the community by the respect and acknowledgement she is shown. There is an obvious reason why this version of compassion, though briefly sketched, is preferable to the Levinasian view: It explains our connection to the other as one whom we care for – for even though she is an ‘other’, she is also someone with whom we share a common humanity and sentience. But without the recognition of any kind of connection between us – if the other is absolutely other and if it is in some sense inappropriate to put myself in her place – then it is unclear how I could ever be concerned about her wellbeing or feel responsibility for her. I do not feel the same obligation to rocks as I do to humans, but this is because I have a sense of a ‘shared humanity’ which leads me to care for others in the first place. 5). In the past, philosophers have sometimes ignored suffering by denying its significance or its wrongness. One way of doing this is through theodicy which seeks to justify suffering as the will of God (or from the secular perspective, as part of the march of history.) This takes attention away from the reality of suffering by framing it within an optimistic narrative, making suffering something that actually belongs to the good. Likewise, stoicism diminishes the problem of suffering by making it subject to the projected mastery of the self. This implies that suffering is not a reality since it is rather a perspective on reality that can change if we change our attitude towards it. In his brilliant phenomenological descriptions, Levinas shows how suffering tends to undermine all significance and meaning. Levinas recovers the problem of suffering and his opposition to theodicy in all its forms is well considered. The problem with Levinas's account emerges once we step back from his specific discussion of what suffering is, to consider the place of suffering in his overall account of ethical philosophy. As we have seen, it is not the meaning of suffering that is really at issue – depending on the context suffering can be meaningful or quite pointless; but the response to suffering is what matters. At the end of this paper, we focussed on the response of compassion; but compassion as it is typically understood is not a central part of Levinas's ethical framework. Levinas himself comments, ‘for me the suffering of compassion, suffering because the other suffers, is only one aspect of a relationship that is much more complex and much more complete at the same time: that of responsibility for the other’.[51] Against Levinasian compassion, which involves suffering and self-laceration, we considered another version of compassion which loosely follows the Buddhist model. The latter involves feeling for the other in her distress, and presupposes the recognition of our common humanity. We must learn to cultivate this attitude, for we can be moved by the other person because she suffers like we do, and because we all share a common fate.

#### \*Voting for our impact is an act of care for the world — it’s not anthropocentric and doesn’t deny the intrinsic value of non-human life and non-living matter — but, the fate of humanity is an important consideration can incorporate the perspective of the alt — means the perm solves and there’s no tradeoff between advancing human-centered and non-human centered justifications for action

Myers 13 — Ella Myers 13, Assistant Professor of Political Science and Gender Studies at the University of Utah, Worldly Ethics: Democratic Politics and Care for the World, p. 126-130

If caring for the world means caring for the world as humans’ collective home and caring for the world as a mediating force between human beings, is this ethos susceptible to the charge of anthropocentrism? Does it imply that the world is for humans and humans alone? If so, does this ethics too readily tolerate or even promote harm to nonhuman elements of the world? Although “anthropocentrism” carries multiple meanings, most relevant here is the term’s reference to a myopic outlook focused on human interests at the expense of all other possible interests.60 The worry lies with a sort of “human chauvinism,” “speciesism,” or egocentrism that shows insufficient concern for nonhumans.61 In particular, critics of anthropocentrism object to the tendency to ascribe only instrumental, not intrinsic, value to nonhumans, which in turn supports a dominating stance toward nonhuman life. Is the ethos of care for the world—refined to mean care for the world as home and as in- between—guilty of promoting such anthropocentrism? Since both normative ends discussed above direct attention to human beings’ relation to the world, this is surely a legitimate question. Yet the ethos developed here does not reflect an anthropocentric outlook, if by that is meant a view that licenses exploitation of nonhuman elements of the world on the grounds that human interests, whatever they may be, trump all others.62 At the same time, however, the ethos of care for the world does not, as the notions of home and in- between attest, disavow concern for the fates of human beings in particular. What is at stake, then, is the possibility of enlightened anthropocentrism, of transformed selfinterest that heeds the insights of coexistentialism. Coexistentialism refers to an ecological perspective that takes the interconnectedness of all worldly entities, humans and nonhumans, organic and inorganic matter, as its starting point (see chapter 3). Latour’s and Bennett’s work helped reveal the interdependent webs of relation that characterize what I call world but that are obscured by traditional dichotomies between human agents, who are exalted, and inert matter, which is denigrated. Coexistentialism locates human beings within this worldly “mesh” rather than above it.63 Such an ecological awareness challenges fantasies of mastery by reminding people of the extent to which they are affected by the doings of nonhumans. Our understandings of human well- being and self- interest are susceptible to transformation by the coexistentialist perspective. The choice is not between the domineering, shortsighted pursuit of human interests, on the one hand, and the rejection of self- interest altogether, on the other. Indeed, the recognition of deep interconnectedness can shape and nurture “new self- interest,” as Bennett suggests.64 Although Vibrant Matter aims to question conventional human/nonhuman hierarchies, the book, Bennett explains, is motivated by a self- interested “concern for human survival and happiness.”65 In place of “fantasies of conquest and consumption” Bennett encourages a chastened form of self- interest. It is in people’s own interest, she argues, to understand the ways in which nonhumans and humans are bound to one another, generating effects in parliament rather than in isolation from one another. The purpose of the coexistentialist view is not to reject self- interest as hopelessly chauvinistic or destructive but to foster “new self- interest” that is guided by an ecological sensibility. Bennett’s reimagined self- interest resonates with notions of enlightened, weak, or broad anthropocentrism in the field of environmental ethics, which emerged originally as a challenge to anthropocentrism and the tendency to assign only instrumental value to nonhuman entities. Indeed, the enterprise of environmental ethics was initially defined as an attempt to develop a thoroughly nonanthropocentric worldview that renders nonhumans morally considerable. A strand of recent environmental thought, however, is concerned not with forgoing anthropocentrism altogether, a project it questions on both metaphysical and practical grounds, but with transforming the understanding of human interest so that it is enlightened.This broad form of anthropocentrism does not accept dominant economistic notions of human well- being but instead redefines well- being to include a fuller range of values, for example, aesthetic and spiritual, that reflect and further an ecological sensibility. Andrew Light and Bryan Norton advocate this approach from a pragmatist- pluralist perspective. Light argues that if contemporary environmental ethicists wish to take on environmental problems in policy contexts, this is best accomplished not by attempting to “overcome” human interests but by “redirecting them toward environmental concerns.”67 He contends that if we are concerned with the “moral motivation of humans to respond to environmental issues,” focusing on reconstructing the sense of what is in our own interest is more likely to succeed than an attempt to reject anthropocentrism wholesale.68 Light’s pragmatic approach counsels that in many situations anthropocentric values are best suited to motivate nonenvironmentalists. For example, studies show that concern for future human generations is a highly significant value that encourages efforts to protect nonhuman entities.69 In other situations, “nonanthropocentric claims will be more appealing.” Light writes that “what appeals best is an empirical question,” and he links this pragmatic outlook to a “pluralist ethic” that accepts a range of arguments, anthropocentric and nonanthropocentric and involving instrumental and intrinsic values claims, against doing harm to ecosystems.70 Philosophical purity matters less than ethico- political resonance. Where does this leave the democratic ethos I advance here? Care for the world is a way of caring for human beings; it is neither neutral nor disinterested. It is an ethos meant to generate benefits for people. But these benefits are linked to self- interest properly understood, that is, they are born of the coexistentialist insight. Caring for the world involves not owning, ruling, or enjoying dominion over but collaboratively tending to the world, an entity that is bigger, richer, and more varied and lively than human life alone. Such care should be guided by awareness of the webs of relation that link human beings across borders and time not only to one another, but also to other “vibrant matter” as well. Such awareness does not, however, require that one attempt (in vain?) to thoroughly equalize one’s concern for humans with concern for nonhumans. Genuinely ecologically minded self- interest is enough to aspire to.

#### \*If they’re right about util, nuke war outweighs!

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2. What Is GCR And Why Is It Important?

