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Historical Responsibility, Harm Prohibition, and Preservation Requirement: Core Practical Convergence on Climate Change

Abstract: The purpose of this article is to map the relationships of various moral arguments for action on climate change to each other in a particular case rather than to explore any single argument in depth or to make any abstract claims about the priorities among the arguments themselves. Specifically, it tries to show that “historical responsibility”, that is, responsibility (moral or legal) for past emissions, is very important, although not quite in the way usually argued, but that it is not by itself determinative. Other, independent considerations also greatly matter, although it happens that as a matter of fact all considerations strongly tend to converge towards the same conclusions about which states are responsible to act in order to slow climate change. “Historical responsibility” is shown to involve both contribution to, or causation of, climate change and benefit from climate change. Other factors that play roles in this case are ability to pay, the no-harm principle, and the duty to preserve the physical pre-conditions of human life.

Keywords: climate change, emissions, externalization, fairness, justice, responsibility, sovereignty

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That’s prime land. I’ve raised 294 bushels of corn an acre there before, with water and the Lord’s help. It’s over.– Ashley Yost, Kansas, on the exhaustion of the High Plains Aquifer¹

Formerly, the future was simply given to us; now it must be achieved. We must become the agriculturalists of time. If we do not plant and cultivate the future years of human life, we will never reap them.– Jonathan Schell, *The Fate of the Earth*²

It has become common for philosophers to think that there are three main alternative principles of responsibility for climate change: the “ability to pay”

¹ Michael Wines, “Wells Dry, Fertile Plains Turn to Dust,” *New York Times*, 19 May 2013.

² Jonathan Schell, *The Fate of the Earth* (New York: Alfred A. Knopf, 1982), “The Second Death,” 174.

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principle (APP), the “beneficiary pays” principle (BPP), and the “contributor pays” principle (CPP).³ The last can alternatively be styled a “polluter pays” principle (PPP), at the rhetorical price of losing the ABC sequence. I shall make three suggestions: that this list of principles is incomplete; more important, that the principles on the more complete list nevertheless converge at the practical core, even though some may diverge at the theoretical periphery; and that the underlying arguments are about fairness in the sharing of responsibility that has been violated by the externalizing of costs at the level of sovereign states. Attempts to treat the various principles as alternative options artificially and misleadingly pull apart complementary considerations that generally support each other. What I am calling “convergence” takes two quite different forms: a conceptually hybrid principle and contingent consensus among three conceptually independent principles, one of which is itself the hybrid one. This core practical convergence yields initial duties that are unconditional and overdetermined even if later peripheral theoretical divergence may leave the ultimate limits on the extent of the duties contested. One can know that one ought to initiate action now even if one does not yet know how long efforts will need to continue in future.

Thus the purpose of this article is to display the relationships of various moral bases for action, including two neglected considerations not on the standard list of three (APP, BPP, and CPP), to each other in the particular case of climate change rather than to explore any single ground in depth or to pursue abstract claims about the priorities among the general grounds themselves. Most notably, I shall try to show that what the international negotiators call “historical responsibility”, that is, responsibility (moral or legal) for past emissions, is very important, contrary to US government claims, although not quite in the way usually argued (by me, for one), and not in a way that is by itself determinative. Other, independent considerations also greatly matter, although it happens that in fact all considerations tend to converge strongly towards the same conclusions about what is required now: urgent action to limit climate change.

To illustrate the power of the analysis, I shall occasionally refer to the case of US government responsibility, both because I am a US citizen and feel considerable personal responsibility for the so far pitifully weak, and persistently obstructionist, performance of my country’s national government and

³ A clear recent account is in Edward A. Page, “Give It Up for Climate Change: A Defence of the Beneficiary Pays Principle,” *International Theory*, 4 (2012), 300–30, at 304–5. Also see Simon Caney, “Two Kinds of Climate Justice: Avoiding Harm and Sharing Burdens,” *Journal of Political Philosophy*, 22 (2014), 125–49, at 125–26. Doi:10.1111/jopp.12030.

because the US, on the grounds I shall be laying out, seems to be the greatest single delinquent in the world community with regard to climate responsibility. The federal government in Washington, as distinguished from a number of much more responsible state and city governments and universities in the US,⁴ has failed even at the minimal task of merely imposing an overall national limit on emissions of greenhouse gases (GHGs) for more than two decades since the ratification by the US Senate of the *UN Framework Convention on Climate Change (UNFCCC)* in 1992. This inaction seems sometimes to be rationalized by a somewhat inchoate contention to the following effect: while the US would bear its fair portion of the shared burdens in mitigating climate change once the fair shares had been agreed upon (by, among others, the US government itself), it is not reasonable to expect the US to do very much meanwhile. The underlying thought seems to be that it would be threatening to the national interest to do very much before the full extent of fair shares was specified lest the US ends up bearing more than its share of burdens: how can one be expected to do one's share when one does not yet know what one's share is, because no agreement about burden-sharing has been reached with the other major actors (most notably, China)? I shall argue, on the contrary, that an overwhelming set of reasons, including but not restricted to "historical responsibility", ground the conclusion that the US government, along with others but pre-eminently, ought right now to be doing far more than it is. For taking up these duties on these grounds, no prior agreement on ultimate shares of responsibility is needed even if agreement on fair burden-sharing will eventually be needed to establish the final outside limits on required action. The duty to initiate action now is unconditional and supported by all the major relevant considerations.

No harm: accountability for the results of actions in the present and the near future

A primary reason why no prior agreement is needed and every agent with any capacity to do so ought to take vigorous action to bring the earth's climate back under control is that continuing business-as-usual constitutes continuing to inflict escalating damage on people, property, and other species. That we have no right whatsoever to inflict such damage far and wide is a greatly neglected

⁴ For example, California – Joe Garofoli, "California, China to Link Climate-Change Efforts," *San Francisco Chronicle*, 13 September 2013—and Stanford University – Michael Wines, "Stanford to Purge \$18 Billion Endowment of Coal Stocks," *New York Times*, 6 May 2014.

consideration in discussions of climate change in spite of being relatively straightforward and implicitly presupposed by APP, BPP, and CPP. It is generally believed that it is a more serious wrong, others things equal, to inflict harm than it is to fail to help with a difficulty that one did not cause. Continuing to produce the excessive GHG emissions that drive rapidly worsening climate change is, for the US, not remotely a mere failure to help with a problem with which one was not previously involved, but is to persist in contributing to the worsening of a problem that one has already long been causing.

