# Speech 1AC Harvard Rd 2 vs Acton 2-18 5PM

#### Theory after phil

### FW

#### Perspectivism is true –

#### 1] Opacity – we can never access another person’s perspective because we can never fully understand who someone else is or what they think. Every truth I create cannot be universalized because I can’t guarantee that they will create the same truth because they do what they want.

#### 2] Resolvability – Centuries of moral debate proves we can’t come to an objectively correct answer so it has to be indexed to individual subjects. High school debaters can’t come to a correct conclusion on their own and moral dilemmas are too complicated to “solve” in 45 minutes, so you should prefer a perspectivist account.

#### 3] Objective reality is inconclusive – quantum superposition allows for different experiences to exist simultaneously.

MIT ’19 (Emerging Technology from the arXiv archive page; Covers latest ideas from blog post about arXiv; 03/12/2019; “Emerging Technology from the arXiv archive page”; <https://www.technologyreview.com/2019/03/12/136684/a-quantum-experiment-suggests-theres-no-such-thing-as-objective-reality/>; *MIT Technology Review*; accessed: 11/19/2020; MohulA)

Back in 1961, the Nobel Prize–winning physicist Eugene Wigner outlined a thought experiment that demonstrated one of the lesser-known paradoxes of quantum mechanics. The experiment shows how the strange nature of the universe allows two observers—say, Wigner and Wigner’s friend—to experience different realities. Since then, physicists have used the “Wigner’s Friend” thought experiment to explore the nature of measurement and to argue over whether objective facts can exist. That’s important because scientists carry out experiments to establish objective facts. But if they experience different realities, the argument goes, how can they agree on what these facts might be? That’s provided some entertaining fodder for after-dinner conversation, but Wigner’s thought experiment has never been more than that—just a thought experiment. Last year, however, physicists noticed that recent advances in quantum technologies have made it possible to reproduce the Wigner’s Friend test in a real experiment. In other words, it ought to be possible to create different realities and compare them in the lab to find out whether they can be reconciled. And today, Massimiliano Proietti at Heriot-Watt University in Edinburgh and a few colleagues say they have performed this experiment for the first time: they have created different realities and compared them. Their conclusion is that Wigner was correct—these realities can be made irreconcilable so that it is impossible to agree on objective facts about an experiment. Wigner’s original thought experiment is straightforward in principle. It begins with a single polarized photon that, when measured, can have either a horizontal polarization or a vertical polarization. But before the measurement, according to the laws of quantum mechanics, the photon exists in both polarization states at the same time—a so-called superposition. Wigner imagined a friend in a different lab measuring the state of this photon and storing the result, while Wigner observed from afar. Wigner has no information about his friend’s measurement and so is forced to assume that the photon and the measurement of it are in a superposition of all possible outcomes of the experiment. Wigner can even perform an experiment to determine whether this superposition exists or not. This is a kind of interference experiment showing that the photon and the measurement are indeed in a superposition. From Wigner’s point of view, this is a “fact”—the superposition exists. And this fact suggests that a measurement cannot have taken place. But this is in stark contrast to the point of view of the friend, who has indeed measured the photon’s polarization and recorded it. The friend can even call Wigner and say the measurement has been done (provided the outcome is not revealed). So the two realities are at odds with each other. “This calls into question the objective status of the facts established by the two observers,” say Proietti and co. That’s the theory, but last year Caslav Brukner, at the University of Vienna in Austria, came up with a way to re-create the Wigner’s Friend experiment in the lab by means of techniques involving the entanglement of many particles at the same time. The breakthrough that Proietti and co have made is to carry this out. “In a state-of-the-art 6-photon experiment, we realize this extended Wigner’s friend scenario,” they say. They use these six entangled photons to create two alternate realities—one representing Wigner and one representing Wigner’s friend. Wigner’s friend measures the polarization of a photon and stores the result. Wigner then performs an interference measurement to determine if the measurement and the photon are in a superposition. The experiment produces an unambiguous result. It turns out that both realities can coexist even though they produce irreconcilable outcomes, just as Wigner predicted. That raises some fascinating questions that are forcing physicists to reconsider the nature of reality. The idea that observers can ultimately reconcile their measurements of some kind of fundamental reality is based on several assumptions. The first is that universal facts actually exist and that observers can agree on them. But there are other assumptions too. One is that observers have the freedom to make whatever observations they want. And another is that the choices one observer makes do not influence the choices other observers make—an assumption that physicists call locality. If there is an objective reality that everyone can agree on, then these assumptions all hold. But Proietti and co’s result suggests that objective reality does not exist. In other words, the experiment suggests that one or more of the assumptions—the idea that there is a reality we can agree on, the idea that we have freedom of choice, or the idea of locality—must be wrong. Of course, there is another way out for those hanging on to the conventional view of reality. This is that there is some other loophole that the experimenters have overlooked. Indeed, physicists have tried to close loopholes in similar experiments for years, although they concede that it may never be possible to close them all. Nevertheless, the work has important implications for the work of scientists. “The scientific method relies on facts, established through repeated measurements and agreed upon universally, independently of who observed them,” say Proietti and co. And yet in the same paper, they undermine this idea, perhaps fatally. The next step is to go further: to construct experiments creating increasingly bizarre alternate realities that cannot be reconciled. Where this will take us is anybody’s guess. But Wigner, and his friend, would surely not be surprised.

#### That comes from the Other –

#### 1) Ontology- Structures give us the values that guide us, the language we use to reason, and the characteristics that help create us as a person. This requires some obligation to the Other because the other allows us to exist with our identities.

**2) We enter life already indebted to the infinity of the other, which prevents any attempt to return to a transcendental past or define the future with history.**

**Peperzak 93** [Adriaan Theodoor Peperzak (Professor Emeriti of Philosophy at [Loyola University Chicago](https://en.wikipedia.org/wiki/Loyola_University_Chicago)). “To the Other: An Introduction to the Philosophy of Emmanuel Levinas.” Purdue University Press. 11/15/1993. Accessed 10/25/20. https://docs.lib.purdue.edu/purduepress\_ebooks/20/ //Recut Houston Memorial DX from AHS PB]

