# 1AC

### Advantage

#### Patent evergreening spikes cancer drug prices and makes cancer treatment prohibitively expensive by entrenching monopolies in the market – this card turns the innovation DA

Amin 18 Tahir Amin, Co-Founder Of Nonprofit I-Mak.Org, 6-27-2018, "The problem with high drug prices isn't 'foreign freeloading,' it's the patent system," CNBC, <https://www.cnbc.com/2018/06/25/high-drug-prices-caused-by-us-patent-system.html> DD AG

Americans continue to suffer the highest prescription drug costs of anyone in the world. One in four are unable to fill prescriptions due to high prices, according to a recent poll. And even though drug prices tripled over the last decade, analysts predict they will double again in the next ten years.

We have a runaway problem on our hands, and while new proposals from Congress and the president seek to improve the drug pricing system, we will fail to reach lasting solutions unless we address a root factor in this national crisis: patents.

Contrary to the Trump administration’s recent claims, the source of our prescription drug problems is not “foreign freeloading” governments creating unfair pricing schemes—it’s the unfair pricing systems created right here in the U.S. Today’s drug patent monopolies are deeper, longer and stronger than at any point in the last century—and it’s costing Americans and people around the world.

Before a prescription drug even enters the market—before pricing negotiations occur between payers, government agencies, insurers, and so on—the U.S. patent office awards exclusivity to drug makers for intellectual property claims that have a huge impact on the market.

And unfortunately, while patenting is an important mechanism for incentivizing and rewarding invention, pharmaceutical companies have figured out how to game the system—prolonging monopolies, claiming newness where there often is none, and taking patients on a ride they can barely afford.

In a recent study of every drug on the market between 2005 and 2015, a University of California School of Law professor found a “startling departure from the classic conceptualization of intellectual property protection for pharmaceuticals.”

Instead of going to new medicines, the study finds that 74 percent of new patents during the decade went to drugs that already existed. It found that 80 percent of the nearly 100 best-selling drugs extended their exclusivity protections at least once, and 50 percent extended their patents more than once—with the effect of prolonging the time before generics could reach the market as drug prices continued to rise.

The strategy is called “evergreening”: drug makers add on new patents to prolong a drug’s exclusivity, even when the additions aren’t fundamentally new, non-obvious, and useful as the law requires.

One of the most expensive cancer drugs on the market, Revlimid®, is a case in point: priced at over $125,000 per year of treatment, Celgene has sought 105 patents on Revlimid®, many of which have been granted, extending its monopoly until the end of 2036. That gives the Revlimid® patent portfolio a lifespan of 40 years, which is being used to block or deter generic competitors from entering the market.

But a recent I-MAK analysis finds that several of Celgene’s patents are mere add-ons—not fundamentally new to deserve a patent. And because of the thicket of patents around Revlimid®, payers are projected to spend $45 billion in excess costs on that drug alone as compared to what they could be paying if generic competitors were to enter when the first patent expires in 2019. Meanwhile, Celgene is also among the pharmaceuticals that have been recently scolded by the FDA for refusing to share samples with generic makers so they can test their own products against the brands in order to attain FDA approval.

In the absence of genuine competition in the U.S. prescription drug market, monopolies are yielding reckless pricing schemes and prohibitively expensive drugs for Americans (and people around the world) who need them. In 2015, for example, U.S. Senators Wyden and Grassley found after an 18-month bipartisan investigation that the notorious $84,000 price tag for the hepatitis C drug made by Gilead was based on “a pricing and marketing strategy designed to maximize revenue with little concern for access or affordability.”

Gilead’s subsequent hepatitis C drug Harvoni® was introduced to the market at a still higher cost of $94,500. Who benefits when drugs are priced so high? Not the 85 percent of Americans with hepatitis C who are still not able to afford treatment.

“Since the early 2000s, very few new drugs or indications have provided a tangible advance for patients,” the French medical journal Prescrire wrote in 2014. This is the problem with drug pricing today. Plenty of top-dollar drugs armored in patents, but too few solutions for patients that are genuinely affordable and helpful.

Until our patent system is reformed, the pharmaceutical industry will continue to abuse it—denying real competition, blocking incentives for actual new drug discoveries and using clever marketing strategies around “new” products that do not improve health outcomes.

For a free and competitive market that will actually help America’s patients, what we really need is to restore fairness to the patent system in the U.S. It may be convenient to blame foreign countries or insurance companies or any number of culprits for our high drug prices, but until we look at the heart of the problem and stop deflecting, patients in the U.S. and around the world will continue to lack treatments they can access and afford.

#### Soaring costs on cancer meds force patients to ration or skip their treatments – that leads to disproportionately high risk of death

Szabo 17 Liz Szabo [Liz Szabo, a senior correspondent and enterprise reporter who focuses on the quality of patient care, has covered medicine for two decades. Her stories about cancer and overtreatment for KHN have won numerous awards], 3-15-2017, "As Drug Costs Soar, People Delay Or Skip Cancer Treatments," NPR.org, <https://www.npr.org/sections/health-shots/2017/03/15/520110742/as-drug-costs-soar-people-delay-or-skip-cancer-treatments> DD AG

John Krahne received alarming news from his doctor last December. His brain tumors were stable, but his lung tumors had grown noticeably larger.

The doctor recommended a drug called Alecensa, which sells for more than $159,000 a year. Medicare would charge Krahne a $3,200 copay in December, then another $3,200 in January, as a new year of coverage kicked in.

For the first time since being diagnosed 10 years ago, Krahne, 65, decided to delay filling his prescription, hoping that his cancer wouldn't take advantage of the lapse and wreak further havoc on his body.

With new cancer drugs commonly priced at $100,000 a year or more, Krahne's story is becoming increasingly common. Hundreds of thousands of cancer patients are delaying care, cutting their pills in half or skipping drug treatment entirely, a Kaiser Health News examination shows.

One-quarter of all cancer patients chose not to fill a prescription due to cost, according to a 2013 study in The Oncologist. And about 20 percent filled only part of a prescription or took less than the prescribed amount. Given that more than 1.6 million Americans are likely to be diagnosed with cancer this year, that suggests 168,000 to 405,000 ration their own prescription use.

"Patients are being harmed daily" by high treatment costs, says Dr. Hagop Kantarjian, a leukemia specialist and professor at Houston's MD Anderson Cancer Center. "It's causing more deaths than necessary."

For instance, one-third of Medicare patients who were expected to use Gleevec — a lifesaving leukemia medication that costs up to $146,000 a year — failed to fill prescriptions within six months of diagnosis, according to a December study in the Journal of Clinical Oncology.

Stopping drugs like Gleevec could be cutting years from some patients' lives. Instead of dying in five to seven years, patients with chronic myeloid leukemia who take Gleevec and similar drugs can survive nearly as long as people without cancer, and with a good quality of life, Kantarjian said.

Given that his lung cancer has grown slowly over the years, Krahne's doctor thought it would be safe to wait until January to begin his new medication.

"We hope it doesn't hurt my chance of cure," says Krahne, from Santa Rosa, Calif. "It was an educated risk that we didn't take lightly."

Krahne made repeated calls to patient-assistance programs throughout January, trying to find help with his out-of-pocket costs. "The anxiety during those days or weeks was probably almost as bad as the day I was diagnosed with cancer," Krahne says.

Doctors have a term for Krahne's problem: "financial toxicity."

"We're talking about huge numbers of patients," says Dr. Scott Ramsey, director of the Hutchinson Institute for Cancer Outcomes Research at the Fred Hutchinson Cancer Center in Seattle. "It's an epidemic. And it's not going away."

Even patients with good insurance can face a financial crisis when trying to pay for cancer therapy. Medicare pays for the bulk of cancer care in the United States because 59 percent of cancer patients are older than 65. And although it covers a high percentage of the cost, copays for patients such as Krahne can easily reach $10,000 a year, according to Stacie Dusetzina, a researcher at the University of North Carolina who has found that privately insured patients with copays of just $53 were 70 percent more likely to stop taking Gleevec or take fewer doses than prescribed.

