### Space Dominance DA

#### US wins space race now due to private appropriation – its key to space dominance and militarization is good – the aff nukes the US’s silver bullet against Chinese aggression

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As Jeff Bezos, the wealthiest man on the planet, readies to launch himself into space aboard one of his own rockets, the world is watching the birth of a new dawn in space. Previously, America relied on its government agency, NASA, to propel it to the cosmos during the last space race with the Soviet Union. Today, America’s greatest hopes are with its private sector.

Jeff Bezos is not engaging in such risky behavior simply because he’s an adrenaline junky. No, he’s launching himself into orbit because his Blue Origins is in a titanic struggle with Elon Musk’s SpaceX — and Bezos’s firm is losing.

Whatever happens, the American people will benefit from the competition that is shaping up between America’s space entrepreneurs. This has always been how innovation occurs: through the dynamic, often cutthroat competition between actors in the private sector. While money is their ultimate prize, fame and fortune are also alluring temptations to make men like Musk and Bezos risk much of their wealth to change the world.

The private space race among these entrepreneurs is part of a far more important marathon between Red China and the United States. Whichever nation wins the new space race will determine the future of the earth below.

Consider this: Since winning its initial contracts to launch sensitive U.S. military satellites into orbit, SpaceX has lowered the cost of military satellite launches on taxpayers by “over a million dollars less” than what bigger defense contractors can do. Elon Musk is convinced that he can bring these costs down even more, thanks to his reusable Falcon 9 rocket.

The competition between the private space start-ups is fierce — just as the competition between Edison and Westinghouse was — but the upshot is ultimately greater innovation and lower costs for you and me. In fact, Elon Musk insists that if NASA gives SpaceX the contract for building the Human Landing System for the Artemis mission, NASA would return astronauts to the lunar surface by 2024 — four years before NASA believes it will do so. (Incidentally, 2024 is also when China anticipates having a functional base on the moon’s southern pole.)

Whereas China has an all-of-society approach to its space race with the United States, Washington has yet to fully galvanize the country in the way that John F. Kennedy rallied America to wage — and win — the space race in the Cold War. America’s private sector, therefore, is the silver bullet against China’s quest for total space dominance. If left unrestricted by meddlesome Washington bureaucrats, these companies will ensure that the United States retains its overall competitive advantage over China — and all other challengers, for that matter.

Indeed, the next four years could prove decisive in who will be victorious.

Enter the newly minted NASA director, Bill Nelson, whose station at the agency has effectively poured cold water on the private sector’s ambitious space plans. “Space is not going to be the Wild West for billionaires or anyone else looking to blast off,” Nelson admonished an inquiring reporter.

Why not?

America’s actions during its western expansion created a dynamic and advanced nation that was well-positioned to dominate the world for the next century. Should we not attempt to emulate this in order to remain dominant in the next century?

More important, this is precisely how China treats space: as a new Wild West . . . but one in which Beijing’s forces will dominate. China takes a leap-without-looking approach to space development — everything that can be done to further its grand ambition of becoming the world’s most dominant power by 2049 will be done. Meanwhile, the Biden administration wants to prevent America’s greatest strength, the free market, from helping to beat its foremost geopolitical competitor.

Nelson’s comments are fundamentally at odds with America’s spirit and animating principles. Whatever one’s opinion about Bezos or Musk, the fact is that their private space companies are inspiring greater innovation today in the space sector after years of its being left in the sclerotic hands of the U.S. government.

Sensing that the federal government’s dominance of U.S. space policy is waning, the Biden administration would rather cede the strategic high ground of space to China than let wildcatting innovators do the hard work. Today, the Federal Aviation Authority (FAA) and NASA are contriving new ways for strangling the budding private space sector, just as it is taking flight.

Risk aversion is not how one innovates. Risk is what led Americans to the moon just 66 years after the Wright brothers flew their first airplane. A willingness for risk doesn’t exist today in the federal government — which is why the feds shouldn’t be running space policy.

The U.S. government should be partnering with the new space start-ups, not shunning them. The FAA should be automatically approving SpaceX launches, not stymying them. The federal government will not win space any more than it could win the West or build the locomotive. It takes strong-willed, brilliant individuals of a rare caliber to do that. All government can do is to give the resources and support to private-sector innovators and let them make history for us.

The next decade will decide who wins space. Let it be America — and let America’s dynamic start-ups win that race, not China’s state capitalism.

#### And, space dominance key to global peace – nuclear and conventional deterrence is collapsing, which will provoke civilization-ending revisionist aggression from Russia and China

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The United States needs a new national security policy. For the first time in more than 60 years, we face the real possibility of a large-scale conventional war, and we are woefully unprepared.

Eastern and Central Europe is now so weakly defended as to virtually invite invasion. The United States is not about to go to nuclear war to defend any foreign country. So deterrence is dead, and, with the German army cut from 12 divisions to three, the British gone from the continent, and American forces down to a 30,000-troop tankless remnant, the only serious and committed ground force that stands between Russia and the Rhine is the Polish army. It’s not enough. Meanwhile, in Asia, the powerful growth of the Chinese economy promises that nation eventual overwhelming numerical force superiority in the region.

How can we restore the balance, creating a sufficiently powerful conventional force to deter aggression? It won’t be by matching potential adversaries tank for tank, division for division, replacement for replacement. Rather, the United States must seek to totally outgun them by obtaining a radical technological advantage. This can be done by achieving space supremacy.

To grasp the importance of space power, some historical perspective is required. Wars are fought for control of territory. Yet for thousands of years, victory on land has frequently been determined by dominance at sea. In the 20th century, victory on both land and sea almost invariably went to the power that controlled the air. In the 21st century, victory on land, sea or in the air will go to the power that controls space.

The critical military importance of space has been obscured by the fact that in the period since the United States has had space assets, all of our wars have been fought against minor powers that we could have defeated without them. Desert Storm has been called the first space war, because the allied forces made extensive use of GPS navigation satellites. However, if they had no such technology at their disposal, the end result would have been just the same. This has given some the impression that space forces are just a frill to real military power — a useful and convenient frill perhaps, but a frill nevertheless.

But consider how history might have changed had the Axis of World War II possessed reconnaissance satellites — merely one of many of today’s space-based assets — without the Allies having a matching capability. In that case, the Battle of the Atlantic would have gone to the U-boats, as they would have had infallible intelligence on the location of every convoy. Cut off from oil and other supplies, Britain would have fallen. On the Eastern front, every Soviet tank concentration would have been spotted in advance and wiped out by German air power, as would any surviving British ships or tanks in the Mediterranean and North Africa. In the Pacific, the battle of Midway would have gone very much the other way, as the Japanese would not have wasted their first deadly airstrike on the unsinkable island, but sunk the American carriers instead. With these gone, the remaining cruisers and destroyers in Adm. Frank Jack Fletcher’s fleet would have lacked air cover, and every one of them would have been hunted down and sunk by unopposed and omniscient Japanese air power. With the same certain fate awaiting any American ships that dared venture forth from the West Coast, Hawaii, Australia and New Zealand would then have fallen, and eventually China and India as well. With a monopoly of just one element of space power, the Axis would have won the war.

But modern space power involves far more than just reconnaissance satellites. The use of space-based GPS can endow munitions with 100 times greater accuracy, while space-based communications provide an unmatched capability of command and control of forces. Knock out the enemy’s reconnaissance satellites and he is effectively blind. Knock out his comsats and he is deaf. Knock out his navsats and he loses his aim. In any serious future conventional conflict, even between opponents as mismatched as Japan was against the United States — or Poland (with 1,000 tanks) is currently against Russia (with 12,000) — it is space power that will prove decisive.

Not only Europe, but the defense of the entire free world hangs upon this matter. For the past 70 years, U.S. Navy carrier task forces have controlled the world’s oceans, first making and then keeping the Pax Americana, which has done so much to secure and advance the human condition over the postwar period. But should there ever be another major conflict, an adversary possessing the ability to locate and target those carriers from space would be able to wipe them out with the push of a button. For this reason, it is imperative that the United States possess space capabilities that are so robust as to not only assure our own ability to operate in and through space, but also be able to comprehensively deny it to others.

*Space superiority* means having better space assets than an opponent. Space supremacy means being able to assert a complete monopoly of such capabilities. The latter is what we must have. If the United States can gain space supremacy, then the capability of any American ally can be multiplied by orders of magnitude, and with the support of the similarly multiplied striking power of our own land- and sea-based air and missile forces be made so formidable as to render any conventional attack unthinkable. On the other hand, should we fail to do so, we will remain so vulnerable as to increasingly invite aggression by ever-more-emboldened revanchist powers.

For this reason, both Russia and China have been developing and actively testing antisatellite (ASAT) systems. Up till now, the systems they have been testing have been ground launched, designed to orbit a few times and then collide with and destroy targets below one thousand kilometers altitude. This is sufficient to take out our reconnaissance satellites but not our GPS and communications satellites, which fly at twenty thousand and thirty-six thousand kilometers respectively. However, the means to reach these are straightforward, and, given their critical importance to us, there is every reason to believe that such development is well underway.11

The Obama administration sought to dissuade adversaries from developing ASATs by setting a good example and not working on them ourselves. This approach has failed. As a consequence, many defense policy makers are now advocating that we move aggressively to develop ASATs of our own. While more hardheaded than the previous policy, such an approach remains entirely inadequate to the situation.

The United States armed forces are far more dependent upon space assets than any potential opponent. Were both sides in a conflict able to destroy the space assets of the other, we would be the overwhelming loser by the exchange.

#### Space dominance solves hegemony – deterrence strategies, even rudimentary ones, are perceived as weakness and causes aggression

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While space superiority and space dominance share a militarized view of space, there are fundamental differences in their stated end goals. Those who favor space superiority view space as a global commons, accessible to all in peacetime. They take a more defensive and reactive view of space and the actors who seek access to this domain. The space superiority model understands that U.S. dependence on space is vital for the basic functioning of American civilization (banking transactions, cell phone signals, GPS functions, television broadcasts, as well as essential military surveillance and support functions all across satellites in space). Yet, this model also accepts that current budgetary constraints mean that the United States is unlikely to invest significantly more into unwieldy and expensive space systems.

A strategy of space superiority accepts the risk arising from reliance on space systems, while deterring attacks on space assets. As actors such as China or Russia become increasingly dependent on space systems themselves, space superiority advocates believe that U.S. willingness to retaliate in kind against any attack on its own space assets is sufficient.7 This is in keeping with the classic deterrence model of Mutual Assured Destruction (MAD).

Unfortunately, however, U.S. dependence on space assets for its very survival is so much greater than any other state that such a threat is unrealistic. The reason that states like China or Russia are developing counter-space capabilities is because the cost to them is extremely low, whereas the benefit for them (in the event of war with the United States) is high. For the cost of a ground-based laser or an anti-satellite (ASAT) missile launcher, China could knock out the ability of all U.S. forces in the Pacific to coordinate and adequately defend themselves from a Chinese offensive.

What could the United States do to the Chinese in return? The best option for U.S. retaliation in space would be to launch some blinding attacks on the handful of China's space assets. However, this ultimately would not deter China from escalating any future conflict since China's investment in space is so low compared to that of the United States. In addition, since Chinese forces are designed to operate in an environment without those assets, such retaliation grounded on deterrence-based models becomes highly problematic and ineffective.

Rather than serving as a stabilizing force in space, then, the defensive and reactive space superiority model would be an inducement for conflict in the strategic high ground of space. Or, rather, the direction of attack would be unidirectional: from U.S. adversaries toward essential U.S. space systems. Thus, while space confers unequivocal advantages to the U.S. forces that depend on space assets for their vital functions, it also provides adversaries with an unprecedented weakness for them to exploit.

