### 1

#### Interp: The affirmative must define “outer space” in a delimited text in the 1AC.

#### “Outer Space” is flexible and has too many interps – normal means shows no consensus

Leepuengtham 17 [Tosaporn Leepuengtham (Research Judge, Intellectual Property and International Trade Division, Supreme Court of Thailand). "International space law and its implications for outer space activities." 01-27-2017, Accessed 12-9-2021. https://www.elgaronline.com/view/9781785369612/06\_chapter1.xhtml // duongie

Those states which favor the precise demarcation of outer space support the spatial approach, whereas those who oppose to such demarcation prefer the functional approach, as the latter allows more flexibility in terms of the development of space technology.34 This lack of a definition and delimitation of outer space is problematic, since certain particular areas are neither explicitly defined as ‘air space’ or ‘outer space’. For example, it is vague whether an area located between 80 km and 120 km above sea level would be classified as either air space or outer space in the absence of demarcation, since 80 km is the maximum attitude for convention aircraft, and 120 km is the lowest attitude in which space activities could be carried out.35 Satellites which are stationed in a geostationary orbit are a good example of this ambiguity. Owing to this lack of any internationally recognized delimitation, equatorial states claim sovereignty over that part of the geostationary orbit which is located over their respective territories;36 whereas technologically developed countries believe that the geostationary orbit is an integral part of outer space.37 This uncertain status of areas leads to legal jurisdictional problems. According to international law, a state has sovereignty over the airspace above its territory.38 However, national sovereignty does not extend into outer space.39 Thus, it is necessary to determine where a state’s airspace ends to ensure that the appropriate legal regime is applied. One possible scenario which might occur and which is relevant to the subject of this book is the creation or infringement of an intellectual work is in just such an ambiguous location. This would cast doubt on the ‘legal’ location of creation or infringement, and the question of which applicable legal regime arises. Should we apply the law of the underlying state or is there no law to apply? For example, would satellite signals transmitted from a satellite stationed in a geostationary orbit located over equatorial countries be considered as works created or, if intercepted, be infringed, in outer space or in the sovereign air space of those respective countries? These hypothetical examples highlight why a boundary is necessary if unpredictability arising from different legal application is to be avoided. While it might be argued that this issue is being overemphasized at this stage, given increasing use of space technology, this problem is worth considering now rather than later.

#### Violation – you don’t.

#### Prefer –

#### 1] Stable Advocacy – they can redefine in the 1AR to wriggle out of DA’s which kills high-quality engagement and becomes two ships passing in the night –We lose access to Tech Race DA’s, Asteroid DA’s, basic case turns, and core process counter plans that have different definitions and 1NC pre-round prep. Cx doesn’t check because debaters are shifty and judges don’t flow it.

#### 2] Real World – Policy makers will always define the entity that they are recognizing. It also means zero solvency, absent spec, private entities can circumvent since there is no delineated way to enforce the aff and means their solvency can’t actualize.

#### Fairness is a voter debate is a competitive activity that requires objective evaluation

#### Topicality is a voting issue that should be evaluated through competing interpretations a] it tells the negative what they do and do not have to prepare for b] reasonability is arbitrary and incentivizes judge intervention

#### No RVIs—a] it’s your burden to be topical. Anything else chills real abuse b] forces theory debaters to bait theory and win on it every time

### 2

#### CP Text: States ought to call a global constitutional convention and establish a constitution reflecting intergenerational concern with exclusive authority to make the appropriation of outer space unjust and bind participating bodies to its result.

#### The CP applies intergenerational equity to future generations – that’s better than trying to decide now whether the plan is beneficial across deep time – every country would say yes.

Tan 2k [David Tan, LL.M., Harvard Law School; LL.B. (Hons), B.Com., University of Melbourne. Former Tutor in Law, Trinity College, University of Melbourne, “Towards a New Regime for the Protection of Outer Space as the "Province of All Mankind",” 2000, *The Yale Journal of International Law*, Vol. 25, https://digitalcommons.law.yale.edu/cgi/viewcontent.cgi?article=1114&context=yjil]

Edith Brown Weiss has advanced the theory of “intergenerational equity,” which provides for generational rights and obligations.158 Her thesis consists of a normative framework of intersecting theories of intergenerational and intragenerational equity that are derived from an underlying planetary trust, embodying the notion that generations act as stewards to sustain the welfare and well-being of all generations. This planetary trust obliges “each generation to preserve the diversity of the resource base and to pass the planet to future generations in no worse condition than it receives it.”159 The principle of the conservation of options requires each generation “to conserve the diversity of the natural and cultural resource base, so that it does not unduly restrict the options available to future generations in solving their problems and satisfying their own values, and should be entitled to diversity comparable to that enjoyed by previous generations.”\*60 The theory of intergenerational equity is an appealing one. Unfortunately, Weiss’s model generally rests upon an intertemporal human rights model for preserving the global environment. This presents many problems, ranging from the questionable existence of the right to a decent environment to the issue of remedies in respect of claims made by future generations against present generations.161

Whether the global awareness of the harm to our sense of intergenerational identity, as evidenced by the various U.N. General Assembly resolutions and numerous international conventions, will be sufficient to mobilize the implementation and enforcement of effective legal measures on behalf of future generations is doubtful. But more importantly, the notions of intergenerational identity and sustainable development will prove to be invaluable concepts in framing the discussion in Part VI.

Current literature has concentrated on the notion of sustainable development as involving the integration of economic and environmental considerations at all levels of decision-making.162 But the outer-space environment has been largely ignored, as if it were simply economic development on Earth that must be environmentally sound. There is no reason, however, why the precautionary principles that emerge from the concept of sustainable development in the Stockholm Declaration, the Rio Declaration, and the World Charter for Nature should not apply equally to the outer-space environment. Few states, if any, will take issue with the proposition that the exploration and use of outer space should be sustainable. It is in the common interest of all states, whether spacefaring or otherwise, to subscribe to a regime that allows for the development of space activities in a manner that leaves the space environment in a substantially unimpaired condition for future generations. One might even ultimately find that the uniqueness and vulnerability of the outer-space environment demand that the international community as a whole recognize sustainable development as a “global ethic”163 that transcends terrestrial boundaries, as a peremptory norm that prohibits “policies and practices that support current living standards by depleting the productive base, including natural resources, and that leaves future generations with poorer prospects and greater risks than our own.”164 We should not confine our actions to those we are now able to determine as directly or indirectly benefiting ourselves or our descendants. On the contrary, we should “cultivate our natural sense of obligation not to act wastefully or wantonly even when we cannot calculate how such acts would make any present or future persons worse off.”165 It seems impossible to find universally agreed-upon limits on the freedom of exploration and use of outer space. Rather than focus on indeterminate rules of custom-formation, we should concentrate on establishing fair and workable arrangements and institutions that can successfully accommodate the competing interests of all nations. With these guidelines in mind, we will now examine new methods of treaty-making that will enhance the willingness of states to participate in an environmental program that seeks to achieve an acceptable balance between pollution control and freedom of space exploration.

#### That solves the aff – it addresses shared anxieties while building political consensus.

Gardiner 14 1 [Stephen M. Gardiner, Professor of Philosophy and Ben Rabinowitz Endowed Professor of Human Dimensions of the Environment at the University of Washington, Seattle, “A Call for a Global Constitutional Convention Focused on Future Generations,” 2014, *Ethics & International Affairs*, Vol. 28, Issue 3, pp. 299-315, https://doi.org/10.1017/S0892679414000379, EA]

A Constitutional Convention

In my view, the above line of reasoning leads naturally to a more specific proposal: that we—concerned individuals, interested community groups, national governments, and transnational organizations—should initiate a call for a global constitutional convention focused on future generations. This proposal has two components. The first component is procedural. The proposal takes the form of a “call to action.” It is explicitly an attempt to engage a range of actors, based on a claim that they have or should take on a set of responsibilities, and a view about how to go about discharging those responsibilities. The second component is substantive. The main focus for action is a push for the creation of a constitutional convention at the global level, whose role is to pave the way for an overall constitutional system that appropriately embodies intergenerational concern.