Taken literally, a global catastrophe can be any event that is in some way catastrophic across the globe. This suggests a rather low threshold for what counts as a global catastrophe. An event causing just one death on each continent (say, from a jet-setting assassin) could rate as a global catastrophe, because surely these deaths would be catastrophic for the deceased and their loved ones. However, in common usage, a global catastrophe would be catastrophic for a significant portion of the globe. Minimum thresholds have variously been set around ten thousand to ten million deaths or $10 billion to $10 trillion in damages (Bostrom and Ćirković 2008), or death of one quarter of the human population (Atkinson 1999; Hempsell 2004). Others have emphasized catastrophes that cause long-term declines in the trajectory of human civilization (Beckstead 2013), that human civilization does not recover from (Maher and Baum 2013), that drastically reduce humanity’s potential for future achievements (Bostrom 2002, using the term “existential risk”), or that result in human extinction (Matheny 2007; Posner 2004). A common theme across all these treatments of GCR is that some catastrophes are vastly more important than others. Carl Sagan was perhaps the first to recognize this, in his commentary on nuclear winter (Sagan 1983). Without nuclear winter, a global nuclear war might kill several hundred million people. This is obviously a major catastrophe, but humanity would presumably carry on. However, with nuclear winter, per Sagan, humanity could go extinct. The loss would be not just an additional four billion or so deaths, but the loss of all future generations. To paraphrase Sagan, the los[e]s would be billions and billions of lives, or even more. Sagan estimated 500 trillion lives, assuming humanity would continue for ten million more years, which he cited as typical for a successful species. Sagan’s 500 trillion number may even be an underestimate. The analysis here takes an adventurous turn, hinging on the evolution of the human species and the long-term fate of the universe. On these long time scales, the descendants of contemporary humans may no longer be recognizably “human”. The issue then is whether the descendants are still worth caring about, whatever they are. If they are, then it begs the question of how many of them there will be. Barring major global catastrophe, Earth will remain habitable for about one billion more years 2 until the Sun gets too warm and large. The rest of the Solar System, Milky Way galaxy, universe, and (if it exists) the multiverse will remain habitable for a lot longer than that (Adams and Laughlin 1997), should our descendants gain the capacity to migrate there. An open question in astronomy is whether it is possible for the descendants of humanity to continue living for an infinite length of time or instead merely an astronomically large but finite length of time (see e.g. Ćirković 2002; Kaku 2005). Either way, the stakes with global catastrophes could be much larger than the loss of 500 trillion lives. Debates about the infinite vs. the merely astronomical are of theoretical interest (Ng 1991; Bossert et al. 2007), but they have limited practical significance. This can be seen when evaluating GCRs from a standard risk-equals-probability-times-magnitude framework. Using Sagan’s 500 trillion lives estimate, it follows that reducing the probability of global catastrophe by a mere one-in-500-trillion chance is of the same significance as saving one human life. Phrased differently, society should try 500 trillion times harder to prevent a global catastrophe than it should to save a person’s life. Or, preventing one million deaths is equivalent to a one-in500-million reduction in the probability of global catastrophe. This suggests society should make extremely large investment in GCR reduction, at the expense of virtually all other objectives. Judge and legal scholar Richard Posner made a similar point in monetary terms (Posner 2004). Posner used $50,000 as the value of a statistical human life (VSL) and 12 billion humans as the total loss of life (double the 2004 world population); he describes both figures as significant underestimates. Multiplying them gives $600 trillion as an underestimate of the value of preventing global catastrophe. For comparison, the United States government typically uses a VSL of around one to ten million dollars (Robinson 2007). Multiplying a $10 million VSL with 500 trillion lives gives $5x1021 as the value of preventing global catastrophe. But even using “just" $600 trillion, society should be willing to spend at least that much to prevent a global catastrophe, which converts to being willing to spend at least $1 million for a one-in-500-million reduction in the probability of global catastrophe. Thus while reasonable disagreement exists on how large of a VSL to use and how much to count future generations, even low-end positions suggest vast resource allocations should be redirected to reducing GCR. This conclusion is only strengthened when considering the astronomical size of the stakes, but the same point holds either way. The bottom line is that, as long as something along the lines of the standard risk equals-probability-times-magnitude framework is being used, then even tiny GCR reductions merit significant effort. This point holds especially strongly for risks of catastrophes that would cause permanent harm to global human civilization. The discussion thus far has assumed that all human lives are valued equally. This assumption is not universally held. People often value some people more than others, favoring themselves, their family and friends, their compatriots, their generation, or others whom they identify with. Great debates rage on across moral philosophy, economics, and other fields about how much people should value others who are distant in space, time, or social relation, as well as the unborn members of future generations. This debate is crucial for all valuations of risk, including GCR. Indeed, if each of us only cares about our immediate selves, then global catastrophes may not be especially important, and we probably have better things to do with our time than worry about them. While everyone has the right to their own views and feelings, we find that the strongest arguments are for the widely held position that all human lives should be valued equally. This position is succinctly stated in the United States Declaration of Independence, updated in the 1848 Declaration of Sentiments: “We hold these truths to be self-evident: that all men and 3 women are created equal”. Philosophers speak of an agent-neutral, objective “view from nowhere” (Nagel 1986) or a “veil of ignorance” (Rawls 1971) in which each person considers what is best for society irrespective of which member of society they happen to be. Such a perspective suggests valu[e]ing everyone equally, regardless of who they are or where or when they live. This in turn suggests a very high value for reducing GCR, or a high degree of priority for GCR reduction efforts.

3. Challenges To Analyzing GCR

Given the goal of reducing GCR, one must know what the risks are and how they can be reduced. This requires diving into the details of the risks themselves—details that we largely skip in this paper—but it also requires attention to a few analytical challenges. The first challenge is the largely unprecedented nature of global catastrophes. Simply put, modern human civilization has never before ended. There have been several recent global catastrophes of some significance, the World Wars and the 1918 flu among them, but these clearly did not knock civilization out. Earlier catastrophes, including the prehistoric mass extinction events, the Toba volcanic eruption, and even the Black Death plague, all occurred before modern civilization existed. The GCR analyst is thus left to study risks of events that are in some way untested or unproven. But the lack of historical precedent does not necessarily imply a lack of ongoing risk. Indeed, the biggest mistake of naïve GCR analysis is to posit that, because no global catastrophe has previously occurred, therefore none will occur. This mistake comes in at least three forms. The first and most obviously false form is to claim that unprecedented events never occur. In our world of social and technological innovation, it is easy to see that this claim is false. But accounting for it in risk analysis still requires some care. One approach is to use what is known in probability theory as zero-failure data (Hanley 1983; Bailey 1997; Quigley and Revie 2011). Suppose that no catastrophe has occurred over n prior time periods—for example, there has been no nuclear war in the 65 years since two countries have had nuclear weapons. (The second country to build nuclear weapons was the Soviet Union, in 1949.) It can thus be said that there have been zero failures of nuclear deterrence in 65 cases. An approximate upper bound can then be estimated for the probability p of nuclear deterrence failure, i.e. the probability of nuclear war, occurring within an upcoming year. Specifically, p lies within the interval [0, u] with (1 – α) confidence, where u = 1 – α(1/n) gives the upper limit of the confidence interval. Thus for 95% confidence (α = 0.05), u = 1-0.05(1/65) = 0.05, meaning that there is a 95% chance that the probability of nuclear war within an upcoming year is somewhere between 0 and 0.05. Note that this calculation assumes (perhaps erroneously) that the 65 non-failures are independent random trials and that p is approximately constant over time, but it nonetheless provides a starting point for estimating the probability of unprecedented events. Barrett et al. (2013) uses a similar approach as part of a validation check of a broader risk analysis of U.S.-Russia nuclear war. The second form of the mistake is to posit that the ongoing existence of human civilization proves that global catastrophes will not occur. It is true that civilization’s continued existence despite some past threats should provide some comfort, but it should only provide some comfort. Consider this: if a global catastrophe had previously occurred, nobody would still be around to ponder the matter (at least for catastrophes causing human extinction). The fact of being able to observe one’s continued survival is contingent upon having survived. While it is easy to see that this is a mistake, it is harder to correct for it. Again, it requires careful application of probability theory, correcting for what is known as an observation selection effect (Bostrom 2002b, Ćirković 4 et al. 2010). The basic idea is to build the existence of the observer into probability estimates for catastrophes that would eliminate future observers. The result is probability estimates unbiased by the observer’s existence, with global catastrophe probability estimates typically revised upwards. The third form of the mistake is to posit that, because humanity has survived previous catastrophes, or risks of catastrophes, therefore it will survive future ones. This mistake is especially pervasive in discussions of nuclear war. People sometimes observe that no nuclear war has ever occurred and cite this as evidence to conclude that therefore nuclear deterrence and the fear of mutually assured destruction will indefinitely continue to keep the world safe (for discussion see Sagan and Waltz 2013). But there have been several near misses, from the 1962 Cuban missile crisis to the 1995 Norwegian rocket incident, and there is no guarantee that nuclear war will be avoided into the distant future. Similarly, just because no pandemic has ever killed the majority of people (Black Death killed about 22%), or just because early predictions about the rise of artificial intelligence proved false (they expected human-level AI within decades that have long since come and gone; see Crevier 1993; McCorduck 2004), it does not necessarily follow that no pandemics would be so lethal, or that AI cannot reach the lofty heights of the early predictions. Careful risk analysis can correct for the third form by looking at the full sequences of events that would lead to particular global catastrophes. For example, nuclear weapons in the United States are launched following a sequence of decisions by increasingly high ranking officials, ultimately including the President. This decision sequence can be built into a risk model, with model parameters estimated from historical data on how often each step in the decision sequence has been reached (Barrett et al. 2013). The more often near misses have occurred, and the nearer the misses were, the higher the probability of an eventual “hit” in the form of a nuclear war. The same analytic structure can be applied to other GCRs.