When classical ontology uses such terms as “principle,” “origin,” “end,” “a priori,” “precedence,” “before,” “first,” and so on, it mostly understands them in a nontemporal, “logical,” or “ontological” sense. As key concepts in the search for a well-constructed and complete world picture on the basis of a first and last foundation, they enable us to represent the universe as an orderly whole that can be comprehended here and now. Such a representation poses the universe, and the time “in” which it unfolds itself, as a present totality. The past and the future are presented as secondary forms of the present; remembrance and expectation bring them back or reduce them to the presence of a thought that ties all faces of temporality together in a supratemporal, eternal “Now.” This Now, then, is immovable because it transcends all mobility by encompassing it within the limits of an imaginary superpresence. Heidegger has pointed out that the distinction between time and being presupposed in traditional ontology is not at all clear and that we cannot separate the temporal dimension from being by a simple abstraction. Levinas, too, hears in the term quoted above a reference to temporality. Presence and presencing characterize the time of the overall systems proposed in Western philosophy. Levinas’s analyses of the encounter and of ego’s subjectivity as summarized earlier showed, however, that we are not able to reduce the entire universe to one unique absolute origin, arche, or principle. If it is true that I, in relation to the Other, discover myself from the outset as already claimed and made hostage, then it is impossible to conceive of myself as the true beginning of my life and destiny. Before I can make any free choice or accept any obligation, I find myself as already dedicated and delivered over to the Other. To be an ego is to have been performing—well or badly—the service that constitutes me as a subject. The meaning of existence has inscribed itself into my life long before I became aware that there was a question or an obligation. We cannot go back to the time where our subjectivity started to emerge; imagination and thought are not able to reach the beginning of “what it is all about.” The attempt to precede our “having-been-originated-beforewe-discovered-it” by postulating an ultimate, that is, most primordial and absolutely transcendental Ego, is a consequence of the systematic project. It is refuted by the Other’s transcendence, to which a passivity in me corresponds. Although I neither contracted nor wanted anything—i.e., without my consent— I am obliged to serve the Other. Although I never committed a crime, I am always already in your debt and responsible as well for your as for my own failures and guilt. Not being able to choose my basic responsibilities and obligations—not even by a retrieval in the style of Plato’s remembrance—I am aware that the past from which I stem is more past than any past that can be recalled to memory: an immemorable past. From the perspective of one’s temporality, the dimension of one’s future appears as threatened by death. Death is not—as Heidegger would have it—the ultimate possibility of human existence but rather an alien power that destroys every possibility of wanting or willing anything. Instead of being the “possibility of impossibility”—a form of “I can” that still suggests too much freedom—it is the utter impossibility of all possibilities. This impossibility receives, however, a positive meaning from the Other’s claims which dedicate me to an endless task whose performance costs me my life. The future of a more just world, for which we cannot give up hoping, has also another time structure than that of a teleological projection. History cannot be reduced to a collective maturation and completion of humanity. Time cannot be understood as a continuous extension back and forth from the present because the multiplicity of events that surprise and overwhelm us cannot be assimilated as moments of an intelligible totality. Against a Hegelian or quasi-Hegelian interpretation of history, according to which all people, events, and works receive their meaning from their being necessary moments in the self-unfolding of an anonymous Principle, Levinas defends the humanism of another, invisible history—a history that respects the absoluteness of every singular person in his or her here-and-now. The eschaton of this secret history is the just world of those who feed and clothe their others before they take care of their own possessions.

#### However, the Other is terminally unknowable- our contact with the Other is not constituted by an authentic interaction but framed through my interpretation of it.

**Beavers 90** [Brackets original except for G lang. Anthony Beavers (Professor of Philosophy @ the University of Evansville). “Introducing Levinas to Undergraduate Philosophers.” 1990. Accessed 10/25/20. <https://www.academia.edu/281338/Introducing_Levinas_to_Undergraduate_Philosophers> //Houston Memorial DX]

To a non-philosopher, the source of contact between persons seems to be a superficial question. The answer is, at first, easy. The other person is met in experience everyday, on the street, in the classroom, in the workplace, etc. To a philosopher, however, the ques-tion is not so easy: we in the tradition recognize the difficulties inherent in interpersonal contact. Does the other person have a mind? Is the other a creation of my imagination, as Descartes asks looking out of his study at the automata that pass by dressed in coats and hats? In light of these questions, though, we can never truly deny the existence of the other in the context of the street, the classroom, or the workplace, even if we can deny such contact in a theoretical context. It is on the level of life, then, as opposed to that of theory, that Levinas has his appeal. Levinas comes directly out of the tradition established by Descartes, Kant and Husserl. "Every idea is a work of the mind," writes Descartes in his Meditations . 2 Ideas are created, invented by a mind, not discovered. This leaves Descartes with a problem: "How can [ideas] that have their origin in the mind nevertheless give us knowledge of independently real substances." 3 He answers this question through proofs for God's exis-tence and divine veracity. But as the tradition progresses, Kant notes that God cannot be used within philosophy to the extent that Descartes would like. Thus, Descartes is left alone in his world with only his ideas: there is no contact with an other who is not another in one of [their]his ideas. Husserl takes this to its logical consequences in the fifth of his Cartesian Meditations and notes that the other is "there," present to me, but only in the sense that the other has for me. He writes, "Consciousness makes present a 'there too', which nevertheless is not itself there and can never become an 'itself-there'." 4 The other of Husserl's Cartesian Meditations is not an extra-mental other, that is, one who exists independently of me; rather, the other is only the meaning that I constitute for the other. In other words, the meaning of being an other comes down to my interpretation of the other, an interpretation which is the working of my own mind quite apart from what or whether the other may be.

#### Thus, the standard is to reject the totalization of the Other.

**Beavers 90** [Brackets original. Anthony Beavers (Professor of Philosophy @ the University of Evansville). “Introducing Levinas to Undergraduate Philosophers.” 1990. Accessed 10/25/20. <https://www.academia.edu/281338/Introducing_Levinas_to_Undergraduate_Philosophers> //Houston Memorial DX]

If we can accept this notion that ideas are inventions of the mind, that ideas are, when it comes down to it, only interpretations of something, and if ethics, in fact, is taken to refer to real other persons who exist apart from my interpretations, then we are up against a problem: there is no way in which ideas, on the current model, refer to independently existing other persons, and as such, ideas cannot be sed to found an ethics. There can be no pure practical reason until after contact with the other is established. Given this view towards ideas, then, anytime I take the person in my idea to be the real person, I have closed off contact with the real person; I have cut off the connection with the other that is necessary if ethics is to refer to real other people. This is a central violence to the other that denies the other his/her own autonomy. Levinas calls this vio-lence " totalization" and it occurs whenever I limit the other to a set of rational categories, be they racial, sexual, or otherwise. Indeed, it occurs whenever I already know what the other is about before the other has spoken. Totalization is a denial of the other's differ-ence, the denial of the otherness of the other. That is, it is the inscription of the other in the same. If ethics presupposes the real other person, then such totalization will, in itself, be unethical. If reducing the other to my sphere of ideas cuts off contact with the other, then we are presupposing that contact with the other has already been established. And if contact with the other cannot be established through ideas, then we must look elsewhere. Thus, Levi-nas looks not to reason, but to sensibility, to find the real other person.

#### Prefer Additionally

#### 1)Performativity- Communication can only occur between multiple agents, which demands a coherent relationship with the other.