The substantive idea rests on several key ideas. Still, for the purposes of a basic proposal, I suggest that these be understood in a relatively open way that, as far as is practicable, does not prejudge the outcome of the convention, and especially its main recommendations. First, the convention itself should be understood as “a representative body called together for some occasional or temporary purpose” and “constituted by statute to represent the people in their primary relations.”14 Second, a constitutional system should be thought of in a minimalist sense as “a set of norms (rules, principles or values) creating, structuring, and possibly defining the limits of government power or authority.”15 Third, the “instigating” role of the convention should be to discuss, develop, make recommendations toward, and set in motion a process for the establishment of a constitution. Fourth, its primary subject matter should be the need to adequately reflect and embody intergenerational concern, where this would include at least the protection of future generations, the promotion of their interests (where “interests” is to be broadly conceived so as to include rights, claims, welfare, and so on), and the discharging of duties with respect to them. It may also (and in my view should) include some way of reflecting concern for past generations, including responsiveness to at least certain of their interests and views. However, I will leave that issue aside in what follows.

The proposal to initiate a call for a global constitutional convention has at least two attractive features. First, it is based in a deep political reality, and does not underplay the challenge. It acknowledges the problem as it is, both specific and general, and calls attention to the heart of that problem, including to the failures of the current system, the need for an alternative, and the background issue of responsibility. Moreover, though the proposal is dramatic and rhetorically eye-catching, it is so in a way that is appropriately responsive to the seriousness of the issue at hand, the persistent political inertia surrounding more modest initiatives, and the fact that (grave though concerns about it are) climate change is only one instance of the tyranny of the contemporary (and the wider perfect moral storm), and we should expect others to arise over the coming decades and centuries.

The second attractive feature of the proposal is that, though ambitious, it is not alienating. While it does not succumb to despair in the face of the challenge, neither does it needlessly polarize and divide from the outset (for example, by leaping to specific recommendations about how to fill the institutional gap). Instead, it acknowledges that there are fundamental difficulties and anxieties, but uses them to start the right kind of debate, rather than to foreclose it. As a result, the proposal is a promising candidate to serve as the subject of a wide and overlapping political consensus, at least among those who share intergenerational concern.

Selective Mirroring

To quell some initial anxieties, it is perhaps worth clarifying the open-ended and non-alienating character of the proposal. One temptation would be to view the call for a global constitutional convention as a fairly naked plea for world government, a prospect that would be deeply alienating—indeed anathema—to many. However, that is not my intention. Though it is possible that a global constitutional convention would lead in this direction, it is by no means certain.

At a minimum, no such body could plausibly recommend any form of “world government” without simultaneously advancing detailed suggestions about how to avoid the standard threats such an institution might pose. Moreover, it seems perfectly conceivable, even likely under current ways of thinking, that a global constitutional convention would pursue what we might call a selective mirroring strategy. Specifically, a convention would seek to develop a broader system of institutions and practices that reflected the desirable features of a powerful and highly centralized global authority but neutralized the standing threats posed by it (for example, it might employ familiar strategies such as the separation of powers). In all likelihood, one feature of a selective mirroring approach would be the significant preservation of existing institutions to serve as a bulwark against the excesses of any newly created ones. Whether and how such a strategy might be made effective against the perfect moral storm, and whether something closer to a “world government” would do better, would be a central issue for discussion by the convention.

#### It spills over to foster broader intergenerational representation, but independence is key

Gardiner 14 2 [Stephen M. Gardiner, Professor of Philosophy and Ben Rabinowitz Endowed Professor of Human Dimensions of the Environment at the University of Washington, Seattle, “A Call for a Global Constitutional Convention Focused on Future Generations,” 2014, *Ethics & International Affairs*, Vol. 28, Issue 3, pp. 299-315, https://doi.org/10.1017/S0892679414000379, EA]

One set of guidelines concerns how the global constitutional convention relates to other institutions. The first guideline concerns relative independence:

(1) Autonomy: Any global constitutional convention should have considerable autonomy from other institutions, and especially from those dominated by factors that generate or facilitate the tyranny of the contemporary (and the perfect moral storm, more generally).

Thus, for example, attempts should be made to insulate the global constitutional convention from too much influence from short-term and narrowly economic forces.

The second guideline concerns limits to that independence:

(2) Mutual Accountability: Any global constitutional convention should be to some extent accountable to other major institutions, and they should be accountable to it.

Thus, for example, though the global constitutional convention should not be able to decide unilaterally that national institutions should be radically supplanted, nevertheless such institutions should not have a simple veto on the recommendations of the convention, including those that would result in sharp limits to their powers.

A third guideline concerns adequacy:

(3) Functional Adequacy: The global constitutional convention should be constructed in such a way that it is highly likely to produce recommendations that are functionally adequate to the task.

Thus, for example, the tasks of the global constitutional convention should not be assigned to any currently existing body whose design and authority is clearly unsuitable. In my view, this guideline rules out proposals such as the Royal Society’s suggestion that governance of geoengineering should be taken up by the United Nations’ Commission on Sustainable Development,20 or the Secretary-General’s recommendation of a new United Nations’ High Commissioner for Future Generations.21 Though such proposals may have merit for some purposes (for example, as pragmatic, incremental suggestions to highlight the importance of intergenerational issues), they are too modest, in my opinion, to reflect the gravity of the threats posed by climate change in particular, and the perfect moral storm more generally.

Aims

A second set of guidelines concerns the aims of the global constitutional convention. Here, the perfect moral storm analysis would suggest:

(4) Comprehensiveness: The convention should be under a mandate to consider a very broad range of global, intergenerational issues, to focus on such issues at a foundational level, and to recommend institutional reform accordingly.

(5) Standing Authority: Though the convention may recommend the establishment of some temporary and issue-specific bodies, its focus should be on the establishment of institutions with standing authority over the long term.

These guidelines are significant in that they stand against existing issue-specific approaches to global and intergenerational problems, and encourage not only a less ad hoc but also a more proactive approach. In particular, the global constitutional convention might be expected to recommend institutions that would be charged with identifying, monitoring, and taking charge of intergenerational issues as such. For example, such institutions should address not only specific policy issues (such as climate change, large asteroid detection, and long-term nuclear waste) but also the need to identify similar threats before they arise.

#### Proactive measures mitigate a laundry list of emerging catastrophic risks – extinction.

Beckstead 14 [Nick Beckstead, Nick Bostrom, Niel Bowerman, Owen Cotton-Barratt, William MacAskill, Seán Ó hÉigeartaigh, Toby Ord, \* Future of Humanity Institute, University of Oxford, \*\* Director, Future of Humanity Institute, University of Oxford, \*\*\* Global Priorities Project, Centre for Effective Altruism; Department of Physics, University of Oxford, \*\*\*\* Global Priorities Project, Centre for Effective Altruism; Future of Humanity Institute, University of Oxford, \*\*\*\*\* Uehiro Centre for Practical Ethics, University of Oxford, \*\*\*\*\*\* Cambridge Centre for the Study of Existential Risk; Future of Humanity Institute, University of Oxford, \*\*\*\*\*\*\* Programme on the Impacts of Future Technology, Oxford Martin School, University of Oxford, “Policy Brief: Unprecedented Technological Risks,” 2014, *The Global Priorities Project, The Future of Humanity Institute, The Oxford Martin Programme on the Impacts of Future Technology, and The Centre for the Study of Existential Risk*, https://www.fhi.ox.ac.uk/wp-content/uploads/Unprecedented-Technological-Risks.pdf, Accessed: 03/13/21, EA]

In the near future, major technological developments will give rise to new unprecedented risks. In particular, like nuclear technology, developments in synthetic biology, geoengineering, distributed manufacturing and artificial intelligence create risks of catastrophe on a global scale. These new technologies will have very large benefits to humankind. But, without proper regulation, they risk the creation of new weapons of mass destruction, the start of a new arms race, or catastrophe through accidental misuse. Some experts have suggested that these technologies are even more worrying than nuclear weapons, because they are more difficult to control. Whereas nuclear weapons require the rare and controllable resources of uranium-235 or plutonium-239, once these new technologies are developed, they will be very difficult to regulate and easily accessible to small countries or even terrorist groups.

