### FW – Util

#### The standard is maximizing expected well-being. Calc indicts don’t link—our impacts are bad because as far as we know, it would cause suffering.

#### 1] Actor spec—governments must use util because they don’t have intentions and are constantly dealing with tradeoffs—outweighs since different agents have different obligations—takes out calc indicts since they are empirically denied.

Woller 97, Gary [BYU Professor]. “An Overview by Gary Woller”; June, 1997; *A Forum on the Role of Environmental Ethics*

Moreover, virtually all public policies entail some redistribution of economic or political resources, such that one group's gains must come at another group's ex- pense. Consequently, public policies in a democracy must be justified to the public, and especially to those who pay the costs of those policies. Such justification cannot simply be assumed a priori by invoking some higher-order moral principle. Appeals to a priori moral principles, such as environmental preservation, also often fail to acknowledge that public policies inevitably entail trade-offs among competing values. Thus since policymakers cannot justify inherent value conflicts to the public in any philosophical sense, and since public policies inherently imply winners and losers, the policymakers' duty [is] to the public interest requires them to demonstrate that the redistributive effects and value trade-offs implied by their polices are somehow to the overall advantage of society. At the same time, deontologically based ethical systems have severe practical limitations as a basis for public policy. At best, a priori m oral principles provide only general guidance to ethical dilemmas in public affairs and do not themselves suggest appropriate public policies, and at worst, they create a regimen of regulatory unreasonableness while failing to adequately address the problem or actually making it worse. For example, a moral obligation to preserve the environment by no means implies the best way, or any way for that matter, to do so, just as there is no a priori reason to believe that any policy that claims to preserve the environment will actually do so. Any number of policies might work, and others, although seemingly consistent with the moral principle, will fail utterly. That deontological principles are an inadequate basis for environmental policy is evident in the rather significant irony that most forms of deontologically based environmental laws and regulations tend to be implemented in a very utilitarian manner by street-level enforcement officials. Moreover, ignoring the relevant costs and benefits of environmental policy and their attendant incentive structures can, as alluded to above, actually work at cross purposes to environmental preservation. (There exists an extensive literature on this aspect of regulatory enforcement and the often perverse outcomes of regulatory policy. See, for example, Ackerman, 1981; Bartrip and Fenn, 1983; Hawkins, 1983, 1984; Hawkins and Thomas, 1984.) Even the most die-hard preservationist/deontologist would, I believe, be troubled by this outcome. The above points are perhaps best expressed by Richard Flathman, The number of values typically involved in public policy decisions, the broad categories which must be employed and above all, the scope and complexity of the consequences to be anticipated militate against reasoning so conclusively that they generate an imperative to institute a specific policy. It is seldom the case that only one policy will meet the criteria of the public interest (1958, p. 12). It therefore follows that in a democracy, policymakers have an ethical duty to establish a plausible link between policy alternatives and the problems they address, and the public must be reasonably assured that a policy will actually do something about an existing problem; this requires the means-end language and methodology of utilitarian ethics. Good intentions, lofty rhetoric, and moral piety are an insufficient though perhaps at times a necessary, basis for public policy in a democracy.

#### 2] Pleasure and pain are the starting point for moral reasoning—they’re our most baseline desires and the only things that explain the intrinsic value of objects or actions

Moen 16, Ole Martin (PhD, Research Fellow in Philosophy at University of Oslo). "An Argument for Hedonism." Journal of Value Inquiry 50.2 (2016): 267.

