#### I value morality and justice as indicated by the word unjust

#### Ethics must be derived from the constitutive features of agents – ethics based internally fail because they can’t generate universal obligations and ethics based externally fail because they are nonbinding as agents could opt-out and have no motivation to follow them which means they fail to guide action.

#### Constitutivism solves – it allows for universal obligations among all agents but they are binding and cannot be opted out of.

#### Next, only practical reason is constitutive:

#### Regress – to question why one should reason concedes its authority since it is an act of reasoning itself which proves it’s binding and inescapable

#### That justifies universalizability - insofar as there is no a priori distinction between reasoners, a reason for one agent must also be a reason for another; we are all equal. if all agents cannot set and pursue an end, it is not constitutive of agency. Willing a maxim that violates freedom is a contradiction in conception – you cannot violate someone’s freedom without having your own freedom to do so.

#### Thus, the value criterion is consistency with a system of equal and outer freedoms. Actions that terminate in contradictions are bad Impact calc: intentions are the only relevent part of actions to determine contradictions

#### Prefer:

#### 1] A posteriori ethics fail:

#### [a] Problem of induction

Vickers 14, John Vickers, 2014, The Problem of Induction, https://plato.stanford.edu/entries/induction-problem/

The original problem of induction can be simply put. It concerns the support or justification of inductive methods; methods that predict or infer, in Hume's words, that “instances of which we have had no experience resemble those of which we have had experience” (THN, 89). Such methods are clearly essential in scientific reasoning as well as in the conduct of our everyday affairs. The problem is how to support or justify them and it leads to a dilemma: the principle cannot be proved deductively, for it is contingent, and only necessary truths can be proved deductively. Nor can it be supported inductively—by arguing that it has always or usually been reliable in the past—for that would beg the question by assuming just what is to be proved.

**Induction is circular- saying that is has worked thus it will continue to work relies on inductive logic itself, which means it’s circular and unjustified – even if you win a concept of pleasure or pain is good, it doesn’t matter because there;s no way to actually engage in your frameowrk**

A] **Is/Ought Gap – experience just describes how the world is but doesn’t indicate how it ought to be which means there must be an a priori conception of good. No obligation to act morally or justly bc you’re not tied to anything because we have**

B] **Inability to know each other’s experience makes it an unreliable basis for ethics because different experiences bring different concepts of truth – only a priori ethics solve since a priori truths are accessible to all agents**

**Conseq fails**

#### [A] They only judge actions after they occur, which fails action guidance

#### [B] Every action has infinite stemming consequences, because every consequence can cause another consequence. Probability doesn’t solve because 1) Probability is improvable, as it relies on inductive knowledge, but induction from past events can’t lead to deduction of future events and 2) Probability assumes causation, we can’t assume every act was actually the cause of tangible outcomes [C] Every action is infinitely divisible, only intents unify action because we intend the end point of an action – but consequences cannot determine what step of action is moral or not. [D] There’s no objective arbiter to evaluate consequences [E] You can’t aggregate consequences, happiness and sadness are immutable – ten headaches don’t make a migraine

#### [A] Accessibility – Other frameworks like Util require massive amounts of research that under resourced kids can’t access – encouraging research heavy debates always favors big schools. My framework solves - is super easy to understand and you only need to think of analytic arguments in round

#### [B] Real World Education – an understanding of my fw is key to understanding the law in the real world because most states abide by inviolable side-constraints in their constitutions – Germany proves. Ripstein

Ripstein, Arthur.  Force and Freedom: Kant’s Legal and Political Philosophy. Harvard University Press, Cambridge, Massachusetts.  2009

Strictly speaking, the right to dignity is not an enumerated rightin **the German Basic Law [says]**, butthe organizing principle under which all enumerated rights—ranging from life and security of the person through freedom of expression, movement, association, and employment and the right to a fair trial to equality before the law—are organized. It appears as Art**.** I.1: **“Human dignity shall be inviolable. To respect and protect it shall be the duty of all state authority.”** Art. I.3 explains that the enumerated rights follow: “**The following basic rights shall bind the legislature, the executive, and the judiciary as directly applicable law.”** Other, enumerated rights are subject to proportionality analysis, through which they can be restricted in light of each other so as to give effect to a consistent system of rights. **The right to dignity is the basis of the state’s power to legislate and so is not subject to any limitation,** even in light of the enumerated rights falling under it, because—to put it in explicitly Kantian terms—**citizens could not give themselves a law that turned them into mere objects.**

### Offense

Negate, the appropriation of outer space by private entities is just

#### Acquisition of property can never be unjust – to create rights violations, there must already be an owner of the property being violated, but that presupposes its appropriation by another entity.