#### Patents on cancer medicine also specifically hurt women – preventing that is key to gender equity and innovation which comes prior to all of their impacts

Kane 07 Kane, Eileen M [Eileen Kane is a Professor of Law at Penn State Law, specializing in teaching and scholarship at the juncture of technology and the law. She holds a Ph.D. in molecular biology from Cornell University]. "Symposium: Molecules and Conflict: Cancer, Patents, and Women's Health." American University Journal of Gender, Social Policy & the Law. 15, no. 2 (2007): 305-335. <https://digitalcommons.wcl.american.edu/cgi/viewcontent.cgi?referer=&httpsredir=1&article=1113&context=jgspl> DD AG

As cancer research became informed by the insights of molecular biology, more recent controversies emerge over the patenting of therapeutic products developed from biotechnology. The patenting disputes over Herceptin, an antibody, and the BRCA1 and BRCA2 genes illustrate these dilemmas, as discussed in Part IV and Part V. Patent protection certainly accelerated the development of Herceptin as a new therapeutic, and although some patent infringement litigation has ensued, the patents remain in force and allow legitimate market dominance to date. However, the high price for Herceptin surely distinguishes the biologic therapeutic from more conventional treatments for breast cancer, and illustrates an emerging patent-related dilemma resulting from the success of biotechnology medicines. Due to its relatively recent origin, the biotechnology revolution in medicine has not yet generated reliable mechanisms to ensure that a generic market develops when initial patent protections elapse, and the acclaim for Herceptin will surely accelerate the attention to this issue. Here, patient advocates will need to monitor the vigor of the FDA as it responds to the demands for a generic approval process for biologics, making sure that such a system can truly speed the development of generic alternatives, and that a regulatory process is not abused through patent strategies, as has been observed in the Hatch-Waxman context.

The patenting and resulting market dominance over the use of the BRCA1 and BRCA2 genes has significant consequences for the efforts to optimize genetic testing, as the patents have constrained the scientific research that could expand testing methodologies. These are access issues for researchers, initially, but the consequences are real for patients who may not receive the most accurate assessment of their genetic susceptibility to breast cancer. Other breast-cancer related genes will be identified by researchers, and the benefits and limitations of DNA patenting will continue to be debated. There are proposals for ensuring access to patented DNA sequences, such as a reasonable royalty structure or a direct research exemption, and these mechanisms may receive more attention as the pharmacogenomic era gets underway, which will greatly rely on genetic testing. Despite widespread public concern about the role of patents in mediating the availability of medical advances, there are significant differences between the United States and Europe in the availability of patent opposition procedures, illustrated by the legal challenges posed to the European patents on the BRCA1 and BRCA2 genes. U.S. patent law requires a robust patent opposition procedure, in order that all stakeholders, such as breast cancer patient advocates, have the option to challenge patents with legal defects.

Advocates for women’s health have played a significant role in the patent issues discussed here, whether calling attention to abuses of the Hatch-Waxman generic approval process, litigating antitrust claims against collusive conduct by brand-name and generic companies, demanding access equity to high-priced biologics, or participating in the standard setting for the granting of DNA patents. Continued progress in women’s health research and meaningful access for women to medical advances are integral components of achieving full gender equity. To achieve these goals, it will be necessary for all concerned with women’s health to maintain a sophisticated understanding of the role that intellectual property plays in the development and control of essential scientific and medical resources.159

#### Independently, the patent system incentivizes increased cancer medicine prescriptions just to increase profit - that harms patients

Feldman et al 8/10 Robin C. Feldman [Robin Feldman’s work focuses on the role of intellectual property law in technology and innovation; drug patents, pricing, and health care law; and artificial intelligence and data. She is the Arthur J. Goldberg Distinguished Professor of Law, the Albert Abramson ’54 Distinguished Professor of Law Chair, and Director of the UC Hastings Center for Innovation (C4i).], David A. Hyman, W. Nicholson Price II & Mark J. Ratain, 8-10-2021, "Negative innovation: when patents are bad for patients," Nature Biotechnology, <https://www.nature.com/articles/s41587-021-00999-0> DD AG

Patent law in the United States is historically premised on advancing the interests of society. From the store of productive activity available to all, the government restricts some activities for a limited time in hopes this will redound to the benefit of all by incentivizing innovation1. The law thereby restricts competition, forgoing the concomitant advantages of the free market, but only during the patent period. After that time, the law expects that competition will enter, driving down prices and spurring new innovation. From this perspective, US patent law centers on the benefit to the public, with the inventor’s reward providing the vehicle for accomplishing this jurisprudential goal.

In the health care space, these incentives have resulted in extraordinary success stories, but the same incentives can also result in a range of undesirable consequences, including excessive development of similar (but not better) products (‘me-too drugs’), the focus on drugs for diseases that affect wealthy people and wealthy countries rather than diseases that disproportionately affect the poor and developing nations, and a lack of innovation for types of medicines that may return fewer profits, such as antibiotics2,3,4. Similarly, drug companies will not research the utility of a known (and hence unpatentable) chemical, since the ability to obtain patent protection is central to their business model5.

Past literature has highlighted these problems but has largely overlooked the problem of ‘negative innovation’, in which patent law drives innovation into spaces that are affirmatively harmful to patients. By this, we mean scenarios whereby patents create incentives to bring a product to market in a way that is relatively harmful to consumers, and the existence of a patent (and the associated rents) discourages the patentee from taking steps to improve the product so as to prevent the adverse health outcomes.

Of course, there are other patent-driven situations of problematic utility, including scenarios that result in purely financial harms, such as drugs that are no better than existing options but are more expensive; scenarios where a small, heightened risk of direct physical harm is offset by lower prices for the drug in question6; and scenarios where there is no existing product on the market and inadequate incentives to develop such a product, so any physical harm is the result of the underlying disease or illness7. Finally, there is a general concern that inadequate new information about existing products is generated in the current system8. All of these scenarios are different in kind from negative innovation, which results in a harmful (but profitable) product. We focus on this dangerous but overlooked space of the patent landscape, wherein patents themselves lead fairly directly to patient harm.

What does negative innovation look like? We highlight a particularly pernicious example, the case of Imbruvica (ibrutinib); suggest the likelihood of broader problems; and outline various strategies for preventing such outcomes going forward.

The case of ibrutinib

Ibrutinib, a small molecule drug discovered by Pharmacyclics (now a subsidiary of AbbVie), is an irreversible inhibitor of Bruton’s tyrosine kinase (BTK), a key regulator of B cell signaling and growth. It is approved by the US Food and Drug Administration for multiple indications and is most commonly used to treat B cell cancers, such as chronic lymphocytic leukemia. While ibrutinib is effective, it, like all anticancer agents, is toxic. It is all the more puzzling, then, that ibrutinib’s recommended dosage appears to be substantially higher than necessary to achieve the necessary therapeutic effect—or at least, what evidence is available points to that conclusion9. Problematic incentives created by the patent system make this result unfortunately unsurprising.

The basic story is disheartening but simple. Early studies published by Pharmacyclics showed efficacy at low doses (partial response at 1.25 milligrams per kilogram body weight, approximately 40% response at 2.5 mg kg–1, and no relationship of response to dose between 2.5 and 12.5 mg kg–1)10. These reports were shared by Pharmacyclics in a conference abstract in 200911,12 and a press release in 201013. An early patent application by Pharmacyclics (US 2012/0087915 A1) accordingly claimed a full range of doses.

Trials to support approval by the US Food and Drug Administration (FDA) continued. In July 2013, ibrutinib received accelerated approval for mantle cell lymphoma based on a 66% response rate in 111 patients treated at 560 mg daily. Notably, the 2013 FDA review included an analysis of the relationship of ibrutinib dose and trough plasma concentration to both response and toxicity. This analysis demonstrated no relationship with response: “Dose-response relationship for BTK occupancy and clinical response in the phase 1 dose escalation trial showed that maximum BTK occupancy and maximum response were achieved at doses of ≥ 2.5 mg/kg (≥ 175 mg for average weight of 70 kg)”14—far below the approved dosage of 560 mg.