Indeed, persistent large emissions do double damage: they harm people (through, for example, disruption of agriculture and spread of disease⁵), other animals, and plants who had adapted to the climate as it used to be during the past 10,000 years of the Holocene; and they unfairly encroach on other people's shares of the quickly dwindling supply of GHG emissions that can still be released without committing the planetary system to even more intolerable degrees of climate change than past emissions have already committed the planet to. I shall not elaborate this double damage here because I have done so elsewhere.⁶

The past contributions to the problem invoked by BPP and CPP are a different matter and involve a number of complications, some of which will be discussed in succeeding sections. By contrast, simply choosing in the present to do damage in the future is quite straightforwardly wrong – avoidable present and future emissions constitute clear and conscious choices by living agents, in the face of all the vast amount of information now readily available, to exacerbate harm.⁷ If, following David Weisbach, one considers all six Kyoto Protocol GHGs and leaves aside the countries with the smallest total emissions, the US has the sixth highest per capita emissions in the world and the third highest among industrial

5 See J. Jason West, Steven J. Smith, Raquel A. Silva, *et al.*, “Co-Benefits of Mitigating Global Greenhouse Gas Emissions for Future Air Quality and Human Health,” *Nature Climate Change* (2013), 22 September 2013 (on-line), Doi:10.1038/nclimate2009; and Oxfam, *Growing Disruption: Climate Change, Food, and the Fight Against Hunger*, Oxfam Issue Briefing (September 2013); <http://www.oxfam.org/sites/www.oxfam.org/files/ib-growing-disruption-climate-change-230913-en.pdf>.

6 See, for instance, Henry Shue, “Climate Hope: Implementing the Exit Strategy,” *Chicago Journal of International Law*, 13:2 (Winter 2013), 381–402; reprinted in Henry Shue, *Climate Justice: Vulnerability and Protection* (Oxford: Oxford University Press, 2014), 319–39.

7 I assume that in 2014 any ignorance on the part of leaders of society is culpable for being motivated either by the desire to preserve current advantages or for other unjustifiable reasons. For a valuable discussion of when ignorance is and is not innocent, see Massimo Renzo, “Fairness, Self-deception and Political Obligation,” *Philosophical Studies*, On-line (8 September 2013) Doi:10.1007/s11098-013-0203-x. Renzo focuses on non-excludable benefits received from the state, so his arguments are not directly relevant, but they nevertheless raise important general issues. I am grateful to an anonymous reviewer for raising this point.

societies.⁸ And of the top 20 in per capita emissions, the US total constitutes by far the highest percentage of the world total: 15.7%. For the US to choose now to continue in future to emit at our high current rate would be to persist in contributing significantly to making climate change progressively worse.

Few questions of fairness arise with regard to stopping to inflict damage. If one is causing damage, one ought, barring strong reasons to the contrary, to cease it entirely as promptly as possible.⁹ The situation is different to the extent that one ought to cooperate with others in solving a problem to which one has made no contribution. Then it may be reasonable to ask what one's fair share of the burden ought to be before beginning to act. For a primary source of a worsening harm, by contrast, one's fair share is whatever it takes to bring one's contribution to the harm to an end. In the case of climate, we need to exit from the dominant global fossil-fuel regime that produces the damaging emissions as quickly as possible, constructing in its place an energy regime around alternative sources of energy. The prohibition on the infliction of harm that one can reasonably be expected to know one is inflicting can stand alone,¹⁰ and the appropriate response to our on-going harm by those of us alive now is relatively clear. The principle that harm is prohibited is clear, convincing, and, so to speak, "pure", that is, in no way a hybrid principle.

Historical responsibility: accountability for the results of past actions

But what about the others who also caused the harm but are no longer living? This takes us into the issues around "historical responsibility" that continue to

8 David Weisbach, "Negligence, Strict Liability, and Responsibility for Climate Change," *Iowa Law Review*, 97 (2011–2012), 521–65, at 548, Table 8. The three highest are gas and oil producers, whose emissions come mainly from production, not emission-generating consumption, each with less than one-half of 1% of global emissions: Qatar, United Arab Emirates, and Kuwait. The next three in the ranking both produce and consume very large quantities of fossil fuel: Australia (coal), Canada (tar sands bitumen), and the US (coal, oil, and gas), in that order of per capita emissions.

9 Henry Shue, "Human Rights, Climate Change, and the Trillionth Ton," in Denis G. Arnold (ed.), *The Ethics of Global Climate Change* (Cambridge: Cambridge University Press, 301–5; reprinted in Shue, *Climate Justice*, 306–10).

10 For a much fuller account of the independence of avoiding harm from sharing burdens, see Caney, "Two Kinds of Climate Justice" (2013). Whether harm avoidance is a second kind of justice alongside burden sharing or is simply a separate matter is an issue we can lay aside here.

bedevil the international negotiations over climate action. Importantly, one need not feel bound to choose a single pure principle – the complexity of life generally, and certainly of climate change, strongly suggests that no one answer will be adequate – and Simon Caney has endorsed what he calls a “hybrid account”.¹¹ And we shall see that the principle of historical responsibility in its most compelling form turns out to be, as it were, triply hybrid, appealing to a particular combination of contribution to the problem, benefit from that contribution, and consequent ability to pay!

Contribution and benefit are combined from the beginning:

All over the world parents teach their children to clean up their own mess. This simple rule makes good sense from the point of view of incentive: if one learns that one will not be allowed to get away with simply walking away from whatever messes one creates, one is given a strong negative incentive against making messes in the first place.... Economists have glorified this simple rule as the “internalization of externalities”. If the basis for the price of a product does not incorporate the costs of cleaning up the mess made in the process of producing the product, the costs are being externalized, that is, dumped upon other parties. Incorporating into the basis of the price of the product the costs that had been coercively socialized is called internalizing an externality.