Moreover, these risks are currently underregulated, for a number of reasons. Protection against such risks is a global public good and thus undersupplied by the market. Implementation often requires cooperation among many governments, which adds political complexity. Due to the unprecedented nature of the risks, there is little or no previous experience from which to draw lessons and form policy. And the beneficiaries of preventative policy include people who have no sway over current political processes — our children and grandchildren.

Given the unpredictable nature of technological progress, development of these technologies may be unexpectedly rapid. A political reaction to these technologies only when they are already on the brink of development may therefore be too late. We need to implement prudent and proactive policy measures in the near future, even if no such breakthroughs currently appear imminent.

### 1NC – Case

#### Presumption: they aren’t going to win because they have no ballot key warrant. Their argument is about how the development of strategies occurs through iterative testing: 1] No reason debate is key – several online forums AND coffeeshops/lecture rooms are net better since they allow you to educate multiple people 2] No reason the ballot is key since their argument is debate is good but so what? Let’s debate about it and give me the ballot. Proliferates controversy which means your discussions reach more people.

#### C/I – Unjust means unlawful. Means implementation

Waters 98 – H. FRANKLIN WATERS, Senior District Judge. Colonia Ins. Co. v. City Nat. Bank, 13 F. Supp. 2d 891 - Dist. Court, WD Arkansas 1998

Arkansas law is clear on the issue that in the realm of unjust enrichment, the word "unjust" means "unlawful." "One is not unjustly enriched by receipt of that to which he is legally entitled. \* \* \* No recovery of money received can be based upon unjust enrichment when the recipient can show a legal or equitable ground for keeping it." Halvorson v. Trout, 258 Ark. 397, 403, 527 S.W.2d 573, 577 (1975) (quoting Whitley v. Irwin, 250 Ark. 543, 550-51, 465 S.W.2d 906, 910-11 (1971)). See also, Jackson County Grain Drying Coop. v. Newport Wholesale Electric, Inc., 9 Ark.App. 41, 46, 652 S.W.2d 638, 640 (1983) (no one shall be allowed to unjustly enrich himself at the expense of another; the word "unjustly" means "unlawfully").

Coleman contends that because he was an employee of AGA, he was entitled to the money he received as remuneration for his services, and, as such, he was not unjustly enriched. The court believes that, based on the reasons set forth above, a genuine issue of material fact exists as to whether Coleman knew that the source of the money he received from Welch and AGA, especially the bonuses and gifts, was plaintiffs' premiums. Therefore, Coleman is not entitled to summary judgment on plaintiffs' unjust enrichment claim.

#### Resolved requires policy action

Louisiana House ND, https://www.legis.la.gov/legis/Glossary.aspx

**Resolution A legislative instrument** that generally is **used for** making declarations, **stating policies**, and making decisions where some other form is not required. A bill includes the constitutionally required enacting clause; a resolution **uses the term "resolved".** Not subject to a time limit for introduction nor to governor's veto. ( Const. Art. III, §17(B) and House Rules 8.11 , 13.1 , 6.8 , and 7.4)

### 1NC—Framing

#### Reject framing arguments that parameterize content – anything else brackets out knowledge production which their evidence would disagree with. ROB is to vote for the better debater. Only evaluating consequences allows us to determine the impacts of politics and preserves engagement. Contestation and testing are key to the self-reflexivity that creates ethical subjects.

#### Death is bad and o/w—ontologically destroys the subject.

Paterson 1 – Department of Philosophy, Providence College, Rhode Island. (Craig, “A Life Not Worth Living?”, Studies in Christian Ethics, <http://sce.sagepub.com>)

Contrary to those accounts, I would argue that it is death per se that is really the objective evil for us, not because it deprives us of a prospective future of overall good judged better than the alter- native of non-being. It cannot be about harm to a former person who has ceased to exist, for no person actually suffers from the sub-sequent non-participation. Rather, death in itself is an evil to us because it ontologically destroys the current existent subject — it is the ultimate in metaphysical lightening strikes.80 The evil of death is truly an ontological evil borne by the person who already exists, independently of calculations about better or worse possible lives. Such an evil need not be consciously experienced in order to be an evil for the kind of being a human person is. Death is an evil because of the change in kind it brings about, a change that is destructive of the type of entity that we essentially are. Anything, whether caused naturally or caused by human intervention (intentional or unintentional) that drastically interferes in the process of maintaining the person in existence is an objective evil for the person. What is crucially at stake here, and is dialectically supportive of the self-evidency of the basic good of human life, is that death is a radical interference with the current life process of the kind of being that we are. In consequence, death itself can be credibly thought of as a ‘primitive evil’ for all persons, regardless of the extent to which they are currently or prospectively capable of participating in a full array of the goods of life.81  In conclusion, concerning willed human actions, it is justifiable to state that any intentional rejection of human life itself cannot therefore be warranted since it is an expression of an ultimate disvalue for the subject, namely, the destruction of the present person; a radical ontological good that we cannot begin to weigh objectively against the travails of life in a rational manner. To deal with the sources of disvalue (pain, suffering, etc.) we should not seek to irrationally destroy the person, the very source and condition of all human possibility.82

#### Extinction outweighs:

#### A] Structural violence- death causes suffering because people can’t get access to resources and basic necessities

#### B] Comes before value-to-life.

Tännsjö 11 (Torbjörn, the Kristian Claëson Professor of Practical Philosophy at Stockholm University, “Shalt Thou Sometimes Murder? On the Ethics of Killing,” <http://people.su.se/~jolso/HS-texter/shaltthou.pdf>) //BS 1-27-2018