#### \*Extinction outweighs---it’s immensely painful and condemns billions to unwanted death.

Finneron 17 – PhD, faculty University of Warwick, Politics & International Studies, Coventry, UK (Elizabeth Finneron-Burns, “What’s wrong with human extinction?,” *Canadian Journal of Philosophy*, 47.2)

2.3. Existing people would endure physical pain and/or painful and/or premature deaths

Thinking about the ways in which human extinction might come about brings to the fore two more reasons it might be wrong. It could, for example, occur if all humans (or at least the critical number needed to be unable to replenish the population, leading to eventual extinction) underwent a sterilization procedure. Or perhaps it could come about due to anthropogenic climate change or a massive asteroid hitting the Earth and wiping out the species in the same way it did the dinosaurs millions of years ago. Each of these scenarios would involve significant physical and/or non-physical harms to existing people and their interests. Physically, people might suffer premature and possibly also painful deaths, for example. It is not hard to imagine examples in which the process of extinction could cause premature death. A nuclear winter that killed everyone or even just every woman under the age of 50 is a clear example of such a case. Obviously, some types of premature death themselves cannot be reasons to reject a principle. Every person dies eventually, sometimes earlier than the standard expected lifespan due to accidents or causes like spontaneously occurring incurable cancers. A cause such as disease is not a moral agent and therefore it cannot be wrong if it unavoidably kills a person prematurely. Scanlon says that the fact that a principle would reduce a person’s well-being gives that person a reason to reject the principle: ‘components of well-being figure prominently as grounds for reasonable rejection’ (Scanlon 1998, 214). However, it is not settled yet whether premature death is a setback to well-being. Some philosophers hold that death is a harm to the person who dies, whilst others argue that it is not.7 I will argue, however, that regardless of who is correct in that debate, being caused to die prematurely can be reason to reject a principle when it fails to show respect to the person as a rational agent. Scanlon says that recognizing others as rational beings with interests involves seeing reason to preserve life and prevent death: ‘appreciating the value of human life is primarily a matter of seeing human lives as something to be respected, where this involves seeing reasons not to destroy them, reasons to protect them, and reasons to want them to go well’ (Scanlon 1998, 104). The ‘respect for life’ in this case is a respect for the person living, not respect for human life in the abstract. This means that we can sometimes fail to protect human life without acting wrongfully if we still respect the person living. Scanlon gives the example of a person who faces a life of unending and extreme pain such that she wishes to end it by committing suicide. Scanlon does not think that the suicidal person shows a lack of respect for her own life by seeking to end it because the person whose life it is has no reason to want it to go on. This is important to note because it emphasizes the fact that the respect for human life is person-affecting. It is not wrong to murder because of the impersonal disvalue of death in general, but because taking someone’s life without their permission shows disrespect to that person. This supports its inclusion as a reason in the contractualist formula, regardless of what side ends up winning the ‘is death a harm?’ debate because even if death turns out not to harm the person who died, ending their life without their consent shows disrespect to that person. A person who could reject a principle permitting another to cause his or her premature death presumably does not wish to die at that time, or in that manner. Thus, if they are killed without their consent, their interests have not been taken into account, and they have a reason to reject the principle that allowed their premature death.8 This is as true in the case of death due to extinction as it is for death due to murder. However, physical pain may also be caused to existing people without killing them, but still resulting in human extinction. Imagine, for example, surgically removing everyone’s reproductive organs in order to prevent the creation of any future people. Another example could be a nuclear bomb that did not kill anyone, but did painfully render them infertile through illness or injury. These would be cases in which physical pain (through surgery or bombs) was inflicted on existing people and the extinction came about as a result of the painful incident rather than through death. Furthermore, one could imagine a situation in which a bomb (for example) killed enough people to cause extinction, but some people remained alive, but in terrible pain from injuries. It seems uncontroversial that the infliction of physical pain could be a reason to reject a principle. Although Scanlon says that an impact on well-being is not the only reason to reject principles, it plays a significant role, and indeed, most principles are likely to be rejected due to a negative impact on a person’s well-being, physical or otherwise. It may be queried here whether it is actually the involuntariness of the pain that is grounds for reasonable rejection rather than the physical pain itself because not all pain that a person suffers is involuntary. One can imagine acts that can cause physical pain that are not rejectable — base jumping or life-saving or improving surgery, for example. On the other hand, pushing someone off a cliff or cutting him with a scalpel against his will are clearly rejectable acts. The difference between the two cases is that in the former, the person having the pain inflicted has consented to that pain or risk of pain. My view is that they cannot be separated in these cases and it is involuntary physical pain that is the grounds for reasonable rejection. Thus, the fact that a principle would allow unwanted physical harm gives a person who would be subjected to that harm a reason to reject the principle.

## Case

#### Their studies are flawed — newest evidence

Walker 18 — Robert Walker (scientist and author, undergraduate degree in mathematics from York University, studied for a PhD at Wolfson College Oxford undergraduate degree in philosophy — taken as a masters, special interest in astronomy and space science, programmer, researcher — cellular automata, recreational mathematics, chemistry), 3-6-2018, "Debunking Doomsday — Debunked: Nuclear Winter and Radioactive Fallout," <https://debunkingdoomsday.quora.com/Debunked-Nuclear-Winter-and-Radioactive-Fallout-myths-1>, [accessed: 5/8/18] — JPark

There are many online pages and websites that seem very authoritative that say that even a limited nuclear war, say between India and Pakistan, would plunge the Earth into a ‘Nuclear winter’ with no crops able to grow, no plants, no animals, and people soon starving to extinction. This is fake news based on out dated or junk science. I am very much in favour of nuclear disarmament. I think that the UK should even disarm unilaterally, see my Is Corbyn Right About The Bomb?- Op Ed. But I think people need to know the truth in any topic like this and make decisions based on truth. I think it is important to speak up when a view is widely publicized that just about all scientists believe to be false, based on poorly supported research that they think will lead politicians to desired actions. Even if it has good political effects. In this case as well, it is also scaring people unnecessarily who are afraid that even a small nuclear war could plunge us all into a deep freeze. No, it would not, and the research suggesting this is fundamentally flawed and based on out of date ideas The expert scientists involved are sure that the older nuclear winter models were incorrect, based on their failed predictions for the Kuwaiti oil fires which they predicted would harm agriculture over much of Asia but it only had local short term effects. There were many who were skeptical all along, but that was what persuaded nearly all of the ones who still thought it was possible that their models were wrong. There is one notable remaining skeptic but his predictions are regarded as incorrect by the others due to fundamental flaws in the assumptions his models are based on.