Meanwhile, the FDA also granted accelerated approval for previously treated chronic lymphocytic leukemia on 12 February 2014 on the basis of a 58% response rate in 48 patients treated at a dose of 420 mg daily. Thus, there were now two different doses approved for ibrutinib, with the labeled dose based solely on the dose that was used in the single-arm studies supporting the accelerated approvals. Furthermore, in the context of that approval, the FDA reiterated its assessment that the labeled dose was higher than necessary and included the explicit suggestion to study lower doses: “However, the proposed dose is 2.4-fold higher than the lowest dose that resulted in maximum BTK occupancy and maximum clinical response. Dose-response relationship for ORR and BTK occupancy from phase 1 study suggested that maximum ORR and maximum occupancy was achieved at doses of ≥ 2.5 mg/kg (≥ 175 mg for average weight of 70 kg) [see Pharmacometrics review in DARRTS dated 11/01/2013]. The sponsor should thus consider exploring lower doses in future development programs.”15

Those lower doses have not, to our knowledge, been rigorously explored in clinical trials—an unfortunate outcome for patients, since if a lower dose is just as effective with lower side effects, treatment would be safer and better. However, if the lower dose were found to provide better patient outcomes and resulted in a change in the labeled dose, it is likely that the labeled dose would not be covered by the patent. Thus, generic competitors might be able to enter the market sooner, once the primary compound patent lost exclusivity. In fact, the process at the US Patent and Trademark Office (USPTO) and the limits of the granted patents encourage the patent holder to avoid such information entirely. The patent examiner evaluating Pharmacyclics’ method of treatment patents found lower doses obvious on the basis of the 2009 and 2010 conference and press release disclosures, which occurred more than a year before the relevant patent was filed. Only the highest doses—420 mg and higher—were granted in the issued method of treatment patent16. Patent law thus created incentives to pursue a higher, more toxic dose rather than the lower doses the FDA suggested be explored. And, adding insult to injury, once the patent was issued with narrower claims covering the high doses only, the drug sponsor not only lacked incentives to explore the possibility of lower doses, it had an active incentive not to explore those doses because evidence that lower doses were safe and effective would sharply reduce the economic significance of the method of treatment patent it had narrowly managed to obtain. The patent holder already knew it could not get protection on a lower dose––the USPTO had rejected lower doses as obvious––so any evidence of the importance of lower doses would have undermined the value of the company’s patent-protected, higher-dose product.

Broader possibilities

Although ibrutinib is only one example, we are concerned that it may be an indicator of a broader problem, one that either lies ahead or is already lurking. More generally, consider combination products with two drugs at fixed dosages. Many treatment method patents exist in which an independent claim specifies a dose, nominally designed to increase patient adherence but often at a much higher cost17,18. The result is that a prescriber cannot adjust the dosage for only one of the two drugs or discontinue only one component. It is possible, perhaps likely, that some of these combination regimens mirror the dosage issue with ibrutinib, in which the incentives of the patent system have encouraged the development of a drug in a form that is suboptimal for patient health in certain circumstances. This would not be the first time in history that combination medications have proven problematic. More than 50 years ago, a US Senate investigation found that certain combination antibiotics products—developed in an effort to bring something ‘new’ to the market—were useless or dangerous19. Nor is ibrutinib the only time in history that medications have been sold at higher dosages than appropriate for safety and efficacy. Millions of women received the birth control pill Enovid (mestranol/noretynodrel), containing ten times the necessary dose, before studies pointed to a concerning risk of blood clots19. In another sign of negative innovation, Gilead Sciences is alleged to have intentionally delayed a less-toxic version of its HIV medicine until just a few years before the original version’s patent expiration20.

Unfortunately, the pernicious impact of patent incentives described above means that not only are these situations possible, but it is hard to know how frequent or how serious these situations are. Pharmacyclics did not follow the recommendation from the FDA and others to study lower doses. Because its method of treatment patents were tied to the higher dose, they had no economic incentive to do such research—any information on safer dosing outside the scope of the issued claims would undermine the value of their existing patent, and they would be unable to get a new patent for the safer dose on grounds of obviousness. The safety data are starting to emerge anyway, albeit from sources other than the company9.

#### Thus the plan, the United States of America ought to reduce intellectual property protections for cancer medicines.

#### Only the plan solves - patents are the lynchpin of unaffordability – countries without patents have 30x cheaper cancer drugs

Bollyky 13 Thomas Bollyky [Thomas J. Bollyky is director of the global health program and senior fellow for global health, economics, and development at the Council on Foreign Relations (CFR). He is also an adjunct professor of law at Georgetown University.], 4/10/2013, “Why Chemotherapy That Costs $70,000 in the U.S. Costs $2,500 in India”, The Atlantic, <https://www.theatlantic.com/health/archive/2013/04/why-chemotherapy-that-costs-70-000-in-the-us-costs-2-500-in-india/274847/> DD AG

Why does Gleevec, a leukemia drug that costs $70,000 per year in the United States, cost just $2,500 in India?

It's seemingly simple. Gleevec is under patent in the U.S., but not in India. Accordingly, Novartis, its Swiss-based manufacturer, may prevent competitors from making and selling lower-cost versions of the drug in the U.S., but not in India.

Last week, India's highest court rejected an application to patent Gleevec. While the legal issue in the case is important -- the patentability of modifications to existing drugs under Indian law -- the impact of the decision will likely be broader than just that issue, escalating a long-simmering fight over patented cancer medications in emerging markets.

Rejecting the Gleevec patent application is not the only step that the Indian government has taken to circumvent patents on cancer drugs. Last year, India issued a compulsory license on Nexavar, a late-stage kidney and liver cancer treatment, enabling a local drug firm to produce a generic version of this medicine without the permission of Bayer, the patent holder. India has recently announced plans to grant compulsory licenses on another leukemia drug and two breast cancer therapies.

India is not alone. Indonesia recently issued a compulsory license for a treatment for liver cancer-causing hepatitis B. China and the Philippines amended their pharmaceutical patent laws, making it easier for those governments to take similar measures as India.

Three trends are driving these moves, suggesting more fights over patients, patents, and drug prices are forthcoming.

First, cancer rates are increasing fast in many developing countries. With rising incomes and better access to childhood vaccinations, people are living longer in most developed countries. The major health risks worldwide are now behavioral -- such as tobacco use and household air pollution. The increases in longevity and exposure to behavioral risks are outpacing the improvement in health and regulatory systems in developing countries. As a result, people in these countries are developing cancers younger, in greater numbers, and suffering more chronic disability for cancer and other noncommunicable diseases (NCDs) than ever seen in developed countries.

Second, access to effective cancer treatment, patented or otherwise, is limited in developing countries. Most patients pay out-of-pocket for most of their medicines, and high prices put drugs beyond their reach. Cancers that are preventable or treatable in wealthy countries are death sentences in the developing world. Cervical cancer is largely preventable in developed countries with the human papillomavirus vaccine; in sub-Saharan Africa and South Asia, it is the leading cause of cancer death among women. Ninety percent of children with leukemia in high-income countries will be cured, but 90 percent of those with that disease in low-income countries will die from it.

Third, middle-income countries like India have both health and industrial policy reasons for encouraging domestic production of cancer drugs. Cancer rates are growing fastest in these populations, and governments are under pressure to better address the health needs of their ailing citizens. India, China, and other emerging nations are expanding coverage of medicines in their public sectors, but expenditures are rising astonishingly fast. IMS Health projects that annual drug spending in middle-income countries will double between 2012 and 2016, to more than $300 billion. Requiring local production of cancer drugs lowers their cost and also helps domestic manufacturers break into the oncology market, a lucrative therapeutic area in which multinational drug firms are heavily invested.

The measures that India and other countries have taken -- compulsory licensing and adopting strict standards on patentability -- are consistent with its international trade commitments, but will be corrosive to the way that pharmaceutical research and development (R&D) is funded internationally. More countries are likely to follow India's lead. Cancer is not the only NCD on the rise in developing countries, with rates of diabetes, cardiovascular, and chronic respiratory illnesses likewise increasing. U.S. patients will not indefinitely pay a 20-fold increase on the price of medicines that Indian consumers pay.

The fight over cancer drugs in India exposes a fundamental tension in the way we fund pharmaceutical R&D. Patents allow pharmaceutical firms to charge high prices for drugs for a limited period of time to recoup their investment in R&D. This results in more of the drugs that we need, but makes them less accessible to those who need them. The tension becomes greater in the global context because the income disparities between developed and developing country patients are so vast.

This tension in the patent system has been exposed before. A decade ago, courtroom battles and protests over access to patented HIV/AIDS medications in South Africa dominated international headlines. Those fights subsided when multinational companies donated their drugs, charged rock-bottom prices for them in poor countries, or allowed local companies to make generic versions. Yet the emerging fight over cancer medicines threatens to be bigger, as it involves the emerging markets and disease groups on which the multinational drug industry has banked its future.