Let us start by observing, empirically, that **a widely shared judgment about intrinsic value** and disvalue **is that pleasure is intrinsically valuable and pain is intrinsically disvaluable**. On virtually any proposed list of intrinsic values and disvalues (we will look at some of them below), pleasure is included among the intrinsic values and pain among the intrinsic disvalues. This inclusion makes intuitive sense, moreover, for **there is something undeniably good about the way pleasure feels and something undeniably bad about the way pain feels**, and neither the goodness of pleasure nor the badness of pain seems to be exhausted by the further effects that these experiences might have. “Pleasure” and “pain” **are** here **understood inclusively**, as encompassing anything hedonically positive and anything hedonically negative. 2 The special value statuses of pleasure and pain are manifested in how we treat these experiences in our everyday reasoning about values. If you tell me that you are heading for the convenience store**, I might ask: “What for**?” This is a reasonable question, for when you go to the convenience store you usually do so, not merely for the sake of going to the convenience store, but for the sake of achieving something further that you deem to be valuable. You might answer, for example: “To buy soda.” This answer makes sense, for soda is a nice thing and you can get it at the convenience store. I might further inquire, however: “What is buying the soda good for?” This further question can also be a reasonable one, for it need not be obvious why you want the soda. You might answer: “Well, I want it for the pleasure of drinking it.” If I then proceed by asking “But what is the pleasure of drinking the soda good for?” the discussion is likely to reach an awkward end. **The reason is that the pleasure is not good for anything further; it is simply that for which going to the convenience store and buying the soda is good**. 3 As Aristotle observes: “**We never ask** [a man] **what** his **end is in being pleased, because we assume that pleasure is choice worthy in itself**.”4 Presumably, a similar story can be told in the case of pains, for if someone says “This is painful!” we never respond by asking: “And why is that a problem?” We take for granted that **if something is painful, we have a sufficient explanation of why it is bad**. If we are onto something in our everyday reasoning about values, it seems that **pleasure and pain are both places where we reach the end of the line in matters of value**. Although **pleasure and pain thus seem to be good candidates for intrinsic value and disvalue**, several objections have been raised against this suggestion: (1) that pleasure and pain have instrumental but not intrinsic value/disvalue; (2) that pleasure and pain gain their value/disvalue derivatively, in virtue of satisfying/frustrating our desires; (3) that there is a subset of pleasures that are not intrinsically valuable (so-called “evil pleasures”) and a subset of pains that are not intrinsically disvaluable (so-called “noble pains”), and (4) that pain asymbolia, masochism, and practices such as wiggling a loose tooth render it implausible that pain is intrinsically disvaluable. I shall argue that these objections fail. Though it is, of course, an open question whether other objections to P1 might be more successful, I shall assume that if (1)–(4) fail, we are justified in believing that P1 is true itself a paragon of freedom—there will always be some agents able to interfere substantially with one’s choices. The effective level of protection one enjoys, and hence one’s actual degree of freedom, will vary according to multiple factors: how powerful one is, how powerful individuals in one’s vicinity are, how frequent police patrols are, and so on. Now, we saw above that what makes a slave unfree on Pettit’s view is the fact that his master has the power to interfere arbitrarily with his choices; in other words, what makes the slave unfree is the power relation that obtains between his master and him. The difﬁculty is that, in light of the facts I just mentioned, there is no reason to think that this power relation will be unique. A similar relation could obtain between the master and someone other than the slave: absent perfect state control, the master may very well have enough power to interfere in the lives of countless individuals. Yet it would be wrong to infer that these individuals lack freedom in the way the slave does; if they lack anything, it seems to be security. A problematic power relation can also obtain between the slave and someone other than the master, since there may be citizens who are more powerful than the master and who can therefore interfere with the slave’s choices at their discretion. Once again, it would be wrong to infer that these individuals make the slave unfree in the same way that the master does. Something appears to be missing from Pettit’s view. If I live in a particularly nasty part of town, then it may turn out that, when all the relevant factors are taken into account, I am just as vulnerable to outside interference as are the slaves in the royal palace, yet it does not follow that our conditions are equivalent from the point of view of freedom. As a matter of fact, we may be equally vulnerable to outside interference, but as a matter of right, our standings could not be more different. I have legal recourse against anyone who interferes with my freedom; the recourse may not be very effective—presumably it is not, if my overall vulnerability to outside interference is comparable to that of a slave— but I still have full legal standing.68 By contrast, the slave lacks legal recourse against the interventions of one speciﬁc individual: his master. It is that fact, on a Kantian view—a fact about the legal relation in which a slave stands to his master—that sets slaves apart from freemen. The point may appear trivial, but it does get something right: whereas one cannot identify a power relation that obtains uniquely between a slave and his master, the legal relation between them is undeniably unique. A master’s right to interfere with respect to his slave does not extend to freemen, regardless of how vulnerable they might be as a matter of fact, and citizens other than the master do not have the right to order the slave around, regardless of how powerful they might be. This suggests that Kant is correct in thinking that the ideal of freedom is essentially linked to a person’s having full legal standing. More speciﬁcally, he is correct in holding that the importance of rights is not exhausted by their contribution to the level of protection that an individual enjoys, as it must be on an instrumental view like Pettit’s. Although it does matter that rights be enforced with reasonable effectiveness, the sheer fact that one has adequate legal rights is essential to one’s standing as a free citizen. In this respect, Kant stays faithful to the idea that freedom is primarily a matter of standing—a standing that the freeman has and that the slave lacks. Pettit himself frequently insists on the idea, but he fails to do it justice when he claims that freedom is simply a matter of being adequately (and reliably) shielded against the strength of others. As Kant recognizes, the standing of a free citizen is a more complex matter than that. One could perhaps worry that the idea of legal standing is something of a red herring here—that it must ultimately be reducible to a complex network of power relations and, hence, that the position I attribute to Kant differs only nominally from Pettit’s. That seems to me doubtful. Viewing legal standing as essential to freedom makes sense only if our conception of the former includes conceptions of what constitutes a fully adequate scheme of legal rights, appropriate legal recourse, justiﬁed punishment, and so on. Only if one believes that these notions all boil down to power relations will Kant’s position appear similar to Pettit’s. On any other view—and certainly that includes most views recently defended by philosophers—the notion of legal standing will outstrip the power relations that ground Pettit’s theory.

#### 3] No intent-foresight distinction for states.

Enoch 07 Enoch, D [The Faculty of Law, The Hebrew Unviersity, Mount Scopus Campus, Jersusalem]. (2007). INTENDING, FORESEEING, AND THE STATE. Legal Theory, 13(02). doi:10.1017/s1352325207070048 https://www.cambridge.org/core/journals/legal-theory/article/intending-foreseeing-and-the-state/76B18896B94D5490ED0512D8E8DC54B2