Feser 1, (Edward Feser, 1-1-2005, accessed on 12-15-2021, Cambridge University Press, "THERE IS NO SUCH THING AS AN UNJUST INITIAL ACQUISITION | Social Philosophy and Policy | Cambridge Core", Edward C. Feser is an American philosopher. He is an Associate Professor of Philosophy at Pasadena City College in Pasadena, California. [https://www.cambridge.org/core/journals/social-philosophy-and-policy/article/abs/there-is-no-such-thing-as-an-unjust-initial-acquisition/5C744D6D5C525E711EC75F75BF7109D1)[brackets](https://www.cambridge.org/core/journals/social-philosophy-and-policy/article/abs/there-is-no-such-thing-as-an-unjust-initial-acquisition/5C744D6D5C525E711EC75F75BF7109D1)%5bbrackets) for gen lang]//phs st

There is a serious difficulty with this criticism of Nozick, however. It is just this: There is no such thing as an unjust initial acquisition of resources; therefore, there is no case to be made for redistributive taxation on the basis of alleged injustices in initial acquisition. This is, to be sure, a bold claim. Moreover, in making it, I contradict not only Nozick’s critics, but Nozick himself, who clearly thinks it is at least possible for there to be injustices in acquisition, whether or not there have in fact been any (or, more realistically, whether or not there have been enough such injustices to justify continual redistributive taxation for the purposes of rectifying them). But here is a case where Nozick has, I think, been too generous to the other side. Rather than attempt —unsatisfactorily, in the view of his critics—to meet the challenge to show that initial acquisition has not in general been unjust, he ought instead to have insisted that there is no such challenge to be met in the first place. Giving what I shall call “the basic argument” for this audacious claim will be the task of Section II of this essay. The argument is, I think, compelling, but by itself it leaves unexplained some widespread intu- itions to the effect that certain specific instances of initial acquisition are unjust and call forth as their remedy the application of a Lockean proviso, or are otherwise problematic. (A “Lockean proviso,” of course, is one that forbids initial acquisitions of resources when these acquisitions do not leave “enough and as good” in common for others.) Thus, Section III focuses on various considerations that tend to show how those intuitions are best explained in a way consistent with the argument of Section II. Section IV completes the task of accounting for the intuitions in question by considering how the thesis of self-ownership itself bears on the acqui- sition and use of property. Section V shows how the results of the previ- ous sections add up to a more satisfying defense of Nozickian property rights than the one given by Nozick himself, and considers some of the implications of this revised conception of initial acquisition for our under- standing of Nozick’s principles of transfer and rectification. II. The Basic Argument The reason there is no such thing as an unjust initial acquisition of resources is that there is no such thing as either a just or an unjust initial acquisition of resources. The concept of justice, that is to say, simply does not apply to initial acquisition. It applies only after initial acquisition has already taken place. In particular, it applies only to transfers of property (and derivatively, to the rectification of injustices in transfer). This, it seems to me, is a clear implication of the assumption (rightly) made by Nozick that external resources are initially unowned. Consider the following example. Suppose an individual A seeks to acquire some previously unowned resource R. For it to be the case that A commits an injustice in acquiring R, it would also have to be the case that there is some individual B (or perhaps a group of individuals) against whom A commits the injustice. But for B to have been wronged by A’s acquisi- tion of R, B would have to have had a rightful claim over R, a right to R. By hypothesis, however, B did not have a right to R, because no one had a right to it—it was unowned, after all. So B was not wronged and could not have been. In fact, the very first person who could conceivably be wronged by anyone’s use of R would be, not B, but A himself, since A is the first one to own R. Such a wrong would in the nature of the case be an injustice in transfer—in unjustly taking from A what is rightfully his—not in initial acquisition. The same thing, by extension, will be true of all unowned resources: it is only after some- one has initially acquired them that anyone could unjustly come to possess them, via unjust transfer. It is impossible, then, for there to be any injustices in initial acquisition.7

#### To own yourself and use your own freedom is to be able to interact with external objects. Anything else makes you unable to exercise your own freedom on other things and creates a contradiction.