Emmanuel **Levinas**, Lithuanian-French Philosopher, Totality and infinity, **1961** ///AHS PB

Can objectivity and the universality of thought be founded on discourse? Is not **universal thought** of itself prior to discourse? Does not a mind in speaking evoke what the other mind already thinks, both of them participating in common ideas? But **the community of thought ought to have made language as a relation between beings impossible**. Coherent discourse is one. **A universal thought dispenses with communication. A reason cannot be other for a reason. How can a reason be an I or an other, since its very being consists in renouncing singularity?** European thought has always combated, as skeptical, the idea of man as measure of all things, although this idea contributes the idea of atheist separation and one of the foundations of discourse. For it the sentient I could not found Reason; the I was defined by reason. **Reason speaking in the first person is not addressed to the other, conducts a monologue**. And, conversely, it would attain to veritable personality, would recover the sovereignty characteristic of the autonomous person, only by becoming universal. **Separated thinkers become rational only in the measure that their personal and particular acts of thinking figure as moments of this unique and universal discourse.** There would be reason in the thinking individual only in the measure that he would himself enter into his own discourse, that thought would, in the etymological sense of the term, comprehend the thinker-that it would include him. But **to make of the thinker a moment of thought is to limit the revealing function of language to its coherence, conveying the coherence of concepts. In this coherence the unique I of the thinker volatilizes. The function of language would amount to suppressing "the other," who breaks this coherence and is hence essentially irrational**. A curious result: **language would consist in suppressing the other, in making the other agree with the same!** But in its expressive function language precisely maintains the other-to whom it is addl"ess~d, ~horn it calls upon or invokes. To be sure, language does not consist in invoking him as a being represented and thought. **But this is why language institutes** a relation irreducible to the subject-object relation: **the revelation of the other. In this revelation only can language as a system of signs be constituted. The other called upon is not something represented, is not a given, is not a particular, through one side already open to generalization. Language, far from presupposing universality and generality, first makes them possible. Language presupposes interlocutors, a plurality**. Their commerce is not a representation of the one by the other, nor a participation in universality, on the common plane of language. Their commerce, as we shall show shortly, is ethical.

#### 2) **Rule Following Paradox-** There is nothing inherent to a rule that tells us how we ought to follow it, which proves no internal motivation or direction to follow a particular rule, regardless of how correct the rule is. Since only our interpretation can tell us how to follow the rule, there can be no incorrect application. Only by not totalizing the Other and allowing for different interpretations of the Other do we resolve this.

#### 3] TJF – it doesn’t matter how true a philosophy is if it can’t be engaged or is impossible to learn from – even if a theory was correct, we shouldn’t use its philosophy in debate specifically.

#### 1] Inclusion – Levinas definitionally is a procedural for allowing almost any argumentation in the debate space with the Other which controls the internal link to inclusion and is an impact multiplier

#### 2] Resource Disparities – intent based frameworks ensure big squads don’t have a comparative advantage since debates become about quality of arguments rather than quantity and require a higher level of analytic thinking that small schools have.

#### 3] Space Ethics must address different perspectives or risk failure.

Schwartz and Milligan summarize in 21 [Dr. James S.J. Schwartz (Assistant Professor of Philosophy at Wichita State University and author of The Value of Science in Space Exploration) and Dr. Tony Milligan (Senior Researcher in the Cosmic Visionaries Project, a member of the Department of Theology and Religious Studies at King’s College London). ‘“Space ethics” according to space ethicists’. The Space Review. February 1, 2021. Accessed 1/23/2022. <https://www.thespacereview.com/article/4117/1> //Xu]

4. Space ethics helps us gain perspective. Part of carefully examining our assumptions about space is ensuring that we look at space-related issues from as many perspectives and conceptual frames as possible. It is rare that American space advocates ever have to grapple with non-American, non-Caucasian, non-libertarian conceptual frameworks and value systems. But examining a broader spectrum of human cultures and perspectives is absolutely vital for increasing our confidence that we are doing the right things, for the right reasons, in the best ways. If we fail to do this, we invite the risk that the projects we begin will not be continued by others. In the case of multi-generational projects such as human expansion into space, this is particularly important. What we do should make sense to those who come after, and one of our best guides to whether it will do so or not is the way in which it addresses concerns which can be seen from multiple perspectives and across multiple cultures. This is not wokeness or assault, but a concern for the stability of projects, given the strong likelihood of cultural and political change over time. Here, it is worth noting that space advocacy in the past and, to a receding but still concerning degree in the present, tends to marginalize the perspectives of women, of persons of color, of indigenous persons, of persons from African, Asian, European, or Middle Eastern cultures, of disabled persons, as well as members of the LGBTQIA community. Taken together, these are not a woke minority but the majority of humans on our planet. If space truly promises a boon to all of humanity, then it should be possible to demonstrate this without relying solely on some fairly narrow perspective from either end of the political spectrum, or perspectives which show an unhealthy obsession with the state versus market debates of the 20th century. While space ethics teaches us to seek a wider perspective, it is not the only fount of perspective. We should also seek insights from anthropologists, historians, political scientists, sociologists, astronomers, engineers, poets, artists, and dancers. Few fields of inquiry or modes of creative expression fail to add value to our understanding of space exploration as a human endeavor.

### Affirm

#### I affirm Resolved: The appropriation of outer space by private entities is unjust. Spec and definitions in doc.

The – “used to point forward to a following qualifying or defining clause or phrase”. Google. <https://www.google.com/search?q=the+definition&rlz=1C1CHBF_enUS877US877&oq=the+definition&aqs=chrome.0.69i59j69i64j69i61j69i60l2.2103j0j7&sourceid=chrome&ie=UTF-8>

Appropriation – “an act or instance of appropriating something”. <https://www.merriam-webster.com/dictionary/appropriation>

Of – “indicating an association between two entities, typically one of belonging”. <https://www.google.com/search?q=of+definition&rlz=1C1CHBF_enUS877US877&oq=of+definition&aqs=chrome..69i57j69i60.1494j0j7&sourceid=chrome&ie=UTF-8>

Outer Space – “the physical universe beyond the earth's atmosphere”. <https://www.google.com/search?q=outer+space+definition&rlz=1C1CHBF_enUS877US877&oq=outer+space+definition&aqs=chrome..69i57j69i60.2363j0j7&sourceid=chrome&ie=UTF-8>

By – “identifying the agent performing an action.”. <https://www.google.com/search?q=by+definition&rlz=1C1CHBF_enUS877US877&oq=by+definition&aqs=chrome.0.69i59.1433j0j7&sourceid=chrome&ie=UTF-8>

Private Entity – “(A) In general Except as otherwise provided in this paragraph, the term “private entity” means any person or private group, organization, proprietorship, partnership, trust, cooperative, corporation, or other commercial or nonprofit entity, including an officer, employee, or agent thereof.”. <https://www.law.cornell.edu/definitions/uscode.php?width=840&height=800&iframe=true&def_id=6-USC-625312480-168358316&term_occur=999&term_src=title:6:chapter:6:subchapter:I:section:1501>

Unjust – “not morally right; not fair”. <https://dictionary.cambridge.org/us/dictionary/english/unjust>

#### The aff identifies appropriation as unjust

Webster ND Definition of IS," Merriam Webster, <https://www.merriam-webster.com/dictionary/is> IS

is Definition of is (Entry 1 of 4) present tense third-person singular of BE dialectal present tense first-person and third-person singular of BE dialectal present tense plural of BE

#### Dialectical present tense means logical coherence which implies no implementation

Your Dictionary ND, , "Dialectical Meaning," No Publication, <https://www.yourdictionary.com/dialectical> Cho

The definition of dialectical is a discussion that includes logical reasoning and dialogue, or something having the sounds, vocabulary and grammar of a specific way of speaking. An example of something dialectical is a Lincoln Douglass style of debate, where both parties argue a point in a logical order. Of, or pertaining to dialectic; logically reasoned through the exchange of opposing ideas.