The general difficulty of the intending-foreseeing distinction here stemmed, you will recall, from the feeling that attempting to pick and choose among the foreseen consequences of one’s actions those one is more and those one is less responsible for looks more like the preparation of a defense than like a genuine attempt to determine what is to be done. Hiding behind the intending-foreseeing distinction seems like an attempt to evade responsibility, and so thinking about the distinction in terms of responsibility serves 39. Anderson & Pildes, supra note 38. I will use this text as my example of an expressive theory here. 40. See id. at 1554, 1564. 41. For a general critique, see Mathew D. Adler, Expressive Theories of Law: A Skeptical Overview, 148 U. PA. L. REV. 1363 (1999–2000). 42. As Adler repeatedly notes, the understanding of expression Anderson & Pildes work with is amazingly broad, so that “To express an attitude through action is to act on the reasons the attitude gives us”; Anderson & Pildes, supra note 38, at 1510. If this is so, it seems that expression drops out of the picture and everything done with it can be done directly in terms of reasons. 43. This may be true of what Anderson and Pildes have in mind when they say that “expressive norms regulate actions by regulating the acceptable justifications for doing them”; id. at 1511. http://journals.cambridge.org Downloaded: 03 Aug 2014 IP address: 134.153.184.170 Intending, Foreseeing, and the State 91 to reduce even further the plausibility of attributing to it intrinsic moral significance. This consideration—however weighty in general—seems to me very weighty when applied to state action and to the decisions of state officials. For perhaps it may be argued that individuals are not required to undertake a global perspective, one that equally takes into account all foreseen consequences of their actions. Perhaps, in other words, individuals are entitled to (roughly) settle for having a good will, and beyond that let chips fall where they may. But this is precisely what stateswomen and statesmen—and certainly states—are not entitled to settle for.44 In making policy decisions, it is precisely the global (or at least statewide, or nationwide, or something of this sort) perspective that must be undertaken. Perhaps, for instance, an individual doctor is entitled to give her patient a scarce drug without thinking about tomorrow’s patients (I say “perhaps” because I am genuinely not sure about this), but surely when a state committee tries to formulate rules for the allocation of scarce medical drugs and treatments, it cannot hide behind the intending-foreseeing distinction, arguing that if it allows45 the doctor to give the drug to today’s patient, the death of tomorrow’s patient is merely foreseen and not intended. When making a policy-decision, this is clearly unacceptable. Or think about it this way (I follow Daryl Levinson here):46 perhaps restrictions on the responsibility of individuals are justified because individuals are autonomous, because much of the value in their lives comes from personal pursuits and relationships that are possible only if their responsibility for what goes on in the (more impersonal) world is restricted. But none of this is true of states and governments. They have no special relationships and pursuits, no personal interests, no autonomous lives to lead in anything like the sense in which these ideas are plausible when applied to individuals persons. So there is no reason to restrict the responsibility of states in anything like the way the responsibility of individuals is arguably restricted.47 States and state officials have much more comprehensive responsibilities than individuals do. Hiding behind the intending-foreseeing distinction thus more clearly constitutes an evasion of responsibility in the case of the former. So the evading-responsibility worry has much more force against the intending-foreseeing distinction when applied to state action than elsewhere.

#### 4] Only consequentialism explains degrees of wrongness—if I break a promise to meet up for lunch, that is not as bad as breaking a promise to not kill. Only the consequences of breaking the promise explain why the second one is much worse than the first which is the most intuitive. Outweighs—a) parsimony—metaphysics relies on long chains of questionable claims that make conclusions less likely b) hijacks—intuitions are inevitable since even every framework must take some unjustified assumption as a starting point.

#### 5] You don’t get the choice to determine death for other people.

Paterson 2 – Department of Philosophy, Providence College, Rhode Island. (Craig, “A Life Not Worth Living?”, Studies in Christian Ethics, <http://sce.sagepub.com>)

In determining whether a life is worth living or not, **attention should be focused upon an array of ‘interests’ of the person**, and these, for the competent patient at least, are going to vary considerably, since they will be informed by the patient’s underlying dispositions, and, for the incompetent, by a minimal quality threshold. It follows that for competent patients, a broad-ranging assessment of quality of life concerns is the trump card as to whether or not life continues to be worthwhile. Different patients may well decide differently. That is the prerogative of the patient, for the only unpalatable alternative is to force a patient to stay alive. For Harris, life can be judged valuable or not when the person assessing his or her own life determines it to be so. **If a person values his or her own life, then that life is valuable, precisely to the extent that he or she values it**. Without any real capacity to value, there can be no value. As Harris states, ‘. . . the value of our lives is the value we give to our lives’. It follows that the **primary** **injustice** done to a person is to deprive the person of a life **he or she may think valuable**. Objectivity in the value of human life, for Harris, essentially becomes one of negative classification (ruling certain people out of consideration for value), allied positively to a broad range of ‘critical interests’; interests worthy of pursuing — **friendships, family, life goals, etc**. — which are subjected to de facto **self-assessment** for the further determination of meaningful value. Suicide, assisted suicide, and voluntary euthanasia, can therefore be justified, on the grounds that once the competent nature of the person making the decision has been established, the thoroughgoing commensuration between different values, in the form of interests or preferences, is essentially left up to the individual to determine for himself or herself.

#### 6] Only util respects justice by giving equal weight to all

#### 7] Util is a lexical prerequisite to other moral theories. Threats to bodily harm preclude moral decision making preventing moral actors from utilizing other theories.

### DA – Asteroid Mining

#### Companies are already seeking to mine asteroids

MacWhorter 16, Kevin [J.D. Candidate at William & Mary Law School]. “Sustainable Mining: Incentivizing Asteroid Mining in the Name of Environmentalism”; February 2016; *William and Mary Environmental Law and Policy Review* [https://scholarship.law.wm.edu/cgi/viewcontent.cgi?article=1653&context=wmelpr]

Although companies likely are not able to send mining ventures to asteroids immediately, as the preceding section suggested, asteroid mining is a possibility in the near future.70 First of all, two companies are developing the technology needed to mine asteroids.71Planetary Resources is creating cheaper prospecting spacecraft small enough to hitch a ride into space with larger, primary payloads. 72 Another company, Deep Space Industries (DSI), is developing a four-stage system for mining in space: Prospecting, Processing, Harvesting, and Manufacturing.73 It has already invented one spacecraft to be used for the Prospecting stage: a tiny probe, called FireFly, designed to scout asteroids and study their size, shape, spin and composition . . . . 74 For the Processing phase, DSI is creating technology required to transform regolith to raw materials for manufacture.75 The company is currently developing another spacecraft, called a Harvestor, for the third stage to collect and transport resources.76Finally, the company is creating technology to manufacture finished products in space

#### The plan prevents asteroid mining because it prohibits appropriation.

Leon 18, Amanda M. [J.D., University of Virginia School of Law, 2017]. “Mining for Meaning: An Examination of the Legality of Property Rights in Space Resources”; May 15, 2018; *Virginia Law Review* [https://www.caplindrysdale.com/files/24323\_leon\_final\_note.pdf]