The international community shows no appetite to agree on new ways to fund pharmaceutical R&D. Talks on alternatives like prize funds and R&D treaties at the World Health Organization have gone nowhere. The United States, Europe, and other developed countries have too much invested in the intellectual property (IP) system. According to the U.S. Patent & Trademark Office, IP in the U.S. is worth more than $5 trillion and is responsible for the employment of as many 18 million U.S. workers. On the other hand, countries like India are not about to agree to tightening standards on the flexibilities that the current IP system gives them on patentability and compulsory licensing.

### Framework

#### The standard is decreasing structural inequalities

#### Prefer:

#### 1] Prioritize structural impacts – worst-case scenario predictions are based on threat exaggeration – distorts rational decision-making and justify preemptive warfare

Mueller & Stewart ’11 [John, Woody Hayes National Security Studies and Professor of Political Science @ Ohio State University, Mark, Professor of Civil Engineering and Director of the Centre for Infrastructure Performance and Reliability at the University of Newcastle in Australia, “Terror, Security, and Money”, page numbers below]

Focusing on Worst-Case Scenarios Cass Sunstein, who seems to have invented the phrase "probability neglect," assesses the version of the phenomenon that comes into being when "emotions are intensely engaged." Under that circumstance, he argues, "people’s attention is focused on the bad outcome itself and they are inattentive to the fact that it is unlikely to occur." Moreover, they are inclined to "demand a substantial governmental response-even if the magnitude of the risk does not warrant the response." It may be this phenomenon that Treverton experienced. Playing to this demand, government officials are inclined to focus on worst-case scenarios, presumably in the knowledge, following Sunstein's insight, that this can emotionally justify just about any expenditure, no matter how unlikely the prospect the dire event will actually take place. Accordingly; there is a preoccupation with "low probability/ high consequence" events, such as the detonation of a sizable nuclear device in midtown Manhattan. The process could be seen in action in an article published in 2008 by Secretary of Homeland Security (DHS) Michael Chertoff. He felt called upon to respond to the observation that the number of people who die each year from international terrorism, while tragic, is actually exceedingly small. "This fails to consider," he pointed out, "the much greater loss of life that Weapons of mass destruction could wreak on the American people." That is, he was justifying his entire budget-only a limited portion of which is concerned with Weapons of mass destruction by the WMD threat, even while avoiding assessing its likelihood. It is sometimes argued that conventional risk analysis breaks down under extreme conditions because the risk is now a very large number (losses) multiplied by a very small number (attack probability). But it is not the risk analysis methodology that is at fault here, but our ability to use the information obtained from the analysis for decision making. A "high consequence" event has been defined to be a "disaster" or "catastrophe" resulting in "great human costs in life, property environmental damage, and future economic activity" However, depending on how one weighs the words in that definition, there may have been only one terrorist event in all of history that qualifies for inclusion. Moreover, the vast bulk of homeland security expenditures is not focused on events that fit a definition like that, but rather on comparatively low-consequence ones, like explosions set off by individual amateur jihadists. Analyst Bruce Schneier has written penetratingly of worst-case thinking. He points out that it , involves imagining the worst possible outcome and then acting as if it were a certainty. It substitutes imagination for thinking, speculation for risk analysis, and fear for reason. It fosters powerlessness and vulnerability and magnifies social [immobilization] ~~paralysis~~. And it makes us more vulnerable to the effects of terrorism. It leads to bad decision making because it's only half of the cost-benefit equation. Every decision has costs and benefits, risks and rewards. By speculating about what can possibly go wrong, and then acting as if that is likely to happen, worst-case thinking focuses only on the extreme but improbable risks and does a poor job at assessing outcomes. It also assumes "that a proponent of an action must prove that the nightmare scenario is impossible," and it "can be used to support any position or its opposite. If we build a nuclear power plant, it could melt down. If we don't build it, We will run short of power and society will collapse into anarchy" And worst, it "validates ignorance" because, "instead of focusing on what we know, it focuses on what we don't know-and what we can imagine." In the process, "risk assessment is devalued" and "probabilistic thinking is repudiated in favor of possibilistic thinking." As Schneier also notes, worst-case thinking is the driving force behind the precautionary principle, a decent working definition of which is "action should be taken to correct a problem as soon as there is evidence that harm may occur, not after the harm has already occurred." It could be seen in action less than a week after 9/11, when President George W Bush outlined his new national security strategy: "We cannot let our enemies strike first . . . [but must take] anticipatory action to defend ourselves, even if uncertainty remains as to the time and place of the enemy's attack. To forestall or prevent such hostile acts by our adversaries, the United States, will, if necessary act preemptively \_ . . America will act against such emerging threats before they are fully formed." The 2003 invasion of Iraq, then, was justified by invoking the precautionary principle based on the worst-case scenario in which Saddam Hussein might strike. If, on the other hand, any worst-case thinking focused on the potential for the destabilizing effects a war would have on Iraq and the region, the precautionary principle would guide one to be very cautious about embarking on war. As Sunstein notes, the precautionary principle "offers no guidance-not that it is wrong, but that it forbids all courses of action, including regulation." Thus, "taken seriously it is paralyzing, banning the very steps that it simultaneously requires."9 It can be invoked in equal measure to act or not to act. There are considerable dangers in applying the precautionary principle to terrorism: on the one hand, any action taken to reduce a presumed risk always poses the introduction of countervailing risks, while on the other, larger, expensive counterterrorism efforts will come accompanied by high opportunity costs." Moreover "For public officials no less than the rest of us, the probability of harm matters a great deal, and it is foolish to attend exclusively to the worst case scenario." A more rational approach to worst-case thinking is to establish the likelihood of gains and losses from various courses of action, including staying the current course." This, of course, is the essence of risk assessment. What is necessary is due consideration to the spectrum of threats, not simply the worst one imaginable, in order to properly understand, and coherently deal with, the risks to people, institutions, and the economy The relevant decision makers are professionals, and it is not unreasonable to suggest that they should do so seriously. Notwithstanding political pressures (to be discussed more in chapter 9), the fact that the public has difficulties with probabilities when emotions are involved does not relieve those in charge of the requirement, even the duty to make decisions about the expenditures of vast quantities of public monies in a responsible manner. [page 14-17]

#### 2] Predictions of rare events like extinction is next to impossible – prefer empirically verified events to improbable predictive analytics.

#### a] The future is unpredictable – the best way to preserve future value is to do good things now

Karnofsky 14 - Executive Director of the Open Philanthropy Project degree in Social Studies from Harvard University (Holden Karnofsky, 7/3/14, “The Moral Value of the Far Future” <https://www.openphilanthropy.org/blog/moral-value-far-future>)