The fact is that United States, China, or Russia's dependence on space is asymmetrical. Over the long run, a deterrent-based, space superiority model would eventually allow other states not only to gain and maintain access to space, but also effectively to gain strategic parity with the United States in space. Make no mistake, the more that states are able to access space, no matter how nascent or rudimentary their space programs may be, the more they will refine their capabilities and be able to develop space programs for their own strategic ends. While most defense analysts believe that deterrence during the Cold War led to bipolar stability, a deterrence-based model in space would create instability. If a near-peer competitor like China or Russia believed that it had acquired the capacity to achieve parity with the United States, what would stop that state from trying to gain strategic advantage over America in space?

A Hegemonic Model

The best solution to avoid this situation is a hegemonic model. The only way that the United States can ensure its continued strategic advantage in space is to embrace fully the space dominance model by weaponizing space. While space superiority advocates will denounce this policy as both cost-ineffective and destabilizing, a hegemonic approach to space is far more in keeping with U.S. traditions and values. Indeed, as John Lewis Gaddis asserts, the American response to foreign threat is traditionally to take “the offensive, by becoming more conspicuous, by confronting, neutralizing, and if possible overwhelming the sources of danger rather than fleeing from them. Expansion, we have assumed, is the path to security.”8

What of the claim that a deterrence-based space superiority model creates stability? The primary claim of deterrence efficacy is that during the Cold War, the more or less equal nuclear balance ensured that neither side had an incentive to launch a disarming first strike. This view was the basis of the mutual assured destruction theory. Since there was no conceivable advantage to either side from these weapons, both sides were forced into a more constructive diplomatic relationship. In all of the time that deterrence was employed, American policymakers assured the public that MAD was better than the alternatives—compellence,9 Rollback,10 and hegemony—because it restrained Soviet aggression.

American policymakers assumed that the Soviet strategists in the Kremlin viewed nuclear arms in the same apocalyptic terms that they did. As such, U.S. policymakers were not only content to allow American nuclear dominance to erode, but also to degrade actively those capabilities through strategic arms agreements. In the meantime, until 1986, mainstream Soviet strategists and policymakers were convinced that they could prevail in a nuclear war. They were just biding their time.11

In this light then, deterrence was not built around the concept of enlightened self-interest, but more likely the result of U.S. policymakers’ inability to see through the fog of the Cold War. The Soviets were by definition a revolutionary power. Even after they had renounced the concept of spreading global communist revolution, however, the urge to transform fundamentally the world order to reflect their own image remained a high strategic priority for the USSR. The United States failed to discern this situation until the Reagan Administration.

President Ronald Reagan, rather than accept the Cold War deterrence paradigm, planned to bring American technical and strategic dominance to bear in space in order to help defeat the Soviet Union. Reagan also recognized that the demilitarized sanctuary view of space was irrelevant, and he eschewed arms control agreements that sought to counteract the inherent American advantages in space. President Reagan not only embraced a militarized view of space, but in 1983, he also called for the weaponization of space

with his Strategic Defense Initiative (SDI).

By the 1980s, the United States was becoming increasingly dependent on space for military purposes (primarily in the area of satellites). These space systems formed the backbone of the modern military force that Reagan was assembling to counter the Soviet Union. What is more, Reagan's preferred strategy of Rollback meant that the United States would no longer sacrifice its own strategic advantages on the altar of diplomacy. After all, Reagan did not accept the Soviets as an equal and legitimate global power. He detested communism and viewed its proponents in the USSR as the great villains on the world stage. Furthermore, Reagan was staunchly opposed to nuclear weapons. Therefore, he sought to remove the notion of deterrence through MAD and replace it with the concept of hegemony through “Mutual Assured Survival.”

These views coalesced into the Reagan Administration's commitment to placing missile defense systems in orbit. It also called for developing new technologies (i.e., directed-energy weapons) to be used in space. The United States would not only remove the threat of the Soviet nuclear arsenal by creating a working missile defense system in space, but it would also move beyond the Soviet threat by permanently dominating the high ground of space. This position was the basis of SDI.12 In fact, the Reagan Administration's shift in focus was a key factor in the collapse of the Soviet Union as the Soviet leadership then embarked on a tit-for-tat arms buildup that their economy simply could not sustain. 13

Even if deterrence did facilitate a significant reduction in hostility—thereby creating the bipolar stability—no such hope for stability exists in space today. As argued earlier, U.S. reliance on space assets for its most basic functions is far greater than that of other countries. Furthermore, there is no way that the United States can—or should—abandon its use of space as a strategic domain. Thus, a hegemonic model for space dominance is the only hope to create the stability that most planners seek, while at the same time defending the American position in space.

Space dominance as a model for stability is nothing new. Indeed, Hegemonic Stability Theory (HST) asserts that the most stable global systems are those in which one actor dominates the system. In such a system, power is aggregated so greatly into a single, dominant actor that such a hegemonic power acts as a stabilizing force. Due to its relative strength, the hegemonic power can set the agenda and the rules that govern the system. The relative weakness of the other actors in the system is well understood, which then prompts these weak actors to abandon any hope of challenging the hegemonic power's rule. Eventually, they end up accommodating the hegemonic power. The lack of challenge creates peaceful stability.14 The fact that one actor is setting the rules means that the system is simple to operate in, as well.

The same logic that buttresses the HST international relations theory arguably undergirds the military strategy of space dominance. If this claim is so, then American hegemony in space is essential for the continued survival of the United States. Whereas there are legitimate arguments to be made regarding the reliance on deterrence-based models for creating stability during the Cold War, the fact is that the world is more multipolar today than it was 25 years ago. Despite what writer Fareed Zakaria has dubbed “the rise of the rest,”15 the United States still retains greater relative power. Therefore, it is inevitable and logical that the United States should expand its hegemonic position in space, in order to secure its place there.

Whereas deterrence-based models, such as space superiority, may have worked in a less chaotic international system, no such stability can be achieved today. Many of America's competitors are revanchist states intent on redefining the world order. They are not interested in preserving the American position in space. Also, they are not cowed by a U.S. deterrence strategy in space. Rather, they view such a policy as a concession that the United States is becoming weaker.

Space dominance would create greater stability than space superiority. Missile defense systems, tungsten rods, and even directed-energy weapons potentially would all be placed in key orbits around the Earth. This, on top of the existing U.S. space infrastructure, would prove to the world that the United States is committed to preserving its position in space. In a world of rogue states, space-based weapons likely would prevent surprise nuclear attacks. Failing that, the fact that the United States possessed strategic, offensive weapons in orbit—that could be brought down against any hostile actor—undoubtedly, would make even the most intractable foe hesitant.

It is arguable that overwhelming U.S. space power would trickle down from the strategic high ground to lower strategic domains. Rather than wasting time demonstrating resolve by “temporarily blinding Chinese satellites,”16 for example, the overwhelming American presence in space presumably would dissuade potential attackers.

#### US hegemony prevents great-power conflicts that escalates to nuclear war

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Each of these geopolitical challenges is different, and each reflects the distinctive interests, ambitions, and history of the country undertaking it. Yet there is growing cooperation between the countries that are challenging the regional pillars of the U.S.-led order. Russia and China have collaborated on issues such as energy, sales and development of military technology, opposition to additional U.S. military deployments on the Korean peninsula, and military exercises from the South China Sea to the Baltic. In Syria, Iran provided the shock troops that helped keep Russia’s ally, Bashar al-Assad, in power, as Moscow provided the air power and the diplomatic cover. “Our cooperation can isolate America,” supreme leader Ali Khamenei told Putin in 2017. 34 More broadly, what links these challenges together is their opposition to the constellation of power, norms, and relationships that the U.S.-led order entails, and in their propensity to use violence, coercion, and intimidation as means of making that opposition effective. Taken collectively, these challenges constitute a geopolitical sea change from the post– Cold War era.

The revival of great-power competition entails higher international tensions than the world has known for decades, and the revival of arms races, security dilemmas, and other artifacts of a more dangerous past. It entails sharper conflicts over the international rules of the road on issues ranging from freedom of navigation to the illegitimacy of altering borders by force, and intensifying competitions over states that reside at the intersection of rival powers’ areas of interest. It requires confronting the prospect that rival powers could overturn the favorable regional balances that have underpinned the U.S.-led order for decades, and that they might construct rival spheres of influence from which America and the liberal ideas it has long promoted would be excluded. Finally, it necessitates recognizing that great-power rivalry could lead to great-power war, a prospect that seemed to have followed the Soviet empire onto the ash heap of history.

Both Beijing and Moscow are, after all, optimizing their forces and exercising aggressively in preparation for potential conflicts with the United States and its allies; Russian doctrine explicitly emphasizes the limited use of nuclear weapons to achieve escalation dominance in a war with Washington.35 In Syria, U.S. and Russian forces even came into deadly contact in early 2018. American airpower decimated a contingent of government-sponsored Russian mercenaries that was attacking a base at which U.S. troops were present, an incident demonstrating the increasing boldness of Russian operations and the corresponding potential for escalation.36 The world has not yet returned to the epic clashes for global dominance that characterized the twentieth century, but it has returned to the historical norm of great-power struggle, with all the associated dangers.

Those dangers may be even greater than most observers appreciate, because if today’s great-power competitions are still most intense at the regional level, who is to say where these competitions will end? By all appearances, Russia does not simply want to be a “regional power” (as Obama cuttingly described it) that dominates South Ossetia and Crimea.37 It aspires to the deep European and extra-regional impact that previous incarnations of the Russian state enjoyed. Why else would Putin boast about how far his troops can drive into Eastern Europe? Why else would Moscow be deploying military power into the Middle East? Why else would it be continuing to cultivate intelligence and military relationships in regions as remote as Latin America?

Likewise, China is today focused primarily on securing its own geopolitical neighborhood, but its ambitions for tomorrow are clearly much bolder. Beijing probably does not envision itself fully overthrowing the international order, simply because it has profi ted far too much from the U.S.-anchored global economy. Yet China has nonetheless positioned itself for a global challenge to U.S. influence. Chinese military forces are deploying ever farther from China’s immediate periphery; Beijing has projected power into the Arctic and established bases and logistical points in the Indian Ocean and Horn of Africa. Popular Chinese movies depict Beijing replacing Washington as the dominant actor in sub-Saharan Africa—a fi ctional representation of a real-life effort long under way. The Belt and Road Initiative bespeaks an aspiration to link China to countries throughout Central Asia, the Middle East, and Europe; BRI, AIIB, and RCEP look like the beginning of an alternative institutional architecture to rival Washington’s. In 2017, Xi Jinping told the Nineteenth National Congress of the Chinese Communist Party that Beijing could now “take center stage in the world” and act as an alternative to U.S. leadership.38

These ambitions may or may not be realistic. But they demonstrate just how signifi cantly the world’s leading authoritarian powers desire to shift the global environment over time. The revisionism we are seeing today may therefore be only the beginning. As China’s power continues to grow, or if it is successful in dominating the Western Pacifi c, it will surely move on to grander endeavors. If Russia reconsolidates control over the former Soviet space, it may seek to bring parts of the former Warsaw Pact to heel. Historically, this has been a recurring pattern of great-power behavior—interests expand with power, the appetite grows with the eating, risk-taking increases as early gambles are seen to pay off.39 This pattern is precisely why the revival of great-power competition is so concerning—because geopolitical revisionism by unsatisfied major powers has so often presaged intensifying international conflict, confrontation, and even war. The great-power behavior occurring today represents the warning light flashing on the dashboard. It tells us there may be still-greater traumas to come.