Appropriation. The term “appropriation” also remains ambiguous. Webster’s defines the verb “appropriate” as “to take to oneself in exclusion of others; to claim or use as by an exclusive or pre-eminent right; as, let no man appropriate a common benefit.”165 Similarly, Black’s Law Dictionary describes “appropriate” as an act “[t]o make a thing one’s own; to make a thing the subject of property; to exercise dominion over an object to the extent, and for the purpose, of making it subserve one’s own proper use or pleasure.”166 Oftentimes, appropriation refers to the setting aside of government funds, the taking of land for public purposes, or a tort of wrongfully taking another’s property as one’s own. The term appropriation is often used not only with respect to real property but also with water. According to U.S. case law, a person completes an appropriation of water by diversion of the water and an application of the water to beneficial use.167 This common use of the term “appropriation” with respect to water illustrates two key points: (1) the term applies to natural resources—e.g., water or minerals—not just real property, and (2) mining space resources and putting them to beneficial use—e.g., selling or manufacturing the mined resources— could reasonably be interpreted as an “appropriation” of outer space. While the ordinary meaning of “appropriation” reasonably includes the taking of natural resources as well as land, whether the drafters and parties to the OST envisioned such a broad meaning of the term remains difficult to determine with any certainty. The prohibition against appropriation “by any other means” supports such a reading, though, by expanding the prohibition to other types not explicitly described.16

#### Terrestrial mining—particularly platinum mining—is bad for the environment, but extracted resources are necessary for green energy.

MacWhorter 16, Kevin [J.D. Candidate at William & Mary Law School]. “Sustainable Mining: Incentivizing Asteroid Mining in the Name of Environmentalism”; February 2016; *William and Mary Environmental Law and Policy Review* [https://scholarship.law.wm.edu/cgi/viewcontent.cgi?article=1653&context=wmelpr]

In the next sixty years, scientists predict that certain elements crucial to modern industry such as platinum, zinc, copper, phosphorous, lead, gold, and indium could be exhausted on Earth. 12 Many of these have no synthetic alternative, unlike chemical elements such as oil or diamonds.13 Liquid-crystal display (LCD) televisions, cellphones, and laptops are among the various consumer technologies that use precious metals.14Further, green technologies including wind turbines, solar panels, and catalytic converters require these rare elements. 15 As demand rises for both types of technologies, and as reserves of rare metals fall, prices skyrocket.16 Demand for nonrenewable resources creates conflict, and consumerism in rich countries results in harsh labor treatment for poorer countries.17 In general, the mining industry is extremely destructive to Earth’s environment.18 In fact, depending on the method employed, mining can destroy entire ecosystems by polluting water sources and contributing to deforestation.19 It is by its nature an unsustainable practice, because it involves the extraction of a finite and non-renewable resource.20 Moreover by extracting tiny amounts of metals from relatively large quantities of ore, the mining industry contributes the largest portion of solid wastes in the world.21 The Environmental Protection Agency (EPA) describes the industry as the source of more toxic and hazardous waste than any other industrial sector [in the United States], costing billions of dollars to address the public health and environmental threats to communities. 22 Poor regulations and oxymoronic corporate definitions of sustainability, however, make it unclear as to just how much waste the industry actually produces.23 Platinum provides an excellent case study of the issue, because it is an extremely rare and expensive metalan ore expected to existin vast quantities in asteroids.24 Further, production of platinum has increased sharply in the past sixty years in order to keep up with growing demand for use in new technologies.25 In fact, despite their high costs, platinum group metals are so useful that [one] of [four] industrial goods on Earth require them in production. 26 Scholars do not expect demand to slow any time soon.27 Among other technologies, industries use platinum in products such as catalytic converters, jewelry production, various catalysts for chemical processing, and hydrogen fuel cells.28 While there is no consensus on how far the Earths reserves of platinum will take humanity, many scientists agree that platinum ore reserves will deplete in a relatively short amount of time.29 With the rate of mining at an all-time high,30 it is increasingly clear that historical patterns of mineral resources and development cannot simply be assumed to continue unaltered into the future. 31 The platinum mining industry, however, has a strong incentive to increase its rate of extraction as profits grow with the rate of demand. Without any alternative, this destructive practice will continue into the future.32 So-called platinum-group metal (PGM) ores are mined through underground or open cut techniques.33 Due to these practices, all but a very small fraction of the mined platinum ore is disposed of as solid waste.34 The environmental consequences of platinum production are thus quite significant, but like the mining industry in general, the amount of waste is typically under-reported.35 While this is due to high production levels at the moment, those levels will only increase given the estimated future demand of platinum.36 In spite of the negative consequences, mining continues unabated because it is economically important to many areas.37 The future environmental costs provide a major challenge in creating a sustainable system. Relegating at least some mining companies to near-Earth asteroids would reduce the negative effects of future mining levels on Earth. The economic benefits of mining need not be sacrificed for the sake of the environment.3

#### Fortunately, asteroid mining solves by replacing terrestrial mining.

Ross 01, Shane D. [Control and Dynamical Systems Caltech]. “Near-Earth Asteroid Mining”; December 14, 2001; *Space Industry Report* [http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.614.9343&rep=rep1&type=pdf]

Many terrestrial resources, such as precious metals and fossil fuels, are running out. As new terrestrial sources are sought, materials are obtained at increasing economic and environmental cost. Society pays for this depletion of resources in the form of higher prices for manufactured goods, would-be technologies that are not developed for lack of raw materials, global and regional conflicts spurred by competition for remaining resources, and environmental damage caused by development of poorer and more problematic deposits. Utilization of asteroid resources may provide a partial solution to the problem, as they hold the potential for becoming the main sources of some metals and other materials. Precious metals and semiconducting elements in iron meteorites, which form the metallic cores of asteroids, are found in relatively large concentrations compared to Earth sources. In such sources, it may be possible to extract up to 187 parts per million (ppm) of precious metals, which includes Au, the Pt-group metals (Pt, Ru, Rh, Pd, Os, and It), Re, and Ge. More than 1000 ppm of other metals, semiconductors, and nonmetals may may one day be extracted and imported by Earth from asteroids, such as Ag, In, Co, Ga, and As