I broadly accept the idea that the bulk of our impact may come from effects on future generations, and this view causes me to be more interested in scientific research funding, global catastrophic risk mitigation, and other causes outside of aid to the developing-world poor. (If not for this view, I would likely favor the latter and would likely be far more interested in animal welfare as well.) However, I place only limited weight on the specific argument given by Nick Bostrom in Astronomical Waste - that the potential future population is so massive as to clearly (in a probabilistic framework) dwarf all present-day considerations. More I reject the idea that placing high value on the far future - no matter how high the value - makes it clear that one should focus on reducing the risks of catastrophes such as extreme climate change, pandemics, misuse of advanced artificial intelligence, etc. Even one who fully accepts the conclusions of “Astronomical Waste” has good reason to consider focusing on shorter-term, more tangible, higher-certainty opportunities to do good - including donating to GiveWell’s current top charities and reaping the associated flow-through effects. More I consider “global catastrophic risk reduction” to be a promising area for a philanthropist. As discussed previously, we are investigating this area actively. More Those interested in related materials may wish to look at two transcripts of recorded conversations I had on these topics: a conversation on flow-through effects with Carl Shulman, Robert Wiblin, Paul Christiano, and Nick Beckstead and a conversation on existential risk with Eliezer Yudkowsky and Luke Muehlhauser. The importance of the far future As discussed previously, I believe that the general state of the world has improved dramatically over the past several hundred years. It seems reasonable to state that the people who made contributions (large or small) to this improvement have made a major difference to the lives of people living today, and that when all future generations are taken into account, their impact on generations following them could easily dwarf their impact in their own time. I believe it is reasonable to expect this basic dynamic to continue, and I believe that there remains huge room for further improvement (possibly dwarfing the improvements we’ve seen to date). I place some probability on global upside possibilities including breakthrough technology, space colonization, and widespread improvements in interconnectedness, empathy and altruism. Even if these don’t pan out, there remains a great deal of room for further reduction in poverty and in other causes of suffering. In Astronomical Waste, Nick Bostrom makes a more extreme and more specific claim: that the number of human lives possible under space colonization is so great that the mere possibility of a hugely populated future, when considered in an “expected value” framework, dwarfs all other moral considerations. I see no obvious analytical flaw in this claim, and give it some weight. However, because the argument relies heavily on specific predictions about a distant future, seemingly (as far as I can tell) backed by little other than speculation, I do not consider it “robust,” and so I do not consider it rational to let it play an overwhelming role in my belief system and actions. (More on my epistemology and method for handling non-robust arguments containing massive quantities here.) In addition, if I did fully accept the reasoning of “Astronomical Waste” and evaluate all actions by their far future consequences, it isn’t clear what implications this would have. As discussed below, given our uncertainty about the specifics of the far future and our reasons to believe that doing good in the present day can have substantial impacts on the future as well, it seems possible that “seeing a large amount of value in future generations” and “seeing an overwhelming amount of value in future generations” lead to similar consequences for our actions. Catastrophic risk reduction vs. doing tangible good Many people have cited “Astronomical Waste” to me as evidence that the greatest opportunities for doing good are in the form of reducing the risks of catastrophes such as extreme climate change, pandemics, problematic developments related to artificial intelligence, etc. Indeed, “Astronomical Waste” seems to argue something like this: For standard utilitarians, priority number one, two, three and four should consequently be to reduce existential risk. The utilitarian imperative “Maximize expected aggregate utility!” can be simplified to the maxim “Minimize existential risk!”. I have always found this inference flawed, and in my recent discussion with Eliezer Yudkowsky and Luke Muehlhauser, it was argued to me that the “Astronomical Waste” essay never meant to make this inference in the first place. The author’s definition of existential risk includes anything that stops humanity far short of realizing its full potential - including, presumably, stagnation in economic and technological progress leading to a long-lived but limited civilization. Under that definition, “Minimize existential risk!” would seem to potentially include any contribution to general human empowerment. I have often been challenged to explain how one could possibly reconcile (a) caring a great deal about the far future with (b) donating to one of GiveWell’s top charities. My general response is that in the face of sufficient uncertainty about one’s options, and lack of conviction that there are good (in the sense of high expected value) opportunities to make an enormous difference, it is rational to try to make a smaller but robustly positive difference, whether or not one can trace a specific causal pathway from doing this small amount of good to making a large impact on the far future. A few brief arguments in support of this position: I believe that the track record of “taking robustly strong opportunities to do ‘something good’ ” is far better than the track record of “taking actions whose value is contingent on high-uncertainty arguments about where the highest utility lies, and/or arguments about what is likely to happen in the far future.” This is true even when one evaluates track record only in terms of seeming impact on the far future. The developments that seem most positive in retrospect - from large ones like the development of the steam engine to small ones like the many economic contributions that facilitated strong overall growth - seem to have been driven by the former approach, and I’m not aware of many examples in which the latter approach has yielded great benefits. I see some sense in which the world’s overall civilizational ecosystem seems to have done a better job optimizing for the far future than any of the world’s individual minds. It’s often the case that people acting on relatively short-term, tangible considerations (especially when they did so with creativity, integrity, transparency, consensuality, and pursuit of gain via value creation rather than value transfer) have done good in ways they themselves wouldn’t have been able to foresee. If this is correct, it seems to imply that one should be focused on “playing one’s role as well as possible” - on finding opportunities to “beat the broad market” (to do more good than people with similar goals would be able to) rather than pouring one’s resources into the areas that non-robust estimates have indicated as most important to the far future. The process of trying to accomplish tangible good can lead to a great deal of learning and unexpected positive developments, more so (in my view) than the process of putting resources into a low-feedback endeavor based on one’s current best-guess theory. In my conversation with Luke and Eliezer, the two of them hypothesized that the greatest positive benefit of supporting GiveWell’s top charities may have been to raise the profile, influence, and learning abilities of GiveWell. If this were true, I don’t believe it would be an inexplicable stroke of luck for donors to top charities; rather, it would be the sort of development (facilitating feedback loops that lead to learning, organizational development, growing influence, etc.) that is often associated with “doing something well” as opposed to “doing the most worthwhile thing poorly.” I see multiple reasons to believe that contributing to general human empowerment mitigates global catastrophic risks. I laid some of these out in a blog post and discussed them further in my conversation with Luke and Eliezer. For one who accepts these considerations, it seems to me that: It is not clear whether placing enormous value on the far future ought to change one’s actions from what they would be if one simply placed large value on the far future. In both cases, attempts to reduce global catastrophic risks and otherwise plan for far-off events must be weighed against attempts to do tangible good, and the question of which has more potential to shape the far future will often be a difficult one to answer. If one sees few robustly good opportunities to “make a huge difference to the far future,” the best approach to making a positive far-future difference may be “make a small but robustly positive difference to the present.” One ought to be interested in “unusual, outstanding opportunities to do good” even if they don’t have a clear connection to improving the far future.

#### b] The world is complex – linear predictions are incoherent

Glover 12 (7/21/12, Robert W. Glover is the CLAS Honors Preceptor in Political Science at the University of Maine. “Compatibility or Incommensurability: IR Theory and Complex Systems Analysis” <http://www.e-ir.info/2012/07/21/compatibility-or-incommensurability-ir-theory-and-complex-systems-analysis/#_ftn1>)

A recent New York Times op-ed, written by a professor of political science no less, lambasted the discipline for consistently failing to predict both international and domestic political outcomes. It boldly proclaimed “…[c]himps throwing darts at possible outcomes would have done almost as well as the experts.”[1] To add insult to injury, the article featured a picture of a primate armed with darts taking aim at circular boards marked with regions of the world, possible outcomes, and likelihoods. The upshot of the article was that political science simply shouldn’t be in the business of prediction. Stevens quotes Karl Popper, stating “[l]ong term prophecies can be derived from scientific conditional predictions only if they apply to systems which can be described as well-isolated, stationary, and recurrent. These systems are very rare in nature; and modern society is not one of them.”[2] Though such indictments of our intellectual enterprise may be painful to hear, they are also correct in many senses. Political science, and by extension international relations (IR), has had difficulties in predicting future events with any accuracy or specificity. The guiding principles of “traditional” or “mainstream” approaches to IR have generally held that there is observable order in world affairs, from which we can offer explanations and make predictions. It is the great hope of our discipline that “there is an external world of which we can have knowledge…” and the notion that IR is “grounded in lawlike regularities that allow the possibility of making claims about how the ‘international’ operates.”[3] Yet if this were the case, surely we’d be doing a better job at forecasting international outcomes. The invocation of Popper reminds us why our best laid plans have gone awry. Social systems, from the most basic to the most intricate, almost invariably involve the complex interface of many variables, opaque interaction effects, and elements of chance and human variability. As Jervis states, “…[t]he result is that systems often display non-linear relationships, outcomes cannot be understood by the adding together of units or their relations and many of the results of actions are unintended. Complexities can appear in even what would seem to be simple and deterministic situations.”[4] Beyond prediction, even our attempts at post-hoc explanation tend to rely upon reductionism. That is to say we reduce the irreducibly complex to pithy “cause and effect” relationships. The 2008 war between Russia and Georgia was caused by a dispute over South Ossetia. The 1997 economic crisis was triggered by currency instability in Southeast Asia. The recent political upheaval in Egypt stemmed from technologically savvy young people angered with the corruption of Mubarak’s regime and a stagnant economy. These are the types of concise explanations we offer for events of enormous, systemic, complexity. However, IR theory has been grappling with a new set of tools which originate in the study of the natural world, specifically physics and biology. We call these tools “complex systems analysis” or in its more conceptual variant, “complexity theory.”[5] Complexity is not a unified theory as such, but rather an “emerging approach or framework” drawn from a variety of sources.[6] Proponents argue that IR can achieve better understanding of the world utilizing conceptual lenses attuned to the interaction of large numbers of variables and actors, interacting in a non-linear (and hence, less predictable) fashion. The remainder of this article will examine the rudiments of complexity theory, as well as its promise as a conceptual tool in understanding international relations. In particular, I will focus upon whether complexity theory constitutes a framework compatible with existing IR theories, or a fundamental and incommensurable challenge to the present theoretical landscape of IR

