=I affirm the resolution: The appropriation of outer space by private entities is unjust.=

===Definitions:===

To clarify the round, I offer the following definitions. According to Oxford Dictionary appropriation is defined as the action of taking something for one's own use. Outer space is defined as the zone 100 kilometers above the planet. Private entities are defined as any person or private group, organization, proprietorship, partnership, trust, cooperative, corporation, or other commercial or nonprofit entity by Cornell Law.

====W1 "Outer space" is the zone starting 100km above the planet====

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Elizabeth, 6/8. "What is Space?" https://www.space.com/24870-what-is-space.html

From the perspective of an Earthling, outer space is a zone that occurs about 100 kilometers (60 miles) above the planet, where there is no appreciable air to breathe or to scatter light. In that area, blue gives way to black because oxygen molecules are not in enough abundance to make the sky blue.

===Value: Justice===

The value I offer for the round is justice, specified by the word "unjust" in the resolution. Justice is defined as "giving each their due." To be moral, actors must be just. According to Meriam Webster, morality is the principles concerning the distinction between right and wrong or good.

===VC: Util===

The value criterion I offer for this round is maximizing societal welfare. This requires weighing between different consequences by utilitarianism.

Consequentialism is the most morally just framework for three reasons.

It is intuitive. It establishes that pain is bad, and pleasure is good which are obvious moral intuitions that form the basis of ethical decision-making. This means that it is a prerequisite to any other ethical weighing mechanism.

====Maximizing well-being undergrids all human motivation – neurosciences means we're all utilitarian====

Joshua D Green PhD 14 – Psych professor @ Harvard

(July 2014, "Beyond Point-and-Shoot Morality: Why Cognitive (Neuro)Science Matters for Ethics" Source Ethics, https://psychology.fas.harvard.edu/files/psych/files/beyond-point-and-shoot-morality.pdf?m=1441302794) Coach Eli

In this article I explain why cognitive science !including some neuroscience" matters for normative ethics. First, I describe the dual-process theory of moral judg- ment and briefly summarize the evidence supporting it. Next I describe related experimental research examining influences on intuitive moral judgment. I then describe two ways in which research along these lines can have implications for ethics. I argue that a deeper understanding of moral psychology favors certain forms of consequentialism over other classes of normative moral theory. I close with some brief remarks concerning the bright future of ethics as an interdisci- plinary enterprise. The cognitive science of ethics is booming, thanks in no small part to philosophers.1 Nevertheless, many philosophers wonder whether this, or any, empirical research could have implications for foundational ques- tions in normative ethics. In this article I will explain why cognitive science matters for ethics. More specifically, I will defend the following thesis: Science can advance ethics by revealing the hidden inner workings of our moral judgments, especially the ones we make intuitively. dence in some of our judgments and the ethical theories that are !explicitly or implicitly" based on them. In Section I, I will describe our brains as dual-process systems and in- troduce the camera analog y , the organizing metaphor of this essay and a central idea in my book.2 In Section II, I will describe and present evi- dence for the dual-process theory of moral judgment. In Section III, I will describe related experimental research examining influences on our moral intuitions. In Sections IV and V, I'll describe two routes by which cognitive science can have implications for ethics, and with no illicit is/ oughtbordercrossings.Icalltheseroutesdirect andindirect.InSectionVI, I'll explain why a deeper understanding of moral psychology favors certain forms of consequentialism. I will then close with a few words about the bright future of ethics as an interdisciplinary enterprise. I. THE DUAL-PROCESS BRAIN I own a digital SLR camera that, like many others, operates in two com- plementary modes. First, it has a variety of point-and-shoot automatic settings that are optimized for typical photographic situations !"portrait," "action," "landscape," etc.". I use these most of the time. Occasionally, I get ambitious and put the camera in manual mode, which allows me to adjust all of the camera's settings by hand. This dual-mode design exemplifies an elegant solution to a ubiqui- tous design problem, namely, the trade-off between efficiency and flexi- bility. The automatic settings are highly efficient, but not very flexible, and the reverse is true of the manual mode. Put them together, however, and you get the best of both worlds, provided that you know when to use each mode. The human brain has the same general design.3 First, we humans have a variety of automatic settings—reflexes and intuitions that guide our behavior, many of which are emotional. We may be conscious of such emo- tional responses, but we are generally not conscious of the processes that trigger them. We rely on our automatic settings most of the time, and they generally serve us well.4 Our brains also have a manual mode. It is a general-purpose rea- soning system, specialized for enabling behaviors that serve long!er"- term goals, that is, goals that are not automatically activated by current environmental stimuli or endogenous somatic states.5 The operations of this system are typically conscious, experienced as voluntary, and often experienced as effortful. Our manual mode allows us to formulate be- havioral plans based on detailed and explicit knowledge of the situations we face, along with explicit general knowledge about the world and how it works. Manual mode allows us to guide our behavior using explicit rules and to think explicitly about how the world works. In short, manual mode thinking is the kind of thinking that we think of as "thinking."6 The way our brains handle the efficiency/flexibility tradeoff is nicely illustrated by our navigation of the familiar tension between now and later. We have automatic settings that urge us to consume or acquire valuable resources, such as calorie-rich food and money, whenever they are avail- able. This is very efficient because it is generally adaptive to acquire valu- able resources. At the same time, we humans have the capacity to think explicitly about whether our long-term goals are served by immediate consumption/acquisition, along with the capacity to regulate our behav- ior accordingly. In other words, we can delay gratification, choosing, for example, a slimmer waistline in three months over chocolate cake right now. This is a dual-process phenomenon. If, for example, our manual mode capacity is occupied by a distracting memory task, our automatic settings gain the advantage, and we are more likely to choose chocolate cake over fruit salad.7 Recent brain imaging studies reveal the underlying neural dynamics.8 Brain regions such as the ventral striatum and the ventromedial prefrontal cortex !VMPFC" produce the automatic response favoring now and enable this response to influence behavior. Other brain regions, most notably the dorsolateral prefrontal cortex !DLPFC", enable the controlled response that sometimes favors later, depending on the situational details. We see the dual-process brain at work in other domains, for example, in the cog- nitive control of negative reactions to members of racial out-groups and sad scenes.9 In these cases among others, the amygdala, an ancient mam- malian brain structure with direct connections to the VMPFC, plays a crit- ical role in automatic responding, while the DLPFC plays a central role in coordinating manual mode thinking and responding. Before moving on, it's worth highlighting three ways in which the camera analogy may mislead. First, while a camera must be in one mode or another, the waking human brain's automatic settings are always on. Second, a camera's dual modes can function independently of each other, but in animals there is an asymmetrical dependence. One can have auto- matic settings without a manual mode, as in most animals, but not the reverse. Finally, automatic settings need not be "innate" or "hardwired." They can be acquired or modified through cultural learning !as in prej- udicial responses to racial out-groups" and through individual experi- ences !as in classical conditioning".