Feser 2, (Edward Feser, 1-1-2005, accessed on 12-15-2021, Cambridge University Press, "THERE IS NO SUCH THING AS AN UNJUST INITIAL ACQUISITION | Social Philosophy and Policy | Cambridge Core", Edward C. Feser is an American philosopher. He is an Associate Professor of Philosophy at Pasadena City College in Pasadena, California. [https://www.cambridge.org/core/journals/social-philosophy-and-policy/article/abs/there-is-no-such-thing-as-an-unjust-initial-acquisition/5C744D6D5C525E711EC75F75BF7109D1)[brackets](https://www.cambridge.org/core/journals/social-philosophy-and-policy/article/abs/there-is-no-such-thing-as-an-unjust-initial-acquisition/5C744D6D5C525E711EC75F75BF7109D1)%5bbrackets) for gen lang]//phs st

There is. An alternative, soft-line approach could acknowledge that the initial acquirer who abuses a monopoly over a water hole (or any similar crucial resource) does commit an injustice against those who are disad- vantaged, but such an approach could still hold that the acquirer never- theless has not committed an injustice in acquisition —his acquisition was, as I have said, neither just nor unjust. Nor does he fail to own what he has acquired; he still cannot be said to have stolen the water from anyone. Rather, his injustice is an unjust use of what he owns, on a par with the unjust use I make of my self-owned fist when I wield it, unprovoked, to bop you on your self-owned nose. In what sense does the water-hole owner use his water unjustly, though? He doesn’t try to drown anyone in it, after all— indeed, the whole problem is that he won’t let anybody near it! Eric Mack gives us the answer we need in what he has put forward as the “self-ownership proviso” (SOP).28 This is a proviso not (as the Lock- ean proviso is) on the initial acquisition of property, but rather on how one can use his property in a way that respects others’ self-ownership rights. It is motivated by consideration of the fact that the talents, abilities, capac- ities, energies, etc., that a person rightfully possesses as a self-owner are inherently “world-interactive”; that is, it is of their very essence that they are directed toward the extra-personal environment.29 Your capacity to use your hand, for instance, is just a capacity to grasp and manipulate external objects; thus, what you own in owning your hand is something essentially grasping and manipulating.30 Now if someone were to cut off your hand or invasively keep you from using it (by tying your arm against your body or holding it behind your back), he would obviously be violating your self-ownership rights. But there are, Mack suggests, other, noninvasive ways in which those rights might be violated. If, to use an example of Mack’s, I effectively nullify your ability to use your hand by creating a device that causes anything you reach for to be propelled beyond your grasp, making it impossible for you ever to grasp or manip- ulate anything, I have violated your right to your hand as much as if I had cut it off or tied it down. I have, in any case, prevented your right to your hand from being anything more than a formal right, one that is practically useless. In the interests of guaranteeing respect for substantive, robust rights of self-ownership, then, “[t]he SOP requires that persons not deploy their legitimate holdings, i.e., their extra-personal property, in ways that severely, albeit noninvasively, disable any person’s world-interactive powers.” 31 The SOP follows, in Mack’s view, from the thesis of self-ownership itself; or, at any rate, the considerations that would lead anyone to accept that thesis should also, in his view, lead one to accept the proviso.32 A brief summary of a few of Mack’s thought experiments should suffice to give a sense of why this is so.33 In what Mack calls the Adam’s Island example, Adam acquires a previously uninhabited island and later refuses a shipwrecked Zelda permission to come ashore, as a result of which she remains struggling at sea (and presumably drowns). In the Paternalist Caging example, instead of drowning, Zelda becomes caught offshore in a cage Adam has constructed for catching large sea mammals, and, rather than releasing her, Adam keeps her in the cage and feeds her regularly. In the Knuckle-Scraper Barrier example, Zelda falls asleep on some unowned ground, whereupon a gang of oafish louts encircles her and, using their bodies and arms as barriers, refuses to let her out of the circle (accusing her of assault if she touches them in order to climb over or break through). In the Disabling Property Barrier example, instead of a human barrier, Adam constructs a plastic shield over and around the unowned plot of ground upon which Zelda sleeps, accusing her of trespassing upon his property when she awakens and tries to escape by breaking through the plastic. And in the (similarly named) Disabling Property Barriers example, seem to suggest an Aristotelian-Thomistic conception of natural function, and though this by no means troubles me, it might not be what Mack himself has in mind (nor, of course, is it something every philosopher is going to sympathize with). Mack’s view nevertheless seems to require something like this conception. And something like it —enough