#### c] You can’t predict black swan events

Chadefaux 17 [Thomas Chadefaux (Department of Political Science, Trinity University); 20 February 2017; Data Science Journal; “Conflict forecasting and its limits”; <https://content.iospress.com/articles/data-science/ds002> //BWSWJ]

The question of predictability ultimately hinges on the underlying nature of conflict. In the words of Popper, does it more closely resemble the world of clouds – “highly irregular, disorderly, and more or less unpredictable” – or the one of clocks – “regular, orderly, and highly predictable in their behaviour” (Popper [37]). Unfortunately we do not yet know which we are facing. On most days, international and domestic interactions resemble a clock. Small deviations are corrected in a reversion to the mean, and the stochastic process of daily events and tensions that may emerge on a local or global level is trendstationary. Yet there are also rare shocks that do not follow this clock-like pattern. These are, of course, the events of interest here – conflicts, coups, acts of terrorism – that may start a cascade and change the clock into a cloud and the trend-stationary time series into unit-root processes (Doran [17]). There is yet a third possibility: that conflicts are neither clouds nor clocks, but black swans (Taleb [53]). Black swans are game-changing events with such low probability that they cannot be predicted (even though experts often claim to have found obvious warning signs for them ex post). Black swans are different from simple rare events. While rare events occur infrequently, their probability is not low conditional on the relevant set of variables. On the other hand, black swans have a low probability even conditional on other variables. Where conflict processes should be located on the clock-cloud-swan continuum matters. With clocks, predictions are possible, whether they be point or probabilistic predictions.7 With clouds, the marginal cost of better predictions would be increasing, but we could at least learn about the aggregate distribution and data-generating process (e.g. Clauset, Young, and Gleditsch [16] on the frequency of terrorist events). With black swans, however, attempting to predict would be a fool’s game. Several factors make it particularly challenging to predict conflict, and in fact may impose insuperable limits to our forecasts. First, our data are, almost by definition, prone to error and imprecision (e.g. Shellman, Hatfield, and Mills [47]). Part of it is due to poor measuring. But part of it is caused by strategic misrepresentation and concealing on the part of the relevant governments. A second reason for the difficulty to predict conflicts is that their structure, and more generally the structure of international relations, are constantly evolving. The end of the cold war, for example, was largely unanticipated and challenged many of the structures and patterns that formed parts of the existing models. Even within a given conflict, the dynamic can dramatically change and necessitate a different model (e.g. the surge in Iraq, Bhavnani et al. [4]). The difficulty is that these changes are difficult to anticipate – they are often black swans themselves – such that our ability to forecast may be limited to the short-term. The long term, on the other hand, would be the result of too many compounding shocks to a point where predictions become futile. Ideally, our predictions would be able to accomodate these changes. This may require two-level predictions in which the structure itself is first predicted, and within that structure the short-term events would be forecasted with a different model. But of course this would compound the uncertainty about our model specification and data. Another difficulty relates to the strategic nature of international relations and politics in general. First, actors are forward looking. They form their own predictions about the future, and act accordingly today. As a result, these predictions can affect their behavior today and invalidate these original predictions. As observers, then, we may have the right logic but end up not observing the phenomenon. Consider for example the problem of the onset of wars. If their contemporaries identify the underlying conditions as ripe for war, they may take additional steps to either prevent it, postpone its onset, or on the contrary speed it up, such that the initial predictions will be invalidated (e.g. Chadefaux [13] for empirical evidence of this pattern). The same logic also applies to the conduct and termination of war. The anticipations of forthcoming peace negotiations, for example, may lead certain actors – spoilers – to try harder to disrupt the peace process, thus reducing the prospects for peace (Kydd and Walter [31]). Mixed strategies are another difficulty. States or domestic actors cannot always respond to the same situation in the same way, else their response becomes predictable and may be exploited by the adversary. Just like a tennisman will not always serve in the same place to prevent the opponent from anticipating his actions, leaders must vary their threats and responses to events. As a result, the same conditions and sequence of events may lead to different reactions, some potentially leading to wars whereas others do not. In such cases, probabilistic predictions remain possible, but point predictions are inherently impossible. While a large number of observations may bring us close to an estimate of the underlying probability distribution, the predictive value of our forecasts will be bound upward by a fundamental limit. In fact, uncertainty itself may be necessary for the onset and continuation of war. Indeed, one of the central rationalist explanations for why bargaining might break down into war is incomplete information of at least one of the participants. As a result, “we cannot predict in individual cases whether states will go to war, because war is typically the consequence of variables that are unobservable ex ante, both to us as researchers and to the participants” (Gartzke [19], p. 567). Conflicts and the processes leading to them may also be path-dependent. A small event may lead to a cascading effect and ultimately to war. Yet the same underlying structure could possibly have accomodated an alternate equilibrium in which peace prevailed. Self-reinforcing processes mean that international interactions may magnify the effects of chance. Looking back, we may be able to trace the explosion of a keg – conflict – to a single spark (though this is itself debatable, as evidenced by the unfaltering scholarship on the causes of WWI), but looking forward, we are unable to know which spark will ignite the keg. In the same way, seismologists understand the causes of earthquakes and are able to monitor seismological variations with high precision but still cannot predict their onset with much early warning.8

#### 3] Actor specificity –

#### a] it is the moral obligation of the United States government to help its citizens, especially those who suffer the most from disease and poverty. There is no unique obligation for the US to prevent extinction that may or may not occur thousands of years in the future – fill in by other countries solves that and proves structural violence has to come prior

#### b] States can’t focus on abstract, overarching theories but should do what’s right because it’s the right thing to do – this commits them to consequentialism instead of inflexible rules

**Raz:** Raz, Joseph [Faculty, Columbia Law School] “Multiculturalism: A Liberal Perspective.” *Multiculturalism.* Winter 1994. RP //recut DD AG

**Political philosophy does not provide us with eternally valid theories for the government of all human societies. To my mind political philosophy is time-bound. It is valid—if it is valid at all—for the conditions prevailing here and now.** Its conclusions apply also to similar situations elsewhere. But we cannot set the precise boundaries for their application. There are two reasons for this limitation. First, **it is impossible to articulate comprehensively all the relevant moral considerations we are aware of, and impossible to state in general how much they weigh against each other in situations of conflict. Moral knowledge is practical in a special sense: it is embodied in our practices and acquired by habituation**. We often know what to do when faced with the situation in which action is called for when we could not have known what to do ahead of time. Everything we know can be articulated, can be ex- pressed in words. But it cannot be exhaustively expressed in general abstract formulae. The situation is analogous with that of a person who embarks on a journey to a distant destination. Ask him ahead of time to describe the route and he will be unable to do so. Yet as he progresses along the road he recalls at every stage how to proceed at that point. **Not everything we know can we exhaustively state in the abstract. Moral knowledge escapes such formulation, and that means that moral theories are to be taken as mere approximations. Those who apply them inflexibly are fanatics heading for disaster.**

#### 4] Default to probability – any other model of risk calculus collapses in on itself

Kessler 08 (Oliver; April 2008; PhD in IR, professor of sociology at the University of Bielefeld, and professor of history and theory of IR at the Faculty of Arts; Alternatives, Vol. 33, “From Insecurity to Uncertainty: Risk and the Paradox of Security Politics” p. 211-232)