## Fwk

#### A] Governments have to aggregate since all collective actions require trade-offs that benefit some and worsen others- side-constraints freeze action and render ethics inoperable- takes-out and turns calc indicts- consequentialism is hard but not impossible, it’s empirically false since we calculate all the time, and the alt is no action which is worse

#### B] Only consequentialism treats agents equally since it values their well-being the same- public officials have special obligations by virtue of their role to benefit its people in an equal manner

#### [C] Existential threats deserve serious consideration in your ethical calculus- moral uncertainty and future gens

Pummer 15 — (Theron Pummer, Junior Research Fellow in Philosophy at St. Anne's College, University of Oxford, “Moral Agreement on Saving the World“, Practical Ethics University of Oxford, 5-18-2015, Available Online at http://blog.practicalethics.ox.ac.uk/2015/05/moral-agreement-on-saving-the-world/, accessed 7-2-2018, HKR-AM) \*\*we do not endorse ableist language=

There appears to be lot of disagreement in moral philosophy. Whether these many apparent disagreements are deep and irresolvable, I believe there is at least one thing it is reasonable to agree on right now, whatever general moral view we adopt: that it is very important to reduce the risk that all intelligent beings on this planet are eliminated by an enormous catastrophe, such as a nuclear war. How we might in fact try to reduce such existential risks is discussed elsewhere. My claim here is only that we – whether we’re consequentialists, deontologists, or virtue ethicists – should all agree that we should try to save the world. According to consequentialism, we should maximize the good, where this is taken to be the goodness, from an impartial perspective, of outcomes. Clearly one thing that makes an outcome good is that the people in it are doing well. There is little disagreement here. If the happiness or well-being of possible future people is just as important as that of people who already exist, and if they would have good lives, it is not hard to see how reducing existential risk is easily the most important thing in the whole world. This is for the familiar reason that there are so many people who could exist in the future – there are trillions upon trillions… upon trillions. There are so many possible future people that reducing existential risk is arguably the most important thing in the world, even if the well-being of these possible people were given only 0.001% as much weight as that of existing people. Even on a wholly person-affecting view – according to which there’s nothing (apart from effects on existing people) to be said in favor of creating happy people – the case for reducing existential risk is very strong. As noted in this seminal paper, this case is strengthened by the fact that there’s a good chance that many existing people will, with the aid of life-extension technology, live very long and very high quality lives. You might think what I have just argued applies to consequentialists only. There is a tendency to assume that, if an argument appeals to consequentialist considerations (the goodness of outcomes), it is irrelevant to non-consequentialists. But that is a huge mistake. Non-consequentialism is the view that there’s more that determines rightness than the goodness of consequences or outcomes; it is not the view that the latter don’t matter. Even John Rawls wrote, “All ethical doctrines worth our attention take consequences into account in judging rightness. One which did not would simply be irrational, crazy.” Minimally plausible versions of deontology and virtue ethics must be concerned in part with promoting the good,

from an impartial point of view. They’d thus imply very strong reasons to reduce existential risk, at least when this doesn’t significantly involve doing harm to others or damaging one’s character. What’s even more surprising, perhaps, is that even if our own good (or that of those near and dear to us) has much greater weight than goodness from the impartial “point of view of the universe,” indeed even if the latter is entirely morally irrelevant, we may nonetheless have very strong reasons to reduce existential risk. Even egoism, the view that each agent should maximize her own good, might imply strong reasons to reduce existential risk. It will depend, among other things, on what one’s own good consists in. If well-being consisted in pleasure only, it is somewhat harder to argue that egoism would imply strong reasons to reduce existential risk – perhaps we could argue that one would maximize her expected hedonic well-being by funding life extension technology or by having herself cryogenically frozen at the time of her bodily death as well as giving money to reduce existential risk (so that there is a world for her to live in!). I am not sure, however, how strong the reasons to do this would be. But views which imply that, if I don’t care about other people, I have no or very little reason to help them are not even minimally plausible views (in addition to hedonistic egoism, I here have in mind views that imply that one has no reason to perform an act unless one actually desires to do that act). To be minimally plausible, egoism will need to be paired with a more sophisticated account of well-being. To see this, it is enough to consider, as Plato did, the possibility of a ring of invisibility – suppose that, while wearing it, Ayn could derive some pleasure by helping the poor, but instead could derive just a bit more by severely harming them. Hedonistic egoism would absurdly imply she should do the latter. To avoid this implication, egoists would need to build something like the meaningfulness of a life into well-being, in some robust way, where this would to a significant extent be a function of other-regarding concerns (see chapter 12 of this classic intro to ethics). But once these elements are included, we can (roughly, as above) argue that this sort of egoism will imply strong reasons to reduce existential risk. Add to all of this Samuel Scheffler’s recent intriguing arguments (quick podcast version available here) that most of what makes our lives go well would be undermined if there were no future generations of intelligent persons. On his view, my life would contain vastly less well-being if (say) a year after my death the world came to an end. So obviously if Scheffler were right I’d have very strong reason to reduce existential risk. We should also take into account moral uncertainty. What is it reasonable for one to do, when one is uncertain not (only) about the empirical facts, but also about the moral facts? I’ve just argued that there’s agreement among minimally plausible ethical views that we have strong reason to reduce existential risk – not only consequentialists, but also deontologists, virtue ethicists, and sophisticated egoists should agree. But even those (hedonistic egoists) who disagree should have a significant level of confidence that they are mistaken, and that one of the above views is correct. Even if they were 90% sure that their view is the correct one (and 10% sure that one of these other ones is correct), they would have pretty strong reason, from the standpoint of moral uncertainty, to reduce existential risk. Perhaps most disturbingly still, even if we are only 1% sure that the well-being of possible future people matters, it is at least arguable that, from the standpoint of moral uncertainty, reducing existential risk is the most important thing in the world. Again, this is largely for the reason that there are so many people who could exist in the future – there are trillions upon trillions… upon trillions. (For more on this and other related issues, see this excellent dissertation). Of course, it is uncertain whether these untold trillions would, in general, have good lives. It’s possible they’ll be miserable. It is enough for my claim that there is moral agreement in the relevant sense if, at least given certain empirical claims about what future lives would most likely be like, all minimally plausible moral views would converge on the conclusion that we should try to save the world. While there are some non-crazy views that place significantly greater moral weight on avoiding suffering than on promoting happiness, for reasons others have offered (and for independent reasons I won’t get into here unless requested to), they nonetheless seem to be fairly implausible views. And even if things did not go well for our ancestors, I am optimistic that they will overall go fantastically well for our descendants, if we allow them to. I suspect that most of us alive today – at least those of us not suffering from extreme illness or poverty – have lives that are well worth living, and that things will continue to improve. Derek Parfit, whose work has emphasized future generations as well as agreement in ethics, described our situation clearly and accurately: “We live during the hinge of history. Given the scientific and technological discoveries of the last two centuries, the world has never changed as fast. We shall soon have even greater powers to transform, not only our surroundings, but ourselves and our successors. If we act wisely in the next few centuries, humanity will survive its most dangerous and decisive period. Our descendants could, if necessary, go elsewhere, spreading through this galaxy…. Our descendants might, I believe, make the further future very good. But that good future may also depend in part on us. If our selfish recklessness ends human history, we would be acting very wrongly.” (From chapter 36 of On What Matters)

#### Science proves non util ethics are impossible and our version of util solves all aff offense

Greene 10 – Joshua, Associate Professor of Social science in the Department of Psychology at Harvard University

(The Secret Joke of Kant’s Soul published in Moral Psychology: Historical and Contemporary Readings, accessed: www.fed.cuhk.edu.hk/~lchang/material/Evolutionary/Developmental/Greene-KantSoul.pdf)

**What turn-of-the-millennium science** **is telling us is that human moral judgment is not a pristine rational enterprise**, that our **moral judgments are driven by a hodgepodge of emotional dispositions, which themselves were shaped by a hodgepodge of evolutionary forces, both biological and cultural**. **Because of this, it is exceedingly unlikely that there is any rationally coherent normative moral theory that can accommodate our moral intuitions**. Moreover, **anyone who claims to have such a theory**, or even part of one, **almost certainly doesn't**. Instead, what that person probably has is a moral rationalization. It seems then, that we have somehow crossed the infamous "is"-"ought" divide. How did this happen? Didn't Hume (Hume, 1978) and Moore (Moore, 1966) warn us against trying to derive an "ought" from and "is?" How did we go from descriptive scientific theories concerning moral psychology to skepticism about a whole class of normative moral theories? The answer is that we did not, as Hume and Moore anticipated, attempt to derive an "ought" from and "is." That is, our method has been inductive rather than deductive. We have inferred on the basis of the available evidence that the phenomenon of rationalist deontological philosophy is best explained as a rationalization of evolved emotional intuition (Harman, 1977). Missing the Deontological Point I suspect that **rationalist deontologists will remain unmoved by the arguments presented here**. Instead, I suspect, **they** **will insist that I have simply misunderstood what** Kant and like-minded **deontologists are all about**. **Deontology, they will say, isn't about this intuition or that intuition**. It's not defined by its normative differences with consequentialism. **Rather, deontology is about taking humanity seriously**. Above all else, it's about respect for persons. It's about treating others as fellow rational creatures rather than as mere objects, about acting for reasons rational beings can share. And so on (Korsgaard, 1996a; Korsgaard, 1996b). **This is, no doubt, how many deontologists see deontology. But this insider's view**, as I've suggested, **may be misleading**. **The problem**, more specifically, **is that it defines deontology in terms of values that are not distinctively deontological**, though they may appear to be from the inside. **Consider the following analogy with religion. When one asks a religious person to explain the essence of his religion, one often gets an answer like this: "It's about love**,

really. It's about looking out for other people, looking beyond oneself. It's about community, being part of something larger than oneself." **This sort of answer accurately captures the phenomenology of many people's religion, but it's nevertheless inadequate for distinguishing religion from other things**. This is because many, if not most, non-religious people aspire to love deeply, look out for other people, avoid self-absorption, have a sense of a community, and be connected to things larger than themselves. In other words, secular humanists and atheists can assent to most of what many religious people think religion is all about. From a secular humanist's point of view, in contrast, what's distinctive about religion is its commitment to the existence of supernatural entities as well as formal religious institutions and doctrines. And they're right. These things really do distinguish religious from non-religious practices, though they may appear to be secondary to many people operating from within a religious point of view. In the same way, I believe that most of **the standard deontological/Kantian self-characterizatons fail to distinguish deontology from other approaches to ethics**. (See also Kagan (Kagan, 1997, pp. 70-78.) on the difficulty of defining deontology.) It seems to me that **consequentialists**, as much as anyone else, **have respect for persons**, **are against treating people as mere objects,** **wish to act for reasons that rational creatures can share, etc**. **A consequentialist respects other persons, and refrains from treating them as mere objects, by counting every person's well-being in the decision-making process**. **Likewise, a consequentialist attempts to act according to reasons that rational creatures can share by acting according to principles that give equal weight to everyone's interests, i.e. that are impartial**. This is not to say that consequentialists and deontologists don't differ. They do. It's just that the real differences may not be what deontologists often take them to be. What, then, distinguishes deontology from other kinds of moral thought? A good strategy for answering this question is to start with concrete disagreements between deontologists and others (such as consequentialists) and then work backward in search of deeper principles. This is what I've attempted to do with the trolley and footbridge cases, and other instances in which deontologists and consequentialists disagree. **If you ask a deontologically-minded person why it's wrong to push someone in front of speeding trolley in order to save five others, you will get** characteristically deontological **answers**. Some **will be tautological**: **"Because it's murder!"** **Others will be more sophisticated: "The ends don't justify the means**." "You have to respect people's rights." **But**, as we know, **these answers don't really explain anything**, because **if you give the same people** (on different occasions) **the trolley case** or the loop case (See above), **they'll make the opposite judgment**, even though their initial explanation concerning the footbridge case applies equally well to one or both of these cases. **Talk about rights, respect for persons, and reasons we can share are natural attempts to explain, in "cognitive" terms, what we feel when we find ourselves having emotionally driven intuitions that are odds with the cold calculus of consequentialism**. Although these explanations are inevitably incomplete, **there seems to be "something deeply right" about them because they give voice to powerful moral emotions**. **But, as with many religious people's accounts of what's essential to religion, they don't really explain what's distinctive about the philosophy in question**.