like it to do the job Mack needs to be done, anyway—is arguably to be found in Larry Wright’s well- known reconstruction, in modern Darwinian terms, of the traditional notion of natural function. See Larry Wright, “Functions,” Philosophical Review 82, no. 2 (1973): 139–68. Adam, instead of enclosing Zelda in a plastic barrier, encloses in plastic barriers every external object that Zelda would otherwise be able to use — thus, in effect, enclosing her in a larger, all-encompassing plastic barrier of a more eccentric shape. In all of these cases, Mack says, although Zelda’s formal rights of self-ownership have not been violated—no one has invaded the area enclosed by the surface of her skin —her rights over her self-owned powers, and in particular her ability to exercise those powers, have nevertheless been nullified. But a plausible self-ownership- based theory surely cannot allow for this. It cannot, for instance, allow the innocent Zelda justly to be imprisoned in any of the ways described! If Mack is right, then it seems we have, in the SOP, grounds for holding that a water-hole monopolist would indeed be committing an injustice against anyone he refuses water to, or to whom he charges exorbitant prices for access. The injustice would be a straightforward violation of a person’s rights to self-ownership, a case of nullifying a person’s self- owned powers in a way analogous to Adam’s or the knuckle-scrapers’ nullification of Zelda’s self-owned powers. It would not be an injustice in initial acquisition, however. The water-hole monopolist still owns the water hole as much as he ever did; he just cannot use it in a way that violates other individuals’ self-ownership rights (either by drowning them in it or by nullifying their self-owned powers by denying them access to it when there is no alternative way for them to gain access to the water necessary for the use of their self-owned powers). Is Mack right? The hard-liner might dig in his heels and insist that none of Mack’s examples amount to self-ownership-violating injustices; instead, they are merely subtle but straightforward property rights violations or cases of moral failings of various other sorts (cruelty, selfishness, etc.). The Adam’s Island case, for starters, is roughly analogous to the example of the water-hole monopolist, so that it arguably cannot give any non-question- begging support to the SOP, if the SOP is then supposed to show that the water-hole example involves an injustice. The Disabling Property Barriers case might also be viewed as unable to provide any non-question-begging support, since Adam’s encasing everything in plastic might plausibly be interpreted as his acquiring everything, in which case we are back to a water-hole-type monopoly example. The Knuckle-Scraper Barrier and Dis- abling Property Barrier examples might be explained by saying that in falling asleep on the unowned plot of land, Zelda in effect has come (at least temporarily) to acquire it, and (by virtue of walking) to acquire also the path she took to get to it, so that the knuckle-scrapers and Adam violate her property rights (not her self-ownership rights) in not allowing her to escape. The Paternalist Caging example can perhaps be explained by arguing that in building the cage, Adam has acquired the water route leading to it, so that in swimming this route (and thus getting caught in the cage) Zelda has violated his property rights and, therefore, can justly be caged. Accordingly, the hard-liner might insist, we can explain all of these examples in a hard-line way and thus avoid commitment to the SOP. Such a hard-line response would be ingenious (well, maybe), but still, I think, ultimately doomed to failure. Can the Paternalist Caging example, to start with, plausibly be explained away in the manner that I have suggested? Does Adam commit no injustice against Zelda even if he never lets her out? It will not do to write this off merely as a case of excessive punishment (explaining the injustice of which would presumably not require commitment to the SOP). For suppose Adam says, after a mere five minutes of confinement, “I’m no longer punishing you; you’ve paid your debt and are free to go, as far as I’m concerned. But I’m not going to bother exerting the effort to let you out. I never forced you to get in the cage, after all —you did it on your own —and you have no right to the use of my self-owned cage-opening powers to fix your mistake! So teleport out, if you can. Or get someone else —if you can find someone —to let you out.” Adam would be neither violating Zelda’s rights to external property nor excessively punishing her in this case; nor would he be invasively vio- lating her self-ownership rights. But wouldn’t he still be committing an injustice, however noninvasively? Don’t we need something like the SOP to explain why this is so? The barrier examples, for their part, do not require Zelda’s walking and falling asleep on virgin territory, which thus (arguably) becomes her prop- erty. We can, to appeal to the sort of science-fiction scenario beloved of philosophers, imagine instead a bizarre chance disruption of the structure of space-time that teleports Zelda into Adam’s plastic shell or