#### Asteroid mining prevents extinction in two ways.

#### 1] Only asteroid mining can provide us with the research and understanding to prevent extinction

Elvis 21 [Martin Elvis is a senior astrophysicist at the Center for Astrophysics | Harvard & Smithsonian. He is the author of Asteroids: How Love, Fear, and Greed Will Determine Our Future in Space (2021). “Riches in space.” Aeon. July 2, 2021. <https://aeon.co/essays/asteroid-mining-could-pay-for-space-exploration-and-adventure>] HW AL

If knowledge or greed isn’t motivation enough to set your sights on the asteroids, then the one thing virtually all people agree on is that having humanity wiped off the face of Earth would be bad, at least for us. Of all the multiple threats to humanity’s existence, the only one that we can definitely eliminate is that of a large asteroid slamming into our home planet and killing us off, together with most other species, following the lead of the dinosaurs who were made extinct by an asteroid slamming into the ocean. There’s a T-shirt popular among space cadets that has the slogan ‘Asteroids are nature’s way of saying “How’s that space programme coming along?”’ If we can find all the killer asteroids, then we can divert them to render them harmless. Best to play it safe. There are several searches underway for undiscovered, potentially dangerous asteroids. Thanks to the first big survey, Spaceguard, 90 per cent of the dinosaur-killer-sized asteroids out there have already been found. None of them pose any danger for the next century at least. That still leaves an uneasily large number of about 100 extinction-event-sized rocks out there that we haven’t found yet. Smaller, city-killer asteroids are much less well-surveyed for. To remedy this concern, two new surveys will begin in the next few years, and they will both be more or less done by 2030. They are the Vera C Rubin Observatory ‘Legacy Survey of Space and Time’, which will start scanning the whole sky every few nights from 2023 onwards. Its mission has been complicated by the mushrooming constellations of thousands of internet satellites now being launched by several companies, with SpaceX being the most visible. Hopefully a solution will be found. The Vera C Rubin Observatory, on a mountain in Chile, will record its image using normal visible light. For asteroids, that light is reflected sunlight. But many asteroids are pitch black, reflecting only a few percent of the sunlight pouring on to their surfaces. How do you find those dark asteroids? The answer is to use the long wavelength – infrared – light they emit because they’re warm: their ‘black body radiation’. NASA is building a special mission just for this purpose. Developed by a team lead by Amy Mainzer, now of the University of Arizona, Tucson, it’s called the Near-Earth Object Surveillance Mission. Starting around 2025, it will scan the sky repeatedly for five years looking for moving objects that are bright in infrared light, and has wavelengths some 10 to 20 times longer than we can see with our eyes. The team’s tagline is ‘Finding Asteroids Before They Find Us.’ Good idea! This will be the first time that humanity has deliberately changed the orbit of any celestial body An advantage of using the black body radiation is that it also tells us quite accurately how big each asteroid is. That helps in assessing their threat, as well giving us a first guess at how much they might yield in resources. Combining the two surveys will indicate how much sunlight each asteroid reflects – its ‘albedo’ – and that’s a clue to what they’re made of. We want to know that because a metal asteroid of a given size is more dangerous than one made of rock, and is more difficult to push out of the way. The composition also helps us explore all two dozen types of asteroid out there, the better to decipher the history of our solar system. As a side product, the surveys will pin down their potential value. By 2030, we’ll have better rockets than we have today. Several are set to fly within five years. They’ll let us reach many more asteroids with more massive payloads to deflect them, study them or mine them. Also by 2030, several more asteroids will have been visited by our exploration spacecraft. JAXA, the Japanese space agency, and NASA each had recent missions to return samples from carbonaceous asteroids. The Japanese Hayabusa2 went to the spinning-top-shaped asteroid named Ryugu, and NASA’s OSIRIS-REx went to the asteroid called Bennu. Such carbonaceous asteroids are the least changed, we believe, from the time of their formation at the beginning of the solar system’s formation. They are called carbonaceous because they are chockfull of organic (carbon-containing) molecules; many of them also contain quite a lot of water. There are more missions planned to more distant asteroids such as Psyche, a metal asteroid in the Main Belt, and to the Trojan asteroids trailing Jupiter’s orbit. OSIRIS-REx samples and leaves asteroid Bennu. Courtesy of NASA **Every time we visit an asteroid, it surprises us.** Bennu was found to be throwing rocks off its surface as it spun around its axis, and when OSIRIS-REx put down its outstretched arm to grab a sample off the surface, the arm sank half a metre into the asteroid; it stopped going deeper only when the retrorockets fired to stop it. That’s really not how rubble behaves on Earth! The more we know about asteroids, the more confident we can be that we can deflect their path away from Earth. A NASA mission called DART will make a high-speed impact on the small moon of the asteroid Didymos in late 2022 to see if we can slow down a dangerous asteroid to stop it causing devastation on Earth. (Don’t worry: the target was chosen to be a safe one for us.) This will be the first time that humanity has deliberately changed the orbit of any celestial body. It isn’t likely to be the last. Once all the good-sized accessible asteroids have been found, their orbits mapped, their sizes known, and at least a good clue found as to what they’re made of, the barriers to mining them will be much lower. **After visiting a half dozen asteroids up close, we’ll have learned a great deal about their origins, how to deflect them should one be headed our way, and how to handle them.** That will put us in a good place to begin to extract their resources. I predict this will happen right around 2030, when demand for in-space materials should be picking up. **The stars seem to be aligning for mining the asteroids. Mining will expand our capabilities in space, especially making it easier to deflect a dangerous asteroid.** In a virtuous cycle, those new capabilities will lead us on to greater exploration of the many worlds in our solar system and, with bigger, better telescopes, to the Universe beyond. It should be fun.