SUMMARY

The nuclear winter predictions date back to some predictions in the 1970s based on their limited crude models on slow computers (by modern standards) with hardly any memory, just kilobytes. They tried to model what would happen to the soot from fires in cities during a nuclear war. They concluded that it would be lofted so high into the atmosphere that it would get above all the normal weather and linger there for a decade, nearly blocking out the sun completely world wide. Their predictions were so dramatic that a 'nuclear winter' is an understatement. Average world temperature -25 C. You are talking about the ocean freezing even right to the tropics, for ten years. It's no wonder that they gave it that name. It had the support by highly respected scientist. One of the authors of the original paper was Carl Sagan. But the models were based on flawed assumptions. Even at the time they were questioned. Nowadays just about all scientists involved, including ones that supported the hypothesis originally, are agreed that it would have little effect. It might no effect on temperature at all, except for a brief reduction of temperature locally during the fire itself as it turns day to night temporarily - since after all we have large areas burnt in wildfires every year with no effect. The scientists who did the nuclear winter work realized they had made a mistake in the modeling after the Kuwaiti oil fires. When the oil fields were left burning by the retreating troops, they predicted dire consequences for agriculture througout Asia. Instead it shaded out a small part of the gulf area with a slight reduction of temperature (similar to night time) for the duration of the fires (several months). This showed that there was something wrong with their models. After looking into it in more detail they decided that the soot doesn't rise nearly as high as they predicted in the atmosphere, and it tends to get washed out within days by rain. The combined effect is that the darkening is temporary and local instead of long term and global. So, nearly all scientists agreed on this, but Alan Robock published a paper in Physics Today in which he claimed that an all out exchange between Pakistan and India, of, say, 100 nuclear weapons would cool the Earth on average by a few degrees. The science in this paper was good except that he started it already pre-loaded with soot in the upper atmosphere. Remember the very reason the early models got discredited is because soot doesn’t rise as high as expected in the Kuwaiti oil fires. Nor does it with wildfires or the fires from the Dreden bombing - and Hiroshima and Nagasaki didn’t have fire storms at all. This paper doesn’t even discuss this question. It simply pre-loads the atmosphere with soot in the upper atmosphere, and from then on it follows the consequences. But that is the very point at contention - whether the soot would end up so high in the atmosphere. Everyone is agreed that there would be serious consequences if this happened but the evidence is that it can’t get there after the fires started in a nuclear war. To make it worse, Michio Kaku and Stephen Hawking have fallen behind this prediction. You might think this means it must be right. But far from it. These two scientists are the ones I most often have to debunk - they are just awful when it comes to fake doomsdays. They are okay within their own field of speciality - but outside it, they are not r, sadly. Stephen Hawking often promotes bizarre, even ridiculous fake doomsdays based on out of date or junk science, and Michio Kaku is worse, he just makes stuff up from his imagination, much like a script writer for Star Trek. The thing is - neither of them are specialists in nuclear war. They are both busy people who don’t seem to have the time to research things they come across in detail. They come across this paper on nuclear weapons that we've been talking about. They know no more about it than anyone else. But they find the idea compelling because they want the world to be in danger for whatever reason and jump on stories that say it is at risk. In the case of Stephen Hawking it is because he wants humans to go into space and colonize other planets and he thinks if he can prove to us that our planet is in danger we are more likely to do human space missions and eventually colonize other planets. For Michio Kaku I don’t know why he does it. Anyway for whatever reason they have both become gullible to junk science in fields outside their own specialitiy and say things that they would never say in their own area of expertise. If junk science plays to their beliefs or expectations they lose all critical thought. In the case of Michio Kaku then he also says things that just don’t make sense, misusing ideas of basic physics, such as confusing solar storms with radiation (i.e. confusing protons with gamma rays). For Stephen Hawking see Debunked: Stephen Hawking’s predictions of the world ending For Michio Kaku my answer to Is Michio Kaku a credible scientist? Here is a video with clips in which both of them claim that a nuclear war would lead to a nuclear winter, it’s not true, based on out of date or junk science: So, on to the detailed debunk

NO NUCLEAR WINTER

This was the big bug bear during the cold war. Carl Sagan and others calculated that an all out nuclear war, both the explosions themselves and the firestorms they created, would put so much dust into the upper atmosphere that it would cool the entire Earth for several years afterwards in a nuclear winter. The idea of a nuclear winter goes back to a 1983 paper predicting an average world temperature of -25 C following a global nuclear war. This is for an all out exchange of the nuclear weapons of US and Russia during the cold war. This is based on work with early primitive 1D models and very low resolution 3D models and based on many assumptions about how smoke from the fires would move in the atmosphere. These models had a lot of influence on thinking about the cold war and were widely respected and believed at the time, by the likes of Carl Sagan etc. Carl Sagan is a co-author. Here is an early interview with him warning about the potentially serious effects and saying that scientists had come together and were in general agreement about it.

[video clip]

However later their models were proved to be wrong with the Kuwaiti oil fires which did not behave as they predicted. Even at the time there was a fair bit of skepticism with some scientists writing that they thought that the ones who proposed a nuclear winter were politically motivated. Not that they were deceiptful of course, just that perhaps they were more easily persuaded by not such strong evidence due to their political persuasions about nuclear war. For instance there is a very skeptical paper from 1986, published in Nature, just 3 years after the Sagan paper: Emanuel, K. A. "Nuclear winter: Towards a scientific exercise." Nature 319.6051 (1986): 259-259. He says that following a model by Golding the soot would rise at 20 cm / second which is enough so that even in dry air, water would condense out and wash the soot out of the atmosphere before it got high enough to become a continent wide pall in the upper atmosphere (the moisture would condense out similarly to the way cummulus clouds form above rising air on a sunny day). Seitz was another early skeptic, writing in the same year (1986): “As the science progressed and more authentic sophistication was achieved in newer and more elegant models, the postulated effects headed downhill. By 1986, these worst-case effects had melted down from a year of arctic darkness to warmer temperatures than the cool months in Palm Beach! A new paradigm of broken clouds and cool spots had emerged. The once global hard frost had retreated back to the northern tundra. Mr. Sagan's elaborate conjecture had fallen prey to Murphy's lesser-known Second Law: If everything MUST go wrong, don't bet on it.” Those views were not widely accepted at the time. But eventually just about everyone, including Carl Sagan, came to change their views on nuclear winter, within six years of him writing that. So what happened? Well - their calculations turned out to be accurate for asteroid impacts. This is a significant issue though not an extinction causing one, for large asteroid impacts. They are also accurate for supervolcanoes which lift large amounts of ash into the upper atmosphere, not enough to cause a nuclear winter but enough for a supervolcano autumn. Their models are still accepted for both those scenarios. But several things happened to cast doubt on their calculations for nuclear weapons. First it’s important to realize, their models are not based on the idea of the immediate effects of the nuclear weapons. The explosion itself doesn’t loft anything like enough material to be of concern. That makes it different from an asteroid impact or volcanic eruption. Their model was instead based on the idea that the nuclear weapons would cause large scale fire storms in urban areas. They predicted that this soot, from ordinary fires, but very large ones, would be lofted up into the upper atmosphere. This is what they later came to realize was based on flawed reasoning and over simple models. In particular, when the Iraqis retreated after their invasion of Kuwait, then they set many oil wells alight. These created dense black smoke that turned day to night over large areas

[image omitted]

As reported for instance in the Baltimore times: Cornell University astronomer Carl Sagan says Saddam Hussein's orders to torch Kuwaiti oil wells, if carried far enough, could unleash smoke clouds that would disrupt agriculture across South Asia and darken skies around the world. "You need a very small lowering of the average temperatures of the Northern Hemisphere to have serious consequences for agriculture," Sagan said. Scientists in Maryland and Colorado say such a disaster would require fires at hundreds of wells burning for months, but they agreed the potential exists in Kuwait for a "very catastrophic" environmental event. Saddam Hussein of course did set the oil wells alight - and hundreds of them too. At the time then there were worries they would burn for five years. And there were 610 fires (others say 750) burnt uncontrolled from February through to May 1991 at which point the thousands of fire fighters had their equipment in place and began to put them out. Here is how they did it:

[video clip]

Longer video here

[video clip]

To begin with there were a lot of days when it was totally dark. And when you could see the sky it didn’t last for more than a few minutes and it was total darknes again. It was exactly the sort of scenario they had predicted for a nuclear winter, and they’d have expected at least major cooling effects and immense disruption of agriculture over most of Asia. But it didn’t have the widespread effects the scientists had expected. As Carl Sagan wrote in his Demon Haunted World, page 257: "it was pitch black at noon and temperatures dropped 4–6 °C over the Persian Gulf, but not much smoke reached stratospheric altitudes and Asia was spared.” For more about this background see the section in Wikidia’s Carl Sagan - Scientific and critical thinking advocacy This lead to them re-evaluating the models that lead to the nuclear winter prediction, which were rather crude, making many assumptions and approximations. They couldn’t be right to have got the predictions about the Kuwaiti oil fires so very wrong. The conclusion nowadays is that nuclear weapons most likely would not cause firestorms in cities, if they did, the smoke would rarely reach higher than 4 km. Also much more of Earth burns in wild fires every year without putting us into a nuclear winter scenario. Also modern nuclear bombs are smaller than they used to be. Both US and Russia have eliminated all bombs of more than one megaton. Only China has them now, with about 50 of them. To get the dust high enough for nuclear winter, above 70,000 feet you’d need bombs with yields much more than a megaton. Modern bombs would only throw the debris up to 60,000 to 70,000 feet which means the debris will rain to Earth within hours or days close to the point of impact. (from Allen E Hall's answer to In a total nuclear exchange where the entire worlds arsenals are used, how long would the nuclear winter last and would we survive? ) For a complete list of the nuclear weapons with their yields, see Russian nuclear forces, 2017 US nuclear forces, 2018 linked to from the World Nuclear Weapon Stockpile report Our nuclear arsenals are also much smaller than they were at the time of the nuclear winter calculations. Though - even with multi-megaton bombs, still, they mainly just lift rather small quantities of dust into the upper atmosphere and would not lift the vast amounts of soot which would come from the later firestorm. So in short, nuclear winter was based on poor science, as it turned out (refuted by the Kuwaiti fires), and probably even at the height of the cold war, we would not have been plunged into a nuclear winter. As it is now, certainly not.

NUCLEAR WINTER, NUCLEAR AUTUMN, OR NO GLOBAL CLIMATE EFFECTS?

So in short, nowadays most scientists who have researched into this say that even at the height of the cold war, we would not have been plunged into a nuclear winter. Here is the New York Times retro report on nuclear winter.

[video clip]

This is a paper about the suggestion mentioned towards the end of that report, that even a confrontation between Pakistan and India with 100 15 kt nuclear weapons (50 on each side) involved could have global effects. ". Our calculations show that global ozone losses of 20%–50% over populated areas, levels unprecedented in human history, would accompany the coldest average surface temperatures in the last 1000 years. We calculate summer enhancements in UV indices of 30%–80% over midlatitudes, suggesting widespread damage to human health, agriculture, and terrestrial and aquatic ecosystems. Killing frosts would reduce growing seasons by 10–40 days per year for 5 years. Surface temperatures would be reduced for more than 25 years due to thermal inertia and albedo effects in the ocean and expanded sea ice. The combined cooling and enhanced UV would put significant pressures on global food supplies and could trigger a global nuclear famine." So that is the polar opposite of those who say it would have no effect at all.. So, we have views at both ends of the spectrum here.

LIMITATIONS OF THE ROBOCK ET AL PAPER

The Robock et al paper is based on a model of a limited exchange of nuclear weapons (say for Pakistan and India) - and this model was 3D and quite detailed. However they didn't model the actual fires themselves, or the way the cities burn, or lofting of soot into the atmosphere or the interactions of the soot with water vapour in the atmosphere. They just started their model with the atmosphere pre-loaded with soot and then ran it forward. It gets its data about the soot in the upper atmosphere from those earlier pre-Kuwaiti fire simulations. See Local Nuclear War, Global Suffering It’s an accurate bit of research based on those assumptions. They did study what would happen if the atmosphere was pre-loaded in that way. What they don’t do is discuss whether or not a nuclear war could lead to such a scenario. That is the very point that lead Carl Sagan and the others to revise their models. So - it has been way over reported as saying more than it does. It just says what would happen if the early views on the soot in the upper atmosphere were correct. It is simply not relevant if those views are incorrect as the other scientists say. It does not attempt an explanation of what happened during the Kuwaiti oil fires.

WHAT WOULD REALY HAPPEN?

The situation is complicated. Though many fires would break out in cities, some of them may burn for only a short time. This section is based largely on remarks by William Cohen in his 2007 book Would they combine together to make a firestorm? They didn't for Nagasaki which was a city built largely of wood and paper, which would not be permitted with a modern city. That suggests that an airburst like the one for Nagasaki would not produce a firestsorm. They did for Hiroshima but that is probably for other reasons such as widespread use of charcoal burners, as noted in a report back in 1951. But then they might be ground burst weapons, so what difference does that make? What would the end result be in the atmosphere of the complex pattern of many different fires? What would the vertical distribution be? So, there might not even be extensive fires. If there are, then going by the example of the Kuwait fires then most of the carbon was distributed in the first few kilometers and did not reach the stratosphere. Also water vapour is another complicating factor. The fires themselves produce water vapour during combustion and more is taken in from the atmosphere and lofted high where it may form clouds, which then will tend to keep the surface warmer than it would be. Also once the fires stop - and unlike the Kuwaiti oil fires they would not burn for months but be over in a short while like any other large fire (weeks at most if forests catch fire) - the excess moisture rains out taking soot and dust with it. And if forests do catch fire - then it is like the forest fires we get every year - and they do not cause global winter, or indeed, have any widespread cooling effect at all, even when they are extensive and rage for weeks. The whole thing is very complex. Here is William Cohen talking about it in his 2007 book. He is one of the experts who started off by supporting Carl Sagan’s nuclear winter models but doesn't any more. (Many of the pages are made available for public viewing via google books through that link - enough to get a good idea of his main points). He mentions other information about large scale fires such as the Dresden bombing and forest fires which again do not inject large amounts of soot into the stratosphere. So in short it's a wide ranging debate. Some think that some form of a "nuclear autumn" is possible. Many think that there would be no global climate effects at all. The idea of a true nuclear winter, turning summer into winter, is no longer on the table, except for Alan Robok, who as far as I know has not given a good reason based on modern views of how fire plumes work for their pre-loading of the upper atmosphere, the main point at contention. It's still not a literal doomsday if there is a nuclear autumn. It's rather similar to the idea of a volcanic winter after a super volcano, where you'd need to grow different crops, adapted for a colder climate until the temperatures recover. I don't mean that in the sense it is easy of course, but it is possible. It is a very similar situation to the situation after a supervolcano, so I cover that in the section What really happens if Yellowstone erupts as a supervolcano, or if some other supervolcano erupts? But many would say that it wouldn’t even lead to a nuclear autumn. Just a local cooling for as long as the fires last, like the Kuwaiti case, and that as soon as the soot rains out, the whole thing is over.

RECENT SCATHING PAPER ABOUT THE NUCLEAR WINTER IDEA

There is a scathing paper in Nature from 2011 with some of the history by Seitz who as we saw was an early skeptic. Seitz, Russell. "Nuclear winter was and is debatable." Nature 475.7354 (2011): 37-37. For instance see the section: "As the truth slowly emerged, private skepticism turned often to public outrage, and not just among the "hawks." Prof. George Rathjens of MIT, chairman of the Council for a Livable World, offered this judgement: Nuclear Winter is the worst example of the misrepresentation of science to the public in my memory." " He is quoting from this paragraph by Goerge Rathjens published in 1986: "But in February 1986, NCAR's Dr. Schneider quietly informed a gathering at the NASA-Ames Laboratory that Nuclear Winter had succumbed to scientific progress and that, "in a severe" 6,500-megaton strategicexchange, "The Day After" might witness July temperatures upwards of 50-plus degrees Fahrenheit in mid-America. The depths of Nuclear Winter could no longer easily be distinguished from the coolest days of summer." See also Allen E Hall's answer to In a total nuclear exchange where the entire worlds arsenals are used, how long would the nuclear winter last and would we survive? There are lots of cites to follow up in the Wikipedia page on Nuclear Winter which will help. See it's Criticism and debate section.