into the midst of the knuckle-scrapers. There is no question now of their violating her property rights; yet don’t they still commit an injustice by nullifying her self-owned powers in refusing to allow her to exit? Consider a parallel example concerning property ownership itself. If your prized $50,000 copy of Captain America Comics number 1, due to another rupture in space-time or just to a particularly strong wind that blows it out of your hands and through my window, suddenly appears on the floor of my living room, do I have the right to refuse to bring it back out to you or to allow you to come in and get it? Suppose I attempt to justify my refusal by saying, “I won’t touch it, and you’re free to have it back if you can arrange another space-time rupture or gust of wind. But I refuse to exert my self-owned powers to bring it out to you, or to allow you on my property to get it. I never asked for it to appear in my living room, after all!” Would anyone accept this justification? Doesn’t your property right in the comic book require me to give it back to you? The hard-liner might suggest that this example transports the SOP advocate out of the frying pan and into the fire. For if the SOP is true, wouldn’t we also have to commit ourselves to a “property-ownership proviso” (POP) that requires us not to nullify anyone’s ability to use his external private property in a way consistent with its “world-interactive powers”? If I build a miniature submarine in my garage, and you have the only swimming pool within one thousand miles, must you allow me the use of your pool lest you nullify my ability to use the sub? If (to take an example of Cohen’s cited by Mack) I own a corkscrew, must I be provided with wine bottles to open lest the corkscrew sadly fail to fulfill its full potential?34 Mack’s response to this line of thought seems basically to amount to a bit of backpedaling on the claim that his proviso really follows from the notion of self-ownership per se —so as to avoid the conclusion that a (rather unlibertarian and presumably redistributionist) POP would also, in par- allel fashion, follow from the concept of property ownership. His response seems, instead, to emphasize the idea that the considerations favoring self-ownership also favor, via an independent line of reasoning, the SOP.35 In my view, however, a better response would be one that took note of some relevant disanalogies between property in oneself and property in external things. Note first that the self-owned world-interactive powers, the possible use of which the SOP is intended to guarantee, are possessed by a living being who is undergoing development, which involves passing through various stages; therefore, these powers are ones that flourish with use and atrophy or even disappear with disuse.36 To nullify these powers even for a limited time, then, is (very often at least) not merely temporarily to inconvenience their owner, but, rather, to bring about a permanent reduc- tion or even disablement of these powers. By contrast, a submarine (or a corkscrew) retains its powers even when left indefinitely in a garage (or a drawer). This difference in the effect that nullification has on self-owned powers versus extra-personal property plausibly justifies a difference in our judgments concerning the acceptability, from the point of view of justice, of such nullification in the two cases; that is, it justifies adoption of the SOP but not of the POP.37 Second, there is an element of choice (and in particular, of voluntary acquisition) where extra-personal property is concerned that is morally relevant here. One’s self-owned powers, along with the SOP-guaranteed right to the non-nullification of those powers, are not something one chooses or acquires; one just has them —indeed, to a great degree one just is the constellation of those powers, abilities, etc.—and owns them fully. By contrast, extra-personal property is something one chooses to acquire or not to acquire, and as we have seen, one always acquires property rights in various degrees, from partial to full ownership—and this would include the rights guaranteed by a POP. If one chooses to acquire a corkscrew under conditions where wine bottles are unavailable, or are even likely at some point to become unavailable, one can hardly blame others if one finds oneself bottle-less. To fail to acquire POP-like rights regarding the corkscrew (by, say, contracting with someone else to provide one with wine bottles in perpetuity) is not the same thing as to have those rights and then have them violated. Someone who buys a corkscrew and then finds that he cannot use it is like the person who acquires only partial property rights in a water hole that others have already acquired partial use rights over. He cannot complain that his co-owners have violated his rights; he never acquired those other rights in the first place. Similarly, the corkscrew owner cannot complain that he has no bottles to open; he never acquired the right to those bottles, only to the corkscrew. If full ownership of a corkscrew requires POP-like rights over it, then all that follows is that corkscrew owners who lack bottles are not full owners of their corkscrews.