\*\*Bracketed to avoid triggers

I suppose it is correct to say that, if Schopenhauer is right, if life is never worth living, then according to utilitarianism we should all [die] commit suicide and put an end to humanity. But this does not mean that, each of us should commit suicide. I commented on this in chapter two when I presented the idea that utilitarianism should be applied, not only to individual actions, but to collective actions as well.¶ It is a well-known fact that people rarely commit suicide. Some even claim that no one who is mentally sound commits suicide. Could that be taken as evidence for the claim that people live lives worth living? That would be rash. Many people are not utilitarians. They may avoid suicide because they believe that it is morally wrong to kill oneself. It is also a possibility that, even if people lead lives not worth living, they believe they do. And even if some may believe that their lives, up to now, have not been worth living, their future lives will be better. They may be mistaken about this. They may hold false expectations about the future.¶ From the point of view of evolutionary biology, it is natural to assume that people should rarely commit suicide. If we set old age to one side, it has poor survival value (of one’s genes) to kill oneself. So it should be expected that it is difficult for ordinary people to kill themselves. But then theories about cognitive dissonance, known from psychology, should warn us that we may come to believe that we live better lives than we do.¶ My strong belief is that most of us live lives worth living. However, I do believe that our lives are close to the point where they stop being worth living. But then it is at least not very far-fetched to think that they may be worth not living, after all. My assessment may be too optimistic.¶ Let us just for the sake of the argument assume that our lives are not worth living, and let us accept that, if this is so, we should all kill ourselves. As I noted above, this does not answer the question what we should do, each one of us. My conjecture is that we should not [die] commit suicide. The explanation is simple. If I [die] kill myself, many people will suffer. Here is a rough explanation of how this will happen: ¶ ... suicide “survivors” confront a complex array of feelings. Various forms of guilt are quite common, such as that arising from (a) the belief that one contributed to the suicidal person's anguish, or (b) the failure to recognize that anguish, or (c) the inability to prevent the suicidal act itself. Suicide also leads to rage, loneliness, and awareness of vulnerability in those left behind. Indeed, the sense that suicide is an essentially selfish act dominates many popular perceptions of suicide. ¶ The fact that all our lives lack meaning, if they do, does not mean that others will follow my example. They will go on with their lives and their false expectations — at least for a while devastated because of my suicide. But then I have an obligation, for their sake, to go on with my life. It is highly likely that, by committing suicide, I create more suffering (in their lives) than I avoid (in my life).

#### C] Mathematically outweighs.

MacAskill 14 [William, Oxford Philosopher and youngest tenured philosopher in the world, Normative Uncertainty, 2014]

The human race might go extinct from a number of causes: asteroids, supervolcanoes, runaway climate change, pandemics, nuclear war, and the development and use of dangerous new technologies such as synthetic biology, all pose risks (even if very small) to the continued survival of the human race.184 And different moral views give opposing answers to question of whether this would be a good or a bad thing. It might seem obvious that human extinction would be a very bad thing, both because of the loss of potential future lives, and because of the loss of the scientific and artistic progress that we would make in the future. But the issue is at least unclear. The continuation of the human race would be a mixed bag: inevitably, it would involve both upsides and downsides. And if one regards it as much more important to avoid bad things happening than to promote good things happening then one could plausibly regard human extinction as a good thing.For example, one might regard the prevention of bads as being in general more important that the promotion of goods, as defended historically by G. E. Moore,185 and more recently by Thomas Hurka.186 One could weight the prevention of suffering as being much more important that the promotion of happiness. Or one could weight the prevention of objective bads, such as war and genocide, as being much more important than the promotion of objective goods, such as scientific and artistic progress. If the human race continues its future will inevitably involve suffering as well as happiness, and objective bads as well as objective goods. So, if one weights the bads sufficiently heavily against the goods, or if one is sufficiently pessimistic about humanity’s ability to achieve good outcomes, then one will regard human extinction as a good thing.187 However, even if we believe in a moral view according to which human extinction would be a good thing, we still have strong reason to prevent near-term human extinction. To see this, we must note three points. First, we should note that the extinction of the human race is an extremely high stakes moral issue. Humanity could be around for a very long time: if humans survive as long as the median mammal species, we will last another two million years. On this estimate, the number of humans in existence in the The future, given that we don’t go extinct any time soon, would be 2×10^14. So if it is good to bring new people into existence, then it’s very good to prevent human extinction. Second, human extinction is by its nature an irreversible scenario. If we continue to exist, then we always have the option of letting ourselves go extinct in the future (or, perhaps more realistically, of considerably reducing population size). But if we go extinct, then we can’t magically bring ourselves back into existence at a later date. Third, we should expect ourselves to progress, morally, over the next few centuries, as we have progressed in the past. So we should expect that in a few centuries’ time we will have better evidence about how to evaluate human extinction than we currently have. Given these three factors, it would be better to prevent the near-term extinction of the human race, even if we thought that the extinction of the human race would actually be a very good thing. To make this concrete, I’ll give the following simple but illustrative model. Suppose that we have 0.8 credence that it is a bad thing to produce new people, and 0.2 certain that it’s a good thing to produce new people; and the degree to which it is good to produce new people, if it is good, is the same as the degree to which it is bad to produce new people, if it is bad. That is, I’m supposing, for simplicity, that we know that one new life has one unit of value; we just don’t know whether that unit is positive or negative. And let’s use our estimate of 2×10^14 people who would exist in the future, if we avoid near-term human extinction. Given our stipulated credences, the expected benefit of letting the human race go extinct now would be (.8-.2)×(2×10^14) = 1.2×(10^14). Suppose that, if we let the human race continue and did research for 300 years, we would know for certain whether or not additional people are of positive or negative value. If so, then with the credences above we should think it 80% likely that we will find out that it is a bad thing to produce new people, and 20% likely that we will find out that it’s a good thing to produce new people. So there’s an 80% chance of a loss of 3×(10^10) (because of the delay of letting the human race go extinct), the expected value of which is 2.4×(10^10). But there’s also a 20% chance of a gain of 2×(10^14), the expected value of which is 4×(10^13). That is, in expected value terms, the cost of waiting for a few hundred years is vanishingly small compared with the benefit of keeping one’s options open while one gains new information.

### 1NC—Cap

#### Racial capitalism fails as a theory.

Go 21 – Professor of Sociology at the University of Chicago (Julian, “Three Tensions in the Theory of Racial Capitalism”, Sociological Theory, Vol. 39, No. 1, pp. 38-47, 2021)