At least as important as the consideration of incentives, however, is the consideration of fairness or equity. If whoever makes a mess receives the benefits and does not pay the costs, not only does he have no incentive to avoid making as many messes as he likes, but he is also unfair to whoever does pay the costs. He is inflicting costs upon other people, contrary to their interests and, presumably, without their consent. By making himself better off in ways that make others worse off, he is creating an expanding inequality. Once such an inequality has been created unilaterally by someone’s imposing costs upon other people, we are justified in reversing the inequality by imposing extra burdens upon the producer of the inequality.¹²

Calls for historical responsibility in the context of climate change are mainly calls for the acceptance of accountability for the full consequences of an

11 Simon Caney, “Cosmopolitan Justice, Responsibility, and Global Climate Change,” *Leiden Journal of International Law*, 16 (2005), 747–75, at 769; reprinted in Stephen M. Gardiner, Simon Caney, Dale Jamieson, and Henry Shue (eds.), *Climate Ethics: Essential Readings*, 122–45, at 136 ff. Paul Baer has long advocated a hybrid position – see, for example, Paul Baer, with Tom Athanasiou, Sivan Kartha, and Eric Kemp-Benedict, “Greenhouse Development Rights: A Framework for Climate Protection That is ‘More Fair’ Than Equal Per Capita Emissions Rights,” in Gardiner, Caney, Jamieson, and Shue, *Climate Ethics*, 215–30. Another early position that is consciously hybrid without employing the label is Darrel Moellendorf, *Cosmopolitan Justice* (Oxford and Boulder, CO: Westview Press, 2002), 97–100.

12 Henry Shue, “Global Environment and International Inequality,” *International Affairs* [London], 75 (1999), 531–45, at 533; reprinted in Shue, *Climate Justice*, 180–94, at 182–83.

industrialization that relied on fossil fuels and imposed the costs of that reliance on people generally. Those with the historical responsibility contributed to climate change by constructing industrialization around carbon energy, and they benefitted especially greatly because they did not bear the costs of the problem thereby created (excessive emissions) themselves. GHGs are multiple, but by far the single most important GHG cumulatively to date is CO₂.¹³ The primary source of the anthropogenic CO₂ accumulated in the atmosphere has been the processes of industrialization. While industrialization has to some degree benefitted humanity generally, the benefits have been heavily skewed towards those who have themselves industrialized and have controlled the process. The costs of industrialization, on the other hand, have been universally distributed in the form of, among other things, the growing dangers constituting climate change that face everyone, including everyone in future generations. The contention of the proponents of the application of historical responsibility to climate change, then, is that the nations that have controlled the process of industrialization, and consequently have tended to benefit the most from industrialization, should restore the playing field to a level position by bearing most of the costs that are resulting from the accumulated GHGs injected into the atmosphere by industrialization. This contention appeals to both contribution to a harm and benefit from the processes that create the harm, taken generally to go together through control of the process of industrialization. The appeal to historical responsibility is thus conceptually hybrid: it invokes both contribution to harm done and extent of net advantage accruing from retention of resulting benefits but imposition of resulting costs generally on others.

The contribution to harm done is the role played in the creation, as part of the process of industrialization, of the global carbon energy regime reliant on the burning of coal, oil, and gas, the emissions from which continue to make the climate increasingly inhospitable to human flourishing. The carbon regime benefitted some societies for a time but is now harming most through undermining the stability of the climate. The benefits being gained by those contributing to the harm have two aspects. First are the direct benefits of industrial society that are primarily reserved to the societies that have industrialized,

13 Philippe Ciais, Christopher Sabine, Govindasamy Bala, *et al.*, “Carbon and Other Biogeochemical Cycles,” in Thomas F. Stocker, Dahe Qin, Gian-Kasper Plattner, *et al.* (eds.), *Climate Change 2013: The Physical Science Basis*. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (Cambridge: Cambridge University Press, 2013), 465–570.

although other societies benefit to a lesser degree. Second is the further relative benefit that is gained to the extent that the costs of dismantling the carbon energy regime and constructing an alternative-energy regime to replace it are shifted away from the primary beneficiaries of industrialization and onto all other societies. It seems, other things equal, unfair that those who primarily benefitted from the construction of the carbon regime that is no longer compatible with human welfare do not primarily bear the costs of replacing it with an energy regime that does not threaten general human welfare.

Historical responsibility: questioning its relevance to the case of climate change

To this contention that the nations that are the initiators, the proprietors, and the main beneficiaries of industrialization should mainly bear its costs the primary response is that the contention is harsh – indeed, unfairly harsh – for two main reasons. Individuals in the present and future in the industrialized nations would, it is claimed, suffer for (A) “crimes” they did not themselves commit and (B) “crimes” that were not crimes when the actions in question were done. Invoking historical responsibility is said to be as if we were now to pass an *ex post facto* law and then, since the perpetrators of the newly minted “crime” are mostly dead, we were to punish their children and grandchildren for this “crime” that was anyway not a crime at the time – a double injustice. We would have the wrong people even if there were an offense, and the relevant action was not an offense when it was done: (A) wrong person and (B) no offense.

A. Let us begin with “wrong person”. Even if there were an offense, most offenders are dead. It is not fair, it is urged, for the present and future to suffer for the sins of the past.

The strongest answer to this objection is that these present and future generations benefit enormously from the actions of their nation in the past, because the nation is a continuing corporate entity of which individuals are members. Simply because I was born in a rich industrialized nation, my life has been easier, healthier, and full of opportunities that I would not have enjoyed if I had been born in a non-industrialized nation. I did not request or consent to the carbon emissions of my ancestors, but I benefit by living amidst national affluence produced by means of those emissions. A nation contains continuing structures and institutions; past, present, and future members are primary beneficiaries of these on-going national formations and practices.

B. This takes us to the second objection: “no offense”. The answer to this objection needs to be more nuanced. Any contention that past emitters ought to have paid would, in effect, impose *ex post facto* carbon pricing. There was no requirement to purchase an emissions permit when the earlier emissions were released. It was not illegal or otherwise wrong simply to release the emissions at the time. So, why should anyone be punished for having done so?

And indeed no one should be punished, for there was no literal crime. But all this talk about “crime” rests on a very bad analogy. Here is a better analogy, although it is inevitably still highly over-simplified.¹⁴ Four of us want to walk across a small desert, and we each have one large trunk. We can find only one camel, so we decide to load all four trunks on this camel. Unknown to us, this camel can only carry three trunks. Three of us place our trunks on the camel without incident, but when the fourth adds her trunk, the camel breaks down. Now none of us can make the trip.

Two observations about this little adventure, while literally true as far as they go, are deeply misleading, but a third is much more insightful. The first observation is that the first three trunks loaded onto the camel produced no harm. The second observation is that it was the fourth trunk that caused the camel to break down. But each observation is so partial that it distorts. It is true that it was the fourth trunk that caused the camel to break down and that the camel would have been fine carrying the first three trunks. But the camel broke down because he was asked to carry four trunks, not the fourth trunk alone. The fourth trunk caused the camel to break down only because he was already carrying the first three. It may be that in one sense “the first three trunks loaded onto the camel produced no harm”, but they prepared the way for the harm to occur – they created the situation in which the fourth trunk would do damage by completing the exhaustion of the camel’s capability. It was four trunks that brought down the camel: the first, the second, the third, and the fourth.