#### Thus, self-ownership justifies the appropriation of property – our freedom necessitates being able to set and pursue external things as our ends, including exercising our rights on property. Restricting this arbitrarily limits our freedom which is unjust.

Feser 3, (Edward Feser, 1-1-2005, accessed on 12-15-2021, Cambridge University Press, "THERE IS NO SUCH THING AS AN UNJUST INITIAL ACQUISITION | Social Philosophy and Policy | Cambridge Core", Edward C. Feser is an American philosopher. He is an Associate Professor of Philosophy at Pasadena City College in Pasadena, California. [https://www.cambridge.org/core/journals/social-philosophy-and-policy/article/abs/there-is-no-such-thing-as-an-unjust-initial-acquisition/5C744D6D5C525E711EC75F75BF7109D1)[brackets](https://www.cambridge.org/core/journals/social-philosophy-and-policy/article/abs/there-is-no-such-thing-as-an-unjust-initial-acquisition/5C744D6D5C525E711EC75F75BF7109D1)%5bbrackets) for gen lang]//phs st

V. Some Implications If what I have argued so far is correct, then the way is opened to the following revised case for strongly libertarian Lockean-Nozickian prop-erty rights: We are self-owners, having full property rights to our body parts, powers, talents, energies, etc. As self-owners, we also have a right, given the SOP, not to have our self-owned powers nullified —we have the right, that is, to act within the extra-personal world and thus to acquire rights to extra-personal objects that the use of our self-owned powers requires.39 This might involve the buying or leasing of certain rights or bundles of rights and, correspondingly, the acquiring of lesser or greater degrees of ownership of parts of the external world, but as long as one is able to exercise one’s powers to some degree and is not rendered incapable of acting within that world, the SOP is satisfied. In any case, such rights can only be traded after they are first established by initial acquisition. In initially acquiring a resource, an agent does no one an injustice (it was unowned, after all). Furthermore, [they] has mixed [their] labor with the resource, significantly altering it and/or bringing it under his control, and is himself solely responsible for whatever value or utility the resource has come to have. Thus, [they] has a presumptive right to it, and, if his control and/or alteration (and thus acquisition) of it is (more or less) complete, his own- ership is accordingly (more or less) full. The system of strong private property rights that follows from the acts of initial acquisition performed by countless such agents results, as a matter of empirical fact, in a market economy that inevitably and dramatically increases the number of resources available for use by individuals, and these benefited individuals include those who come along long after initial acquisition has taken place. (Indeed, it especially includes these latecomers, given that they were able to avoid the hard work of being the first to “tame the land” and draw out the value of raw materials.)40 The SOP is thus, in fact, rarely, if ever, violated. The upshot is that a system of Lockean-Nozickian private property rights is morally justified, with a strong presumption against tampering with exist- ing property titles in general. In any case, there is a strong presumption against any general egalitarian redistribution of wealth, and no case what- soever to be made for such redistribution from the general theory of prop- erty just sketched, purged as it is of the Lockean proviso, with all the egalitarian mischief-making the proviso has made possible.