#### “BE” is a linking verb, not an action verb so implementation is incoherent

Grammar Monster ND "Linking Verbs," Grammar Monster, <https://www.grammar-monster.com/glossary/linking_verbs.htm> CHO

What Are Linking Verbs? (with Examples) A linking verb is used to re-identify or to describe its subject. A linking verb is called a linking verb because it links the subject to a subject complement (see graphic below). Infographic Explaining Linking Verb A linking verb tells us what the subject is, not what the subject is doing. Easy Examples of Linking Verbs In each example, the linking verb is highlighted and the subject is bold. Alan is a vampire. (Here, the subject is re-identified as a vampire.) Alan is thirsty. (Here, the subject is described as thirsty.)



#### 1] Private outer space appropriation isn’t universalizable and disrespects extra-terrestrial agential ends.

Segobaetso 18 [Brackets Original. Benjamin Segobaetso. “Ethical Implications of the Colonization, Privatization and Commercialization of Outer Space”. Major research paper submitted to the Faculty of Human Sciences and Philosophy, School of Public Ethics, Saint Paul University, in partial fulfilment of the requirements for the degree of Master of Arts in Public Ethics. May, 2018. Accessed 12/11/21. <https://ruor.uottawa.ca/bitstream/10393/38318/1/Benjamin_Segobaetso_2018.pdf> //Xu]

It can be argued through Kantian ethics that our record here on Earth paints a picture of neoliberal and capitalist policies with tendencies to favour the highest bidder at the exclusion of the under privileged and puts profit first at the expense of the environment. For Kantians, there are two questions that we must ask ourselves whenever we decide to act: (i) Can I rationally will that everyone act as I propose to act? If the answer is no, then we must not perform the action. (ii) Does my action respect the goals of human beings? Again, if the answer is no, then we must not perform the action. Kantian ethicists would argue that extending to space neoliberal and capitalist policies is immoral because these systems create economic disparities and life threatening environmental injustices; therefore, they are set up in a way that we could not rationally will everyone to act the way they act either here on Earth or in space. Also, Kantian ethicists would ask whether the action of extending neoliberal and capitalist policies to space would respect the goals of extra-terrestrial intelligent life if any rather than merely using them for humans’ own purposes? If the answer is no, then the participating agent must not perform the action. Kant wrote on the possible existence of extra-terrestrial intelligent species in the final pages of the last book that he published, Anthropology from a Pragmatic Point of View [Anthropologie in pragmatischer Hinsicht] (1978). In this publication, Kant hinted that the highest concept of the Alien species may be that of a terrestrial rational being [eines irdischen vernünftigen ]; however, he argued that it will be difficult to describe its characteristics because there is no knowledge available of a non-terrestrial rational being [nicht irdischen Wesen] which could be used as a reference in regards to its properties and ultimately classify that terrestrial being as rational. This dilemma will continue until extraterrestrial intelligent life is discovered because comparing two species of rational beings has to be on the basis of experience, but that experience has not been possible yet (Kant, 237-238). In applying Kant’s deontological moral theory, it must first be recognized that Kant visualized a kind of respect in which we all can recognize every rational being exists as an end in itself (1) as being not fully comprehensible by any human understanding, (2) as being an end in him- or herself, and (3) as being a potential source of moral law (Kant, 2012). In this regard, since Kant insinuated that the highest concept of the extraterrestrial intelligent species may be that of a terrestrial rational being [eines irdischen vernünftigen ]; that implies any encounter with extra-terrestrial intelligent life will compel us under the deontological moral theory to recognize that life as being not fully comprehensible by any human understanding, as being an end in itself, and as being a potential source of moral law (Kant, 2012). It must be realized that Kant’s deontology theory does not go without criticism by critical theorists who believe in dismantling all systems of oppression.

#### 2] The appropriation of space by private entities isn’t value neutral but is sutured in a discourse of the cosmic elite and unequal IR that alienates the Other.

Stockwell 20 [Samuel Stockwell (Research Project Manager, the Annenberg Institute at Brown University). “Legal ‘Black Holes’ in Outer Space: The Regulation of Private Space Companies”. E-International Relations. Jul 20 2020. Accessed 12/7/21. <https://www.e-ir.info/2020/07/20/legal-black-holes-in-outer-space-the-regulation-of-private-space-companies/> //Xu]

The US government’s support for private space companies is also likely to lead to the reinforcement of Earth-bound wealth inequalities in space. Many NewSpace actors frame their long-term ambitions in space with strong anthropogenic undertones, by offering the salvation of the human race from impending extinction through off-world colonial developments (Kearnes & Dooren: 2017: 182). Yet, this type of discourse disguises the highly exclusive nature of these missions. Whilst they seem to suggest that there is a stake for ordinary citizens in the vast space frontier, the reality is that these self-described space pioneers are a member of a narrow ‘cosmic elite’ – “founders of Amazon.com, Microsoft, Pay Pal… and a smattering of games designers and hotel magnates” (Parker, 2009: 91). Indeed, private space enterprises have themselves suggested that they have no obligation to share mineral resources extracted in space with the global community (Klinger, 2017: 208). This is reflected in the speeches of individuals such as Nathan Ingraham, a senior editor at the tech site EngadAsteroid mining, who claimed that asteroid mining was “how [America is] going to move into space and develop the next Vegas Strip” (Shaer, 2016: 50). Such comments highlight a form of what Beery (2016) defines as ‘scalar politics’. In similar ways to the ‘scaling’ of unequal international relations that has constituted our relationship with outer space under the guise of the ‘global commons’ (Beery, 2016: 99), private companies – through their anthropogenic discourse – are scaling existing Earth-bound wealth inequalities and social relations into space by siphoning off extra-terrestrial resources. By constructing their endeavours in ways that appeal to the common good, NewSpace actors are therefore concealing the reality of how commercial resource extraction serves the exclusive interests of their private shareholders at the expense of the vast majority of the global population.