The further analogy of a budget is helpful here: the “budget” for using this camel without harm was three trunks; while the first three trunks did not crush the camel, they exhausted the no-harm “budget”. The weight of the first three trunks is why the camel was broken by the fourth. The fourth was the precipitating cause of the breakdown, but it is very far from the whole explanation.

The first three travellers whose trunks exhausted the camel’s carrying capacity did nothing wrong when they placed their trunks on the camel’s back. They committed no crime and should indeed not be punished. When we hold them jointly responsible with the fourth traveller for making some satisfactory arrangement to deal with the fourth traveller’s trunk, we are not saying that

¹⁴ If space permitted, one could examine a series of variants on the basic story.

they are the villains in the story. We are simply observing that they are all fully and irremovably part of the explanation of the outcome. The explanation for why the fourth traveller has no way to move her trunk must include the first three. Without their first three trunks, her fourth trunk would not have been an insuperable problem for the camel.

It is clear from the camel story that neither bad intentions nor foresight is necessary to causal responsibility for bad results. If one had intended the bad results or even only foreseen the bad results, one would bear moral responsibility for having chosen to bring about the outcome. But even if neither bad intent nor foresight was present, one's actions contributed to the bad results. One may not be an evil person, but one is an accountable agent.

It may seem unfair that the first three travellers should have to bear a burden because they performed a perfectly innocent act with no bad intent. It may seem unfair, but it is only unfortunate – and unfortunate for all concerned. What would be unfair is if the fourth traveller had to bear the burden of the loss of the camel alone. A world that contained stronger camels would have been a more fortunate world for travellers. A world in which CO₂ did not block heat from escaping through our atmosphere would have been a more fortunate world for humans who wanted to burn coal. But camels carry what they can, the planet's atmospheric chemistry works the way it works, and we all need to share the costs of developing alternative energy so that we can stop burning coal very soon. China's and India's present and future emissions are a problem only because of the US's and the EU's past (and present and future) emissions.

Unless we, for instance, price significant portions of the carbon emissions for which humans are responsible, carbon emissions may not go down substantially. If there are to be prices, there must be people who pay them. Who, then, should be charged? This is fundamentally a question of fairness. The most compelling answer relies on a second hybrid appeal, this time a triply hybrid one to both benefit and ability to pay in the light of contribution to the problem. This complex of features, namely that those who contributed heavily to creating the problem of excessive emissions thereby both benefitted more than others and became better able to pay than most others, provides the basis for a judgement of fairness.

Other things equal, it seems clearly fairer for those who have contributed most to the creation of a problem to bear much more of the burden of dealing with the problem than those who have contributed least. Moreover, other things equal, it is evidently fairer for those who have benefitted most from the creation of a problem to bear much more of the burden of dealing with the problem than those who have benefitted least. And, further, other things equal, it is patently fairer for those who are most able to pay to bear much more of the burden of

dealing with a problem than those who are least able to pay. While the present descendants of those who contributed most to the creation of the polluting carbon regime did not themselves contribute to its creation, we contribute to its perpetuation insofar as we simply use it and do nothing to change it, and we enjoy both the benefits and the ability to pay inherited by present members of the nations whose earlier members did create the problem.

The argument on historical responsibility may, then, be seen as combining aspects of APP, BPP, and CPP in a specific way that appeals directly to fairness, or at least to avoiding unfairness, and is thus triply hybrid. In a way it seems unfair that any generation should have to bear the burden of fundamentally re-structuring the global energy regime. When James Watt designed the steam engine in 1784 – the event from which Paul Crutzen dates our entry into the Anthropocene¹⁵ – burning coal seemed simply to be a marvellous way of generating lots of steam. Who knew that coal would turn out to be the most climate-disruptive source of energy available? But it turns out that the CO₂ from fossil fuels that reaches the atmosphere holds in unwanted heat that used to escape from the planet, so we have no choice but to stop injecting the CO₂. This requires an expensive transition between energy regimes, and some will have to pay.

The underlying contention here is that what has happened between 1784 and today is very nearly the most unfair process imaginable and cries out for a robust response. One portion of humanity – the “Developed States” – has gathered in the vast majority of the benefits from the invention of the steam engine and the Industrial Revolution in general while allowing the costs, including rights-violating harms, to be spread universally. Most individuals will suffer from climate change, although not uniformly and not in any proportion to their contribution to causing climate change. It is perhaps unfair simply that the benefits have been narrowly held while the costs have been widely disbursed. It is certainly deeply unfair that the benefits have been narrowly held by those who have inflicted the damage on everyone while the costs, including severe harms – loss of life, health, or home – are falling randomly upon all. So the heart of what is objectionable is, if you like, a specific conjunction of Benefit from the problem, Contribution to the problem, and infliction of Harm: those who are the source of the dangers from the disrupted climate keep the benefits from the activities that are disrupting the climate, suffer least from the dangers, and fail to shoulder the costs of what remains to be done to head off worse dangers.

15 Paul J. Crutzen, “Geology of Mankind,” *Nature*, 415 (2002), 23.

It would be difficult to concoct a more obviously unfair arrangement than the energy-business-as-usual. Contribution to solving the problem ought to bear some relation to contribution to creating the problem, especially when those who have in fact created the problem have benefitted so handsomely from doing so and those who suffer most have made little or no contribution to the problem. The price on emissions is one of the costs of solving the problem that past emissions have helped to create, and it must be paid by some later people. It is unfortunate that anyone must pay, but granted that some must, the best that we can do is to assign the costs to those whom it is fairest to charge from among those who are in fact available to be charged. Some third-party payor – an imaginary philanthropic foundation from a distant planet, perhaps – would be preferable to either of the real choices. But it would be outrageously unfair if those of us who thus far in our lives may have inadvertently captured the benefits of our industrial society while continuing generally to disburse the harms should now knowingly continue to grasp as much as possible of the benefits from massive carbon emissions while inflicting as much as possible of the harms on people generally by refusing to bear a substantial share of the costs of escaping the energy regime that is disrupting the climate while benefitting and enriching us. We would be twisting inadvertent unfairness into conscious exploitation.