#### 2] Provides the resources for a space solar array

Taylor 19, Chris [Veteran journalist and the author of 'How Star Wars Conquered the Universe.']. “The Asteroid Boom”; 2019; *Mashable* [https://mashable.com/feature/asteroid-mining-space-economy]

Secondly, there’s the climate change fix. Suarez sees asteroid mining as the only way we’re going to build solar power satellites. Which, as you probably know, is a form of uninterrupted solar power collection that is theoretically more effective, inch for inch, than any solar panels on Earth at high noon, but operating 24/7. (In space, basically, it’s always double high noon). The power collected is beamed back to large receptors on Earth with large, low-power microwaves, which researchers think will be harmless enough to let humans and animals pass through the beam. A space solar power array like the one China is said to be working on could reliably supply 2,000 gigawatts — or over 1,000 times more power than the largest solar farm currently in existence. “We're looking at a 20-year window to completely replace human civilization's power infrastructure,” Suarez told me, citing the report of the Intergovernmental Panel on Climate Change on the coming catastrophe. Solar satellite technology “has existed since the 1970s. What we were missing is millions of tons of construction materials in orbit. Asteroid mining can place it there.”

#### Climate change causes global extinction

Schultz 16, Robert A. [Received a Ph.D. in philosophy from Harvard University]. “Modern Technology and Human Extinction”; 2016; *Proceedings of Informing Science & IT Education Conference* [http://proceedings.informingscience.org/InSITE2016/InSITE16p131-145Schultz2307.pdf]

There is consensus that there is a relatively short window to reduce carbon emissions before drastic effects occur. Recent credible projections of the result of lack of rapid drastic action is an average temperature increase of about 10o F by 2050. This change alone will be incredibly disruptive to all life, but will also cause great weather and climate change. For comparison purposes, a 10 degree (Fahrenheit) decrease was enough to cause an ice layer 4000 feet thick over Wisconsin (Co2gether, 2012). Recently relevant information has surfaced about a massive previous extinction. This is the Permian extinction, which happened 252 million years ago, during which 95% of all species on earth, both terrestrial and aquatic, vanished. The ocean temperature after almost all life had disappeared was 15 degrees (Fahrenheit) above current ocean temperatures. Recent information about the Permian extinction indicates it was caused by a rapid increase in land and ocean temperatures, caused by the sudden appearance of stupendous amounts of carbon in the form of greenhouse gases (Kolbert, 2014, pp. 102-144). The origin of the carbon in these enormous quantities is not yet known, but one possibility is the sudden release of methane gases stored in permafrost. This is also a possibility in our current situation. If so, extinction would be a natural side effect of human processes. There is also a real but smaller possibility of what is called “runaway greenhouse,” in which the earth’s temperature becomes like Venus’ surface temperature of 800o The threat of extinction here is not entirely sudden. The threat is, if anything, worse. Changes in the atmosphere--mainly increases in the concentration of greenhouse gases in the atmosphere-- can start processes that can’t be reversed but which take long periods of time to manifest. “Runaway greenhouse” may be the worst. Once again, suggestions of technological solutions to this situation should be treated with some skepticism. These proposals are often made by technophiles ignoring all the evidence that technology is very much subject to unanticipated side effects and unanticipated failures. What has happened concerning the depletion of the ozone layer should be a clear warning against the facile uses of technology through geoengineering to alter the makeup of the entire planet and its atmosphere. The complicating factor in assessing extinction likelihood from climate change is corporations, especially American fossil fuel corporations such as Exxon-Mobil and Shell. Through their contributions, they have been able to delay legislation ameliorating global warming and climate change. As mentioned before, recently released papers from Exxon-Mobil show that the corporation did accept the scientific findings about global warming and climate change. But they concluded that maintaining their profits was more important than acting to ameliorate climate change. Modern Technology and Human Extinction 140 Since it is not a matter of getting corporations to appreciate scientific facts, the chances of extinction from climate change are good. To ameliorate climate change, it is important to leave a high percentage of fossil fuel reserves in the ground. But this is exactly what a profit-seeking fossil fuel corporation cannot do. One can still hope that because fossil fuel corporations are made up of individuals, increasingly bad consequences of global warming and climate change will change their minds about profits. But because of the lag in effects, this mind change will probably be too late. So I conclude we will probably see something like the effects of the Permian extinction perhaps some time around 2050. (The Permian extinction was 95% extinction of all species.) This assumes the release of methane from the arctic will take place around then.

## Case

### AT: Deontology

#### 1] Deontology’s focus on motivation makes no difference

Goodin 95, Robert E. [Professor of government at the University of Essex, and professor of philosophy and social and political theory at Australian National University] “Utilitarianism as a Public Philosophy”; May 26, 1995; *Cambridge University Press*

Chapter 3 Do motives matter? Utilitarian schemes for state intervention to promote the common good are opposed not only by libertarians opposed to state interven¬tion as a matter of principle but also by deontologists opposed to the utilitarian fixation with good outcomes. What matters much more to them are individuals' motives and intentions. It is not enough, for them, that the right thing be done. They also insist that it be done, and be seen to be done, for the right reasons. Thus, for example, deontological moralists and social critics under I their sway are anxious to know whether we are sending food to starv¬ing Africans out of genuinely altruistic concern or merely to clear domestic commodity markets, for one particularly topical example. Or, for another example, critics of the Brandt Commission's plea for increased foreign aid more generally say, in stinging rebuke: "Many of those who support the proposal. ...do so out of genuine humanitarian concern about... poverty. But it is doubtful whether this is the main concern of its authors, and it certainly is not their only concern. They are, instead, primarily concerned with the preservation of the existing world economic order."2 What is common to all such cases is an attempt at motive differ¬entiation. Any particular piece of behavior might have sprung from any of a number of different underlying motives; commentators (mor¬alists, social critics) want to know which was the real motive. Here I shall show that this characteristic quest for motive differentiation is misguided. In most of the standard social situations, it makes no ma¬terial difference to agents' actions whether they act from one sort of motive or another. And in such circumstances, pressing the motivational issue will usually lead only to mischief, of both a pragmatic and a moral sort.