WHAT ABOUT RADIOACTIVE FALLOUT

Thought the main focus of this is nuclear winter, I think it’s an idea to mention fallout as well as there are many misconceptions about this too. First, the entire southern hemisphere is a nuclear free zone, the worst of the radiation is so short lived it is over in half an hour, there is plenty of radiation left to have long term health effects, increased cancers and other health effects, but the levels of radiation that kill people quickly are soon finished with.

[image omitted]

The blue areas here are nuclear free. If we did have a global nuclear war - then there would be no nuclear bombs in those areas at all. Also the harshest radiation is over quickly, the lethal radiation is mostly over within half an hour. The idea that nuclear weapons would cause a nuclear winter has been shown to be false.

RADIATION FROM NUCLEAR WEAPONS WAY OVER EXAGGERATED

Also in science fiction and popular imagination the radiation from nuclear weapons is far more dangerous than it is in reality. After all this is modern Hiroshima

[video clip]

The most dangerous radiation is in the form of short lived isotopes which decay over time periods of seconds, to months. If you are close to the blast then you need to get shelter within half an hour to survive the radiation hazards, and if further away you need to find shelter within three hours.

Worldwide Effects of Nuclear War

Most of the radiation decays rapidly, but there would be local hot spots that would be dangerous for one to five years after the attack. Take your geiger counter with you! Or more likely, evacuate to a place that has not been attacked. Also a certain level of radioactivity is normal in the environment. Indeed we have always had slightly radioactive bodies long before nuclear testing, all animals do.

Are our bodies radioactive?

A nuclear war would kill millions, directly and indirectly - but it does not leave the Earth by any means uninhabitable and most of the World’s population would surely survive. If you are in one of the nuclear free zones, then you’d be hardly affected at all. The main long term effects would be from longer lived isotopes like caesium. Here in the UK we got iodine, cesium and strontium isotopes on our hills after the Chernobyl reactor explosion. Of those only caesium-137 was still a concern two decades later, but for more than two decades afterwards, the sheep farmers from the worst affected areas - from a reactor explosion 3,000 miles away - had to test their sheep with geiger counters before they could sell the meat. Sheep farmers still stuck under a Chernobyl cloud So - after a nuclear war there’d be restrictions like that over regions far from the war zones. We’d need Geiger counters for quite some time surely. But it would not make us extinct. The main issue would be an increased risk of cancer from eating radioactive food. So we’d need to be careful about food grown in the areas most affected by the fallout. And for a long period, for years, perhaps decades, we might need to be careful about meat from animals grazing on the grass affected by the fallout.

GROUND BURST ATTACKS

All that is for an air burst. However the earlier airburst weapons were replaced by smaller yield ground burst weapons which would target silos and weapons facilities in a first strike. If the nuclear weapon detonates on or below the ground, as it would in attacks on missile silos, then it can make the soil and other debris radioactive with longer lived isotopes as for the Castle Bravo atomic test which made areas of the Marshall islands uninhabitable even years later. In areas affected by this type of hazard you would need to stay in the shelters for days through to weeks and then once you could leave your shelters, it would still be as unhinhabitable in parts as the Marshall Islands. After a first strike which targetted weapons silos - then the second strike would be worse in its effect, because assuming all weapons were launched in the first strike, there would be no weapons silos to target, so then they would target industrial and military targets, many of which would be close to cities. They would be smaller bombs but designed for ground bursts. This would lead to more radiation locally and longer lived radiation, however less radiation globally. These revised scenarios based on military targets rather than civilian ones would of course still have huge effects as many would be targetted at cities and millions would be killed. Also because they are ground bursts, they would lead lead to more radiation effects locally, needing to stay in shelters for weeks and after you can leave your shelter, large parts of the country would be uninhabitable like the Marshall Islands due to long lived radioactiivty. But it's not a worldwide doomsday. Countries not involved in the conflict would not be much affected. A Some hot spots would have long term radioactivity if they had been hit by ground burst weapons.

HYDROGEN AIR BURSTS ARE RELATIVELY CLEAN

Also though modern weapons have a higher yield, its important to realize that hydrogen bombs actually cause much less nuclear fallout compared to their mass. The hydrogen part of the explosion is nuclear fusion and produces almost no nuclear fallout. Usually atmospheric tests were done on the ground or on towers and most of the worst radioactivity would come from dirt caught up in the explosion - atmospheric is a broad term and means any test that releases substantial amounts of radioactivity to the atmosphere. If their test was done higher in the atmosphere then it would have much less radioactivity than most past atmospheric tests. That's because there isn't much in a nuclear weapon itself that can generate long lived radiation - it's from the ground or the sea. Any nuclear weapon in the atmosphere would contribute to the C14 in the atmosphere as a result of irradiation of Nitrogen. Remember we have had lots of radioactivity already from atmospheric testing in the past, hundreds of megatons. It would surely lead to an increase in global C14, not sure what else. With a hydrogen bomb most of the explosion is due to fusion of hydrogen to helium which is relatively clean. So in terms of radioactive fallout then exploding a hydrogen bomb in the atmosphere is not such a big concern as you'd think. The largest nuclear weapon ever tested, the Tsar Bomba by the Russians, yield 50 Mt was a hydrogen bomb exploded at a height of 4 km in the atmosphere. That’s far larger than anything North Korea is likely to test, and it was exploded in the air above a remote area of Russia, much closer to populated areas than a remote area in the Pacific. Though it was very powerful, it was relatively clean because most of the effects were due to nuclear fusion, which does not produce any radioactive byproducts, fusing hydrogen to helium. For background see: Partial Nuclear Test Ban Treaty - Wikipedia Comprehensive Nuclear-Test-Ban Treaty - Wikipedia Nuclear weapons testing - Wikipedia Tsar Bomba - Wikipedia This is a video of one of many atmospheric tests of hydrogen bombs done by the UK. I don’t think that many people know this, but we were only the third state to develop nuclear weapons, after the US and Russia, and before France and China. See List of states with nuclear weapons - Wikipedia So, the UK did many nuclear weapons tests in the early years.

[video clip]

To find out more about the UK series of hydrogen bomb atmospheric tests: Operation Grapple - Wikipedia

NOT TRUE THAT THERE ARE ENOUGH BOMBS TO KILL EVERYONE MANY TIMES OVER

All the bombs in the world detonated for maximum total area would cover 1/3 of the land area of the US. Allan Hill has a good calculation here If you take every weapon in existence today, approximately 6500 megatons between 15,000 warheads with an average yield of 433 KT, and put a single bomb in its own 100 square mile grid… one bomb per grid (10 miles x 10 miles), you will contain >95% of the destructive force of each bomb on average within the grid it is in. This means the total landmass to receive a destructive force from all the world's nuclear bombs is an area of 1.5 million square miles. Not quite half of the United States and 1/38 of the world's total land mass…. that's it! In truth it would be far less. A higher concentration of detonations would take place over military targets and would be likely 10–30 times greater in concentration over those areas. If they were used in war it is unlikely more than 40% would get used even in a total war situation. So the actual area of intense destruction in a nuclear war is somewhere between 150,000 and 300,000 square miles or 1/384 to 1/192 of the world’s land mass.