Util allows us to determine degrees of wrongness. For example, breaking a promise of taking your dying mom to the hospital is worse than breaking a promise to meet a friend at a party. Although the actions of breaking a promise are the same, the consequences of one have much higher severity than the other, which can only be determined through a framework of utilitarianism.

It is actor specific, because the one who decides recognizing the appropriation of outer space is the government, and government always prioritizes maximizing general welfare of their nation, operating under a utilitarian basis, which is why my value criterion of maximizing societal welfare should be preferred.

==Contention 1: Space Pollution==

===~~[Satellites~~] Subpoint A: Growing commercialization of space activities is causing satellite numbers TO TRIPLE— drastically increasing the risk of space debris collisions ===

====~~# Satellites Plan 2 Launch:====

Shefaly Singh Sachan 2020 https://www.revyuh.com/news/business/b2b/space-overcrowding-serious-concern-space-explorers/

Earths outer atmosphere is facing a unique problem, it is overcrowded. Even though we are a part of an ever-expanding universe the issue has become a reality for space explorers.

If you have seen critically acclaimed Hollywood flick Gravity, you may be able to relate easily with the current problem. One of the major plot points is that of satellite shrapnel causing a disastrous series of events in space.

In recent times, SpaceX has emerged as the largest player. in the space launching and research business. With its Starlink project that plans to have a mega-constellations of 12,000 to 40,000 satellites in space in order to provide internet services to remote locations around the world.

====~~# Satellites in Space:====

As reported in the Index of Objects Launched into Outer Space, issued by the United Nations Office for Outer Space Affairs (UNOOSA), there were 7,389 individual satellites in Space at the end of April 2021. In the history of space, no more than 8000 satellites have been in orbit.

If Starlink can send even 20,000 satellites into space, half of their total goal, the amount of satellites in space would triple. SpaceX has profit motive, but their plans will make satellite collisions nearly inevitable. And SpaceX is one of many – other private entities are looking towards the space market as well.