The problem of the second method is that **it is very difficult to "calculate"** politically **unacceptable losses**. **If** the **risk** of terrorism **is defined** in traditional terms **by** probability and **potential loss, then** the **focus on dramatic** terror **attacks leads to** the marginalization of probabilities. The reason is that **even the highest degree of improbability** becomes irrelevant **as the measure of loss goes to infinity**.^o **The** mathematical **calculation of the risk** of terrorism thus **tends to overestimate and** to **dramatize** the **danger**. **This has consequences beyond** the actual **risk assessment for the formulation** and execution **of "risk policies"**: **If one factor** of the risk calculation **approaches infinity** (e.g., if a case of nuclear terrorism is envisaged), then **there is no balanced measure** for antiterrorist efforts, **and** risk management as a rational endeavor breaks down. Under the historical condition of bipolarity, the "ultimate" threat with nuclear weapons could be balanced by a similar counterthreat, and new equilibria could be achieved, albeit on higher levels of nuclear overkill. **Under** the new condition of **uncertainty, no** such **rational balancing is possible since knowledge** about actors, their motives and capabilities, **is largely absent**. The second form of **security policy** that emerges when the deterrence model collapses mirrors the "social probability" approach. It **represents a** logic of catastrophe. **In contrast to risk** management **framed** in line **with logical probability** theory, **the logic of catastrophe does not attempt to provide means of absorbing uncertainty**. Rather, **it takes uncertainty as constitutive for** the **logic** itself; **uncertainty is a** crucial **precondition for catastrophes**. In particular, catastrophes happen at once, **without** a **warning**, but with major implications for the world polity. In this category, **we find** the impact of **meteorites**. Mars attacks, the tsunami in **South East Asia, and 9/11**. **To conceive of** terrorism as **catastrophe has consequences for** the **formulation of** an **adequate security policy**. Since **catastrophes hap-pen irrespectively of human activity** or inactivity, no political action **could** possibly **prevent them**. Of course, there are precautions that can be taken, but **the framing of** terrorist attack as **a catastrophe points to spatial and temporal characteristics that are beyond "rationality." Thus**, political **decision makers are exempt**ed **from the responsibility to provide security**—as long as they at least try to preempt an attack. Interestingly enough, 9/11 was framed as catastrophe in various commissions dealing with the question of who was responsible and whether it could have been prevented. This makes clear that under the condition of uncertainty, there are no objective criteria that could serve as an anchor for measuring dangers and assessing the quality of political responses. For ex- ample, as much as one might object to certain measures by the US administration, it is almost impossible to "measure" the success of countermeasures. Of course, there might be a subjective assessment of specific shortcomings or failures, but there is no "common" currency to evaluate them. As a consequence, **the framework of** the **security** dilemma **fails to capture** the **basic uncertainties**. Pushing the door open for the security paradox, the main problem of security analysis then becomes the question how to integrate dangers in risk assessments and security policies about which simply nothing is known. In the mid 1990s, a Rand study entitled "New Challenges for Defense Planning" addressed this issue arguing that "most striking is the fact that **we do not** even **know** who or what will constitute **the most serious future threat**, "^i **In order to cope** with this challenge it would be essential, another Rand researcher wrote, to break free from **the** "tyranny" of plausible scenario planning. The decisive **step would be to create "discontinuous scenarios ... in which there is** no plausible audit trail or storyline from current events"52 These nonstandard scenarios were later called "wild cards" and became important in the current US strategic discourse. They justified the transformation from a threat-based toward a capability- based defense planning strategy.53 The problem with this kind of risk assessment is, however, that **even the most** absurd scenarios can **gain plausibility**. **By constructing a** chain of potentialities**, improbable events are linked and brought into** the realm of **the possible, if not** even the **probable**. "**Although** the **likelihood** of the scenario **dwindles with each step, the** residual **impression is** one **of plausibility**. "54 This so-called Othello effect has been effective in the dawn of the recent war in Iraq. **The connection between Saddam** Hussein **and Al Qaeda** that the US government tried to prove **was disputed from the** very **beginning. False evidence was** again and again **presented and refuted, but this did not prevent the** administration from presenting as the main rationale for war the **improbable yet possible connection** between Iraq and the terrorist network and the improbable yet possible proliferation of an improbable yet possible nuclear weapon into the hands of Bin Laden. As Donald Rumsfeld famously said: "Absence of evidence is not evidence of absence." This sentence indicates that under the condition of genuine uncertainty, different evidence criteria prevail than in situations where security problems can be assessed with relative certainty.

#### **5]** Decision making should be cluster-based not sequence

Holden Karnofsky Executive Director of the Open Philanthropy Project degree in Social Studies from Harvard University; July 25, 2016; “Sequence thinking vs. cluster thinking” //BWSWJ // recut DD AG

When trying to compare two very different options (such as vaccinations and space colonization), it seems at first glance as though sequence thinking is superior, precisely because it allows huge numbers to carry huge weight. The practice of limiting the weight of uncertain perspectives can have strange-seeming results such as (depending on robustness considerations) giving equal weight to “Charity A seems like the better organization” and “Charity B’s goal is 200 billion times as important.” In addition, I find cluster thinking far more difficult to formalize and describe, which can further lower its appeal in public debates about where to give.

Below, I give several arguments for expecting cluster thinking to produce better decisions. It is important to note that I emphasize “better decisions” and not “correct beliefs”: it is often the case that one reaches a decision using cluster thinking without determining one’s beliefs about anything (other than what decision ought to be made). In the example given in the previous section, cluster thinking has not reached a defined conclusion on how likely space colonization is, how valuable space colonization would be, etc. and there are many possible combinations of these beliefs that could be consistent with its conclusion that supporting Charity A is superior. Cluster thinking often ends up placing high weight on “outside view” pattern-matching, and often leads to conclusions of the form “I think we should do X, but I can’t say exactly why, and some of the most likely positive outcomes of this action may be outcomes I haven’t explicitly thought of.”

The arguments I give below are, to some degree, made using different vocabularies and different styles. There is some conceptual overlap between the different arguments, and some of the arguments may be partly equivalent to each other. I have previously tried to use sequence-thinking-style arguments to defend something similar to cluster thinking (though there were shortcomings in the way I did so); here I use cluster-thinking-style arguments.

Sequence thinking is prone to reaching badly wrong conclusions based on a single missing, or poorly estimated, parameter

Sequence-style reasoning often involves a long chain of propositions that all need to be reasonable for the conclusion to hold. As an example, Robin Hanson lays out 10 propositions that cumulatively imply a decision to sign up for cryonics, and believes each to have probability 50-80%. However, if even a single one ought to have been assigned a much lower probability (e.g., 10^-5) – or if he’s simply failed to think of a missing condition that has low probability – the calculation is completely off.

In general, missing parameters and overestimated probabilities will lead to overestimating the likelihood that actions play out as hoped, and thus overestimating the desirability of deviating from “tried and true” behavior and behavior backed by outside views. Correcting for missed parameters and overestimated probabilities will be more likely to cause “regression to normality” (and to the predictions of other “outside views”) than the reverse.

Cluster thinking is more similar to empirically effective prediction methods

Sequence thinking presumes a particular framework for thinking about the consequences of one’s actions. It may incorporate many considerations, but all are translated into a single language, a single mental model, and in some sense a single “formula.” I believe this is at odds with how successful prediction systems operate, whether in finance, software, or domains such as political forecasting; such systems generally combine the predictions of multiple models in ways that purposefully avoid letting any one model (especially a low-certainty one) carry too much weight when it contradicts the others. On this point, I find Nate Silver’s discussion of his own system and the relationship to the work of Philip Tetlock (and the related concept of foxes vs. hedgehogs) germane:

Even though foxes, myself included, aren’t really a conformist lot, we get worried anytime our forecasts differ radically from those being produced by our competitors.

Quite a lot of evidence suggests that aggregate or group forecasts are more accurate than individual ones … “Foxes often manage to do inside their heads what you’d do with a whole group of hedgehogs,” Tetlock told me. What he means is that foxes have developed an ability to emulate this consensus process. Instead of asking question of a whole group of experts, they are constantly asking questions of themselves. Often this implies that they will aggregate different types of information together – as a group of people with different ideas about the world naturally would – instead of treating any one piece of evidence as though it is the Holy Grail. The Signal and the Noise, pg 66

In sequence thinking, a single large enough number can dominate the entire calculation. In consensus decision making, a person claiming radically larger significance for a particular piece of the picture would likely be dismissed rather than given special weight; in a quantitative prediction system, a component whose conclusion differed from others’ by a factor of 10^10 would be likely to be the result of a coding error, rather than a consideration that was actually 10^10 times as important as the others. This comes back to the points made by the above two sections: cluster thinking can be superior for its tendency to sandbox or down-weight, rather than linearly up-weight, the models with the most extreme and deviant conclusions.

A cluster-thinking-style “regression to normality” seems to prevent some obviously problematic behavior relating to knowably impaired judgment

One thought experiment that I think illustrates some of the advantages of cluster thinking, and especially cluster thinking that incorporates regression to normality, is imagining that one is clearly and knowably impaired at the moment (for example, drunk), and contemplating a chain of reasoning that suggests high expected value for some unusual and extreme action (such as jumping from a height). A similar case is that of a young child contemplating such a chain of reasoning. In both cases, it seems that the person in question should recognize their own elevated fallibility and take special precautions to avoid deviating from “normal” behavior, in a way that cluster thinking seems much more easily able to accommodate (by setting an absolute limit to the weight carried by an uncertain argument, such that regression to normality can override it no matter what its content) than sequence thinking (in which any “adjustments” are guessed at using the same fallible thought process).