REITERATION - I THINK KNOWING THIS DOES NOT MAKE NUCLEAR WAR MORE LIKELY

As I said in the intro, the after effect of a nuclear war is horrific enough without needing to add in nuclear winter to make it even more horrific as a deterrent. I don't agree with Alan Hall on is conclusion that it makes nuclear war more likely to know that it doesn't cause nuclear winter. I also think myself that if one country was to drop a nuclear weapon on another and the other one didn't retaliate today - that it is very different from the case of the US and Japan. With Nagasaki and Hiroshima, the military leaders in the US, didn't realize the full horror of what they were doing. They also had got innured to levels of civilian casualties that nowadays would be unacceptable through such things as fire bombing of Dresden. They thought of it as just another fire bombing like the others done before. Also they had already done carpet bombing of many cities in Japan. Indeed an earlier attack on Tokyo was more devastating than Hiroshima. If anyone did the equivalent of the fire bombing of Dresden in the present day political climate - they would find themselves isolated, with universal condemnation from all the other countries. Also we are much more interconnected now. In the modern world such an isolated country can't survive long, it would be a political disaster for them, lose all their influence in the world. Would the US have any power in the UN or have any political say in negotiations, any moral clout at all if it had dropped a nuclear weapon on another country either without nuclear weapons, or one that didn’t retaliate? Or would the Russia either? They would surely also get really strong united trade embargoes as well, as other countries would do whatever they could to express there disapproval and not to align with them in any way at all. If the other country has nuclear weapons and retaliates it's different. So it makes a big difference if both sides in the conflict have used nuclear weapons. I think that makes the most logical response of any leader to first not do a first strike, and second, not to retaliate in kind if another country drops a nuclear weapon on you. Whether a leader of a country with nuclear weapons would be so logical in the heat of a war I don't know, but there are at least some people prepared to say they wouldn't launch nuclear weapons in any circumstances. If Jeremy Corbyn gets elected as PM of the UK in some future election, we will have such a leader here, Also, why would nuclear weapons be treated differently from fire bombing? The US could easily threaten to firebomb any city in the world as a deterrent, and we’d think that was a horrific thing to do. So why is it treated as acceptable to threaten to drop nuclear weapons as a deterrent? Also Ward Wilson with examples from our recent past including the bombing of London, of German cities and of the Japanese cities suggests that bombing cities has never worked as a deterrent. He disputes the idea that the bombs on Hiroshima and Nagasaki ended the war with Japan. He thinks it was the Russian involvement that did that and that the Japanese leaders only ceased on Hiroshima and Nagasaki as a face saving way of acknowledging defeat, that they were defeated because of inconcievable technology rather than because of the Russians. They rarely even mentioned the destruction of cities before then.

See his THE MYTH OF NUCLEAR DETERRENCE

Anyway - so hopefully at some point we achieve total nuclear disarmament. Meanwhile, it’s good to know it can’t make us extinct and that those who live in nuclear free zones would be hardly affected at all even after a global nuclear war involving all the nuclear weapon holding states. Which hopefully also can eventually become a strong incentive for other countries to develop nuclear weapon free areas. I of course am strongly in favour of a nuclear weapon free Europe for instance. If we can get the idea accepted generally that nuclear weapon free zones make you safer, and that possessing nuclear weapons or relying on protection by a nuclear weapon owning state does not make you safer, we’d be well on the way to total nuclear disarmament I think.

UN NEGOTIATIONS TO ELIMINATE ALL NUCLEAR WEAPONS

The UN is going to start negotiating a new treaty to eliminate all nuclear weapons. 123 nations have signed it, the main exceptions, apart from Australia, are the nuclear weapon holding nations. Basically the nations that currently have nuclear weapons are just about the only ones who think they help preserve peace. So - far from being widely accepted as maintaining peace or desirable, the idea that we should hold nuclear weapons is not the norm at all. The majority of nations don’t want them and don’t want anyone else to have them either and don’t feel they need their protection. Based on that, I think there is a real prospect of eventual total nuclear disarmament but somehow the small number of nuclear weapon holding states have to get on board with it as well, and get involved in measures for serious arms reductions once more. UN votes to start negotiating treaty to ban nuclear weapons

### AT: Blackholes

#### No blackholes

Carpineti 18 — Alfredo Carpineti (certified doctor of the stars and a master of the quirky world of the quantum), 10-1-2018, “"Despite What You May Have Heard, The Earth Is Not About To Start Shrinking Uncontrollably," IFLScience, https://www.iflscience.com/physics/no-particle-accelerators-are-not-going-to-shrink-the-earth/all/

“Maybe a black hole could form, and then suck in everything around it,” Rees wrote, reports the Telegraph. “The second scary possibility is that the quarks would reassemble themselves into compressed objects called strangelets." “That in itself would be harmless," he explained. "However, under some hypotheses a strangelet could, by contagion, convert anything else it encounters into a new form of matter, transforming the entire Earth in a hyperdense sphere about one hundred metres across.” This is not the first time that Rees has publically mentioned this strangelet hypothesis. It has been around in popular media long enough that it often pops up in arguments against particle accelerators. It’s either black holes or strangelets. Two law professors even used it in their argument to commission a look at the risk of the Brookhaven National Laboratory’s Relativistic Heavy Ion Collider destroying the Earth. (The risk is vastly exaggerated.) So, is the risk of Earth being shrunk real? Firstly, let’s talk about the nature of strangelets. Strangelets are hypothetical particles that have a surprisingly large number of quarks. In particular, they have the three lightest quarks – up and down quarks (which make up every nucleus), and a strange quark that has the same charge as the down quark but is 19 times heavier. Strangelets could possibly be created at extremely high energy, such as in particle accelerators, but also by many natural events. They could also make up neutron stars, the extremely high-density remains of certain supernovae. So why are they "scary"? It depends on a particular series of hypotheses. Strangelets might be even more peculiar than thought. While most things in the universe like to be in the simplest state, with the lowest possible amount of energy, strangelets may be more stable the bigger they are. They reach stability by turning regular matter into strange matter, so, hypothetically, producing strangelets could create a chain reaction that would over time turn every atom on Earth into a strangelet and eventually condense our entire planet into a single very dense sphere. “Innovation is often hazardous, but if we don’t forgo risks we may forgo benefits,” Rees wrote. “Nevertheless, physicists should be circumspect about carrying out experiments that generate conditions with no precedent, even in the cosmos.” Fair enough, but so far no experiment has generated conditions that have never existed in the cosmos. Cosmic rays can hit the atmosphere with energies similar to what is produced in particle accelerators, and the much rarer ultra-high-energy cosmic rays could produce strangelets directly hitting our atmosphere. OK, they have not been discovered yet but if they can be produced at these energies, they still won’t lead to a shrunken Earth. After all, cosmic rays have been hitting our planet for billions of years and it is still here.

#### \*No risk of black holes

Easterbrook 3 — Gregg Easterbrook (Senior Fellow – New Republic), July 2003, “We’re All Gonna Die!”, Wired Magazine, http://www.wired.com/wired/archive/11.07/doomsday.html?pg=1&topic=&topic\_set=)

6. Voracious black holes! A supermassive black hole roughly the weight of 3 million suns almost certainly occupies the center of the Milky Way. And smaller (actually, lighter) ones are probably wandering around in space.

If such a rogue black hole happened to find its way into the solar system, its gravitational influence would disrupt the orbits of all the planets and their moons. Earth might slingshot out of the temperate range it now occupies and into frigid reaches more familiar to Mars, or it might be pushed closer to the sun to be singed, charred, or vaporized. Worse, if a sufficiently large black hole were to pass through the globe, it might be lights-out in more ways than one. The planet would be sucked into a vortex of such intense gravity that nothing would escape. The atoms that once made up Earth would be crushed out of existence as it's currently understood. An encounter between Earth and a black hole is astronomically, as it were, improbable. However, collisions with supermassive objects of any kind would not be survivable.