## Case

#### The role of the judge is to evaluate the desirability of either the aff or neg world vs a competitive policy option

#### \*\*Extinction outweighs the aff – A. magnitude – the preclusion of life future generations makes extinction the upmost moral evil and means we have infinite magnitude B. reversibility – you can only die once and extinction precludes the possibility for material progress or decolonization at any point in the future

#### Their theory of cybernetics is wrong – it’s historically inaccurate, immaterial, and doesn’t explain any of their impacts.

Gregory ’15 (Derek; 2015; Distinguished Professor at the University of British Columbia; Geographies of Knowledge and Power, “Gabriel’s Map: Cartography and Corpography in Modern War,” p. 116-118)

Paul Virilio’s (1989) account of War and cinema, and particularly his rendering of the logistics of perception during World War I, remains a **landmark analysis**. He made much of the connections between aviation and cinema, and his arguments have informed the opening sections of my own essay. In his eyes, aerial reconnaissance— which stood in the closest of associations to the cartographic—became successively “chronophotographic” and then cinematographic, as these new methods struggled both to keep pace with and to produce the new motility of a war that merely appeared to be static and fixed in place. But Virilio also advanced another, more problematic claim: “As sight lost its direct quality and reeled out of phase, the soldier had the feeling of being not so much destroyed as de-realized or de-materialized, any sensory point of reference suddenly vanishing in a surfeit of optical targets” (pp. 14–15). Here he continues to privilege the visual-optical register of cartography and **fails to register the bodily habitus** that, as I have shown in the closing sections, was **profoundly implicated** in the actions and affects of the ordinary infantryman. Virilio was not alone. A. M. Burrage (1930) wrote that [W]e are slowly realising that the job of the infantry isn’t to kill. It is the artillery and the machine-gun corps who do the killing. We are merely there to be killed. We are the little flags which the General sticks on the war-map to show the position of the front line. (p. 82) In sketching the outlines of a countervailing corpography established by those on that front line, I do not wish to privilege one mode of knowing over the other: each sutures knowledge to power in vital, significant but none the less **different ways**, and each both advances and repels military violence. But I do sympathize with Edmund Blunden’s (1928/2000) agonized question: Was it nearer the soul of war to adjust armies in coloured inks on vast maps at Montreuil or Whitehall, to hear of or to project colossal shocks in a sort of mathematical symbol, than to rub knees with some poor jaw-dropping resting sentry, under the dripping rubber sheet, balancing on the greasy fire-step . . . ? (p. 141) Of course, “a map is a weapon,” as Lt.-Col. E. M. Jack (“Maps GHQ”) insisted, and those “vast maps,” together with the panoply of trench maps, sketch maps, and all the rest, were some of the deadliest weapons in the staff officers’ armory; but they were **hardly sufficient sources** of knowledge. And so I understand, too, why Blunden (1928/2000) concluded that venturing into the killing fields armed with its pure, abstract, mathematical knowledge alone was sheer folly: [T]he new Colonel . . . sent forward from C Camp an officer fresh from England, and one or two men with him, to patrol the land over which our assault was intended, . . . This officer took with him his set of the maps, panoramas, photographs and assault programmes which had been served round with such generosity for this battle. He never returned ... (pp. 151–152) Coda In this essay I have been concerned with World War I but, as we approach its centenary, it is worth reflecting on the ways in which modern warfare has changed— and those in which **it has not**. Through the constant circulation of military imagery and its ghosting in video games, many of us have come to think of **contemporary warfare as optical war** hypostatized: a war fought on screens and through digital images, in which full motion video feeds from Predators and Reapers allow for an unprecedented degree of remoteness from the killing fields. In consequence, perhaps, many of us are **tempted to think** of the wars waged by advanced militaries, in contrast to World War I, as “surgical,” even body-less. These are wars without fronts, whose complex geometries have required new investments in cartography and satellite imagery, and there have been major advances in political technologies of vision and in the development of a host of other sensors that have dramatically increased the volume of geo-spatial intelligence on which the administration of later modern military violence relies. All of **this has transformed but not replaced** the cartographic imaginary. And yet, for all of their liquid violence, these wars are **still shaped and even confounded** by the multiple, acutely **material environments** through which they are fought. In Sebastian Junger’s (2011) remarkable dispatch from Afghanistan, he notes that for the United States and its allies “the war diverged from the textbooks because it was fought in such axle-breaking, helicopter-crashing, spirit-killing, mind-bending terrain that few military plans survive intact for even an hour” (p. 47). If that sounds familiar, then so too will MacLeish’s (2013) cautionary observations about soldiers as both vectors and victims of military violence: The body’s unruly matter is war’s most necessary and most necessarily expendable raw material. While many analyses of US war violence have emphasized the technologically facilitated withdrawal of American bodies from combat zones in favour of air strikes, smart bombs, remotely piloted drones, and privately contracted fighting forces, the wars in Iraq and Afghanistan **could not carry on without the physical presence** of tens of thousands of such bodies. (p. 11) In consequence, the troops have had to cultivate an intrinsically practical knowledge that, while its operating environment and technical armature are obviously different, still owes much to the tacit **bodily awareness** of the Tommy or the Poilu: In the combat zone there is a balance to be struck, a cultivated operational knowledge, that comes in large part from first-hand experience about what can hurt you and what can’t . . . So you need not only knowledge of what the weapons and armor can do for you and to you but a kind of bodily habitus as well—an ability to take in the sensory indications of danger and act on them without having to think too hard about it first. When you hear a shot, is it passing close by? Is it accurate or random? Is it of sufficient caliber to penetrate your vest, the window of your Humvee or the side of your tank? (MacLeish, 2013, p. 76) In the intricate nexus formed by knowledge, space, and military power, later modern war still relies on cartographic vision—and its agents still **produce their own corpographies**.

**Their theory totalizes the relationship between tech and social relations – that’s catastrophically wrong**

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A major irony of Feenberg’s book is the following contradiction: on several occasions, he criticizes, and distances himself from, technological determinism; key parts of his argument suggest, however, that he himself flirts with, if not subscribes to, technological determinism. He rightly maintains, and convincingly demonstrates, that ‘society and technology are inextricably imbricated’.240 This insight justifies **the underlying assumption that there is no comprehensive study of society without a critical sociology of technology**. Yet, to contend that ‘[s]ocial groups exist through the technologies that bind their members together’241 **is misleading. For not all social groups are primarily defined by the technologies that enable their members to relate to, and to bond with, one another**. Indeed, **not all social relations, or social bonds, are based on, let alone determined by, technology**.

**Of course**, Feenberg is right to argue that **‘technologically mediated groups influence technical design through their choices and protests’**.242 Ultimately, though, the previous assertion is tautological. This becomes clear if, in the above sentence, we replace the word ‘technological(ly)’ with terms such as ‘cultural(ly)’, ‘linguistical(ly)’, ‘political(ly)’, ‘economic(ally)’, or indeed another sociological qualifier commonly used to characterize the specificity of a social relation. Hence, we may declare that ‘culturally, linguistically, politically, and economically mediated groups influence cultural, linguistic, political, and economic conventions through their choices and protests’. **In saying so, we are stating the obvious. If**, however, **we aim to make a case for** cultural, linguistic, political, or economic **determinism, then this is problematic to the extent that we end up reducing the constitution of social arrangements to the product of one overriding causal set of forces** (whether these be cultural, linguistic, political, economic, technological, or otherwise).

While declaring that he is a critic of technological determinism, Feenberg – in central passages of his book – gives the impression that he is one of its fiercest advocates. Feenberg’s techno-Marxist evolutionism is based on the premise that ‘progress is realized essentially through technosystem change’243 – that is, on the assumption that, effectively, human progress is reducible to technological development. Feenberg is right to stress that ‘[t]echnical progress is joined indissolubly to the democratic enlargement of access to its benefits and protection from its harms’.244 ‘Concretization’,245 understood in this way, conceives of progress as a ‘local, context-bound phenomenon uniting technical and normative dimensions’.246 We may add, however, that **progress has not only technical (or technological) but also economic, cultural, and political dimensions, which contain objective, normative, and subjective facets. At times, the differentiation between these aspects is blurred, if not lost, in Feenberg’s account, given his tendency to overstate the power of technology at the expense of other crucial social forces**. In other words, **progress is not only ‘inextricably entangled with the technosystem’**,247 **but it is also indissolubly entwined with the economic, cultural, and political systems in which it unfolds and for (or against) which it exerts its** objective, normative, and subjective **power**.

The preceding reflection takes us back to the problem of techno-reductionism:

The struggle over the technosystem began with the labor movement. Workers’ demands for health and safety on the job were public interventions into production technology.248

**All struggles over social (sub)systems have not only a technological but also various other (notably economic, cultural, and political) dimensions. Demands made by particular subjects** (defined by class, ethnicity, gender, age, or ability – or a combination of these sociological variables) **are commonly expressed in public interventions not only into** production **technology, but also into economic, cultural, and political systems. In all social struggles** (including class struggle), **technology can be an important means to an end, but it is rarely an end in itself**. Put differently, **social struggles are partly – but seldom essentially, let alone exclusively – about technology**.

#### The world is not encoded by algorithmic accumulation.

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As established in the first section of this article, proponents of what I have heuristically defined as the “transformation thesis” have emphasised the revolutionary ruptures wrought by digital connectivity and datafication. Some of these proponents illustrate these changes using field specific case studies, as with Duffield’s (2018) suggestion that the transition to a “cybernetic episteme” is reflected in humanitarian practice. Other authors have taken a more abstract view, including Chandler’s (2018) discussion of new modes of governance in the digital era, or the post-humanist drive to reconceptualise “humanity” under conditions of technological entwinement (Cudworth and Hobden 2013). These assertions of macro-level transformation are also supported by network sociology, led principally by Manuel Castells (2010) analysis of how revolutions in information technology, economic globalisation and an emergent “space of flows” interact to produce a new kind of “network society”. This linkage of societal transformation to economic forces is also characteristic of more critical anti-capitalist perspectives, as with the Marxist critique of “cognitive capitalism” (Moulier-Boutang 2012; Zukerfeld 2017). Although these approaches differ in their conceptual frameworks, they are united in their ambition to highlight universal epistemic transformations brought about by technological change.

One of the pitfalls of these totalising perspectives is the neglect of the particular in favour of the universal. For instance, networked thinking encourages assumptions about lateral transformation across socio-political fields that are connected to the digital universe. But not all spheres of social or political activity move at the same pace when they are exposed to technological innovation. Datafication and digitalisation are processes that have uneven impacts on different social and political fields. For example, the testimony of Facebook’s CEO Mark Zuckerberg to the Senate Judiciary and Commerce Committees in April 2018, where US lawmakers appeared confused by the social media giant’s basic business model, is a stark illustration of the gap that still exists between the world of Big Tech and the operating logics of mainstream democratic politics (Stewart 2018). Bigo and Bonelli (2019, 1

15) have found that even in the field of transnational intelligence, a sphere that could have much to gain from algorithmic techniques, technological expertise tends to be contracted out to third parties while traditional, human-sourced intelligence approaches remain dominant. Therefore, grasping for totalising processes risks ignoring the empirical specificity of divergent social microcosms.