One government whose approach to climate change looks like such conscious exploitation of the rest of the world is the United States. US efforts so far on climate change at the national level are especially weak and pitiful. Between 1990, two years before the US Senate solemnly ratified the UNFCCC and committed itself to reducing emissions, and 2012, the last year for which it provides its own figures, US annual GHG emissions increased 4.7%. It is past time for the US government to get busy on reducing carbon pollution, and initially we need to know only this: who ought to get busy now. We can later figure out when various parties have done enough and give them credit for past performance in reducing their contribution to the threat once the worst dangers are averted. We do not need precise rankings among governments, and arguments about them can at this point easily become a dangerous distraction, which entertains philosophers but confuses the public.

Historical responsibility: questioning the standard underlying assumption

An objection sometimes made against the argument for historical responsibility is that it rests upon an unargued assumption that the only acceptable

distribution of carbon emissions is an equal per capita distribution. It is an undisputed fact that earlier members of some nations are responsible for more emissions than earlier members of other nations. But the question is: what, if anything, is wrong with this? It is objectionable for some to have more than others only if such an unequal distribution violates some principle. It is being implicitly assumed, it is objected, that those with more emissions have too many and those with less emissions have too few. One can, however, criticize a distribution only by reference to some principle that it is justified to apply to distributions of its kind. The actual historical distribution would violate any principle that such distributions ought to be equal. But is there any good reason why distributions of emissions ought to be equal?

Clearly all human beings are equal in dignity and deserve equal respect. There ought to be no unequal distribution, then, in anything the possession of which is essential to dignity. For example, where some classes of citizens can vote and other classes – say, women – cannot vote, this arrangement of state-enforced inequality in voting is insulting to the women and disrespectful of their equal dignity because it presupposes that the quality of their judgement on important public matters is inferior and not to be relied upon.

But is it disrespectful if one group is allowed to be responsible for more emissions than another group is? Perhaps the appropriate principle for the distribution of emissions is, say, first-come first-served, or according to productivity (more emissions to those who produce greater GDP per ton of emissions), or according to any of a number of other distributive principles that are also familiar. At the very least, if emissions must be equally distributed, some further explanation of why equality is the standard must be provided. It is not simply obvious that emissions in particular ought to be subject to equality of distribution.

It is sometimes maintained, for example, that as long as all national economies are dependent upon fossil fuel, carbon emissions are a necessity of life and then suggested that because they are a necessity, they ought to be distributed equally. But this does not follow. Within the currently dominant global energy regime, carbon emissions have temporarily been a necessity of life. But food and water, for example, are necessities of life as well, and equal distributions of them are not thought to be required. Necessities need not be distributed equally – enough may be enough, and in that case it is enough that must be guaranteed. Thus, this challenge to assertions of historical responsibility is that it is usually not being asserted simply that there is some general kind of historical responsibility or other but is instead being claimed quite specifically that historical departures from equality are objectionable in the instance of emissions. This asserts the violation of a presupposed requirement of equality, but the basis for this requirement in this case is not evident.

However, my argument here makes no assumption about equal distribution, any more than it assumes that a wrong, which would make punishment (or compensation) appropriate, has been committed. It is basically a consistency argument about fairness. A nation like the United States claims for itself most of the fruits of the past activities of its citizens – it claims national ownership of, for instance, the benefits of the industrialization of the US including the vast infrastructure and capital left behind. No thought is given to any notion that all the benefits of US industrialization ought to be distributed equally among all other nations and all generations of the world's people. In consistency, if the benefits all belong to the US, so should the costs. But one very significant cost, the enormous damage done to the stability of the global climate system by carbon pollution, has in fact been socialized universally. The people of all nations and all generations are already suffering the effects of the vast GHG emissions produced by the process of US industrialization and the continuing maintenance of US post-industrial society.

This seems to be a perfect example of what used to be called “lemon socialism”: privatize the benefits and socialize the costs. Inevitably, to some extent all humanity has benefitted to some degree from the industrial societies in the “developed” nations – no claim is being made that benefits have been entirely retained inside industrial societies. But there certainly has been no general distribution of benefits, while there has been a complete global distribution of the environmental costs and harms. Once GHGs enter the atmosphere, oceans, soils, and vegetation, they circulate generally around the planet, and the emissions that enter the atmosphere produce effects that are world-wide, although not uniform. The lack of uniformity, however, bears no relation to the original source of the emissions, for example, temperatures are rising most rapidly in the Arctic, but the emissions causing the Arctic rise did not originate there. This looks like “lemon socialism” on a global scale: the emitters primarily reap the benefits, and everyone of all species and generations bear the costs.

In fact, the most common complaint made about climate change by ordinary people is that who suffers the costs from climate change, for example, the costs of adapting to the sea-level rises, bears no relation at all to who receives the benefits from the emissions causing the sea-level rise. One might initially think that this is simply because as a matter of physical fact the climate changes do not occur where the emissions are released, for example, emissions from the temperate zones produce melting in the Arctic and the Antarctic. However, while the location of the physical changes is determined by the complex dynamics of the climate system, the distribution of the costs is a political artefact. The costs of emissions are generally distributed – “socialized”/externalized – while the benefits mainly go to the owners of the sources of the emissions. This is

obviously not literally socialism because the general distribution is not the result of the working of a global Bureau of Cost Distribution – is it Mother Nature who practices “lemon socialism”?

No, the general distribution of the costs and damage from climate change is mainly the result of one-sided and inadequate human institutions, especially the sovereign state, that ignore global physical dynamics and politically allow emitters to claim accountability for, and thus ownership of, the benefits of emissions while washing their hands of accountability for and ownership of the physically dispersed damage done. This is clearly inconsistent, unless someone can provide a rationale for why damage caused by emissions ought to be generally shared while benefits produced by emissions are retained exclusively by the emitters. This is, on a national level, exactly the kind of externalization that economists regularly observe is irrational and creates perverse incentives – externalization by sovereign states.¹⁶ More important, it seems deeply unfair. Why should humanity generally suffer the ill-effects of activities that they did not conduct, consent to have conducted, or benefit correspondingly from? The standard appealed to here is not the maintenance of strict equality, but the avoidance of extremes of inequality consisting of benefits for some and harms for others imposed by human social practices like the systematic externalization of costs by sovereign states.

The unfairness is especially severe when the damage from climate change is harm inflicted on defenceless people. I like to say that “every state is a ‘failed state’ as far as climate is concerned”.¹⁷ Sovereign states can do nothing to defend their citizens against the effects of emissions from other sovereign states – they can only try to adapt to what they suffer. For now, sovereignty protects the sources of the damage but not its vulnerable victims.¹⁸ The fundamental

16 See Henry Shue, “Eroding Sovereignty: The Advance of Principle,” in Robert McKim and Jeff McMahan (eds.), *The Morality of Nationalism* (New York: Oxford University Press, 1997), 340–59, at 353–54; reprinted in Shue, *Climate Justice*, 142–61, at 156; and Henry Shue, “Share Benefits and Burdens Equitably,” Working Paper (Dublin: Mary Robinson Foundation – Climate Justice, 2014).