#### 3] Appropriation intrinsically guts deliberative procedures since it denies the owner’s permission for property rights, blocking one possible experience/form of communication with the Other since it guts communal approaches

Oxford. Lexico. Appropriation. https://www.lexico.com/en/definition/appropriation

the action of taking something for one's own use, typically without the owner's permission.

### Method

#### 1] 1AR theory is legit – anything else means infinite abuse

#### – drop the debater – 1AR is too short to make up for the time trade-off

#### – no RVIs – 6 min 2NR means they can brute force me every time

#### – competing interps – reasonability narrows the theory debate to one issue of brightline, making it easy for the Neg to collapse to the issue in the long 2NR

#### – 1AR theory is the highest layer – the NC has 7 minutes to be abusive and 6 minutes to leverage the abuse against 1A theory in the 2N, making checking abuse lexically impossible

#### 2] Give me new weighing in the 2AR for 1AR shells – I don’t know what arguments will be read in the 2NR so 1AR weighing is impossible as I don’t know what to weigh against.

#### 3] Affirm if I win offense to a counterinterp

#### A] Timeskew – 6 Minute 2NR with collapse to whatever I undercover means that you can win theory and substance, but I need to go for both in half the time and split it between the 2 layers.

#### B] Reciprocity – you get T and theory so I should get theory and an RVI to make the burden reciprocal.

#### 4] Nothing has triggered it, but Presumption and permissibility affirm –

#### a) We always default to assuming something true until proven false ie if I told you my name is Daniel you would believe me

#### b) Unjust[[1]](#footnote-1) is “not morally right; not fair” and permissibility disproves the positive obligation which is aff ground

#### c) empirics

**Shah 19,**[Shah, Sachin. “A STATISTICAL ANALYSIS OF SIDE-BIAS ON THE 2019 JANUARY-FEBRUARY LINCOLN-DOUGLAS DEBATE TOPIC.” NSD Update, National Symposium of Debate, 16 Feb. 2019, <http://nsdupdate.com/2019/a-statistical-analysis-of-side-bias-on-the-2019-january-february-lincoln-douglas-debate-topic/> ]//LHPSS accessed 9/4/19

As a final note, it is also interesting to look at the trend over multiple topics. In the rounds **from** 93 TOC bid distributing tournaments (**2017 – 2019** YTD), **the neg**ative **won 52.99% of ballots** (**p-value < 0.0001)** and 54.63% of upset rounds (p-value < 0.0001). **This suggests the bias might be structural, and not topic specific, as this data spans six different topics.**

### Disclosure

#### Interpretation: At all TOC bid distributing tournaments, debaters must disclose all constructive speech docs open source with highlighting on the NDCA LD wiki.

#### Violation – you didn’t – I have screenshots

Table

Description automatically generated

Graphical user interface, text, application, email

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#### A. Debate resource inequities—you’ll say people will steal cards, but that’s good—it’s the only way to truly level the playing field for students such as novices in under-privileged programs.

Antonucci 5 [Michael (Debate coach for Georgetown; former coach for Lexington High School); “[eDebate] open source? resp to Morris”; December 8; http://www.ndtceda.com/pipermail/edebate/2005-December/064806.html //nick]

a. Open source systems are preferable to the various punishment proposals in circulation. It's better to share the wealth than limit production or participation. Various flavors of argument communism appeal to different people, but banning interesting or useful research(ers) seems like the most destructive solution possible. Indeed, open systems may be the only structural, rule-based answer to resource inequities. Every other proposal I've seen obviously fails at the level of enforcement. Revenue sharing (illegal), salary caps (unenforceable and possibly illegal) and personnel restrictions (circumvented faster than you can say 'information is fungible') don't work. This would - for better or worse. b. With the help of a middling competent archivist, an open source system would reduce entry barriers. This is especially true on the novice or JV level. Young teams could plausibly subsist entirely on a diet of scavenged arguments. A novice team might not wish to do so, but the option can't hurt. c. An open source system would fundamentally change the evidence economy without targetting anyone or putting anyone out of a job. It seems much smarter (and less bilious) to change the value of a professional card-cutter's work than send the KGB after specific counter-revolutionary teams.

#### B. Evidence ethics – open source is the only way to verify before round that cards aren’t miscut – otherwise you could have highlighted unethically. That’s a voter – maintaining ethical ev practices is key to being good academics and we should be able to verify you didn’t cheat

#### C. Depth of clash – open source allows debaters to come up with more nuanced researched objections to their opponents evidence before the round at a much faster rate, which leads to the highest quality evidence comparison instead of guessing what was highlighted

### Adv

#### Commercial Space Industry requires an enormous increase in launches – that causes pollutants and warming.

Gammon 21 Katharine Gammon 7-19-2021 "How the billionaire space race could be one giant leap for pollution" <https://www.theguardian.com/science/2021/jul/19/billionaires-space-tourism-environment-emissions> (I’m an award-winning independent science journalist based in Santa Monica, California. My interests range from culture and nature in public lands to the lives of scientists to the complexity of baby brains. Before I became a professional journalist, I served in the Peace Corps in Bulgaria, and attended MIT and Princeton University.)//Elmer