## 2

#### Strong commercial space catalyzes tech innovation – progress at the margins and spinoff tech change global information networks

Joshua Hampson 2017, Security Studies Fellow at the Niskanen Center, 1-25-2017, “The Future of Space Commercialization”, Niskanen Center, https://republicans-science.house.gov/sites/republicans.science.house.gov/files/documents/TheFutureofSpaceCommercializationFinal.pdf

Innovation is generally hard to predict; some new technologies seem to come out of nowhere and others only take off when paired with a new application. It is difficult to predict the future, but it is reasonable to expect that a growing space economy would open opportunities for technological and organizational innovation. In terms of technology, the difficult environment of outer space helps incentivize progress along the margins. Because each object launched into orbit costs a significant amount of money—at the moment between $27,000 and $43,000 per pound, though that will likely drop in the future —each 19 reduction in payload size saves money or means more can be launched. At the same time, the ability to fit more capability into a smaller satellite opens outer space to actors that previously were priced out of the market. This is one of the reasons why small, affordable satellites are increasingly pursued by companies or organizations that cannot afford to launch larger traditional satellites. These small 20 satellites also provide non-traditional launchers, such as engineering students or prototypers, the opportunity to learn about satellite production and test new technologies before working on a full-sized satellite. That expansion of developers, experimenters, and testers cannot but help increase innovation opportunities. Technological developments from outer space have been applied to terrestrial life since the earliest days of space exploration. The National Aeronautics and Space Administration (NASA) maintains a website that lists technologies that have spun off from such research projects. Lightweight 21 nanotubes, useful in protecting astronauts during space exploration, are now being tested for applications in emergency response gear and electrical insulation. The need for certainty about the resiliency of materials used in space led to the development of an analytics tool useful across a range of industries. Temper foam, the material used in memory-foam pillows, was developed for NASA for seat covers. As more companies pursue their own space goals, more innovations will likely come from the commercial sector. Outer space is not just a catalyst for technological development. Satellite constellations and their unique line-of-sight vantage point can provide new perspectives to old industries. Deploying satellites into low-Earth orbit, as Facebook wants to do, can connect large, previously-unreached swathes of 22 humanity to the Internet. Remote sensing technology could change how whole industries operate, such as crop monitoring, herd management, crisis response, and land evaluation, among others. 23 While satellites cannot provide all essential information for some of these industries, they can fill in some useful gaps and work as part of a wider system of tools. Space infrastructure, in helping to change how people connect and perceive Earth, could help spark innovations on the ground as well. These innovations, changes to global networks, and new opportunities could lead to wider economic growth.

#### Short innovation cycles mean every contract counts

John J. Klein 19, Senior Fellow and Strategist at Falcon Research Inc. and adjunct professor at the George Washington University Space Policy Institute, 1-15-2019, "Rethinking Requirements and Risk in the New Space Age," Center for a New American Security, https://www.cnas.org/publications/reports/rethinking-requirements-and-risk-in-the-new-space-age

Unfortunately, these variances in models between the MDAP’s lengthy development cycle and the commercial space sector’s 18-month innovation cycle are a result of stark differences in thinking about requirements and risk. Requirements and risk for MDAPs commonly focus on ensuring critical mission capabilities at a given cost. In contrast, the commercial space sector tends to focus more on providing innovation quickly using economies of scale. The commercial sector understands that time dynamically shapes decisions related to requirements and risk because of the relatively short innovation cycle. In a highly competitive space sector with tight profit margins, those unable to innovate quickly will likely be out of business soon. Alternatively, space systems with mission assurance requirements – where failures are detrimental to national security and military operations – often drive DoD’s timelines. Program managers of critical national security space systems commonly require additional time to test and verify that satellites can perform missions with a very low probability of failure.