To remedy this blind side in transformationalist thinking, I assert the utility of applying Pierre Bourdieu’s field theory when conceptualising how certain spheres of social or political activity—including the field of global human rights advocacy discussed in the previous section—mediate pressures for epistemic transformation and potentially isolate technological changes and agents to the margins. Employing field theory, Ole Jacob Sending (2015, 11) sees global governance as divided into separate fields, where “actors compete with each other to be recognised as authorities on what is to be governed, how, and why”. Examples of such fields include international development, security, peacebuilding, humanitarianism, and human rights advocacy. However, each field varies in terms of its specific “rules of the game” (Bourdieu and Waquant 1992, 99). Fields are bounded, game-like social structures that are constituted by a unique constellation of actors. These actors struggle for authority according to the field’s principles of legitimation (Bourdieu 1989, 17). These principles of legitimation, which define a field’s cultural capital, are durable to the extent that dominant actors remain invested in their reproduction. Actors’ prolonged immersion in these fields subsequently shapes their own practical sensibilities, so that the field’s logics are internalised as common sense within the habitus (Bourdieu 1990, 53). It is the embedment of the field’s doxa (common sense) within the habitus of invested actors that makes fields durable and resistant to radical transformations. As seen in the previous section, the rules governing the human rights field are associated with its logic of political influence, persuasion, and moral authority.

Critics of Bourdieusian field theory have argued that it is overly structuralist, reproductive, and cannot grasp “the ever-shifting constellations of actors, institutions, data and forms of expression that make up the expertise” (Waever and Leander 2018, 2). However, alternative approaches such as actor-network theory or assemblage-based theories fail to centralise the importance of social and political struggles between agents which are key in defining the trajectory of digitalisation and datafication. As Ruppert, Isin, and Bigo (2017, 3), “[d]ata does not happen through unstructured social practices but through structured and structuring fields in and through which various agents and their interests generate forms of expertise, interpretation, concepts, and methods that collectively function as fields of power and knowledge”. Similarly, “data is not an already given artefact that exists (which then needs to be mined, analysed, brokered) but an object of investment (in the broadest sense) that is produced by the competitive struggles of professionals who claim stakes in its meaning and functioning” (Bigo, Isin, and Ruppert 2019, 11). Technological change can influence the trajectory of different global political fields by enabling the entry of new types of actors (such as data consultants in the case of human rights advocacy), as well as by producing emergent sources of cultural capital and associated epistemic practices (such as expertise in geospatial imaging).

As Bigo and Bonelli (2019, 120) have observed in the case of the transnational intelligence field, technological change can be accompanied by the growing influence of private companies who “have played a substantial role in the recruitment of IT specialists, network engineers, data analysts, integration platform software designers, language and coding specialists, cryptologists, and mathematicians tasked with creating or combining algorithms”. Such entryism can have a revolutionary effect if those new actors are able redefine a field’s organising logic, cultural capital, and principles of legitimation. For example, looking at the case of Sudan in the 1990s as an antecedent to the transformation of humanitarianism, Duffield (2018, 85) traces how donor governments asserted greater control over NGOs, who subsequently “seamlessly morphed into the ‘implementing partners’ of donor governments”. Alongside growing private sector partnerships, these developments stimulated the neoliberal re-alignment of the humanitarian field away from Third World solidarity and the progressive support for autonomous change and towards the governance of precarity. This exposed the field to an epistemic transformation that privileged datafication based on a “surveillance logic of command and control” (ibid., 168).

However, not all global political fields are so structurally conducive to this kind of radical transformation. The example of the human rights advocacy field illustrates how a strong autonomous organising logic—a logic of persuasion—generates entrenched forms of field-specific cultural capital—qualitative and humanistic accounts of raw suffering that establish clear legal responsibilities. Actors can mobilise digital or data infrastructures to diversify the range of tools and media at their disposal, as illustrated by the (limited) use of geospatial technology, data visualisations in human rights reporting, and a growing reliance on social media platforms to engage audiences. However, they do not necessarily threaten the epistemic practices that are at the centre of human rights advocacy. This is because the transformative potential of new technologies and methods depends on their epistemic, political, social, or moral value in the eyes of the fields’ dominant actors. The integration of data-based approaches has been one of slow adaptation, not revolution, and technological specialists—often employed as third-party consultants rather than as full-time human rights professionals—remain at the margins. The Bourdieusian concept of habitus is also helpful in illuminating how fields with strong professional structures and specific educational and career trajectories can endow members with enduring dispositions that favour both the reproduction of existing epistemic practices and resistance to new ones. The habitus of human rights professionals is still primarily defined by legal, journalistic, and liberal-cosmopolitan moral/political dispositions, rather than technological expertise. So long as processes of doxic reproduction remain stable, the potential for epistemic transformation through datafication remains limited.

Conclusion

This article has cautioned against the analytical trend towards treating datafication as a general process acting to radically transform the epistemic and governance practices across global political fields. Because different social and political fields are unique social microcosms that contain divergent organising principles, readers should be wary of post-humanist analyses making totalising claims about alleged transformations in the human condition. The polemical teleology of transformationalism, an approach that is in vogue among Silicon Valley hype merchants like Elon Musk, public intellectuals, and a growing number of social scientists, is certainly attention grabbing, but it does not measure up against the actual way in which technological and methodological innovations are instituted within different fields of practice. International relations and global governance scholars working on the interstitial cross-roads between technology and various political or social lifeworlds need to be attentive to how digital and data transformations are mediated at the meso level of global politics. This article has demonstrated how epistemic transformation can be resisted at the meso level through observing changes and continuities among elite human rights organisations. Bourdieusian field theory, with its emphasis on legitimacy, social reproduction, and the durability of practical dispositions, offers a suitable framework for conceptualising the absence of epistemic rupture within the field of human rights advocacy. However, because digitalisation and datafication processes are mediated through the specific logics of a given field, more work needs to be done on examining how different organising principles shape the potentialities for epistemic transformation. Thus, in the future, more comparative empirical research will be needed to observe technological changes across different areas of global governance.

#### Tech is getting better – you’re biased toward pessimism

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Many are understandably pessimistic about platforms and technology. This year has been a tough one, from Cambridge Analytica and Russian trolls to the implementation of GDPR and data breaches galore. Those who think about the world, about the problems that we see every day, and about their own place in it, will quickly realize the immense frailty of humankind. Fear and worry makes sense. We are flawed, each one of us. And technology only seems to exacerbate those problems. But life is getting better. Poverty continues nose-diving; adult literacy is at an all-time high; people around the world are living longer, living in democracies, and are better educated than at any other time in history. Meanwhile, the digital revolution has resulted in a glut of informational abundance, helping to correct the informational asymmetries that have long plagued humankind. The problem we now face is not how to address informational constraints, but how to provide the means for people to sort through and make sense of this abundant trove of data. These macro trends don’t make headlines. Psychologists know that people love to read negative articles. Our brains are wired for pessimism. In the shadow of a year of bad news, it helpful to remember that Facebook and Google and Reddit and Twitter also support humane conversations. Most people aren’t going online to talk about politics and if you are, then you are rare. These sites are places where families and friends can connect. They offer a space of solace – like when chronic pain sufferers find others on Facebook, or when widows vent, rage, laugh and cry without judgement through the Hot Young Widows Club. Let’s also not forget that Reddit, while sometimes a place of rage and spite, is also where a weight lifter with cerebral palsy can become a hero and where those with addiction can find healing. And in the hardest to reach places in Canada, in Iqaluit, people say that “Amazon Prime has done more toward elevating the standard of living of my family than any territorial or federal program. Full stop. Period” Three-fourths of Americans say major technology companies’ products and services have been more good than bad for them personally. But when it comes to the whole of society, they are more skeptical about technology bringing benefits. Here is how I read that disparity: Most of us think that we have benefited from technology, but we worry about where it is taking the human collective. That is an understandable worry, but one that shouldn’t hobble us to inaction. Nor is technology making us stupid. Indeed, quite the opposite is happening. Technology use in those aged 50 and above seems to have caused them to be cognitively younger than their parents to the tune of 4 to 8 years. While the use of Google does seem to reduce our ability to recall information, studies find that it has boosted other kinds of memory, like retrieving information. Why remember a fact when you can remember where it is located? Concerned how audiobooks might be affecting people, Beth Rogowsky, an associate professor of education, compared them to physical reading and was surprised to find “no significant differences in comprehension between reading, listening, or reading and listening simultaneously.” Cyberbullying and excessive use might make parents worry, but NIH supported work found that “Heavy use of the Internet and video gaming may be more a symptom of mental health problems than a cause. Moderate use of the Internet, especially for acquiring information, is most supportive of healthy development.” Don’t worry. The kids are going to be alright. And yes, there is a lot we still need to fix. There is cruelty, racism, sexism, and poverty of all kinds embedded in our technological systems. But the best way to handle these issues is through the application of human ingenuity. Human ingenuity begets technology in all of its varieties. When Scott Alexander over at Star Slate Codex recently looked at 52 startups being groomed by startup incubator Y Combinator, he rightly pointed out that many of them were working for the betterment of all: Thirteen of them had an altruistic or international development focus, including Neema, an app to help poor people without access to banks gain financial services; Kangpe, online health services for people in Africa without access to doctors; Credy, a peer-to-peer lending service in India; Clear Genetics, an automated genetic counseling tool for at-risk parents; and Dost Education, helping to teach literacy skills in India via a

$1/month course. Twelve of them seemed like really exciting cutting-edge technology, including CBAS, which describes itself as “human bionics plug-and-play”; Solugen, which has a way to manufacture hydrogen peroxide from plant sugars; AON3D, which makes 3D printers for industrial uses; Indee, a new genetic engineering system; Alem Health, applying AI to radiology, and of course the obligatory drone delivery startup. Eighteen of them seemed like boring meat-and-potatoes companies aimed at businesses that need enterprise data solution software application package analytics targeting management something something something “the cloud”. As for the other companies, they were the kind of niche products that Silicon Valley has come to be criticized for supporting. Perhaps the Valley deserves some criticism, but perhaps it deserves more credit than it’s been receiving as-of-late. Contemporary tech criticism displays a kind of anti-nostalgia. Instead of being reverent for the past, anxiety for the future abounds. In these visions, the future is imagined as a strange, foreign land, beset with problems. And yet, to quote that old adage, tomorrow is the visitor that is always coming but never arrives. The future never arrives because we are assembling it today. We need to work diligently together to piece together a better world. But if we constantly live in fear of what comes next, that future won’t be built. Optimism needn’t be pollyannaish. It only needs to be hopeful of a better world.

#### Tech good –

#### 1 – Accurate predictions---the alt causes confirmation bias

Michael D. Ward 13, Professor of Political Science at Duke University, Niles W. Metternich, University of College London, Cassy L. Dorff, Max Gallop, Florian M. Hollenbach, Anna Schultz, and Simon Weschle, "Learning from the Past and Stepping into the Future: Toward a New Generation of Conflict Prediction", International Studies Review (2013) 15, 473-490

Political events are frequently framed as unpredictable. Who could have predicted the Arab Spring, 9/11, or the end of the cold war? This skepticism about prediction reflects an underlying desire to forecast. Predicting political events is difficult because they result from complex social processes. However, in recent years, our capacity to collect information on social behavior and our ability to process large data have increased to degrees only foreseen in science fiction. This new ability to analyze and predict behavior confronts a demand for better political forecasts that may serve to inform and even help to structure effective policies in a world in which prediction in everyday life has become commonplace. Only a decade ago, scholars interested in civil wars undertook their research with constrained resources, limited data, and statistical estimation capabilities that seem underdeveloped by current standards. Still, major advances did result from these efforts. Consider “Ethnicity, Insurgency and Civil War” by Fearon and Laitin (2003), one of the most venerated and cited articles about the onset of civil wars. Published in 2003, it has over 3,000 citations in scholar.google.com and almost 900 citations in the Web of Science (as of April 2013). It has been cited prominently in virtually every social science discipline in journals ranging from Acta Sociologica to World Politics; and it is the most downloaded article from the American Political Science Review.2 ¶ This article is rightly regarded as an important, foundational piece of scholarship. However, in the summer of 2012, it was used by Jacqueline Stevens in a New York Times Op-Ed as evidence that political scientists are bad forecasters. That claim was wildly off the mark in that Fearon and Laitin do not focus on forecasting, and Stevens ignored other, actual forecasting efforts in political science. Stevens’ point—which was taken up by the US Congress—was that government funding on quantitative approaches was being wasted on efforts that did not provide accurate policy advice. In contrast to Stevens, we argue that conflict research in political science can be substantially improved by more, not less, attention to predictions through quantitative approaches.¶ We argue that the increasing availability of disaggregated data and advanced estimation techniques are making forecasts of conflict more accurate and precise, thereby helping to evaluate the utility of different models and winnow the good from the bad. Forecasting also helps to prevent overfitting and reduces confirmation bias. As such, forecasting efforts can be used to help validate models, to gain greater confidence in the resulting estimates, and to ultimately present robust models that may allow us to improve the interaction with decision makers seeking greater clarity about the implications of potential actions.