Last week Virgin Galactic took Richard Branson past the edge of space, roughly 86 km up – part of a new space race with the Amazon billionaire Jeff Bezos, who aims to make a similar journey on Tuesday. Both very wealthy businessmen hope to vastly expand the number of people in space. “We’re here to make space more accessible to all,” said Branson, shortly after his flight. “Welcome to the dawn of a new space age.” Already, people are buying tickets to space. Companies including SpaceX, Virgin Galactic and Space Adventures want to make space tourism more common. The Japanese billionaire Yusaku Maezawa spent an undisclosed sum of money with SpaceX in 2018 for a possible future private trip around the moon and back. And this June, an anonymous space lover paid $28m to fly on Blue Origin’s New Shepard with Bezos – though later backed out due to a “scheduling conflict”. But this launch of a new private space industry that is cultivating tourism and popular use could come with vast environmental costs, says Eloise Marais, an associate professor of physical geography at University College London. Marais studies the impact of fuels and industries on the atmosphere. When rockets launch into space, they require a huge amount of propellants to make it out of the Earth’s atmosphere. For SpaceX’s Falcon 9 rocket, it is kerosene, and for Nasa it is liquid hydrogen in their new Space Launch System. Those fuels emit a variety of substances into the atmosphere, including carbon dioxide, water, chlorine and other chemicals. The carbon emissions from rockets are small compared with the aircraft industry, she says. But they are increasing at nearly 5.6% a year, and Marais has been running a simulation for a decade, to figure out at what point will they compete with traditional sources we are familiar with. “For one long-haul plane flight it’s one to three tons of carbon dioxide [per passenger],” says Marais. For one rocket launch 200-300 tonnes of carbon dioxide are split between 4 or so passengers, according to Marais. “So it doesn’t need to grow that much more to compete with other sources.” Right now, the number of rocket flights is very small: in the whole of 2020, for instance, there were 114 attempted orbital launches in the world, according to Nasa. That compares with the airline industry’s more than 100,000 flights each day on average. But emissions from rockets are emitted right into the upper atmosphere, which means they stay there for a long time: two to three years. Even water injected into the upper atmosphere – where it can form clouds – can have warming impacts, says Marais. “Even something as seemingly innocuous as water can have an impact.” Closer to the ground, all fuels emit huge amounts of heat, which can add ozone to the troposphere, where it acts like a greenhouse gas and retains heat. In addition to carbon dioxide, fuels like kerosene and methane also produce soot. And in the upper atmosphere, the ozone layer can be destroyed by the combination of elements from burning fuels. “While there are a number of environmental impacts resulting from the launch of space vehicles, the depletion of stratospheric ozone is the most studied and most immediately concerning,” wrote Jessica Dallas, a senior policy adviser at the New Zealand Space Agency, in an analysis of research on space launch emissions published last year. Another report from 2019 penned by the Center for Space Policy and Strategy likened the space emissions problem to that of space debris, which the authors say creates an existential risk to the industry. “Today, launch vehicle emissions present a distinctive echo of the space debris problem. Rocket engine exhaust emitted into the stratosphere during ascent to orbit adversely impacts the global atmosphere,” they wrote. “We just don’t know how large the space tourism industry could become,” says Marais. A new market report estimates that the global suborbital transportation and space tourism market is estimated to reach $2.58bn in 2031, growing 17.15% each year of the next decade. “The major driving factor for the market’s robustness will be focused efforts to enable space transportation, emerging startups in suborbital transportation, and increasing developments in low-cost launching sites,” the report says. In the past, most space transportation has been focused on cargo supply missions to the International Space Station and satellite launch services, but currently, this focus has shifted to in-space transportation, planetary explorations, crewed missions, suborbital transportation and space tourism. Several companies, including SpaceX, Blue Origin and Virgin Galactic, have been focusing on developing platforms such as rocket-powered suborbital vehicles that will enable the industry to carry out suborbital transportation and space tourism. People have pointed out that the money these billionaires have poured into space technology could be invested in making life better on our planet, where wildfires, heatwaves and other climate disasters are becoming more frequent as the globe warms up in the climate crisis. “Is anyone else alarmed that billionaires are having their own private space race while record-breaking heatwaves are sparking a ‘fire-breathing dragon of clouds’ and cooking sea creatures to death in their shells?” the former US Labor Secretary Robert Reich tweeted last week. Marais says that there is always an element of excitement to new developments in space – but it’s still possible to be responsible while doing something exciting. She urges caution as the space tourism industry grows, and says there are currently no international rules around the kinds of fuels used and their impact on the environment. “We have no regulations currently around rocket emissions,” she says. “The time to act is now – while the billionaires are still buying their tickets.”

#### Status Quo Launches are goldilocks, but Commercialization increases it ten-fold which overwhelms alt-causes – specifically decks the Ozone Layer.

Marais 21 Eloise Marais 7-19-2021 "Space tourism: rockets emit 100 times more CO₂ per passenger than flights – imagine a whole industry" <https://theconversation.com/space-tourism-rockets-emit-100-times-more-co-per-passenger-than-flights-imagine-a-whole-industry-164601> (Associate Professor in Physical Geography, UCL)//Elmer

The commercial race to get tourists to space is heating up between Virgin Group founder Sir Richard Branson and former Amazon CEO Jeff Bezos. On Sunday 11 July, Branson ascended 80 km to reach the edge of space in his piloted Virgin Galactic VSS Unity spaceplane. Bezos’ autonomous Blue Origin rocket is due to launch on July 20, coinciding with the anniversary of the Apollo 11 Moon landing. Though Bezos loses to Branson in time, he is set to reach higher altitudes (about 120 km). The launch will demonstrate his offering to very wealthy tourists: the opportunity to truly reach outer space. Both tour packages will provide passengers with a brief ten-minute frolic in zero gravity and glimpses of Earth from space. Not to be outdone, Elon Musk’s SpaceX will provide four to five days of orbital travel with its Crew Dragon capsule later in 2021. What are the environmental consequences of a space tourism industry likely to be? Bezos boasts his Blue Origin rockets are greener than Branson’s VSS Unity. The Blue Engine 3 (BE-3) will launch Bezos, his brother and two guests into space using liquid hydrogen and liquid oxygen propellants. VSS Unity used a hybrid propellant comprised of a solid carbon-based fuel, hydroxyl-terminated polybutadiene (HTPB), and a liquid oxidant, nitrous oxide (laughing gas). The SpaceX Falcon series of reusable rockets will propel the Crew Dragon into orbit using liquid kerosene and liquid oxygen. Burning these propellants provides the energy needed to launch rockets into space while also generating greenhouse gases and air pollutants. Large quantities of water vapour are produced by burning the BE-3 propellant, while combustion of both the VSS Unity and Falcon fuels produces CO₂, soot and some water vapour. The nitrogen-based oxidant used by VSS Unity also generates nitrogen oxides, compounds that contribute to air pollution closer to Earth. Roughly two-thirds of the propellant exhaust is released into the stratosphere (12 km-50 km) and mesosphere (50 km-85 km), where it can persist for at least two to three years. The very high temperatures during launch and re-entry (when the protective heat shields of the returning crafts burn up) also convert stable nitrogen in the air into reactive nitrogen oxides. These gases and particles have many negative effects on the atmosphere. In the stratosphere, nitrogen oxides and chemicals formed from the breakdown of water vapour convert ozone into oxygen, depleting the ozone layer which guards life on Earth against harmful UV radiation. Water vapour also produces stratospheric clouds that provide a surface for this reaction to occur at a faster pace than it otherwise would. Space tourism and climate change Exhaust emissions of CO₂ and soot trap heat in the atmosphere, contributing to global warming. Cooling of the atmosphere can also occur, as clouds formed from the emitted water vapour reflect incoming sunlight back to space. A depleted ozone layer would also absorb less incoming sunlight, and so heat the stratosphere less. Figuring out the overall effect of rocket launches on the atmosphere will require detailed modelling, in order to account for these complex processes and the persistence of these pollutants in the upper atmosphere. Equally important is a clear understanding of how the space tourism industry will develop. Virgin Galactic anticipates it will offer 400 spaceflights each year to the privileged few who can afford them. Blue Origin and SpaceX have yet to announce their plans. But globally, rocket launches wouldn’t need to increase by much from the current 100 or so performed each year to induce harmful effects that are competitive with other sources, like ozone-depleting chlorofluorocarbons (CFCs), and CO₂ from aircraft. During launch, rockets can emit between four and ten times more nitrogen oxides than Drax, the largest thermal power plant in the UK, over the same period. CO₂ emissions for the four or so tourists on a space flight will be between 50 and 100 times more than the one to three tonnes per passenger on a long-haul flight. In order for international regulators to keep up with this nascent industry and control its pollution properly, scientists need a better understanding of the effect these billionaire astronauts will have on our planet’s atmosphere.