The higher one’s opinion of one’s own rationality relative to other people, the less appropriate the above analogy becomes. But it can be easy to overestimate one’s own rationality relative to other people (particularly when one’s evidence comes from analyzing people’s statements rather than e.g. their success at achieving their goals), and some component of “If I’m contemplating a strange and potentially highly consequential action, I should be wary and seek robustness (not just magnitude) in my justification” seems appropriate for nearly everyone.

Sequence thinking seems to tend toward excessive comfort with “ends justify the means” type thinking

Various historical cases of violent fanaticism seem somewhat fairly modeled as sequence thinking gone awry: letting one’s decisions become dominated by a single overriding concern, which then justifies actions that strongly violate many other principles. (For example, justifying extremely damaging activities based on Marxist reasoning.) Cluster thinking is far from a complete defense against such things: the robustness of a perspective (e.g., a Marxist perspective) can itself be overestimated, and furthermore a “regression to normality” can encourage conformism with highly problematic beliefs. However, the basic structure of cluster thinking does set up more hurdles for arguments about “the ends” (large-magnitude but speculative down-the-line outcomes) to justify “the means” (actions whose consequences are nearer and clearer).

I believe that invoking “the ends justify the means” (justifying near and clear harms by pointing to their further-out effects) is sometimes the right thing to do, and is sometimes not. Specifically, I think that the worse the “means,” the more robust (and not just large in claimed magnitude) one’s case for “the ends” ought to be. Cluster thinking seems to accommodate this view more naturally than sequence thinking.

(Related piece by Phil Goetz: Reason as memetic immune disorder)

When uncertainty is high, “unknown unknowns” can dominate the impacts of our actions, and cluster thinking may be better suited to optimizing “unknown unknown” impacts.

Sequence thinking seems, by its nature, to rely on listing the possible outcomes of an action and evaluating the action according to its probability of achieving these outcomes. I find sequence thinking especially problematic when I specifically expect the unexpected, i.e., when I expect the outcome of an action to depend primarily on factors that haven’t occurred to me. And I believe that the sort of outside views that tend to get more weight in cluster thinking are often good predictors of “unknown unknowns.” For example, obeying common-sense morality (“ends don’t justify the means”) heuristics seems often to lead to unexpected good outcomes, and contradicting such morality seems often to lead to unexpected bad outcomes. As another example, expert opinion often seems a strong predictor of “which way the arguments I haven’t thought of yet will point.”

#### 6] Capitalism is self-correcting and sustainable – war and environmental destruction are not profitable and innovation solves their impacts

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Democratic capitalism is a system built for survival. It has adapted successfully to shocks of every kind, to upheavals in technology and economics, to political revolutions and world wars. Capitalism has been able to do this because, unlike communism or socialism or feudalism, it has an inner dynamic akin to a living thing. It can adapt and refine itself in response to the changing environment. And it will evolve into a new species of the same capitalist genus if that is what it takes to survive. In the panic of 2008—09, many politicians, businesses, and pundits forgot about the astonishing adaptability of the capitalist system. Predictions of global collapse were based on static views of the world that extrapolated a few months of admittedly terrifying financial chaos into the indefinite future. The self-correcting mechanisms that market economies and democratic societies have evolved over several centuries were either forgotten or assumed defunct. The language of biology has been applied to politics and economics, but rarely to the way they interact. Democratic capitalism’s equivalent of the biological survival instinct is a built-in capacity for solving social problems and meeting material needs. This capacity stems from the principle of competition, which drives both democratic politics and capitalist markets. Because market forces generally reward the creation of wealth rather than its destruction, they direct the independent efforts and ambitions of millions of individuals toward satisfying material demands, even if these demands sometimes create unwelcome by-products. Because voters generally reward politicians for making their lives better and safer, rather than worse and more dangerous, democratic competition directs political institutions toward solving rather than aggravating society’s problems, even if these solutions sometimes create new problems of their own. Political competition is slower and less decisive than market competition, so its self-stabilizing qualities play out over decades or even generations, not months or years. But regardless of the difference in timescale, capitalism and democracy have one crucial feature in common: Both are mechanisms that encourage individuals to channel their creativity, efforts, and competitive spirit into finding solutions for material and social problems. And in the long run, these mechanisms work very well. If we consider democratic capitalism as a successful problem-solving machine, the implications of this view are very relevant to the 2007-09 economic crisis, but diametrically opposed to the conventional wisdom that prevailed in its aftermath. Governments all over the world were ridiculed for trying to resolve a crisis caused by too much borrowing by borrowing even more. Alan Greenspan was accused of trying to delay an inevitable "day of reckoning” by creating ever-bigger financial bubbles. Regulators were attacked for letting half-dead, “zombie” banks stagger on instead of putting them to death. But these charges missed the point of what the democratic capitalist system is designed to achieve. In a capitalist democracy whose raison d’etre is to devise new solutions to long-standing social and material demands, a problem postponed is effectively a problem solved. To be more exact, a problem whose solution can be deferred long enough is a problem that is likely to be solved in ways that are hardly imaginable today. Once the self-healing nature of the capitalist system is recognized, the charge of “passing on our problems to our grand-children”—whether made about budget deficits by conservatives or about global warming by liberals—becomes morally unconvincing. Our grand-children will almost certainly be much richer than we are and will have more powerful technologies at their disposal. It is far from obvious, therefore, why we should make economic sacrifices on their behalf. Sounder morality, as well as economics, than the Victorians ever imagined is in the wistful refrain of the proverbially optimistic Mr. Micawber: "Something will turn up."

#### 7] Reject “1% risk of extinction”– it collapses all policymaking

**Meskill 09** (David, professor at Colorado School of Mines and PhD from Harvard, “The "One Percent Doctrine" and Environmental Faith,” Dec 9, http://davidmeskill.blogspot.com/2009/12/one-percent-doctrine-and-environmental.html)

Tom Friedman's piece today in the Times on the environment (http://www.nytimes.com/2009/12/09/opinion/09friedman.html?\_r=1) is one of the flimsiest pieces by a major columnist that I can remember ever reading. He applies Cheney's "one percent doctrine" (which is similar to the environmentalists' "precautionary principle") to the risk of environmental armageddon. But this doctrine is both intellectually incoherent and practically irrelevant. It is intellectually incoherent because it cannot be applied consistently in a world with many potential disaster scenarios. In addition to the global-warming risk, there's also the asteroid-hitting-the-earth risk, the terrorists-with-nuclear-weapons risk (Cheney's original scenario), the super-duper-pandemic risk, etc. Since each of these risks, on the "one percent doctrine," would deserve all of our attention, we cannot address all of them simultaneously. That is, even within the one-percent mentality, we'd have to begin prioritizing, making choices and trade-offs. But why then should we only make these trade-offs between responses to disaster scenarios? Why not also choose between them and other, much more cotidien, things we value? Why treat the unlikely but cataclysmic event as somehow fundamentally different, something that cannot be integrated into all the other calculations we make? And in fact, this is how we behave all the time. We get into our cars in order to buy a cup of coffee, even though there's some chance we will be killed on the way to the coffee shop. We are constantly risking death, if slightly, in order to pursue the things we value. Any creature that adopted the "precautionary principle" would sit at home - no, not even there, since there is some chance the building might collapse. That creature would neither be able to act, nor not act, since it would nowhere discover perfect safety. Friedman's approach reminds me somehow of Pascal's wager - quasi-religious faith masquerading as rational deliberation (as Hans Albert has pointed out, Pascal's wager itself doesn't add up: there may be a God, in fact, but it may turn out that He dislikes, and even damns, people who believe in him because they've calculated it's in their best interest to do so). As my friend James points out, it's striking how descriptions of the environmental risk always describe the situation as if it were five to midnight. It must be near midnight, since otherwise there would be no need to act. But it can never be five \*past\* midnight, since then acting would be pointless and we might as well party like it was 2099. Many religious movements - for example the early Jesus movement - have exhibited precisely this combination of traits: the looming apocalypse, with the time (just barely) to take action. None of this is to deny - at least this is my current sense - that human action is contributing to global warming. But what our response to this news should be is another matter entirely