17 I have briefly discussed this remark in “Human Rights, Climate Change, and the Trillionth Ton” in Shue, *Climate Justice*, 302.

18 This could change if excessive emissions were interpreted as a source of transboundary damage of the kind prohibited by customary international law. See Michael G. Faure and André Nollkaemper. “International Liability as an Instrument to Prevent and Compensate for Climate Change,” *Stanford Journal of International Law*, 26A/43A (2007), 123–79; René Lefebvre, “Climate Change and State Responsibility,” in Rosemary Rayfuse and Shirley V. Scott (eds.), *International Law in the Era of Climate Change* (Cheltenham: Edward Elgar, 2012), 321–49; and Henry Shue, “Transboundary Damage in Climate Change: Criteria for Allocating Responsibility,” in André Nollkaemper and Dov Jacobs (eds.), *Distribution of Responsibilities in International Law* (Cambridge: Cambridge University Press, 2015). Liability under international law for transboundary damage generally does not require fault, but only breach of a prohibition.

argument, then, is not at all that the historically greatest emitters have emitted too much by emitting more than some proper share judged by some standard of equal per capita emissions. The fundamental argument here is that emitters arbitrarily claim ownership of the benefits of their emissions while renouncing accountability for the costs of the very same activities. Such behaviour is misleading at a deep level about a state's own identity and role in history and constructs a skewed version of what has happened by acknowledging only the good and omitting all the bad in its accounting of itself. More important, this is unfair to everyone outside the borders, and severely so when the "costs" are severe harms inflicted on the defenceless. This is "lemon accountability".

We living stand to our predecessors like someone who is both the executor and the beneficiary of a dead person's estate. As beneficiary she is entitled to inherit the assets, but first she is obligated as executor to pay the remaining debts. Otherwise she unjustly enriches herself. She is entitled to inherit only what rightfully belonged to the deceased, and what belonged to him is his assets minus his debts. The living are the executors simply because there is no one else to do it. We are the beneficiaries primarily because in an international system built around sovereign states most assets in fact simply continue in whichever state they are accumulated – there are no arrangements for compulsory international re-distributions, as I would maintain there should be.¹⁹ But even as things are arranged now, to accept the assets while refusing first to pay the debts is completely arbitrary greed that is unjust to those to whom the debts are owed – "debts" because costs have been unjustifiably inflicted.

When the harms occurred in the past, those who were harmed, like those who harmed them, may be dead. How, someone may ask, can we be accountable to people who no longer exist? The answer is: in the usual way – pay our debt to the heirs. Debts do not evaporate simply because the individuals who incurred them or the individuals who are owed them no longer exist. History does not consist of hermetically sealed separate acts with completely unrelated plots. It is, for better and for worse, a continuing drama with narrative threads that run through many generations. It is not unfair if as the beneficiary of an estate I also inherit its debts. What is unfair is to accept the inherited benefits and refuse to acknowledge the inherited debts. This is what we do when we disown the damage done by the building of the inherited collective national economy that provides our shared high standard of living today. The practical implication is that those nations that benefitted most from industrialization built around

¹⁹ Henry Shue, *Basic Rights: Subsistence, Affluence and U.S. Foreign Policy* (Princeton, NJ: Princeton University Press, 1980; 2nd ed., 1996).

carbon energy ought to bear much of the costs of ending the resulting threat to the climate and dealing with the damage already being caused.

A logical limit on combining principles?

I have just presented a conceptually hybrid account of “historical responsibility” combining contribution, benefit, and ability to pay, thus invoking aspects of APP, BPP, and CPP together in a particular combination. We will in the end see that the reasons for action on climate are overwhelming both in general and in particular for the US, because all the relevant considerations powerfully converge: the pure prohibition of harm, the conceptually hybrid historical responsibility, and the pure duty to preserve the physical pre-conditions for stable human societies, which I will introduce last and which we could dub the DPPP.

Viewed in this context, the no-harm principle as applied to climate change is one kind of principle concerned with contribution to the problem – present and future contribution. The CPP applies to past contributions to the problem (and is sometimes alternatively referred to as the causal principle). Because the causal contributions have already occurred, they cannot be prevented, so the best that the causal contributor can do is to contribute enough to solving the problem caused to make up, to some degree, for having caused it. But present contributions and future contributions – both further worsenings of climate change – can be respectively stopped and prevented. So the no-harm principle is not at all about paying for harm done but about avoiding the doing of damage for which the best one could otherwise do would be to pay. If we were determined to have similar acronyms for everything, we could re-name the usual backward-looking contribution principle the CPP₁ and baptize the no-harm principle as applied to climate the Contribution Prevention Principle, or CPP₂. This labelling brings out the important fact that the no-harm principle here becomes the forward-looking analogue of the usual “contributor pays” principle, now CPP₁, but because no harm, or CPP₂, is forward-looking it can prohibit harm instead of merely allocating payment in accord with harm already done as CPP₁ does.

If we are not to allow business-as-usual to cause runaway climate change, then, as Darrel Moellendorf pointed out a decade ago, “someone must bear these costs”.²⁰ If we are to escape from the fossil-fuel energy regime into an

²⁰ Darrell Moellendorf, *Cosmopolitan Justice* (Boulder, CO: Westview Press, 2002), 100. Also see his important recent book, *The Moral Challenge of Dangerous Climate Change: Values, Poverty, and Policy* (Cambridge: Cambridge University Press, 2014).

alternative-energy regime, the costs of the transition must be borne by someone. So we must have an allocation of the burdens (and benefits), and it ought to be fair. APP, BPP, CPP₁, and CPP₂ (and DPPP, to come), and their various possible combinations and permutations, are alternative proposals about the bases of the fair allocation of responsibility.