#### unregulated commercialization triples debris and renders satellites unusable.

Fabian 19 (Christopher; January 2019; B.S. from the United States Air Force Academy, thesis submitted in partial fulfillment of the requirements for a M.S. from the University of North Dakota, approved by the Faculty Advisory Committee and in coordination with Dr. Michael Dodge, David Kugler, and Brian Urlacher; University of North Dakota Scholarly Commons, “A Neoclassical Realist’s Analysis Of Sino-U.S. Space Policy,” <https://commons.und.edu/theses/2455/>)

b. Defect/Defect The ubiquity of space technology has also yielded the negative externality of overcrowding the space domain. Despite its seemingly unlimited size, there are a limited number of useful earth-centric orbits to optimize terrestrial coverage. It is projected that there are over 300,000 medium sized objects capable of causing catastrophic failure of a satellite upon collision currently in earth’s orbit.159 Of these objects, 20,000 are actively tracked by the comparatively robust space surveillance network (SSN) of the United States Air Force, only 1,000 are active payloads, and even fewer have maneuver capability.160 Recent trends indicate that the problem of orbital congestion will only worsen in the coming decades as the barriers to entry are reduced. Launch service cost is rapidly decreasing due to an increased number of service providers and technology revolutions such as reusable rockets. Also, the miniaturization and simplification of satellite payloads further reduces the cost and infrastructure needed to be a spacefairing nation.161 This is evidenced by the near doubling of state operated satellites from 27 in 2000 to over 50 in 2012, coupled with a near doubling in total space objects from 1997 to 2007.162 The accumulation of space debris is a vital concern to the sustainable development of the space environment due to the increased probability of conjunction between active payloads and all other objects that results from crowded orbits. This increase in collision probability occurs proportionally to the number of objects in a given orbital domain. The tripling of orbital debris projected to occur in the next century, due to routine use and accumulation alone, would cause a tenfold increase in the probability of collision. In the event of a catastrophic collision between two objects, the resulting debris cloud could cause a cascading effect. Each successive collision increases the probability of another occurrence in a given orbit until an instability threshold is reached. At this threshold, debris removal due to decay would be negligible compared to debris created by subsequent collisions. As the propagation of debris continues, the cost of launching a satellite would eventually outweigh the benefits received due to the probability of that asset being destroyed by errant debris, effectively rendering the given orbit unusable. This debris propagation model and the dangers associated with it are colloquially referred to as the Kessler Syndrome. Kessler asserts unstable regions of low earth orbit (LEO) currently exist and that, barring the addition of more debris, a major collision would occur once every 10-20 years. If debris doubles, as it has in the last decade, the collision rate would increase to 2.5 years. Although most models’ time scales are on the order of centuries, it is widely accepted that the current rate of debris accumulation will render critical orbits unusable unless immediate measures are taken to return stability.163 There is near universal acceptance of the danger space debris presents, yet little substantive action has been taken to solve the problem. Current debris accumulation and propagation models show that earth orbiting domains are finite resources. Continued unsustainable development moving forward may preclude future usage, making earth orbits rivalrous goods.164 Furthermore, orbital domains are made a non-excludable good by the OST which states, “Outer space… shall be free for exploration and use by all States without discrimination of any kind.”165 As a non-excludable public good, space succumbs to the tragedy of the commons where the privately beneficial strategy of space utilization differs significantly from the socially optimal strategy promoting orbital stability.166 Understandably, most analysis has focused on solving the problem of orbital instability by addressing the market failure responsible for debris creation. The current reasoning suggests that if actors creating space debris internalize the cost of their actions, a solution can arise. Proposed solutions run the gamut of ideologies from free market tax incentives, to command and control legislation, to restructuring orbital property rights. Scientific solutions have also been proposed, but technological feasibility and cost remain major problems. Furthermore, analogous environments susceptible to the tragedy of the commons have been examined in hopes that they may prove applicable to the problem of orbit instability.167 This analysis is ultimately useful if the problem is to be solved under nominal conditions, but there is an underlying problem that needs to be addressed before any of these proposed solutions can realistically be enacted.

#### Debris causes ecological destruction because of environmental contamination.

Stockwell 20 [Samuel Stockwell (Research Project Manager, the Annenberg Institute at Brown University). “Legal ‘Black Holes’ in Outer Space: The Regulation of Private Space Companies”. E-International Relations. Jul 20 2020. Accessed 12/7/21. <https://www.e-ir.info/2020/07/20/legal-black-holes-in-outer-space-the-regulation-of-private-space-companies/> //Xu]

Space debris can be defined as non-purposeful man-made objects that reside in space; made up of inactive parts from former space operations and fragmentations of spacecraft, there are nearly 30,000 pieces of debris in the Earth’s orbit (Pellegrino & Stang, 2016: 25). Despite most debris being centimetres or millimetres in size satellites often travel at the speed of a bullet, meaning that a collision between the two could be catastrophic in terms of environmental, mechanical and financial damage (Black & Butt, 2010: 1). Since the development of the Kessler Syndrome thesis in 1978 – which predicted that space debris may become so dense as to trigger a chain reaction of major collisions – space debris is considered more of a threat to security operations in the near-term than military space activity (Quintana, 2017: 95). Difficulty over determining whether a collision was accidental or a purposeful act further exacerbates this problem, given that “every object in orbit is a threat to everything else in orbit, regardless of its intended function” (Faith, 2012: 86). Such developments have led to the US administration increasingly adopting a securitisation discourse around orbital debris (Bowen, 2014: 47), which may cause concerns as to whether policymakers may react to future American satellite collisions in a militarised manner. A number of NewSpace actors are likely to complicate these worries even further through recent satellite proposals. Whilst Boeing is proposing a constellation of up to 3,000 satellites, SpaceX has even grander goals of creating a constellation consisting of 4,425 satellites, eventually expanding to 12,000 satellites in the near-future (Kosiak, 2019: 7). Putting this into context, there are currently just around 1,400 active satellites in orbit around the Earth, highlighting the scale of these projects. The collision between a single US privately-owned Iridium satellite and state-owned Russian Cosmos satellite in 2009 underscored not only the sheer amount of debris caused by these collisions – over 1,500 pieces – but also foreshadowed the possible geopolitical tensions that may arise from them (Wang, 2010: 87-88). Given the number of various commercial satellite constellations possibly going into orbit in the near-future, this raises questions over the possibly devastating security hazards they could pose once in orbit or when they eventually become defunct. Yet the proliferation of these commercial satellite plansalso pose significant environmental issues. Article IX of the OST asserts that: “States shall pursue activities of outer space in a manner that avoids any harmful contamination or adverse environmental changes on Earth” (UN, 1967). However, the use of terms like ‘harmful’ or ‘adverse change’ underscores the lack of specificity over what exactly constitutes environmental damage, or for whom it must refrain from harming. There is also a failure to address the explicit problem of space debris since the discourse is primarily concentrated on chemical effluent pollution, undermining attempts to facilitate the removal of floating wreckage(Gupta, 2016: 26). The inability of the OST to properly promote environmental considerations in space has been mirrored in the NewSpace community, where there has been a woeful lack of ecological consideration: “The hundreds of articles and books on outer space resource development seldom mention that such actions may adversely affect the environment in ways that will potentially disadvantage their enterprises and the humans that will be required to implement them” (Kramer, 2017: 136). Such images evoke the types of difficulties that private firms have encountered on Earth reconciling capital with the environment in a way that doesn’t damage profit margins (Magdoff & Foster, 2011: 61-66). Yet in doing so, this neglect is only likely to result in the proliferation of extra-terrestrial debris that the UN OST failed to address. Indeed, despite its vastness there is only a narrow region of orbital space that is either useable or beneficial for prolonged human missions (Brearley, 2005: 2), meaning that the increase in space debris from these massive commercial satellite constellations will likely be at the detriment of developing nations who have yet fostered spacefaring capabilities. Elon Musk’s SpaceX company has already caused complications for Earth-bound astrologists. The brightness of his recent ‘Starlink’ satellite constellation system in comparison to other satellites has been obscuring telescopic images (see Grush, 2020). More concerningly, Starlink may be much more visible during twilight hours which could be problematic in identifying potentially hazardous asteroids in a timely manner (The Verge, 2020). In this sense, whilst private space entrepreneurs are able to increase their profitability from being able to establish constellations, such endeavours are spoiling the scientific work of researchers on Earth that may complicate the monitoring of Earth-based asteroid impacts.