====RFI externality====

Room The Space Journal of Asgardia, Michael Simpson & Laura Lopez, xx-xx-2014, "Congested, contested, and invested: of space debris, risky launches and private initiative,"

Another powerful externality is the growing problem of radio frequency interference (RFI) as many satellite applications and services use a handful of common frequency bands. This has led to a growing competition for spectrum and incidents of both unintentional and intentional interference or "jamming," not just between satellites but between space and terrestrial services as well.

=== ~~[Geosync~~] Subpoint B: Asteroid Mining Will Disrupt the Geosynchronous Orbit===

Sarah Scoles , 5-27-2015, "Dust from asteroid mining spells danger for satellites," New Scientist, https://www.newscientist.com/article/mg22630235-100-dust-from-asteroid-mining-spells-danger-for-satellites/

IF THE gold mine is too far from home, why not move it nearby? It sounds like a fantasy, but would-be miners are already dreaming up ways to drag~~[ging~~] resource-rich space rocks closer to home. Trouble is, that could threaten~~[s~~] the web of satellites around Earth.

. But an asteroid's gravity is so weak that it's not hard for surface particles to escape into space. Now a new model warns that debris shed by such transplanted rocks could intrudes where many defense and communication satellites live – in geosynchronous orbit.

According to Casey Handmer of the California Institute of Technology in Pasadena and Javier Roa of the Technical University of Madrid in Spain, 5 per cent of the escaped debris will end up in regions traversed by satellites. Over 10 years, it would cross geosynchronous orbit 63 times on average. A satellite in the wrong spot at the wrong time can suffer a damaging high-speed collision with that dust.

The study also looks at the "catastrophic disruption" of an asteroid 5 metres across or bigger. Its total break-up into a pile of rubble would increase the risk to satellites by more than 30 per cent (arxiv.org/abs/1505.03800).

Private companies mining asteroids will only increase risks to the geosynchronous orbit, including satellites and spaceflight.

That may not have immediate consequences. But as Earth orbits get more crowded with spent rocket stages and satellites, we will have to worry about cascades of collisions like the one depicted in the movie Gravity.

====(example): Companies already mining ====

Business Insider Nov 3 2016 https://www.businessinsider.com/the-value-of-asteroid-mining-2016-11

Asteroid mining companies such as Planetary Resources and Deep Space Industries are the first-movers in the sector, and they've already started to identify prospective targets to boldly mine where no man has mined before.

Both companies are looking specifically at near-Earth asteroids in the near-term, which are the easiest ones to get to. So far, roughly 15,000 such objects have been discovered, and their orbits all come in close proximity to Earth.

Planetary Resources has identified eight of these as potential targets and has listed them publicly, while Deep Space Industries has claimed to have "half a dozen very, very attractive targets".

While these will be important for verifying the feasibility of asteroid mining, the reality is that near-Earth asteroids are just tiny minnows in an ocean of big fish. Their main advantage is that they are relatively easy to access, but most targets identified so far are less than 1,000 ft (300 m) in diameter – meaning the potential economic payoff of a mission is still unclear.

==Contention 2: Space Collisions==

===Subpoint A: The probability of space collisions are growing, further space appropriation leads to detrimental impact. ===

Tess Hatch, Chris Wu, Wouter Van Gijseghem, Maurizio Valesani, Tim Spencer/ 3:55 PM EST•December 15, 2020

The existence of space debris is concerning for many reasons, with physical collisions being the most obvious. The possible risk caused by space debris is magnified by the incredible speed at which debris typically travels. According to NASA, there are over 30,000 objects larger than a softball in orbit, traveling at speeds up to 18,000 miles per hour. At that speed, any one of these objects is capable of completely destroying a spacecraft.

Even debris just 1 cm in diameter can disable an operational spacecraft, while even smaller fragments can cause huge problems as well. Indeed, a fleck of paint was enough to damage a window on the International Space Station, which has been forced into maneuvers to avoid larger, potentially catastrophic debris 28 times since 1999, including three times in 2020 alone.

The amount of damage that even a tiny fleck of paint can cause is catastrophic – imagine the amount of damage thousands of objects the size of softballs or larger can cause. The magnitude and risk of this has to be prioritized. Space congestion will only increase as more corporations plan to explore space.