What Is the “Race” in Racial Capitalism? We can now turn to the three tensions in the racial capitalism literature, beginning with the issue of race. This is critical. If the term racial capitalism is to have implications for social theory, it must offer rigorously defined concepts constituting a transposable conceptual apparatus. Surely one of those concepts would have to do with “race.” But what exactly is “race”? The problem is that “race” is not typically defined in the existing literature, so it is unclear whether other categories marking difference, such as ethnicity, are more appropriate than race. Should we be thinking about “ethnic capitalism” rather than racial capitalism? Robinson’s (2000) work is a prime example. Nearly all scholars claim that one of Robinson’s key contributions is to show that capitalism was forged from precapitalist racial divisions in Europe. Capitalism is “racial,” according to Robinson, “because racialism had already permeated Western feudal society,” and capitalism was built upon that racialism (Kelley 2017; Táíwò and Bright 1996). The problem is that Robinson himself was not entirely clear that precapitalist social differences were actually “racial.” On one hand, he did use the term race in his analysis. “Racism,” Robinson (2000:2; see also pp. 26–27, 66–67) wrote, served to structure “the ‘internal’ relations of European peoples” prior to capitalism, and capitalism seized on racism as it developed. On other hand, when discussing some of the presumably “racial” groups in feudal Europe, Robinson (2000:10–11) referred to linguistic rather than phenotypical differences, thus equating racial groups with linguistic groups. In fact, when discussing how migratory and immigrant labor formed the basis for the armies of the Absolutist states and for the production of value in early agrarian capitalism, he oscillated between calling them “races” and “ethnic” groups. For instance, Robinson (2000:23) used the phrase “ethnic divisions of sixteenth century immigrant labor,” and he referred to “national” differences when presumably speaking about premodern “racial” differences. Given these ambiguities, Robinson’s argument could be read differently from how it is conventionally taken. It is not that capitalism was built on prior racial differences; rather, capitalism served to racialize the preexisting ethnic division of labor, thereby turning religious, cultural, or linguistic differences into “racial” ones to legitimate its new exploitative structure. In this view, racialization—the process of turning groups into biological entities called “races”—was a part of modern capitalism, not its precursor (cf. Omi and Winant 1986). In some passages, Robinson (2000) said this exactly: “the tendency of European civilization through capitalism was thus not to homogenize but to differentiate—to exaggerate regional, subcultural, and dialectical differences into ‘racial’ ones” (p. 26). Of course, whether “race” preexisted capitalism does not alter the larger argument of the racial capitalism approach, which is that racial differentiation and capitalism are mutually supportive. Still, the tension in Robinson’s work manifests the deeper issue of whether “racial” capitalism refers to race or other identities. This issue permeates Walzer’s (2020) recent criticism of the racial capitalism concept. Walzer points to examples such as Russia and China, where capitalism does not rely on racial differences but rather on ethnic and religious differentiation. “It may be that Muslims are among the most exploited workers in Russia,” he wrote, “but they are mostly Caucasian (some of them the original Caucasians), so we would have to talk about religious capitalism—where Orthodox Christians, not white people, are the privileged group.” On this basis, Walzer rejected the racial capitalism concept as limited at best and analytically debilitating at worse. Skeptics of Walzer have offered a rebuke: his argument misses the global dimensions of capitalism. At issue is not whether racial stratification articulates with capitalism within any single country but whether it permeates the world-capitalist system. Proponents of this argument could readily assemble evidence to show that, on a global scale, the vast majority of the world’s proletariat, subproletariat, and dispossessed—whether cultivating grapes or coffee on the farms of the Americas, cleaning up office floors in London, or making clothes in the sweatshops of New Delhi—are, to borrow DuBois’s (1935) phrase, “yellow, brown and black.” Against Walzer, this would retain the main claim of the racial capitalism approach that race and capitalism are intertwined. Yet this scaling upward of capitalism to a global level brings its own complications. It carries the danger of what Bourdieu and Wacquant (1999) called “the cunning of imperialist [racialist] reason”: an analytic operation by which U.S.-centered scholars impose presumably U.S.-centric classifications (in this case, “race”) onto the rest of the world, thereby imposing racial classifications into contexts where they might not be operative. We would be obliged, for instance, to impose racial classifications onto Latin American contexts such as Brazil, where the salience of racial classifications is debatable (Loveman 1999; Wimmer 2015). In short, if we are to insist on the global character of racial capitalism, we must assume that analysts’ racial classifications are global as well. They may very well be, but racial capitalism’s founding texts, and more recent discussions, have not sufficiently problematized this tension.2 Can this tension be resolved? One way to do so is to raise the possibility that the racial capitalism concept works best for groups that have been undoubtedly racialized, such as members of the African diaspora in North America.3 Racial capitalism would thus refer mainly to the black ex-slave population, which has suffered some of the clearest and most virulent forms of racism. This might explain why the literature on racial capitalism has focused on African Americans and transatlantic slavery rather than other groups elsewhere in the world. Yet this seeming resolution would significantly reduce the scope of the racial capitalism concept. Racial capitalism would no longer depict a global system. Perhaps the best resolution is one that arrives through more reflexive research. We can explore how “race” is connected to capitalism in diverse sites and across historical periods, but we must be more conscious about whether we are referring to analysts’ definition of race or a category of practice. Put simply, we can arrive at a resolution only through careful research that more clearly defines “race.” The Inadequacy of Existing Theory A second tension in the racial capitalism literature has to do with the relationship between this literature and existing social theories of capitalism, in particular, Marxian theories of capitalism. Animating the racial capitalism approach is the claim that Marxian theories of capitalism are inadequate because they obfuscate the racial foundations of capitalism. For Robinson (2000), “Western Marxism . . . has proven insufficiently radical to expose and root out the racialist order that contaminates its analytic and philosophic applications” (p. 317). Historians’ use of the racial capitalism approach is premised on the idea that Marxism does not adequately acknowledge slavery’s role in capitalism or the ongoing importance of colonialism and “primitive accumulation,” which Marx presumably relegated to the margins of his theory (Smallwood 2018). This is exactly why scholars in this tradition insist on the term racial capitalism: because Marxian theory fails to theorize race, we must add the qualifier race to the signifier capitalism. But what if Marxian theory does in fact take into account race, slavery, imperialism, and colonialism, and proponents of the racial capitalism approach merely misread Marx? If so, the warrant, if not the entire premise, for Robinson’s and others’ work on racial capitalism would crater by an unfortunate misreading of Marxian theory. A number of scholars, in fact, already push against the notion that Marxist thought does not account for race, slavery, or colonialism. Drawing largely on Marx’s journalistic writings, they show that Marx not only discussed race, slavery, and colonialism but saw them as central for capitalism. According to this argument, Marx saw race as so crucial for capitalism that his theory saw the true proletariat as black, brown, and yellow—directly contrary to Robinson’s claim that Marxist theory only saw the white European proletariat as the true subject of history (Anderson 2010; Foster, Holleman, and Clark 2020; Ralph and Singhal 2019). If true, the racial capitalism literature is based on a “misguided reading of Marx” (Ralph and Singhal 2019:864). How might this apparent aporia in Marxian theory be resolved, if at all? It is imperative here to register a distinction between Marx’s theory of capital and his theory of capitalism. 4 The former is sketched in Marx’s mature social theory in Capital and related writings such as The Grundrisse (Postone 1996). These writings offer a formalized and abstract representation of the inner workings of capital, its accumulation, its contradictions, and its necessary demise through a series of central categories that capture the key elements of the capitalist system. At this level of abstraction, the main categories of the theory (e.g., “value,” “surplus value,” “concrete labor,” “abstract labor,” “capital,” “socially necessary labor time”) are devoid of any historical specificity or social content and as such can be applied to distinct historical phases or social formations (e.g., capitalism in the eighteenth-century transatlantic world or Russia in 1998, or the twenty-first-century global system). Categories of race, gender, or ethnicity are therefore not central, because they are too concrete. Alternatively, a theory of capitalism refers to capitalist development and dynamics in their empirical specificity. It is meant to explain and describe specific capitalist formations and developments as they really exist in the world, not their abstract conceptual form. This theory can be extracted from Marx’s journalistic writings and other essays, and it is here where issues such as slavery and ethnicity arise: the essays refer to real events and pressing issues in actually existing capitalism, such as the Civil War or the Irish question (Anderson 2010). But these observations or statements on concrete processes and relations such as slavery in actually existing capitalism—that is, Marx’s theory of capitalism—do not disturb or reconfigure his theory of capital, which remains focused on the relations of wage labor induced to a highly abstract level from his analysis of textile production. If and when he did discuss things such as slavery, such as in “The Working Day” section in Capital, he treated slavery as a passing phase or outside capital’s inner logic, a sort of heuristic to better apprehend and illuminate the latter (Marx [1867] 1906:328–30; on slavery as a heuristic, see Smallwood 2018). This distinction between Marx’s theory of capitalism and his theory of capital helps us better approach the debate generated by the racial capitalism literature. When Robinson or other proponents of the racial capitalism idea critique Marx’s theory for eliding or deliberately occluding race, slavery, and colonialism, they are critiquing his theory of capital, not his theory of capitalism. Here proponents of the racial capitalism approach are on solid ground. Marx’s theory of capitalism does take into account race, slavery, and colonialism, but his theory of capital renders these things marginal at best.5 Hence the warrant for the racial capitalism approach: because Marx’s theory of capital does not center race, the racial capitalism concept and the research and theorizing that go under its banner can fill the void. The concept may provide the basis for an alternative theory not only of racial capitalism but also of racialized capital. Necessity, Contingency, and Difference The final tension within racial capitalism is whether the interconnectedness of racial difference and capitalism is a logical or contingent necessity.6 If, as the racial capitalism literature suggests, slavery and its associated logics of racism have been crucial for the development of capitalism, and if global capitalism today remains intertwined with racial stratification, to what extent are these relations intrinsic to capitalism or accidental? Put differently, is capitalism necessarily racist (Fraser 2019; Lemann 2020)?7 For some, the relationship is only contingent. Walzer (2020) argued that in some countries, capitalism proceeds along just fine without racial difference, and if there is racial difference on a global scale, it is historically contingent. Although the vast majority of workers are nonwhite, Walzer suggested that this is not due to any intrinsic logic of capitalism but rather the accident of demographics (because most of the world is nonwhite, the majority of the world’s workers will be nonwhite). For this reason, Walzer suggested we disavow the racial capitalism concept. Alternatively, others claim that racism is indeed intrinsic to capitalism.8 There are two versions of this claim. One is that racism is necessary to divide the working class and legitimate the rule of the bourgeoisie. Racism is an ideological necessity of capitalism, justifying its unequal relations (Camp, Heatherton, and Karuka 2019; McCarthy 2016; Taylor 2016). “Capitalism requires inequality,” suggested Gilmore (2015), “and racism enshrines it.” A very different version, coming most predominantly from Fraser (2019), is that capitalism necessarily entails relations of exploitation and expropriation that feed off each other. Exploitation is the extraction of value from “free subjects” through wage labor. But expropriation, which includes slavery and colonialism, extracts value from racialized “dependent subjects” and is what enables exploitation to happen in the first place. Expropriation is “a necessary background condition for the exploitation of ‘workers’” (Fraser 2019) and therefore for capitalism itself. Capitalism is thus logically dependent upon racism.9 So what is the answer? Again, it helps differentiate between a theory of capital and a theory of capitalism. A theory of capitalism might demonstrate that race has been historically necessary for capitalist accumulation by reference to empirical reality: historically, capitalism and race have always been intertwined. But the claim that race is a logical necessity to capitalism would have to derive from a theory of capital, not from empirics alone. One would have to deduce, from the categories of Marx’s theory, the necessity of racism or racial differentiation in society. On this score, the arguments for the logical necessity of capitalism’s entanglements with race fall short. Consider the argument that racism is necessary for capitalism because capitalism requires racist ideology to divide the working class. This is a functionalist argument that is not functionalist enough, for it effaces the logical possibility of functional substitution. We may find that racism has historically always functioned to divide the working class, but in theory other “isms” could serve the same function. There is nothing inherent to the logic of capital that requires race to be the ideology of division (Lebowitz 2006:39).10 Why not ethnicity? Why not sexuality? Consider Fraser’s argument that expropriation is intrinsic to capitalism and that racial differentiation must be too. It is plausible and indeed persuasive to claim that expropriation is necessary for capitalism, but it is less persuasive to claim that racial difference is logically necessary for expropriation. Gender could easily serve as the main axis of dependent classification (and, to feminist-Marxist thought, it has served that function), as could ethnicity, religion, sexuality, or citizenship. Fraser would have to show that expropriation, and hence capitalism, requires a racial classification as opposed to other social categories. This is a task left unfulfilled.11 A different and possibly more productive route would be to reframe the issue as one of social difference rather than race. Is racism necessary for capitalism? There are good reasons, as just mentioned, to think not. But is social difference of various types (from race to gender to ethnicity) necessary for capitalism?12 This is more demonstrable, both empirically (by reference to actually existing capitalism) and theoretically (by reference to the logic of capital accumulation). For example, Fraser’s argument about expropriation could be reformulated in the following manner: expropriation is logically necessary for exploitation, which is in turn necessary for capital accumulation, and expropriation requires differentiation among workers. This differentiation could be along racial lines, or it could be along other lines such as gender, but differentiation there must be. Note that this argument logically insinuates a racial component but remains abstract enough to account for other possible identities across different capitalist formations. It can account for racialized slave labor in the eighteenth-century transatlantic world (where “race” was a key axis of differentiation), twentieth-century Russia (where ethnicity or religion might be the important axis), or gender across all these formations. This is just one possibility. There are others. Chakrabarty (1993), for instance, seized on Marx’s categories of “abstract” and “real” labor to write difference into Marx’s theoretical architecture. “Abstract labor” generated by capitalism refers to a homogeneity among different and otherwise incommensurable labors. It is the register of the juridical free subject. But “real” labor marks have heterogeneity that registers the incommensurability of different labors. It therefore refers to a difference that stands “only as a Derridean trace of something that cannot be enclosed” (Chakrabarty 1993:1096). Exactly how persuasive is Chakrabarty’s rereading remains to be seen. The point is that this effort, and others like it, speak to theoretical possibilities that the racial capitalism literature opens up but has yet to pursue thoroughly. More could be done.13