#### That causes extinction.

Sears 21 (, N., 2021. Great Powers, Polarity, and Existential Threats to Humanity: An Analysis of the Distribution of the Forces of Total Destruction in International Security. [online] ResearchGate. Available at: <https://www.researchgate.net/publication/350500094> [Accessed 22 November 2021] Nathan Alexander Sears is a PhD Candidate in Political Science at The University of Toronto. Before beginning his PhD, he was a Professor of International Relations at the Universidad de Las Américas, Quito. His research focuses on international security and the existential threats to humanity posed by nuclear weapons, climate change, biotechnology, and artificial intelligence. His PhD dissertation is entitled, “International Politics in the Age of Existential Threats”)-re-cut rahulpenu

Climate Change Humanity faces existential risks from the large-scale destruction of Earth’s natural environment making the planet less hospitable for humankind (Wallace-Wells 2019). The decline of some of Earth’s natural systems may already exceed the “planetary boundaries” that represent a “safe operating space for humanity” (Rockstrom et al. 2009). Humanity has become one of the driving forces behind Earth’s climate system (Crutzen 2002). The major anthropogenic drivers of climate change are the burning of fossil fuels (e.g., coal, oil, and gas), combined with the degradation of Earth’s natural systems for absorbing carbon dioxide, such as deforestation for agriculture (e.g., livestock and monocultures) and resource extraction (e.g., mining and oil), and the warming of the oceans (Kump et al. 2003). While humanity has influenced Earth’s climate since at least the Industrial Revolution, the dramatic increase in greenhouse gas emissions since the mid-twentieth century—the “Great Acceleration” (Steffen et al. 2007; 2015; McNeill & Engelke 2016)— is responsible for contemporary climate change, which has reached approximately 1°C above preindustrial levels (IPCC 2018). Climate change could become an existential threat to humanity if the planet’s climate reaches a “Hothouse Earth” state (Ripple et al. 2020). What are the dangers? There are two mechanisms of climate change that threaten humankind. The direct threat is extreme heat. While human societies possesses some capacity for adaptation and resilience to climate change, the physiological response of humans to heat stress imposes physical limits—with a hard limit at roughly 35°C wet-bulb temperature (Sherwood et al. 2010). A rise in global average temperatures by 3–4°C would increase the risk of heat stress, while 7°C could render some regions uninhabitable, and 11–12°C would leave much of the planet too hot for human habitation (Sherwood et al. 2010). The indirect effects of climate change could include, inter alia, rising sea levels affecting coastal regions (e.g., Miami and Shanghai), or even swallowing entire countries (e.g., Bangladesh and the Maldives); extreme and unpredictable weather and natural disasters (e.g., hurricanes and forest fires); environmental pressures on water and food scarcity (e.g., droughts from less-dispersed rainfall, and lower wheat-yields at higher temperatures); the possible inception of new bacteria and viruses; and, of course, large-scale human migration (World Bank 2012; Wallace-Well 2019; Richards, Lupton & Allywood 2001). While it is difficult to determine the existential implications of extreme environmental conditions, there are historic precedents for the collapse of human societies under environmental pressures (Diamond 2005). Earth’s “big five” mass extinction events have been linked to dramatic shifts in Earth’s climate (Ward 2008; Payne & Clapham 2012; Kolbert 2014; Brannen 2017), and a Hothouse Earth climate would represent terra incognita for humanity. Thus, the assumption here is that a Hothouse Earth climate could pose an existential threat to the habitability of the planet for humanity (Steffen et al. 2018., 5). At what point could climate change cross the threshold of an existential threat to humankind? The complexity of Earth’s natural systems makes it extremely difficult to give a precise figure (Rockstrom et al. 2009; ). However, much of the concern about climate change is over the danger of crossing “tipping points,” whereby positive feedback loops in Earth’s climate system could lead to potentially irreversible and self-reinforcing “runaway” climate change. For example, the melting of Arctic “permafrost” could produce additional warming, as glacial retreat reduces the refractory effect of the ice and releases huge quantities of methane currently trapped beneath it. A recent study suggests that a “planetary threshold” could exist at global average temperature of 2°C above preindustrial levels (Steffen et al. 2018; also IPCC 2018). Therefore, the analysis here takes the 2°C rise in global average temperatures as representing the lower-boundary of an existential threat to humanity, with higher temperatures increasing the risk of runaway climate change leading to a Hothouse Earth. The Paris Agreement on Climate Change set the goal of limiting the increase in global average temperatures to “well below” 2°C and to pursue efforts to limit the increase to 1.5°C. If the Paris Agreement goals are met, then nations would likely keep climate change below the threshold of an existential threat to humanity. According to Climate Action Tracker (2020), however, current policies of states are expected to produce global average temperatures of 2.9°C above preindustrial levels by 2100 (range between +2.1 and +3.9°C), while if states succeed in meeting their pledges and targets, global average temperatures are still projected to increase by 2.6°C (range between +2.1 and +3.3°C). Thus, while the Paris Agreements sets a goal 6 that would reduce the existential risk of climate change, the actual policies of states could easily cross the threshold that would constitute an existential threat to humanity (CAT 2020).

1. https://dictionary.cambridge.org/us/dictionary/english/unjust

   [↑](#footnote-ref-1)