### Antro Stuff

#### Tech solves biodiversity — it’s key to monitoring, policy agreements, and conservation

Berger-Tal 18 — Oded Berger‐Tal (Mitrani Department of Desert Ecology, Jacob Blaustein Institutes for Desert Research, Ben‐Gurion University of the Negev, Misreshet Ben‐Gurion, Israel Conservation Technology Working GroupSociety for Conservation Biology), 4-1-2018, "Conservation technology: The next generation," <https://onlinelibrary.wiley.com/doi/full/10.1111/conl.12458>, [accessed: 8/30/18] — JPark

Abstract

Attitudes among conservation biologists toward technological innovations and solutions have changed over the years from mistrusting and dismissive to widely accepting. However, the time has come for the conservation community to move from being technology consumers to become innovation leaders and to actively seek to create novel technologies to provide conservation tools and solutions. This challenging but critical mind‐set change requires thinking outside the box to establish and support the necessary bridges between the conservation community, technologists in both the public and the private sectors, and policy makers. The ingredients already exist, but success hinges on an open mind to new types of interactions, and bold but coordinated movements to nurture the organisational ecosystem in which such collaborations can thrive and be funded.

1 INTRODUCTION

The term ‘technology’ has a broad meaning which encompasses practically any expression of human ingenuity applied to solving practical problems and thriving as a species. A key distinction can be made between the design and production of physical tools, devices and machines, nowadays often requiring electronics, and more abstract methods such as mathematical algorithms, statistical techniques or computer software (Brian, 2009). Ecologists and conservation biologists play a prominent role in the advancement of the latter type of technological innovations (e.g., Anderson & May, 1992). However, for the purpose of this article we use the more restrictive definition of the term ‘technology’ found in the Oxford Dictionary—“Machinery and devices developed from scientific knowledge” (Oxford Living Dictionary Online, 2017). The role of such technological innovations in modern conservation biology has changed drastically over the last several decades. In fact, less than 30 years ago, the reliance on technology to solve conservation problems has been hailed as short‐sighted and self‐defeating, concentrating on treating the symptoms and not the disease (Meffe, 1992), and often considered only as a last possible resort (Conway, 1986). However, the field of conservation biology has grown through several paradigm shifts in the last few decades and the current prevailing approach to conservation is interdisciplinary at its core (Mace, 2014). These paradigm shifts, along with the continuous decline in biodiversity and the devastating effects of climate change on one hand, and the rapid development of better, cheaper and easily available technologies on the other, have made technological tools a common and indispensable part of conservation work today (Pimm et al., 2015; Snaddon, Petrokofsky, Jepson, & Willis, 2013). Technology provides key tools to collect more and better data and to improve the monitoring of wildlife, habitats and threats, thereby assisting management decisions (technological enablers). Monitoring is also an integral part of biodiversity‐related international policy agreements such as the Aichi Biodiversity Targets of the Convention on Biological Diversity and some of the United Nation's Sustainable Development Goals. Technology can also provide tools to aid conservation action on the ground, including fighting illegal activities that threaten biodiversity or reducing pollution (technological solutions). Such tools could empower conservation organisations as well as officials in charge of implementing related policy such as halting illegal harvesting and trafficking (e.g., CITES1). Examples of the uses of technology in conservation abound. GPS and other telemetry technologies (e.g., sensor tags, camera traps) are commonly used to monitor both extant and reintroduced populations in greater and greater detail (Berger‐Tal & Saltz, 2014; Hussey et al., 2015; Kays, Crofoot, Jetz, & Wikelski, 2015). Remote sensing, whether through satellites or drones, is increasingly applied to wildlife monitoring, land‐cover classification, and as a mitigation tool (e.g., early warning for poaching activities; Turner et al., 2003; Wich, 2015). The latest advancement in biotechnology and bioengineering are also increasingly changing our approach to species conservation. Pembient2 is offering to biofabricate wildlife products such as rhino horns or shark fins in order to combat poaching, the government of New Zealand is planning to use gene drive techniques such as CRISPR/Cas9 to assist with the eradication of all invasive predators by the year 2050 (Owens, 2017), and just as controversially, cloning technology is suggested as a driver of species de‐extinction (O'Brien, 2015). All of these examples and many more demonstrate that technology is both central for efficient conservation science and practice nowadays, as well as instrumental in defining the conservation paradigms of the future.

#### Institutional action is key to solve the harms of the K

Gandhi 7 — J.D. Candidate, University of Michigan Law School, 2008; M.A., Illinois State University, 2005 (Devadatta, “The Limits and Promise of Environmental Ethics: Eco-Socialist Thought and Anthropocentrism's Virtue,” 31 Environs Envtl. L. & Pol'y J. 35, Lexis)

The short answer to this question is that while there is a Red-Green combination in some limited facets of the global environmental movement, environmental ideologies often see a central focus on human needs and desires - "Anthropocentrism" - as hindering ecological interests. As the Stanford Encyclopedia of Philosophy puts it, When environmental ethics ("EE") emerged as a sub-discipline of philosophy in the early 1970s, it did so by posing a challenge to traditional anthropocentrism. In the first place, [EE] questioned the assumed moral superiority of human beings to members of other species on earth. In the second place, [EE] investigated the possibility of rational arguments for assigning intrinsic value to the natural environment and its nonhuman contents. 2 Philosopher William Grey notes that "indeed the search for a credible non-anthropocentric basis for value in nature has been the central preoccupation of environmental philosophy." 3 Grey says that anthropocentrism "is used to draw attention to a systematic and unjustified bias in traditional Western attitudes to the non-human world." 4 [37] In this Article, I argue that deemphasizing human-centered approaches to environmental problems is problematic. Prominent elements of Western environmental ethics do not adequately consider the fundamental link between economic deprivation and environmental degradation, neglecting to give sufficient attention to an important human issue: class. There is, in essence, a shortage of "Watermelons." Environmentalism can benefit from directly adopting commonly shared democratic and anthropocentric values, for which aspects of Eco-Socialist thought can provide useful insights and an analytical framework for better understanding the causes and possible solutions to certain environmental problems. I first briefly explain the key elements of four prominent environmental philosophies that illustrate important aspects of the dominant anti-anthropocentric EE discourse: Deep Ecology, Ecocentrism, Garrett Hardin's Tragedy of the Commons, and William Ophuls's Neo-Hobbesianism. 5 I then analyze elements of Eco-Socialism in theory and practice. I explain that striving to find evidence of Marx's own environmental concern is a prominent academic aspect of Eco-Marxism. 6 However, a more fruitful aspect of Eco-Socialism lies in applying certain socialist and democratic ideas to environmental concerns. 7 As a recent analysis of the impact of EE in the United States illustrates, 8 EE has had a very limited influence on policy. Such a limited impact suggests a need for different theoretical underpinnings that more accurately reflect the inevitable and important interests of humans in environmental conflicts. Both EE [environmental ethics] as an academic sub-discipline and environmental activism generally can benefit from embracing an anthropocentric approach rather than rejecting such a perspective as insufficiently or inaptly motivated. 9

**Humanity save billions of species in the long run — future humans won’t degrade nature**

Matheny 7—Ph.D., Bloomberg School of Public Health, Johns Hopkins University(“Ought we worry about human extinction?”, http://jgmatheny.org/extinctionethics.htm)

Even without any change in public morals, it seems unlikely we will continue to use animals for very long – at least, nowhere near 50 billion per year. Our most brutal use of animals results not from sadism but from old appetites now satisfied with inefficient technologies that have not fundamentally changed in 10,000 years. Ours is the first century where newer technologies -- plant or in vitro meats, or meat from brainless animals -- could satisfy human appetites for meat more efficiently and safely (Edelman et al, 2005). As these technologies mature and become cheaper, they will likely replace conventional meat. If the use of sentient animals survives much beyond this century, we should be very surprised. This thought is a cure for misanthropy. As long as most humans in the future don't use sentient animals, the vast number of good lives we can create would outweigh any sins humanity has committed or is likely to commit. Even if it takes a century for animal farming to be replaced by vegetarianism (or in vitro meats or brainless farm animals), the century of factory farming would represent around 10^12 miserable life-years. That is one-billionth of the 10^21 animal life-years humanity could save by protecting Earth from asteroids for a billion years. The century of industrialized animal use would thus be the equivalent of a terrible pain that lasts one second in an otherwise happy 100-year life. To accept human extinction now would be like committing suicide to end an unpleasant itch. If human life is extinguished, all known animal life will be extinguished when the Sun enters its Red Giant phase, if not earlier. Despite its current mistreatment of other animals, humanity is the animal kingdom’s best long-term hope for survival.