#### Racial Capitalism thesis is incorrect – connection between Race and Cap is circumstantial not necessary

Walzer 20 Michael Walzer 7-29-2020 "A Note on Racial Capitalism" <https://www.dissentmagazine.org/online_articles/a-note-on-racial-capitalism> (a prominent American political theorist and public intellectual. A professor emeritus at the Institute for Advanced Study in Princeton, New Jersey)//Elmer

I have been puzzled for many months by the appearance of the phrase “racial capitalism” in the left press (see, for example, the article by K. Sabeel Rahman in the Summer 2020 issue of Dissent). What does it mean? Perhaps the adjective “racial” is simply an ordinary qualifying adjective. Racial capitalism is one kind of capitalism, and then there must be other kinds, requiring other adjectives. Here in the United States we have a kind of capitalism where the majority of exploited workers or a majority of the most exploited workers are people of color. The underclass and the reserve army are defined both racially and economically. Of course, no leftist writer would be indifferent to the exploitation of white workers, who might still make up the majority of the American workforce—and who are certainly the majority of exploited workers in Europe. The point of the adjective, then, is simply to focus our attention, for good reasons, on non-white workers. But is the exploitation of these workers a necessary feature of American capitalism? The phrase “racial capitalism” leaves us unclear about whether the hierarchical location of non-white workers is determined by race or by capitalism or by the two somehow working together. To begin to answer that question, we need to look at some examples of non-racial capitalism. The form of capitalism sponsored by the **Chinese communists** is obviously non-racial. Though the exploited workers are, in Western terminology, people of color, Western terminology is out of place here. If the Chinese imported white workers to take on the most menial jobs, that might make Chinese capitalism “racial,” **but no such importations have been reported**. The predatory version of capitalism that prevails in Putin’s Russia is also non-racial. It may be that Muslims are among the most exploited workers in Russia, but they are mostly Caucasian (some of them the original Caucasians), so we would have to talk about religious capitalism—where Orthodox Christians, not white people, are the privileged group. But no one is doing that. I have no statistics, but from what I read about China and Russia, I doubt that the rate of exploitation is higher in the United States, in racial capitalism, than it is in those two countries, **where capitalism is non-racial**. **Capitalism “works” with and without a racialized underclass** and reserve army. But is that right? The adjective “racial” sometimes makes a much stronger claim: it isn’t a qualifying but rather a definitional adjective. Capitalism is necessarily, inherently, racist. Forget about China and Russia, which are capitalist latecomers. Western capitalism is the prototypical version, and it has been racist from day one (if we can agree on day one)—always and forever racist. Does this mean that Manchester in 1844, as Engels described it, where all the exploited workers were white, wasn’t capitalist? No, for those workers were producing fabrics from cotton raised and harvested by Black slaves in the American South. That’s true enough, but I am not sure it is sufficient for an argument about necessity. Consider a counterfactual possibility: had no Black slaves been available, the recruitment of Irish workers would have started much earlier than it did. The rise of capitalism would not have been halted had the slave trade never begun. But the Manchester/Southern plantation example suggests what we all now know: capitalism is a global economic system, and it depends on the exploitation of people of color around the world. Here, however, it seems clear that the key **issue is exploitation, not racism**. Given global demography, the majority of workers in any global economy will be people of color. Even in a democratically or social democratically regulated global system, the majority of workers and the majority of managers—the underclass and the overclass—will be non-white. Indeed, it would be the refusal of any transnational corporation to hire people of color that would rightly be called racist. (In the Pennsylvania town where I grew up, the local steel company did not hire, and therefore did not exploit, Jews or Black people. I suppose that this is also an example of racial capitalism.) All this suggests that capitalism and racism **have to be analyzed separately**. They overlap sometimes, as they do today in the United States. But the overlap is **circumstantial, not necessary**. **The two phenomena are distinct. They don’t rise and fall together. Each one, for different reasons, requires severe criticism and sustained opposition.** Many years ago, socialist writers argued that the triumph of the working class would liberate women, Jews, Black people, and everyone else. Separate political struggles against sexism, anti-Semitism, or racism were unnecessary—indeed they were a distraction from the all-important class war. Today some people on the left seem to believe that the end of racism will bring with it the downfall of capitalism. Both these theories are wrong. Overthrowing racism will still leave us with capitalism; overthrowing capitalism will still leave us with racism. Putting the adjective and noun together gives us a false sense of the **relationship** between the two phenomena. It might make sense, then, to ban the phrase from the pages of left newspapers and magazines. But since I am opposed to bans of that sort, I would only suggest that the phrase should always be queried by the editors. Do the writers who use it have some idea about what it means? Or are they just against racial capitalism, whatever it means?