#### 2] Deontology fails—morality can be overridden in some circumstances

Rescher 89, Nicholas [Philosphy Prof. @ Pittsburgh] Moral Absolutes, p. 7-8

One cannot say simply and flatly that a certain wrong action (lying, stealing, etc.) is never to be done. For in difficult situa¬tions virtually any sort of action can be the lesser of two "(moral) evils. When done solely on this basis (as "the lesser evil”), an otherwise reprehensible act can be redeemed as verual. We cannot say that the good, man would, never Knowingly do a wrong action, but only that he would not do so unwar¬ranted!^ in the absence of appropriately extenuating circum¬stances, without overriding reasons of appropriate moral bearing. Moreover, in the overall economy of rational delibera-tion morality is just one good among others (albeit a particu¬larly important one)./Thus we cannot say that morality must always override all other considerations—that the negativity of a minor moral transgression must (rationally) always outweigh, nonmoral positivities such as (say) the greater welfare good of the community. The principle fiat moralitas mat caelum—"Let morality be done though the heavens fall!"—clearly has its problems.

#### 3] Debate should surround material consequences—ideal theories ignore the concrete nature of the world and legitimize oppression.

Curry 14 [Dr. Tommy J; “The Cost of a Thing: A Kingian Reformulation of a Living Wage Argument in the 21st Century”, Victory Briefs, 2014]

Despite the pronouncement of debate as an activity and intellectual exercise pointing to the real world consequences of dialogue, thinking, and (personal) politics when addressing issues of racism, sexism, economic disparity, global conflicts, and death, many of the discussions concerning these ongoing challenges to humanity are fixed to a paradigm which sees the adjudication of material disparities and sociological realities as the conquest of one ideal theory over the other. In “Ideal Theory as Ideology,” Charles Mills outlines the problem contemporary theoretical-performance styles in policy debate and value-weighing in Lincoln-Douglass are confronted with in their attempts to get at the concrete problems in our societies. At the outset, Mills concedes that “ideal theory applies to moral theory as a whole (at least to normative ethics as against metaethics); [s]ince ethics deals by definition with normative/prescriptive/evaluative issues, [it is set] against factual/descriptive issues.” At the most general level, the conceptual chasm between what emerges as actual problems in the world (e.g.: racism, sexism, poverty, disease, etc.) and how we frame such problems theoretically—the assumptions and shared ideologies we depend upon for our problems to be heard and accepted as a worthy “problem” by an audience—is the most obvious call for an anti-ethical paradigm, since such a paradigm insists on the actual as the basis of what can be considered normatively. Mills, however, describes this chasm as a problem of an ideal-as-descriptive model which argues that for any actual-empirical-observable social phenomenon (P), an ideal of (P) is necessarily a representation of that phenomenon. In the idealization of a social phenomenon (P), one “necessarily has to abstract away from certain features” of (P) that is observed before abstraction occurs. ¶ This gap between what is actual (in the world), and what is represented by theories and politics of debaters proposed in rounds threatens any real discussions about the concrete nature of oppression and the racist economic structures which necessitate tangible policies and reorienting changes in our value orientations.

#### 4] Categorical imperative reduces to util:

#### A] Any maxim can be implemented without contradiction, i.e. the maxim that no human should be alive doesn’t reveal any contradictions if it were universalized. The only thing that is revealed by universalizing this maxim is that it causes more unhappiness than happiness, which collapses to util.

#### B] Treating human beings as an end requires valuing their happiness so util acts as a side constraint to the categorical imperative

### AT: OST Bans Private Appropriation

#### 1] The OST doesn’t extend to private entities

Gorove 69, Stephan [Professor of space law and director of space studies and policy at the University of Mississippi]. “Interpreting Article II of the Outer Space Treaty”; 1969; *Fordham Law Review* [https://ir.lawnet.fordham.edu/cgi/viewcontent.cgi?article=1966&context=flr]

Turning to the second question which involves the meaning of "national" appropriation, it has been suggested that only the United Nations acting on behalf of the world community as a whole, should be entitled to appropriate.3 While further developments in space law, by international custom or treaty, may eventually prohibit spatial appropriations by an individual or a chartered company or the European communities, the Treaty in its present form appears to contain no prohibition regarding individual appropriation or acquisition by a private association or an international organization, even if other than the United Nations. Thus, at present, an individual acting on his own behalf or on behalf of another individual or a private association or an international organization could lawfully appropriate any part of outer space, including the moon and other celestial bodies. Whether or not an ad hoc international organization could be created for the exclusive purpose of enabling it to appropriate.