However, an important objection to the kind of yoking together of principles that I am advocating here has been raised by Simon Caney. I had suggested in a discussion of several principles for fair assignment of responsibility that the following is a general ground-level principle of fairness:

Among a number of parties, all of whom are bound to contribute to some common endeavour, the parties who have the most resources normally should contribute the most to the endeavour.²¹

When this is narrowed to climate change, it yields some version of APP. Simon Caney has criticized that discussion on a couple of grounds. First, he argues that a version of CPP ought to receive priority over APP, i.e. that before the wealthiest should be required to pay, those who contributed to causing the problem ought to pay.²² That seems correct, in the relatively unusual instances in which the two groups are different. I had formulated three principles that I took to be conceptually independent and argued that the three nevertheless contingently tend to converge on the same states in the case of climate. That convergence thesis is not at all incompatible with Caney's convincing claim that his own version of CPP takes priority over any version of APP.

But Caney's second criticism raises an important issue for the approach here. Referring to my general principle quoted in the previous paragraph as

²¹ Shue, "Global Environment and International Inequality," *International Affairs*, 531–45, at 537; reprinted in Shue, *Climate Justice*, 186. Applications of this general principle are *ceteris paribus*, although I did not say this explicitly in my original presentation of it. The application of the principle to climate change has recently been endorsed by Mathias Frisch in "Climate Change Justice," *Philosophy & Public Affairs*, 40 (2012), 225–53, at 237 ff.

²² Simon Caney, "Human Rights, Responsibilities, and Climate Change," in Charles R. Beitz and Robert E. Goodin (eds.), *Global Basic Rights* (Oxford: Oxford University Press, 2009), 227–47, at 241. Caney's specific formulation of the CPP is, I agree, superior to standard versions because it is a hybrid principle (as he generally advocates), with a qualification exempting those contributors to the problem who nevertheless cannot afford to pay: "Parties who contribute to dangerous climate change should bear the burden of combating it unless doing so would push them below a decent minimal standard of living." He argues further that this hybrid principle successfully combines two other principles from my article. I do not accept this because I believe that some distinctive aspects of each general principle are lost in the narrowing to climate change, but debating this would not be relevant here.

“Principle II” and to the one of my other general principles that he takes to be a contributor pays principle as “Principle I”,²³ Caney argues:

The reasoning for Principle I and Principle II compete for the same space. Of course, the two principles might, as Shue says, coincide in their conclusions as to who should pay and how much they should pay. Nonetheless they operate according to competing logics – one forward-looking and unconcerned with who created the problem and the other backward-looking in just those terms. In cases where both principles can be applied the affirmation of the logic underlying the one thus requires a rejection of the logic of another.²⁴

I would sum this up as the contention that the logics of versions of CPP and versions of APP are distinct and incompatible – incompatible in the sense that “affirmation of the logic underlying the one thus requires a rejection of the logic of another”. If this were correct, one could not invoke CPP and APP at the same time. But once the two principles are prioritized, as Caney does, I see no reason why the one with second priority need be rejected; indeed, they could in theory be given equal priority, and neither would need to be rejected. I agree that the logic of contributor pays and the logic of ability to pay are distinct; the former is backward-looking and the latter is forward-looking. But I do not see why they must “compete for the same space” rather than occupy adjacent, even complementary, spaces, as I am suggesting that they do, and as Caney himself seems to presuppose with his own hybrid principles.

Further, past causal contributions to the creation of climate change continue to affect the present in two significant ways. First, as we have seen, in many instances – but not all – the wealthiest nations are as wealthy as they are largely

23 I did not intend this other principle to be a version of CPP because it is not exclusively about contributing to the causation of climate change but is instead about contributing to the creation of global inequalities more generally by taking unfair advantage of others. It says: “when a party has in the past taken an unfair advantage of others by imposing costs upon them without their consent, those who have been unilaterally put at a disadvantage are entitled to demand that in the future the offending party shoulder burdens that are unequal at least to the extent of the unfair advantage previously taken, in order to restore equality” – see Shue, “Global Environment and International Inequality,” *International Affairs*, 534; reprinted in Shue, *Climate Justice*, 183. This was meant as a general principle that raised other issues specifically about the international inequality that is the global background to climate change. Nevertheless, as I have argued in an earlier section here, those who both contribute to causing climate change and claim the benefits of the processes that produce climate change without bearing a proportionate share of the costs do indeed exacerbate international inequalities in a highly objectionable, unfair way. And irrespective of whether Caney read this principle entirely correctly, the important issue here is the one Caney raises about the allegedly different logics and spaces of CPP and APP, which is discussed in the text.

24 Caney, “Human Rights, Responsibilities, and Climate Change,” in Beitz and Goodin (eds.), *Global Basic Rights*, 240–1.

because they underwent an industrialization primarily driven by fossil fuels.²⁵ In these cases their current ability to pay is a direct product of their past contribution of extensive emissions to the expansion of atmospheric GHGs during industrialization, e.g. the US and most of the EU. CPP – CPP₁ anyhow – and APP may be conceptually distinct (one is about causal role and one is about holdings of wealth), but empirically an extreme position on CPP is usually the explanation for an extreme position on APP. The US and the EU are each both among the highest cumulative emitters of GHGs and among the wealthiest states. This is precisely what can be captured by the BPP, the “beneficiary pays” principle.²⁶

Now, all these principles have often been presented as rivals among which a choice must be made, although neither Caney nor I are saying that. If one were aiming exclusively at obsessive precision, one could say: for purposes of allocating the burdens of stopping rapid climate change, (1) states are to be ranked strictly according to their past contributions to creating the problem (CPP₁). Or one could say: (2) states are to be ranked strictly according to their ability to pay (APP). Or one could say: (3) states are to be ranked strictly according to their benefits from the creation of the problem (BPP). Rankings (1)–(3) are not identical, and one could then argue about which ranking to consider the ranking. But as I noted earlier, there is absolutely no reason to believe that there is a single supreme consideration – there is no rule requiring that only one box be ticked – and therefore no reason to search for a conclusion about “the” ranking.

The most compelling conclusion – and it seems to me to be a powerful practical one – is that if a nation ranks very high on all these important measures, it manifestly ought now to be taking major initiatives and making major investments in bringing carbon pollution under control irrespective of what others do. Why? Because, as the thesis of historical responsibility asserts, to conduct activities that cause a dangerous problem for virtually everyone (and everything), keep the benefits of the activities for oneself, and fail to contribute to solving the problem created is almost unimaginably unfair and greedy.

Second, the other manner in which past causal contributions to the creation of climate change continue to affect the present is more difficult to grasp. It is beautifully crystallized in the remark attributed by William Faulkner to his

²⁵ See Vaclav Smil, *Energy Transitions: History, Requirements, Prospects* (Santa Barbara, CA and Oxford: Praeger, 2010), 26–38. A significant minority of very wealthy nations are wealthy simply because of their natural resources and not because they industrialized, e.g. major oil-producing states like Saudi Arabia and Kuwait, and gas-producing states like Qatar.