#### Cap is good:

#### 1] It’s sustainable – data proves we’re entering the golden age

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The past 30 years have seen immense progress **in improving the quality of life for much of humanity**. Extreme poverty — the number of people living on less than $1.90 per day — has fallen by nearly two-thirds, from 1.9 **billion to** around 650 **million**. Life expectancy has risen in most of the world, along with literacy and access to education, while infant mortality has fallen. Despite perceptions to the contrary, **the average person born today is likely to have access to more opportunities and have a better quality of life than at any other point in human history**. Much of this increase in human wellbeing has been propelled by rapid economic growth driven largely by state-led industrial policy, particularly in poor-to-middle income countries. However, this growth has come at a cost: between 1990 and 2019, global emissions of CO2 **increased by 56%.** Historically, economic growth has been closely linked to increased energy consumption — and increased CO2 emissions in particular — leading some to argue that a more prosperous world is one that necessarily has more impacts on our natural environment and climate. There is a lively academic debate about our ability to “absolutely decouple” emissions and growth — that is, the extent to which the adoption of clean energy technology can allow emissions to decline while economic growth continues. Over the past 15 years, however, **something has begun to change.** Rather than a 21st century dominated by coal that energy modelers foresaw, **global coal use peaked in 2013 and is now in structural decline**. We have succeeded in making clean energy cheap, with solar power and battery storage costs falling 10-fold since 2009. The world produced more electricity from clean energy — solar, wind, hydro, and nuclear — than from coal over the past two years. And, according to some major oil companies, **peak oil is upon us** — not because we have run out of cheap oil to produce, but because demand is falling and companies expect further decline as consumers increasingly shift to electric vehicles. The world has long been experiencing a relative **decoupling** between economic growth and CO2 emissions, with the emissions per unit of GDP **falling for the past 60 years**. This is the case even in countries like **India and China** that have been undergoing rapid economic growth. But relative decoupling alone is inadequate in a world where global CO2 emissions need to peak and decline in the next decade to give us any chance at limiting warming to well below 2℃, in line with Paris Agreement targets. Thankfully, there is increasing evidence that the world is on track **to absolutely decouple CO2 emissions and economic growth** — with global CO2 emissions potentially having peaked in 2019 **and unlikely to increase substantially in the coming decade**. While an emissions peak is just the first and easiest step towards eventually reaching the net-zero emissions required to stop the world from continuing to warm, it demonstrates that linkages between emissions and economic activity are not an immutable law, but rather simply a result of our current means of energy production. In recent years we have seen more and more examples of absolute decoupling — economic growth accompanied by falling CO2 emissions. Since 2005, 32 countries with a population of at least one million people **have absolutely decoupled** emissions from economic growth, both for terrestrial emissions (those within national borders) and consumption emissions (emissions embodied in the goods consumed in a country). This includes the United States, Japan, Mexico, Germany, United Kingdom, France, Spain, Poland, Romania, Netherlands, Belgium, Portugal, Sweden, Hungary, Belarus, Austria, Bulgaria, El Salvador, Singapore, Denmark, Finland, Slovakia, Norway, Ireland, New Zealand, Croatia, Jamaica, Lithuania, Slovenia, Latvia, Estonia, and Cyprus. Figure 1, below, shows the declines in territorial emissions (blue) and increases in GDP (red). To qualify as having experienced absolute decoupling, we require countries included in this analysis to pass four separate filters: a population of at least one million (to focus the analysis on more representative cases), declining territorial emissions over the 2005-2019 period (based on a linear regression), declining consumption emissions, and increasing real GDP (on a purchasing power parity basis, using constant 2017 international $USD). We chose not to include 2020 in this analysis because it is not particularly representative of longer-term trends, and consumption and territorial emissions estimates are not yet available for many countries. There is a wide range of rates of economic growth between 2005-2019 among countries experiencing absolute decoupling. Somewhat counterintuitively, there is no significant relationship between the rate of economic growth and the magnitude of emissions reductions within the group. **While it is unlikely that there is not at least some linkage between the two factors, there are plenty of examples of countries (e.g., Singapore, Romania, and Ireland) experiencing both extremely rapid economic growth and large reductions in CO2 emissions.** One of the primary criticisms of some prior analyses of absolute decoupling is that they ignore **leakage**. Specifically, the offshoring of manufacturing from high-income countries over the past three decades to countries like China has led to “illusory” drops in emissions, where the emissions associated with high-income country consumption are simply shipped overseas and no longer show up in territorial emissions accounting. There is some truth in this critique, as there was a large increase in emissions embodied in imports from developing countries between 1990 and 2005. After 2005, however, structural changes in China and a growing domestic market led to a reversal of these trends; the amount of emissions “exported” from developed countries to developing countries **has actually declined over the past 15 years.** This means that, for many countries, both territorial emissions and consumption emissions (which include any emissions “exported” to other countries) **have jointly declined**. In fact, on average, consumption emissions have been declining slightly faster than territorial emissions since 2005 in the 32 countries we identify as experiencing absolute decoupling. Figure 2, below, shows the change in consumption emissions (teal) and GDP (red) between 2005 and 2019. There is a pretty wide variation in the extent to which these countries have reduced their territorial and consumption emissions since 2005. Some countries — such as the UK, Denmark, Finland, and Singapore – have seen territorial emissions fall faster than consumption emissions, while the US, Japan, Germany, and Spain (among others) have seen consumption emissions fall faster. Figure 3 shows reductions in consumption and territorial emissions for each country, with the size of the dot representing the size of the population in 2019. **Absolute decoupling is possible.** There is no physical law requiring economic growth — and broader increases in human wellbeing — to necessarily be linked to CO2 emissions. All of the **services that we rely on today that emit fossil fuels** — electricity, transportation, heating, food — can in principle **be replaced by near-zero carbon alternatives**, though these are more mature in some sectors (electricity, transportation, buildings) than in others (industrial processes, agriculture).

#### 2] Tech dematerialization secures sustainability.

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There is **no shortage** of examples of dematerialization. I chose the ones in this chapter because they illustrate a set of fundamental principles at the intersection of business, economics, innovation, and our impact on our planet. They are:

We do want more all the time, but **not more resources**. Alfred Marshall was right, but William Jevons was wrong. Our wants and desires keep growing, evidently without end, and therefore so do our economies. But our use of the earth’s resources **does not**. We do want more beverage options, but we don’t want to keep using more aluminum in drink cans. We want to communicate and compute and listen to music, but we don’t want an arsenal of gadgets; we’re happy with a single smartphone. As our population increases, we want more food, but we don’t have any desire to consume more fertilizer or use more land for crops.