#### 2 – Peacekeeping---algorithmic governance enables effective responses to global atrocities

John Karlsrud 14, Senior Research Fellow and Manager of the Training for Peace programme at NUPI, Peacekeeping 4.0: Harnessing the Potential of Big Data, Social Media, and Cyber Technologies, in “Cyberspace and International Relations: Theory, Prospects and Challenges,” https://www.researchgate.net/profile/Hakan\_Mehmetcik/publication/285282612\_A\_New\_Way\_of\_Conducting\_War\_Cyberwar\_Is\_That\_Real/links/5c63f67d45851582c3e47db7/A-New-Way-of-Conducting-War-Cyberwar-Is-That-Real.pdf

Brought together, the data can enable international organizations to follow and possibly prevent evolving situations and crises. This potential has been recognized; and, following the financial crisis, the UN Secretary-General created UN Global Pulse to explore opportunities for using real-time data to gain a more accurate understanding of population wellbeing, especially related to the impacts of global crises. The availability of real-time data holds great promise for helping us detect the early signs of stress on vulnerable populations. It represents an unprecedented opportunity to track the human impacts of crises as they unfold, and to get real-time feedback on how well policy responses are working (UN Global Pulse 2012b). As such, research undertaken by UN Global Pulse, notably though its networks of country-level “Pulse Labs,” may give the UN a better ability to follow, respond to and mitigate the impact of natural disasters and complex crises.

However, more than 90 % of the information will be unstructured, potentially rich in useful information. Turning structured and unstructured information into actionable data requires efficient ways of structuring and analyzing the information in real time in a data ecosystem (WEF 2010, p. 4). This process is often called “reality mining” (UN Global Pulse 2012a, p. 18; Eagle and Pentland 2006) or “data mining”—discovering patterns in large data sets (Cheshire 2011; Helbing and Balietti 2012). So, how can the UN and other multilateral actors make use of this data? Cooperation has been initiated with Google and other large corporations that are at the forefront in harvesting actionable data from the “data deluge” (The Economist 2010b).

Concurrently with this development, the digital divide is closing at an increasing speed. According to the World Bank, 44.9 out of every 100 people in subSaharan Africa had a mobile subscription in 2010 (World Bank 2012a), and by 2016 this figure will reach 91.3 (Portio Research 2012), although the high number may mask persons have more than one subscription. The percentage of population with access to internet is also increasing (World Bank 2012b). This means that the amount of both structured and unstructured data that can be analyzed and can inform multilateral efforts for conflict prevention and international security is increasing rapidly and can give a more even and realistic picture of the situation in question. However, there is a need to be realistic. There is great variance in the access to data between countries such as Syria and the Democratic Republic of Congo, and many have more than one mobile subscription to strengthen their resilience against patchy networks.

Other co-influencing factors are the rapid spread of 3G networks in developing countries and affordable smart phones at prices down to $50 or less (Jidenma 2011). There is also a current global mega-trend of access to the internet through mobile devices: “in a world where there are 6.3 bn mobile users and 2.3 bn internet users, the default access mode to broadband services is mobile” (Ulf Ewaldsson, Ericsson, quoted in ITU 2012a). According to the International Telecommunication Union, “the ubiquitous mobile phone provides an important foundation for the uptake of mobilebased Internet [in the developing world]. With the majority of countries worldwide having launched 3G mobile-broadband services, the prospects are promising” (ITU 2012b, p. 39, Evans 2012).

In the areas of conflict prevention, humanitarian action, and development, the UN has made some initial steps. But what then is the situation in the areas of peacekeeping and peacebuilding? Unfortunately, little progress has been made so far. Notwithstanding the inclusion of surveillance drones in one peacekeeping mission, the development of Joint Mission Analysis Cells and Joint Operations Centres (which I will return to in the next section), the use of mobile phones in community alert networks in eastern Congo, and the heightened focus on the strategic planning and coordination capacity of peacekeeping and peacebuilding operations, much work remains before peacekeeping operations can be said to be tapping the potential of big data, social media, and cyber-technology effectively, entering the age of “Peacekeeping 4.0.”

The good part of this story is that much work already has been undertaken in the similar and parallel fields of conflict prevention, humanitarian action and development. Many lessons from these fields could easily be imported, while other innovative approaches can be accessed through increased cooperation and coordination. Accomplishing this will require overcoming various bureaucratic hurdles and turfism, driven by support from engaged member states and the Secretary-General. Finally, the uptake of digital information in the planning of UN peace operations may also have implications for how the interaction between the UN, member states and civil society is theorized. IR theorists have increasingly underscored the importance of civil society actors as potential norm entrepreneurs (Keck and Sikkink 1998), and more recent research looking at the relationship between media and international organizations emphasize the potential role civil society and new technology can play in democratizing the access to information, but also the potential for groups spreading disinformation and incite hatred.

This chapter will seek to explore what chances the availability of Big Data and new technologies offer for peacekeeping and as well as inherent challenges. The chapter proceeds as follows: First, I narrow in on some key initiatives in the areas of conflict prevention, humanitarian action, and development that can be relevant to peacekeeping. The following section provides a short background on peacekeeping and its evolution from the end of the Cold War until present, noting some of the steps taken to date. Thirdly, I discuss some of the challenges and opportunities facing policymakers, and relate these to the area of peacekeeping in particular. Finally, the chapter sums up and offers some recommendations for policymakers among member states, in the UN, and among civil society, as well as pointing out areas in need of further research, to enable the UN to enter the era of fourth generation peacekeeping—“Peacekeeping 4.0.”

2 Cyberization of Conflict Prevention, Humanitarian Action, and Development

The age of Big Data and social media has dawned on the fields of humanitarian activity, social activism, and development. Here the application of big data and social media has advanced a great deal further than in the areas of peacekeeping and peacebuilding, particularly among civil society organizations (CSOs) and other independent actors.

One of these initiatives is Ushahidi. Ushahidi is a “web based reporting system that utilizes crowdsourced data to formulate visual map information of a crisis on a real-time basis” (Ushahidi 2012a). Ushahidi, which means “testimony” in Swahili, was originally a website established after the election violence in Kenya in 2008 to map incidents of violence (Ushahidi 2012b). Using crowdsourcing as a method means that everyone with access to common digital communication channels can contribute data.1 The data can be provided via text messages, email, twitter and web-forms. One recent example is Syria Tracker—a website set up to monitor violent incidents involving civilians in Syria: “Syria Tracker is a crowdsourced effort developed by individuals concerned about the harm inflicted upon civilians in Syria” (Syria Tracker 2012). Ushahidi and Syria Tracker are part of a tendency of “how non-state actors are increasingly collaborating online to tackle issues traditionally managed by governments” (Leson 2012).

Also in the area of monitoring and evaluation, internet platforms are being established to ease the sharing and coordination of information. One example is the ActivityInfo website established by UNICEF, OCHA, and bedatadriven; it “that helps humanitarian organizations to collect, manage, map and analyze indicators…and allow for real time monitoring of the humanitarian situation in the eastern part of the Democratic Republic of Congo” (ActivityInfo 2012).

Analyzing the use of Google searches or Twitter messages can give strong indications of evolving situations, or whether an epidemic is spreading. Paul and Dredze (2011) found a very strong correlation coefficient (0.958) between tweets and official flu statistics, where the tweets were in real time and the statistics available only afterwards. Analyzing trending topics in Google searches or Facebook and blog posts can also yield significant data (Ginsberg et al. 2009). Google Dengue Trends uses aggregated Google search data to estimate dengue activity (Google 2012a); there is a similar service for influenza (Google 2012b). Following the earthquake in Port-au-Prince, Haiti, researchers from Sweden’s Karolinska Institutet and Columbia University in New York used mobile phone data, tracking 1.9 million SIM cards (Bengtsson et al. 2011, p. 2). They were able to follow the population flows and destinations of 648,717 people who had been displaced (ibid.:3). Later that year, the same team followed population movement after a cholera outbreak (Bengtsson et al. 2010, p. 2).

Multilateral actors have started to catch on. The UN Secretary-General has created UN Global Pulse; the World Bank has begun discussing how big data can be used for development (World Bank 2012c), and has established “Mapping for Results” to visualize and track its programs and projects on the ground (World Bank 2012d). However, much remains to be done. In 2009, the UN Global Pulse Initiative launched the Rapid Impact and Vulnerability Analysis Fund (RIVAF).

However, a recent report published by the initiative reveals a focus on the use of traditional indicators, and a lack of focus on conflict and post-conflict countries, even though many of the UN agencies, funds, and programs involved in the RIVAF initiative operate in precisely such locations (UN Global Pulse 2011). Further work is necessary in this area, also to focus the energies of developmentoriented organizations to conflict and post-conflict countries and utilize the potential offered by big data, social media, and cyber-technology.

The UN has engaged with the Crisis Mappers community since 2010 (UN 2012a, p. 4, Crisis Mappers 2012); among other things, the Standby Task Force has supported OCHA crowdsourcing data for South Sudan, collecting “a total of 1,767 unique rows of data and 15,271 unique pieces of information records” in a mere 3 days (Standby Task Force 2012). At a recent meeting in New York to discuss the status of implementation of the UN’s Crisis Information Strategy, it was agreed that there is a need for Crisis Information Managers, and that the efforts towards convergence in crisis information management could support the “endeavours of ‘One UN’ and better coordination within the UN and the international community in general” (Swiss Mission to the United Nations 2012). A Crisis Management Training Course has since been established, with the first course being given in February 2013 at the International Peace Support Training Centre (IPSTC) in Nairobi, Kenya. The course will train civilians, military and police “working in multidimensional peace and humanitarian operations … to integrate new information technology into an information management system [and] demonstrate the opportunities and challenges of new ICTs [Information and Communication Technology] and social media tools…” (ICT4Peace 2012a). The challenge now will be to get the UN onboard and send staff to these courses, providing the organization with staff trained personnel that can enable it to make use of Big Data, ICTs and social media in its operations. The UN in Sudan has taken one step in this direction. With support of the United Kingdom, UNDP has run a Crisis Recovery and Mapping Analysis project since 2007 (UNDP 2012a), aimed at supporting both the UN country team (UNCT) and national authorities in making their activities more evidence-based and conflict-responsive (see also Bott and Young 2012).2

In Georgia, the Caucasus Research Resource Centers and Saferworld have joined forces with developers to produce Elva, combining “the data-rich mapping of Ushahidi with the meticulous requirements of human-rights researchers” (Sifry 2012). The platform is used to create a community safety network where a community representative, using SMS, can report violent or security incidents on a weekly basis. A similar initiative was developed by Columbia University in connection with the Voix des Kivus program in the Democratic Republic of Congo (DRC) to “overcome the problems associated with the collection of conflict data” (van der Wind and Humphreys 2012). It involved distributing prepaid cellphones, solar chargers, and code sheets to community representatives in 18 villages in Eastern Congo (ibid.). For both projects, protecting the identity of those reporting against possible reprisals became an important concern (ibid., p. 24; see also Puig 2012).