===Subpoint B: Debris collisions only lead to increasing collisions and externalities  ===

Jackie Wattles, Cnn Business, 10-8-2020, "Space is becoming too crowded, Rocket Lab CEO warns," CNN, https://www.cnn.com/2020/10/07/business/rocket-lab-debris-launch-traffic-scn/index.html

Researchers have warned for decades that congestion in outer space could have devastating consequences. Kessler's warning said that if space traffic becomes too dense, a single collision~~[s~~] between two objects could set off a disastrous chain reaction that effectively turns the space around Earth into an extraterrestrial wasteland. One piece of debris would hit a satellite, and that impact, — much like a car crash, except at orbital speeds upwards of 18,000 miles an hour — could generate  thousands, of new pieces of debris. in its own right. Those new pieces could hit other objects in orbit, ~~[creating a devastating cycle~~] which would hit~~[s~~] other objects, and on and on,until low Earth orbit would be saturated with an increasing amount of uncontrollable projectiles. And any one of them could knock out a satellite, a launching rocket, or even an orbiting space station with humans inside.

If we allow private entities to appropriate space, they will naturally turn to asteroid mining as it generates the most profit. The impacts of this outweigh anything else, because it generates huge amounts of debris in space that we currently do not have the technology to clean. The magnitude and externalities are too high, therefore we must affirm and prevent unnecessary harm.

==Contention 3: Climate Change==

===SpaceX alone plans on sending nearly 400 rockets annually into space. This means ONE COMPANY could increase the global temperature by 1 degree Celsius EVERY 3 YEARS.===

Nikita Shuklaamericas, 8-31-2021, "The Environmental Costs of the Space Tourism Business," Earth.Org, https://earth.org/environmental-costs-of-space-tourism-business/

SpaceX, owned by Elon Musk, plans to launch its first civilian mission in September 2021.

SpaceX plans on launching 395 flights in space annually. However, a single flight reportedly can generate a carbon footprint equivalent of 278 people combined. The fuel for its Falcon 9 engine consists of kerosene and liquid oxygen, which creates a lot of carbon dioxide when burnt. Holding 440 tonnes of fuel, SpaceX would release 4,000 tons of carbon dioxide into the atmosphere per year if its plans of launching every two weeks are achieved.

Alexandra Franklin Cheung, 2022, "Are space launches bad for the environment?," BBC Science Focus Magazine, https://www.sciencefocus.com/space/are-space-launches-bad-for-the-environment/

Space launches can have a hefty carbon footprint due to the burning of solid rocket fuels. Many rockets are, however, propelled by liquid hydrogen fuel, which produces 'clean' water vapour exhaust, although the production of hydrogen itself can ~~[it~~] can cause significant carbon emissions. Rocket engines release trace gases into the upper atmosphere that contribute to ozone depletion, as well as particles of soot.

===A global temperature increase of just 3 degrees Celsius can lead to devastating effects.===

Specktor 19 ~~[Brandon; writes about the science of everyday life for Live Science, and previously for Reader's Digest magazine, where he served as an editor for five years; "Human Civilization Will Crumble by 2050 If We Don't Stop Climate Change Now, New Paper Claims," livescience, 6/4/19; https://www.livescience.com/65633-climate-change-dooms-humans-by-2050.html~~] Justin

Nearly one-third of the world's land surface turns to desert. Entire ecosystems collapse, beginning with the planet's coral reefs, the rainforest and the Arctic ice sheets. The world's tropics are hit hardest by these new climate extremes, destroying the region's agriculture and turning more than 1 billion people into refugees. This mass movement of refugees — coupled with shrinking coastlines and severe drops in food and water availability — begin to stress the fabric of the world's largest nations, including the United States. Armed conflicts over resources, perhaps culminating in nuclear war, are likely. The result, according to the new paper, is "outright chaos" and perhaps "the end of human global civilization as we know it.

Impacts IRREVERSIBLE – have to prioritize

=OLD=

===~~[Incentive~~] C1: Asteroid Mining is legalized in the US and will lead to conflicts===

====W1: Space Treaties====

Gbenga Oduntan,, 11-25-2015, "Who owns space? US asteroid-mining act is dangerous and potentially illegal," No Publication, https://phys.org/news/2015-11-space-asteroid-mining-dangerous-potentially-illegal.html

Oduntan 15

An event of cosmic proportions occurred on November 18 when the US congress passed the Space Act of 2015 into law. The legislation will give US space firms the rights to own and sell natural resources they mine from bodies in space, including asteroids.

The act represents a full-frontal attack on settled principles of space law which are based on two basic principles: the right of states to scientific exploration of outer space and its celestial bodies and the prevention of unilateral and unbridled commercial exploitation of outer-space resources. These principles are found in agreements including the Outer Space Treaty of 1967 and the Moon Agreement of 1979.