Jevons was correct at the time he wrote that total British demand for coal was increasing even though steam engines were becoming much more efficient. He was right, in other words, that the price elasticity of demand for coal-supplied power was greater than one in the 1860s. But he was wrong to conclude that this would be permanent. Elasticities of demand can change over time for several reasons, the most fundamental of which is **technological change**. Coal provides a clear example of this. When fracking made natural gas much cheaper, total **demand** for coal in the United States **went down** even though its price decreased.

With the help of **innovation** and **new technologies**, economic growth in America and other rich countries—growth in all of the wants and needs that we spend money on—has become **decoupled** from resource **consumption**. This is a recent development and a **profound** one.

Materials cost money that companies locked in competition would rather **not spend**. The root of Jevons’s mistake is simple and **boring**: resources cost **money**. He realized this, of course. What he didn’t sufficiently realize was how strong the **incentive** is for a company in a contested market to **reduce** its spending on **resources** (or anything else) and so eke out a bit more profit. After all, a penny saved is a penny earned.

Monopolists can just pass costs on to their customers, but companies with a lot of competitors can’t. So American farmers who battle with each other (and increasingly with tough rivals in other countries) are eager to cut their spending on land, water, and fertilizer. Beer and soda companies want to minimize their aluminum purchases. Producers of magnets and high-tech gear run away from REE as soon as prices start to spike. In the United States, the 1980 Staggers Act removed government subsidies for freight-hauling railroads, forcing them into **competition** and **cost cutting** and making them all the more eager to not have expensive railcars sit idle. Again and again, we see that **competition** spurs **dematerialization**.

There are multiple paths to dematerialization. As profit-hungry companies seek to use fewer resources, they can go down four main paths. First, they can simply find ways to use **less** of a **given material**. This is what happened as beverage companies and the companies that supply them with cans teamed up to use less aluminum. It’s also the story with American farmers, who keep getting bigger harvests while using less land, water, and fertilizer. Magnet makers found ways to use fewer rare earth metals when it looked as if China might cut off their supply.

Second, it often becomes possible to **substitute** one resource for **another**. Total US coal consumption started to decrease after 2007 because fracking made natural gas more attractive to electricity generators. If nuclear power becomes more popular in the United States (a topic we’ll take up in chapter 15), we could use both less coal and less gas and generate our electricity from a small amount of material indeed. A kilogram of uranium-235 fuel contains approximately 2–3 million times as much energy as the same mass of coal or oil. According to one estimate, the total amount of energy that humans consume each year could be supplied by just seven thousand tons of uranium fuel.

Third, companies can use **fewer molecules** overall by making better use of the materials they **already own**. Improving CNW’s railcar utilization from 5 percent to 10 percent would mean that the company could cut its stock of these thirty-ton behemoths in half. Companies that own expensive physical assets tend to be fanatics about getting as much use as possible out of them, for clear and compelling financial reasons. For example, the world’s commercial airlines have improved their load factors—essentially the percentage of seats occupied on flights—from 56 percent in 1971 to more than 81 percent in 2018.

Finally, some materials get replaced by **nothing** at all. When a telephone, camcorder, and tape recorder are separate devices, three total microphones are needed. When they all collapse into a smartphone, only one microphone is necessary. That smartphone also uses no audiotapes, videotapes, compact discs, or camera film. The iPhone and its descendants are among the world champions of dematerialization. They use vastly less metal, plastic, glass, and silicon than did the devices they have replaced and don’t need media such as paper, discs, tape, or film.

If we use more renewable energy, we’ll be replacing coal, gas, oil, and uranium with **photons** from the **sun** (solar power) and the **movement** of **air** (wind power) and water (hydroelectric power) on the earth. All three of these types of power are also among dematerialization’s **champions**, since they use up essentially **no resources** once they’re up and running.

I call these four paths to dematerialization slim, swap, optimize, and evaporate. They’re not mutually exclusive. Companies can and do pursue all four at the same time, and all four are going on all the time in ways both obvious and subtle.

Innovation is **hard** to **foresee**. Neither the fracking revolution nor the world-changing impact of the iPhone’s introduction were well understood in advance. Both continued to be underestimated even after they occurred. The iPhone was introduced in June of 2007, with no shortage of fanfare from Apple and Steve Jobs. Yet several months later the cover of Forbes was still asking if anyone could catch Nokia.

Innovation is not **steady** and **predictable** like the orbit of the Moon or the accumulation of interest on a certificate of deposit. It’s instead inherently jumpy, uneven, and **random**. It’s also **combinatorial**, as Erik Brynjolfsson and I discussed in our book The Second Machine Age. Most new technologies and other innovations, we argued, are combinations or recombinations of preexisting elements.

The iPhone was “just” a cellular telephone plus a bunch of sensors plus a touch screen plus an operating system and population of programs, or apps. All these elements had been around for a while before 2007. It took the vision of Steve Jobs to see what they could become when combined. Fracking was the combination of multiple abilities: to “see” where hydrocarbons were to be found in rock formations deep underground; to pump down pressurized liquid to fracture the rock; to pump up the oil and gas once they were released by the fracturing; and so on. Again, none of these was new. Their effective combination was what changed the world’s energy situation.

Erik and I described the set of innovations and technologies available at any time as **building blocks** that ingenious people could combine and recombine into useful new configurations. These new configurations then serve as more blocks that later innovators can use. Combinatorial innovation is exciting because it’s unpredictable. It’s not easy to foresee when or where powerful new combinations are going to appear, or who’s going to come up with them. But as the number of both building blocks and innovators increases, we should have **confidence** that more breakthroughs such as fracking and smartphones are ahead. Innovation is highly decentralized and largely uncoordinated, occurring as the result of **interactions** among **complex** and **interlocking** social, technological, and economic systems. So it’s going to keep surprising us.

As the Second Machine Age progresses, dematerialization **accelerates**. Erik and I coined the phrase Second Machine Age to draw a contrast with the Industrial Era, which as we’ve seen transformed the planet by allowing us to overcome the limitations of muscle power. Our current time of great progress with all things related to **computing** is allowing us to **overcome** the **limitations** of our mental power and is **transformative** in a different way: it’s allowing us to **reverse** the Industrial Era’s bad habit of taking **more** and **more** from the earth every year.

Computer-aided design tools help engineers at packaging companies design generations of aluminum cans that keep getting lighter. Fracking took off in part because oil and gas exploration companies learned how to build **accurate** computer **models** of the rock formations that lay deep underground—models that predicted where hydrocarbons were to be found.

Smartphones took the place of many separate pieces of gear. Because they serve as GPS devices, they’ve also led us to print out many fewer maps and so contributed to our current trend of using less paper. It’s easy to look at generations of computer paper, from 1960s punch cards to the eleven-by-seventeen-inch fanfold paper of the 1980s, and conclude that the Second Machine Age has caused us to chop down ever more trees. The year of peak paper consumption in the United States, however, was 1990. As our devices have become more capable and interconnected, always on and always with us, we’ve sharply turned away from paper. Humanity as a whole probably hit peak paper in 2013.

As these examples indicate, computers and their kin help us with all four paths to **dematerialization**. Hardware, software, and networks let us slim, swap, optimize, and evaporate. I contend that they’re the **best tools** we’ve **ever invented** for letting us tread more **lightly** on our planet.

All of these principles are about the **combination** of technological **progress** and **capitalism**, which are the first of the two pairs of forces causing **dematerialization**.