Together with the crisis mapping community, OCHA is experimenting with developing twitter dashboards for humanitarian crises. These use “Machine Learning (ML) techniques and social computing methods… to extract relevant information from twitter and aggregate this information according to Cluster for analytical purposes” (Meier 2012). A similar dashboard for peacekeeping operations “that looks across social media content and perhaps uses corporate data” could be envisaged (Interview with Meier 2012).

#### Cybernetic space surveillance is key to necessary for global power projection.

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The United States is profoundly reliant on the ability to use space for its security. Though little appreciated outside of professional and expert circles, space – or, more precisely, U.S. assets in and using space – are vital to U.S. defense and intelligence communications with and among national leaders, military forces, and others; command and control; positioning, navigation, and timing (PNT); intelligence, surveillance, and reconnaissance (ISR); and a host of other functions. While these may seem rather like “back office” functions to a lay reader, they are actually the stuff of which American global military primacy is made. The U.S. military is not currently superior to its potential adversaries because it has stronger soldiers, bigger guns, or more tanks. Rather, it has the upper hand because it can understand better what is taking place in the midst of conflict, what its own forces are doing, and what those of an enemy are doing amidst the “fog of war.”2 The United States can therefore employ force around the globe more rapidly, more precisely, and more intelligently – and thus more effectively.3 Together, this “smarter” and more agile U.S. military is therefore uniquely capable of applying decisive power against an adversary.4 Exploitation of space is particularly critical to effective U.S. power projection, as it provides the U.S. military with the ability to operate effectively over global distances, beyond the reach of what U.S. ground-based and aerial assets, limited by range and endurance, can provide. As General John Hyten, Commander of U.S. Air Force Space Command, recently said on CBS’ 60 Minutes, because of space “we can attack any target on the planet, anytime, anywhere, in any weather.”5 Thus Washington’s ability to project credible and effective military power to key regions such as the Western Pacific, Europe, and the Middle East – which is elemental to the U.S. national security strategy of forward engagement – relies on space. And this reliance is increasing. Furthermore, while space is crucial for U.S. power projection and an effective military posture in key regions, it is also vital for crucial homeland defense and deterrence functions. Space-based assets provide early warning of missile attacks against the United States (and others) and serve as a crucial component in the command and control system for U.S. nuclear forces in the event of war – including a nuclear war.6 As the 2011 U.S. National Security Space Strategy, a document bearing the signatures of the Secretary of Defense and the Director of National Intelligence, summarized, “[s]pace capabilities provide the United States and our allies unprecedented advantages … create a decision advantage … [and are] vital to monitoring strategic and military developments … Maintaining the benefits afforded to the United States by space is central to our national security.”7 Space, then, is vital for America’s military preeminence and the national strategy it underwrites. But this reliance is becoming increasingly problematic. This is because potential U.S. adversaries have noticed the degree of U.S. reliance on its space architecture and the advantages that the United States has accrued from it and have been assiduously working to find ways to threaten U.S. space and space-related systems. Indeed, many observers have noted that these potential opponents judge the U.S. space architecture to be the “Achilles’ heel” of U.S. military power, in light of the depth of American reliance on these systems and the vulnerability of the U.S. satellite architecture.8 As General Hyten put it, without access to space the U.S. military would be a greatly reduced force. As he put it, in such a circumstance the U.S. military would return to a model of “World War II” or “industrial age” warfare.9 Nor is this merely a peril for the future. Rather, after many years in which this problem seemed safely ensconced over a distant horizon, it is now coming increasingly into view that threats to U.S. space assets are real and pressing – and indeed are likely to worsen, probably significantly.10 Countries like Russia, China, and even nations with more modest capabilities and resources are gaining the ability to hold U.S. satellites at risk not only through kinetic direct-attack methods such as anti-satellite (ASAT) missiles, but also through non-kinetic and more limitable techniques such as jamming, “dazzling,” cyber and other electronic attack, and other novel methods.11 Some of these approaches can destroy or disable satellites, whereas others offer the option of blinding or otherwise interfering with the effective functioning of space assets.12 The result is that the U.S. space architecture is becoming increasingly vulnerable, with U.S. satellites in low Earth orbit already targetable by a nation such as China and with U.S. satellites in deeper space very likely to become similarly exposed soon.13 China’s 2007 destruction of a satellite in low Earth orbit demonstrated its ability to hit satellites at that range.14 And its 2013 test of an anti-satellite weapon reportedly propelled a missile approximately 18,600 miles into space, just shy of the 22,236 miles at which U.S. satellites in geosynchronous orbit – including essential missile warning and communications satellites – are located.15 As Air Force Lieutenant General John Raymond, then the Commander of the 14th Air Force and the Joint Functional Component Command for Space for Strategic Command, testified in March 2015: “We are quickly approaching the point where every satellite in every orbit can be threatened.”16 In sum, then, the United States is highly reliant on its space architecture for the full range of military operations – and that architecture is vulnerable and becoming more so.

#### Heg solves war

Hal Brands 18. Henry A. Kissinger Distinguished Professor of Global Affairs at the Johns Hopkins University School of Advanced International Studies, Senior Fellow at the Center for Strategic and Budgetary Assessments and the Foreign Policy Research Institute, Ph.D. in history from Yale University. “Chapter 6: Does America Have Enough Hard Power?” American Grand Strategy in the Age of Trump; pp. 129-133.

Much contemporary commentary favors the first option—reducing commitments—and denounces the third as financially ruinous and perhaps impossible.5 Yet significantly expanding American capabilities would not be nearly as economically onerous as it may seem. Compared to the alternatives, in fact, this approach represents the best option for sustaining American primacy and preventing a slide into strategic bankruptcy that will eventually be punished. Since World War II, the United States has had a military second to none. Since the Cold War, America has committed to having overwhelming military primacy. The idea, as George W. Bush declared in 2002, that America must possess “strengths beyond challenge” has featured in every major U.S. strategy document for a quarter century; it has also been reflected in concrete terms.6 From the early 1990s, for example, the United States consistently accounted for around 35 to 45 percent of world defense spending and maintained peerless global power-projection capabilities.7 Perhaps more important, U.S. primacy was also unrivaled in key overseas strategic regions—Europe, East Asia, the Middle East. From thrashing Saddam Hussein’s million-man Iraqi military during Operation Desert Storm, to deploying—with impunity—two carrier strike groups off Taiwan during the China-Taiwan crisis of 1995– 96, Washington has been able to project military power superior to anything a regional rival could employ even on its own geopolitical doorstep. This military dominance has constituted the hard-power backbone of an ambitious global strategy. After the Cold War, U.S. policymakers committed to averting a return to the unstable multipolarity of earlier eras, and to perpetuating the more favorable unipolar order. They committed to building on the successes of the postwar era by further advancing liberal political values and an open international economy, and to suppressing international scourges such as rogue states, nuclear proliferation, and catastrophic terrorism. And because they recognized that military force remained the ultima ratio regum, they understood the centrality of military preponderance. Washington would need the military power necessary to underwrite worldwide alliance commitments. It would have to preserve substantial overmatch

versus any potential great-power rival. It must be able to answer the sharpest challenges to the international system, such as Saddam’s invasion of Kuwait in 1990 or jihadist extremism after 9/11. Finally, because prevailing global norms generally reflect hard-power realities, America would need the superiority to assure that its own values remained ascendant. It was impolitic to say that U.S. strategy and the international order required “strengths beyond challenge,” but it was not at all inaccurate. American primacy, moreover, was eminently affordable. At the height of the Cold War, the United States spent over 12 percent of GDP on defense. Since the mid-1990s, the number has usually been between 3 and 4 percent.8 In a historically favorable international environment, Washington could enjoy primacy—and its geopolitical fruits—on the cheap. Yet U.S. strategy also heeded, at least until recently, the fact that there was a limit to how cheaply that primacy could be had. The American military did shrink significantly during the 1990s, but U.S. officials understood that if Washington cut back too far, its primacy would erode to a point where it ceased to deliver its geopolitical benefits. Alliances would lose credibility; the stability of key regions would be eroded; rivals would be emboldened; international crises would go unaddressed. American primacy was thus like a reasonably priced insurance policy. It required nontrivial expenditures, but protected against far costlier outcomes.9 Washington paid its insurance premiums for two decades after the Cold War. But more recently American primacy and strategic solvency have been imperiled. THE DARKENING HORIZON For most of the post–Cold War era, the international system was— by historical standards—remarkably benign. Dangers existed, and as the terrorist attacks of September 11, 2001, demonstrated, they could manifest with horrific effect. But for two decades after the Soviet collapse, the world was characterized by remarkably low levels of great-power competition, high levels of security in key theaters such as Europe and East Asia, and the comparative weakness of those “rogue” actors—Iran, Iraq, North Korea, al-Qaeda—who most aggressively challenged American power. During the 1990s, some observers even spoke of a “strategic pause,” the idea being that the end of the Cold War had afforded the United States a respite from normal levels of geopolitical danger and competition. Now, however, the strategic horizon is darkening, due to four factors. First, great-power military competition is back. The world’s two leading authoritarian powers—China and Russia—are seeking regional hegemony, contesting global norms such as nonaggression and freedom of navigation, and developing the military punch to underwrite these ambitions. Notwithstanding severe economic and demographic problems, Russia has conducted a major military modernization emphasizing nuclear weapons, high-end conventional capabilities, and rapid-deployment and special operations forces— and utilized many of these capabilities in conflicts in Ukraine and Syria.10 China, meanwhile, has carried out a buildup of historic proportions, with constant-dollar defense outlays rising from US$26 billion in 1995 to US$226 billion in 2016.11 Ominously, these expenditures have funded development of power-projection and antiaccess/area denial (A2/AD) tools necessary to threaten China’s neighbors and complicate U.S. intervention on their behalf. Washington has grown accustomed to having a generational military lead; Russian and Chinese modernization efforts are now creating a far more competitive environment. Second, the international outlaws are no longer so weak. North Korea’s conventional forces have atrophied, but it has amassed a growing nuclear arsenal and is developing an intercontinental delivery capability that will soon allow it to threaten not just America’s regional allies but also the continental United States.12 Iran remains a nuclear threshold state, one that continues to develop ballistic missiles and A2/AD capabilities while employing sectarian and proxy forces across the Middle East. The Islamic State, for its part, is headed for defeat, but has displayed military capabilities unprecedented for any terrorist group, and shown that counterterrorism will continue to place significant operational demands on U.S. forces whether in this context or in others. Rogue actors have long preoccupied American planners, but the rogues are now more capable than at any time in decades. Third, the democratization of technology has allowed more actors to contest American superiority in dangerous ways. The spread of antisatellite and cyberwarfare capabilities; the proliferation of man-portable air defense systems and ballistic missiles; the increasing availability of key elements of the precision-strike complex— these phenomena have had a military leveling effect by giving weaker actors capabilities which were formerly unique to technologically advanced states. As such technologies “proliferate worldwide,” Air Force Chief of Staff General David Goldfein commented in 2016, “the technology and capability gaps between America and our adversaries are closing dangerously fast.”13 Indeed, as these capabilities spread, fourth-generation systems (such as F-15s and F-16s) may provide decreasing utility against even non-great-power competitors, and far more fifth-generation capabilities may be needed to perpetuate American overmatch. Finally, the number of challenges has multiplied. During the 1990s and early 2000s, Washington faced rogue states and jihadist extremism—but not intense great-power rivalry. America faced conflicts in the Middle East—but East Asia and Europe were comparatively secure. Now, the old threats still exist—but the more permissive conditions have vanished. The United States confronts rogue states, lethal jihadist organizations, and great-power competition; there are severe challenges in all three Eurasian theaters. “I don’t recall a time when we have been confronted with a more diverse array of threats, whether it’s the nation state threats posed by Russia and China and particularly their substantial nuclear capabilities, or non-nation states of the likes of ISIL, Al Qaida, etc.,” Director of National Intelligence James Clapper commented in 2016. Trends in the strategic landscape constituted a veritable “litany of doom.”14 The United States thus faces not just more significant, but also more numerous, challenges to its military dominance than it has for at least a quarter century.