#### 2] The OST can be nullified

Thomas 05, Jonathan [Brigham Young University]. “Privatization of Space Ventures: Proposing a Proven Regulatory Theory for Future Extraterrestral Appropriation”; August 16, 2005; *Brigham Young University International Law & Management Review* [https://digitalcommons.law.byu.edu/cgi/viewcontent.cgi?article=1006&context=ilmr]

The Vienna Convention on the Law of Treaties (1969) recognizes that states should not be bound by a treaty when there has been a fundamental change in circumstances. xo Aliicle 62 of the Vienna Convention explains the appropriate circumstances for states to terminate or withdraw from a treaty: A fundamental change of circumstances which has occuned with regard to those existing at the time of the conclusion of a treaty, and which was not foreseen by the parties, may not be invoked as a ground for terminating or withdrawing from the treaty unless: (a) the existence of those circumstances constituted an essential basis of the consent of the parties to be bound by the treaty; and (b) the effect of the change is radically to transform the extent of the obligations still to be perfonTIed under the treaty. States commonly regard this principle contained in the Vienna Convention as customary international law.x

### AT: Space Debris

#### 1] No space debris impact

CNN ‘2 (“Scientist: Space weapons pose debris threat” http://www.cnn.com/2002/TECH/space/05/03/orbit.debris/)

That scenario would likely never succeed or even happen in the first place, other space experts said. Military satellites are hardened to resist impacts from debris already in space and future orbiters will likely become even more protected as the technology improves, said Michael Kucharek, spokesperson for the U.S. Air Force Space Command. The Colorado-based outpost tracks almost 10,000 thousands of pieces of space junk four inches (10 cm) in diameter or larger. Moreover, such an attack would be technologically and economically daunting. "Very few nations could do that today. Even If you were to put tens of thousands of particles out there, it would pale in comparison to what is already out there," said Nick Johnson of NASA's Orbital Debris Program Office, which monitors the threat of small space debris to spacecraft. "We've looked at so-called chain reaction scenarios and it would require an exceptionally large number of particles," Johnson said.

#### 2] Tracking systems solves space dust.

**Mosher** **’19** [Dave; September 3rd; Journalist with more than a decade of experience reporting and writing stories about space, science, and technology; Business Insider, “Satellite collisions may trigger a space-junk disaster that could end human access to orbit. Here’s How,” <https://www.usafa.edu/app/uploads/Space_and_Defense_2_3.pdf>; GR]

The Kessler syndrome plays center-stage in the movie "Gravity," in which an accidental space collision endangers a crew aboard a large space station. But Gossner said that type of a runaway space-junk catastrophe is unlikely. "Right now I don't think we're close to that," he said. "I'm not saying we couldn't get there, and I'm not saying we don't need to be smart and manage the problem. But I don't see it ever becoming, anytime soon, an unmanageable problem." There is no current system to remove old satellites or sweep up bits of debris in order to prevent a Kessler event. Instead, space debris is monitored from Earth, and new rules require satellites in low-Earth orbit be deorbited after 25 years so they don't wind up adding more space junk. "Our current plan is to manage the problem and not let it get that far," Gossner said. "I don't think that we're even close to needing to actively remove stuff. There's lots of research being done on that, and maybe some day that will happen, but I think that — at this point, and in my humble opinion — an unnecessary expense." A major part of the effort to prevent a Kessler event is the Space Surveillance Network (SSN). The project, led by the US military, uses 30 different systems around the world to identify, track, and share information about objects in space. Many objects are tracked day and night via a networkof radar observatories around the globe. Optical telescopes on the ground also keep an eye out, but they aren't always run by the government. "The commercial sector is actually putting up lots and lots of telescopes," Gossner said. The government pays for their debris-tracking services. Gossner said one major debris-tracking company is called Exoanalytic. It uses about 150 small telescopes set up around the globe to detect, track, and report space debris to the SSN. Telescopes in space track debris, too. Far less is known about them because they're likely top-secret military satellites. Objects detected by the government and companies get added to a catalog of space debris and checked against the orbits of other known bits of space junk. New orbits are calculated with supercomputers to see if there's a chance of any collisions. Diana McKissock, a flight lead with the US Air Force's 18th Space Control Squadron, helps track space debris for the SSN. She said the surveillance network issues warnings to NASA, satellite companies, and other groups with spacecraft, based on two levels of emergency: basic and advanced. The SSN issues a basic emergency report to the public three days ahead of a 1-in-10,000 chance of a collision. It then provides multiple updates per day until the risk of a collision passes. To qualify for such reporting, a rogue object must come within a certain distance of another object. In low-Earth orbit, that distance must be less than 1 kilometer (0.62 mile); farther out in deep space, where the precision of orbits is less reliable, the distance is less than 5 kilometers (3.1 miles). Advanced emergency reports help satellite providers see possible collisions much more than three days ahead. "In 2017, we provided data for 308,984 events, of which only 655 were emergency-reportable," McKissock told Business Insider in an email. Of those, 579 events were in low-Earth orbit (where it's relatively crowded with satellites).

#### 3] Kessler induces restraint, not war.

Bowen 18 [Bleddyn, Lecturer in International Relations at the University of Leicester; ELN; 20 Februrary 2018; “The Art of Space Deterrence,” <https://www.europeanleadershipnetwork.org/commentary/the-art-of-space-deterrence/>] brett

Fourth, the ubiquity of space infrastructure and the fragility of the space environment may create a degree of existential deterrence. As space is so useful to modern economies and military forces, a large-scale disruption of space infrastructure may be so intuitively escalatory to decision-makers that there may be a natural caution against a wholesale assault on a state’s entire space capabilities because the consequences of doing so approach the mentalities of total war, or nuclear responses if a society begins tearing itself apart because of the collapse of optimised energy grids and just-in-time supply chains. In addition, the problem of space debris and the political-legal hurdles to conducting debris clean-up operations mean that even a handful of explosive events in space can render a region of Earth orbit unusable for everyone. This could caution a country like China from excessive kinetic intercept missions because its own military and economy is increasingly reliant on outer space, but perhaps not a country like North Korea which does not rely on space. The usefulness, sensitivity, and fragility of space may have some existential deterrent effect. China’s catastrophic anti-satellite weapons test in 2007 is a valuable lesson for all on the potentially devastating effect of kinetic warfare in orbit.