The US House Committee on Science, Space and Technology denies there is anything in the act which violates the US's international obligations. According to this body, the right to extract and use resources from celestial bodies "is affirmed by State practice and by the US State Department in Congressional testimony and written correspondence".

The idea that American companies can on the basis of domestic laws alone systematically exploit mineral resources in space, despite huge environmental risks, really amounts to the audacity of greed, ~~[and is therefore unjust~~]. The Romans had this all correctly figured out in their legal maxim: "What concerns all must be decided upon by all."

===~~[Antidemocratic~~] C2: Mining Asteroids creates political dangers===

====W1: R & D will have lower priority====

Ramin Skibba On May 02, 2018, 5-2-2018, " Mining in Space Could Lead to Conflicts on Earth," Nautilus, https://nautil.us/blog/-mining-in-space-could-lead-to-conflicts-on-earth

Skibba 18

Like all forms of mining, it will be dangerous. If space-mining activities break up asteroids, the resulting debris could be hazardous for satellites, other spacecraft, and astronauts nearby. On the other hand, in a best-case scenario, space mining could be environmentally safe, capture only necessary minerals and water, and, in the more distant future even lead to the construction of a far-flung space station led by NASA and other space agencies, orbiting 200 million miles from Earth and serving as both a mining depot and a pit-stop for passing spacecraft.

But it's not clear that a pact between the commercial space mining industry and NASA would align with the public's interest. NASA's increasing collaboration with space mining companies ~~[it~~]could distort and divert efforts previously focused on space exploration and basic research, and discourage public interest and engagement in astronomy.

But if the U.S. and U.S.-based companies lay claim to the richest and most easily accessible prospecting sites, not allowing other companies and nations to share in the wealth, economic and political relations could be damaged. That's why this seems to be a dangerous path for space explorers. Once you're on board with the commercial space industry, then you as a researcher must accept, if not support, everything that comes with it. Seager and a few other researchers may be willing to take this risk, but what about the rest of the space science community? Moreover, to succeed, these businesses will seek profitable missions, while science, exploration, and discovery—goals that stimulate public interest—will inevitably have lower priority. (Other commercial spaceflight companies, like Elon Musk's SpaceX, do generate public interest, but they're not directly involved in mining asteroids.) NASA may have its shortcomings, but at least its missions and research goals answer to the public. It's not exactly a welcome thought to imagine more and more of our presence and activity in space being ceded, with NASA's help, to private industry.

====W2: Privatization takes power away from the people====

WeOwnIt - https://weownit.org.uk/privatisation - nonprofit against privatization

If a private company runs a service, they are not democratically accountable to you. You don't have a voice. Contracts to deliver public services are agreed between private companies and government behind closed doors. There is very little transparency, ~~[or~~] public accountability or scrutiny. The companies are not subject to Freedom of Information requests because of 'commercial confidentiality'. When private companies fail to deliver, the public has no powers to intervene and government (local and national) doesn't always have the time or expertise to force them to keep their promises. For example, we might want clean, green energy for our future – but the private companies control the energy 'market' and often invest in dirty energy, without giving us a say.

====Orbital density - collisions====

Undseth et al 21 ~~[Marit Undseth, OECD Space Forum, Claire Jolly, OECD Space Forum, Mattia Olivari, OECD Space Forum, "The Economics of Space Debris in Perspective," 8th European Conference on Space Debris, https://conference.sdo.esoc.esa.int/proceedings/sdc8/paper/12/SDC8-paper12.pdf~~] /Triumph Debate

 In the last fifteen years, the challenge of space debris has become more pressing. First, because the use of Earth's orbits, in particular the lowEarth orbits, has intensified, and second, because of the increase in the orbital debris population. 3.1 More intensive use of Earth's orbits The use of Earth's orbits has significantly increased in the last few years, following growing institutional applications and commercialisation of space activities (Fig. 1). However, the real game changer will be the full deployment of several broadband mega-constellations that are under preparation. With the deployment of several of the announced broadband mega constellations (e.g. SpacerX's Starlink, OneWeb), the number of operational satellites in orbit could double or even triple in the next five years. When taking into account all existing satellite filings, there could be several tens of thousands of operational objects in orbit by 2030 (from today's 3000). With this level of orbital density, according to multiple modelling efforts, it is not a question of if a defunct satellite will collide with debris, but when (see for instance ~~[4~~] and ~~[5~~]). In addition to space debris, the intensifying use of the low-earth orbits raises a number of additional issues ranging from radio interference to light pollution for astronomic observations.