#### Refusal of ‘Western technocracy’ ensures extinction through interlocking nuclear risks.

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A further line of political deflection is the accelerationist strategy. There are quasi-leftist accelerationists (Mackay and Avanessian). We should take seriously the proposition that the only way to save the planet is to accelerate the pace of technological innovation. On one view, the only way to save the planet from global warming is by developing nuclear fusion technology. This points down the pathway of the Hadron collider and big science. But there is another acceleration that would decommission all forms of nuclear technology, and rather than imitating the sun, seek renewable forms of symbiosis with solar energy. A global diversion of military and industrial resources into renewable and sustainable energy forms would constitute a technological acceleration coupled with a radical deceleration in fossil fuel consumption, perhaps even putting the brakes on the fallacy of economic growth. What quickly emerges is that there are choices to be made across contested terrains. The forms of acceleration are political choices, choices of great urgency, but to thematise “acceleration” as such provides scant critical purchase on different forms of acceleration. What is needed are nuanced mediations of the science and technology currently available, along with global democratic decision making on those technologies we choose to accelerate or slow down.

Another version of the “accelerationist” argument captures some of the ideological workings of the term. In Marxist circles, an “accelerationist” is someone who thinks that the collapse of capitalism will be hastened by allowing reactionary forces to speed up capitalism’s self-destruction. There are occasions when such an argument has validity: nothing about the form of the argument makes it inherently or structurally wrong. There are revolutionary moments when allowing capitalism to collapse in order to rebuild a socialist society is a better path than propping up a failing capitalist regime. The judgement is political rather than philosophical. In most contexts, however, the accelerationist argument, especially as a political principle, is deeply dangerous. It would be better, for example, to preserve a failing US capitalist regime while building social forces to take it over, than to allow the nuclear weapons of the United States to fall into the hands of a suicidal [self-destructive] military rearguard or some counter-revolutionary terrorist organisation. Preserving the possibility of human life might involve propping up collapsing capitalist institutions, not least the nuclear safety inspectorate, rather than allowing humanity to be swallowed up by some death spiral of presidential dictators in fear of being toppled. These are critical judgements that could arise at any moment, with real risks that poor judgements will hasten a nuclear confrontation that leads to mutually assured annihilation. The formal shape of an accelerationist argument needs to be understood strategically and politically if it is to address nuclear questions.

The accelerationist view that the deepening of capitalism could hasten its self-destructive tendencies and lead to its collapse is not inherently suicidal, but consideration of what the collapse of capitalism might mean for the global stock of nuclear weapons and nuclear power stations indicates dangers. Amid the collapse of capitalism, securing the safety of nuclear resources is a fundamental priority, and preparing a decelerationist strategy is an essential political position for any radical formation serious about nuclear safety. Against the horizon of nuclear crisis, we rely on workers to know how to manage and decommission nuclear weapons, silos and power stations. This requires “good” science and ongoing struggles to control the decision making around weapons and energy systems. Concrete consideration of what happens to ageing nuclear systems in an imploding political system has been tested in the fall of the Soviet Union. Imagine the retrenchment of reactionary forces around nuclear installations threatening suicidal political terrorism on a global scale. The risks of a collapsing capitalist system taking the world down with it are clear. Chernobyl and Fukushima, moreover, stand as metonyms of the risks involved in systems that were apparently functional and yet spiralled out of control even in what might be called peacetime. The risks of the US or the Chinese nuclear androids imploding involve different decisions. Again, the need is for nuanced political judgements and strategies, involving scientific expertise along with solidarity between scientists, workers and new social formations.

The need for nuanced political engagement with “good” science suggests some of the risks in any thematisation of science within archaic philosophical paradigms. One form of nuclear denial is the reluctance to engage with the concrete consequences of scientific knowledge, preferring to retreat behind the limited competence of the humanities scholar. It takes some hubris of philosophical interpretation to suggest that literary studies can offer to understand the fictional heart of the nuclear threat despite knowing very little about the science and technology involved. There will, doubtless, be philosophical, ontological and metaphysical questions that science and technology cannot answer. Nuclear arguments may carry within their forms and conditions of possibility the illusions of Western metaphysics, and decommissioning nuclear metaphors could turn out to be as significant as criticising the public lies of nuclear policy: but the nuclear android also imposes less philosophical imperatives to engage with science, from medical science to nuclear waste disposal, and through the critique of the political economy of the nuclear android. None of this suggests that metaphysics should or could be deleted. To deflect engagement with the existing mess of the nuclear android back into metaphysical and literary questions nevertheless threatens to evade the existing threats, not just of nuclear annihilation but of Indigenous rights, environmental politics, and the raft of mediations and regulative practices on which any amelioration of nuclear damage depends. Nuclear war remains an imminent threat, but so does the persistence of practices and strategies that contribute to maintenance of the spectacle of the nuclear rather than its disarmament and decommissioning. To reduce the problem to the “threat” of nuclear war is to imagine that the actually existing industrial behemoth of nuclear production is a fiction. It isn’t. Nuclear weapons testing and the history of nuclear accidents were not just fables, and nor was the arms race a war of sophistry and rhetoric, however much sophistry and rhetoric were deployed to disguise the ecocidal tendencies of the nuclear android.

#### AI detects asteroid collision

Bruce Dorminey, 06-07-2019, (Dorminey is a science journalist and author of "Distant Wanderers: The Search for Planets Beyond the Solar System" who writes about over-the-horizon technology, primarily astronomy and space science. A 1998 winner in the Royal Aeronautical Society's Aerospace Journalist of the Year Awards.), "Can Artificial Intelligence Save Us From Asteroidal Armageddon?," Forbes, https://www.forbes.com/sites/brucedorminey/2019/06/07/can-artificial-intelligence-save-us-from-asteroidal-armageddon//ceng

Even in this age of high-speed data analysis, a keen human eye normally can’t be beaten when poring over images of potential asteroidal impactors. But Artificial Intelligence (A.I.) could soon change all that. The El Segundo, Calif.-based Aerospace Corporation is now testing A.I. software designed to help astronomers speed up the process of identifying and tracking threatening Near-Earth Objects (NEOs). NASA’s Planetary Defense Coordination Office already uses numerous telescopes to find and monitor NEOs that might have the potential to impact Earth. But the non-profit Aerospace Corporation’s A.I. team is working with NASA on implementing software dubbed NEO AID (Near-Earth Object Artificial Intelligence Detection) to differentiate false positives from asteroids and comets that might be real threats. Nightly, researchers at locations such as the Catalina Sky Survey on Mount Lemmon in Tucson, Ariz. pore over hundreds of images of star fields in search of fast-moving objects that need more scrutiny, says Aerospace Corporation. It’s here that Aerospace A.I. engineers used 100 terabytes of data to build and train an artificial intelligence model that is now capable of classifying NEO targets of interest. And by Aerospace Corporation’s calculations, this new A.I. tech has already increased the sky survey’s performance by 10 percent with room for development. NASA’s Center for Near-Earth Object studies says that with over 90 percent of NEOs larger than one kilometer already discovered, the NEO program is now focusing on finding the 90 percent larger than 140 meters. However, there are still space rocks in the 10- to 20-meter diameter range that comes closer than the distance from the Earth to the Moon. That happens at least once or twice a month and if any of these objects were to actually strike a highly-populated area, they would do significant damage. But how would this new A.I. tech help NASA in its current search? NASA still relies on human eyes to determine a NEO’s threat assessment. The hope is that A.I. can streamline that process by classifying an image as high priority or low priority. The software technology that Aerospace Corporation has developed reduces the number of false identifications that human observers have to review, Jon Neff, Aerospace Corporation’s senior project leader for artificial intelligence, analytics, and innovation department, told me. Human eyes and brains are very good at finding small differences in images, he says. By training neural networks to imitate the way humans classify images of the night sky taken by telescopes, astronomers can automatically identify objects with a high probability of being NEOs. But Neff is quick to point out that this new NEO AID technology is designed to complement current methods of measurements, not replace them. As for the tech’s costs? The prototype software cost about $50,000 to develop, says Neff. We think an operational software system would cost about $500,000 , he says. How would this tech help in preventing the kind of high-inclination civilization-ending comets to which astronomers are still mostly blind? As with cancer, the key to survival is early detection and diagnosis, says Neff. The first step is to point telescopes where they can find high inclination objects; the next step is sorting through millions of images to find the small number of objects that pose a threat, he says. “Our technology can help save civilization by increasing the rate at which new objects are detected,” said Neff. “If we can detect threats early enough, we may have time to deflect them.”

#### Asteroids cause extinction

Corey S. Powell, 18, (Corey S. Powell, Book author, journalist, former editor in chief of Discover, 10-5-2018, Forbes, If We Discovered That An Asteroid Would Hit Earth In 20 Years, How Would We Stop It?, https://www.forbes.com/sites/quora/2018/10/05/if-we-discovered-that-an-asteroid-would-hit-earth-in-20-years-how-would-we-stop-it/#47b3ced45fb7, 8-11-2019) SCade

First off, could there be an undiscovered 20-mile-wide asteroid headed our way in the foreseeable future? The answer is a qualified yes. The killer could not come from the asteroid belt. Astronomers have already plotted the orbit of every asteroid that size (and a lot smaller) in great detail. There is no object that size that could plausibly hit Earth any time in the next few thousand years—probably not in the next few million years. There is one way that an object like that could be on its way without anyone knowing, however. If it were a giant comet or dislodged Kuiper Belt Object coming toward us on an extremely elliptical path (ie. falling almost straight toward the Sun), it would be very hard to detect. We plausibly might not spot it until it was somewhere between the orbits of Uranus and Neptune. An object at that distance would, in fact, take about 20 years to reach us. Keep in mind that 20-mile-wide objects are extremely rare, relatively speaking. There is no record of Earth being struck by anything that size in the past two billion years. The likelihood of it happening in the next few years is, well, astronomically small. But let’s play out the scenario. OK, what would happen if the asteroid struck? We’re talking about an object that is 2–3 times the diameter of the asteroid that hit us at the end of the Cretaceous. Given its steep path toward the Sun, it would be moving at a high velocity as well. It might pack 100 times the energy of the impact that ushered the old dinosaurs off the scene. This would be a full-on extinction-level event. There’s no precedent in the history of complex life on Earth, so we can only extrapolate. All of Earth’s surface would be set on fire. There would be tremendous earthquakes and tsunamis, followed by massive volcanism around the impact zone. The ozone layer would be destroyed. The oceans would turn acidic. The Sun would be blotted out, probably for decades. All surface infrastructure would be destroyed. Most complex species would surely perish in the aftermath. Now that we have the scope of the problem mapped out, we can think about the response. Idea one: Can we deflect the thing? The most likely approach, based on a recent study (Scientists design conceptual asteroid deflector and evaluate it against massive potential threat) would be to explode multiple nuclear warheads right next to the asteroid, vaporizing part of its surface and changing its orbit. If NASA, Roscosmos, the ESA, and the Chinese space agency (plus private industry) started cooperating right away, I can imagine that a coordinated set of launches could take off in about 2 years, and would intercept the asteroid about 10 years after that. Unlike many of the cynics here, I think that kind of international cooperation would happen. The threat is just too huge. All other concerns would become secondary; there will be no nations and governments to worry about if this thing hits. But will it work? That’s really hard to say. We’ve never attempted anything like this. The closest is missions like Hayabusa-2 and OSIRIS-REx, which will rendezvous with asteroids and touch the surface, or New Horizons, which did a precision high-speed flight to Pluto. But we’d be trying to deflect an object while knowing little about its shape and composition. Probably we would launch the nukes as quickly as possible, then adapt the mission parameters as we learned more about the asteroid.