#### Tech innovation solves every existential threat – cumulative extinction events outweigh the aff

Dylan **Matthews 18**. Co-founder of Vox, citing Nick Beckstead @ Rutgers University. 10-26-2018. "How to help people millions of years from now." Vox. https://www.vox.com/future-perfect/2018/10/26/18023366/far-future-effective-altruism-existential-risk-doing-good

If you care about improving human lives, you should overwhelmingly care about those quadrillions of lives rather than the comparatively small number of people alive today. The 7.6 billion people now living, after all, amount to less than 0.003 percent of the population that will live in the future. It’s reasonable to suggest that those quadrillions of future people have, accordingly, hundreds of thousands of times more moral weight than those of us living here today do. That’s the basic argument behind Nick Beckstead’s 2013 Rutgers philosophy dissertation, “On the overwhelming importance of shaping the far future.” It’s a glorious mindfuck of a thesis, not least because Beckstead shows very convincingly that this is a conclusion any plausible moral view would reach. It’s not just something that weird utilitarians have to deal with. And Beckstead, to his considerable credit, walks the walk on this. He works at the Open Philanthropy Project on grants relating to the far future and runs a charitable fund for donors who want to prioritize the far future. And arguments from him and others have turned “long-termism” into a very vibrant, important strand of the effective altruism community. But what does prioritizing the far future even mean? The most literal thing it could mean is preventing human extinction, to ensure that the species persists as long as possible. For the long-term-focused effective altruists I know, that typically means identifying concrete threats to humanity’s continued existence — like unfriendly artificial intelligence, or a pandemic, or global warming/out of control geoengineering — and engaging in activities to prevent that specific eventuality. But in a set of slides he made in 2013, Beckstead makes a compelling case that while that’s certainly part of what caring about the far future entails, approaches that address specific threats to humanity (which he calls “targeted” approaches to the far future) have to complement “broad” approaches, where instead of trying to predict what’s going to kill us all, you just generally try to keep civilization running as best it can, so that it is, as a whole, well-equipped to deal with potential extinction events in the future, not just in 2030 or 2040 but in 3500 or 95000 or even 37 million. In other words, caring about the far future doesn’t mean just paying attention to low-probability risks of total annihilation; it also means acting on pressing needs now. For example: We’re going to be better prepared to prevent extinction from AI or a supervirus or global warming if society as a whole makes a lot of scientific progress. And a significant bottleneck there is that the vast majority of humanity doesn’t get high-enough-quality education to engage in scientific research, if they want to, which reduces the odds that we have enough trained scientists to come up with the breakthroughs we need as a civilization to survive and thrive. So maybe one of the best things we can do for the far future is to improve school systems — here and now — to harness the group economist Raj Chetty calls “lost Einsteins” (potential innovators who are thwarted by poverty and inequality in rich countries) and, more importantly, the hundreds of millions of kids in developing countries dealing with even worse education systems than those in depressed communities in the rich world. What if living ethically for the far future means living ethically now? Beckstead mentions some other broad, or very broad, ideas (these are all his descriptions): Help make computers faster so that people everywhere can work more efficiently Change intellectual property law so that technological innovation can happen more quickly Advocate for open borders so that people from poorly governed countries can move to better-governed countries and be more productive Meta-research: improve incentives and norms in academic work to better advance human knowledge Improve education Advocate for political party X to make future people have values more like political party X ”If you look at these areas (economic growth and technological progress, access to information, individual capability, social coordination, motives) a lot of everyday good works contribute,” Beckstead writes. “An implication of this is that a lot of everyday good works are good from a broad perspective, even though hardly anyone thinks explicitly in terms of far future standards.” Look at those examples again: It’s just a list of what normal altruistically motivated people, not effective altruism folks, generally do. Charities in the US love talking about the lost opportunities for innovation that poverty creates. Lots of smart people who want to make a difference become scientists, or try to work as teachers or on improving education policy, and lord knows there are plenty of people who become political party operatives out of a conviction that the moral consequences of the party’s platform are good. All of which is to say: Maybe effective altruists aren’t that special, or at least maybe we don’t have access to that many specific and weird conclusions about how best to help the world. If the far future is what matters, and generally trying to make the world work better is among the best ways to help the far future, then effective altruism just becomes plain ol’ do-goodery.\*