²⁶ See Page, “Give It Up for Climate Change,” esp. Table 1 on 324 and Table 2 on 325.

character Gavin Stevens: “The past is never dead. It’s not even past.”²⁷ I believe that this is a profound insight into history and biography generally, but it is certainly appropriate to past GHG emissions. APP is, as Caney says, forward-looking. And CPP is generally treated as backward-looking, but so treating it seems a case of assuming that “the past is dead” or at least that “the past is past” – what’s done is done. But this is at best misleading in the case of GHG emissions, and especially emissions of CO₂, the atmospheric residence time of which has relatively recently been discovered to be almost incalculably long – in the case of significant percentages of molecules, millennia.²⁸ This means that the carbon emissions of the past will haunt the climate of the far distant future, like lingering ghosts of our short-sighted indifference. Sea-level, for example, will rise for centuries because of emissions that have already occurred.²⁹ Past emissions are past events only in the sense in which unexploded land-mines buried yesterday are past events – they were put there in the past, but they will detonate in the future. History does not have separate chapters – certainly not climate history in which our carbon emissions “out-live” us and work away in the future atmosphere.

High stakes

An extremely powerful underlying reason, rarely made explicit, why every agent with any capacity to do so ought to take vigorous action to bring the earth’s climate back under control is that in toying with the climate, we are daring to experiment with modifying the very conditions of human physical and social life. And if any human duty be unconditional, it is the duty to preserve the fundamental conditions, including the physical pre-conditions, of human life by avoiding dangerous threats to them.³⁰ Like the prohibition on harm, this is a

27 William Faulkner, *Requiem for a Nun* (London: Vintage, 1996), Act I, scene iii, 85.

28 Ciais, Sabine, Bala, *et al.*, “Carbon and Other Biogeochemical Cycles,” 472–3.

29 John A. Church, Peter U. Clark, Anny Cazenave, *et al.*, “Sea Level Change,” in Stocker, Qin, Plattner, *et al.* (eds.), *Climate Change 2013: The Physical Science Basis*, 1137–216; Susan Solomon, Gian-Kasper Plattner, Reto Knutti, and Pierre Friedlingstein, “Irreversible Climate Change Due to Carbon Dioxide Emissions,” *Proceedings of the National Academy of Sciences*, 106 (2009), 1707–9; and Michiel Schaeffer, William Hare, Stefan Rahmstorf, and Martin Vermeer, “Long-Term Sea-Level Rise Implied by 1.5°C and 2°C Warming Levels,” *Nature Climate Change*, (2012), 1–4. This was clear prior to the 2014 discovery that the gigantic West Antarctic ice-sheet is already melting irreversibly.

30 As I have mentioned, this could be dubbed the DPPP, the duty to preserve physical preconditions, if one were determined to continue the alphabetical sequence.

“pure” – not a hybrid – principle. No responsible scientist believes that climate change is yet fixed on a trajectory towards human extinction. But various scientists have embraced the idea that we should think of the period of history that we have recently entered as the “anthropocene” because this has become an age in which the most powerful force changing our planet is aggregate human activity, including the anthropogenic emissions that are increasingly modifying the planet’s climate.³¹ Without intending to we are gradually wresting control of, among other things, the climate from the natural forces that used to determine it. Like someone who knocks the rider out of the saddle of a galloping horse and climbs on without knowing how to ride, we are taking control away without gaining control ourselves or, chillingly, having any plan about how to get it, and the horse may well buck us off. Control of the earth’s planet is being thrown into confusion by the originally unpredicted and unintended effects of human consumption.

Inspired by his accurate and insightful grasp of the scientific findings that in the depths of the nuclear arms race between the US and the USSR during the Cold War, humanity was in fact running a serious risk of extinction from the temporary but radical climate changes, then labelled “Nuclear Winter”,³² that would have been produced after massive exchanges of nuclear weapons in an all-out war between the two nuclear superpowers by the prolonged suspension in the atmosphere of sun-blocking soot, dust, various chemicals, and other debris from multiple cities in conflagration simultaneously in two hemispheres, Jonathan Schell – now dead himself – wrote these hopeful reflections concerning human extinction:

Death lies at the core of each person’s private existence, but part of death’s meaning is to be found in the fact that it occurs in a biological and social world that survives. No one can be a spectator at his own funeral, but others can be there, and the anticipation of their presence, which betokens the continuity of life and all that that means for a mortal creature, is consolation to each person as he faces his death.... Formerly, the future was simply given to us; now it must be achieved. We must become the agriculturalists of time. If we do not plant and cultivate the future years of human life, we will never reap them.

31 See Crutzen, “Geology of Mankind,” *Nature*, 23: “It seems appropriate to assign the term “Anthropocene” to the present, in many ways human-dominated, geological epoch.... Unless there is a global catastrophe ... mankind will remain a major environmental force for many millennia.... At this stage, however, we are still largely treading on terra incognita.”

32 See R.P. Turco, O.B. Toon, T.P. Ackerman, J.B. Pollack, and Carl Sagan, “Nuclear Winter: Global Consequences of Multiple Nuclear Explosions,” *Science*, 222 (1983), 1283–92; Carl Sagan, “Nuclear War and Climatic Catastrophe: Some Policy Implications,” *Foreign Affairs*, 62 (1983/84), 257–92; and Lynn Eden, *Whole World on Fire: Organizations, Knowledge, & Nuclear Weapons Devastation* (Ithaca, NY and London: Cornell University Press, 2004), 238–42.

This effort would constitute a counterpart in our conscious life of reason and will of our instinctual urge to procreate.³³

The danger today is not that the changing climate is already likely to continue to the point of the extinction of humans, although it has notoriously been causing the extinctions of many other species of animals and plants for some time. The danger is that until we get a grip on the emissions that are driving climate change, the climate is in indefinite turmoil. We simply do not know today where matters are headed over the long run because we have disrupted the pattern of the past without being able to establish a pattern for the future. And two of Schell's insights about the dangerous temporary climate change that scientists in the 1980s called nuclear winter are apposite to our generally very different climate problem now.

First, as Schell put it, "formerly, the future was simply given to us; now it must be achieved". When we make choices to create institutions and technologies, as different as the intercontinental ballistic missiles with nuclear warheads at the core of nuclear deterrence or the energy-intensive infrastructure in the engine-rooms of globalizing consumerist societies, we create forces that, untamed, could modify the environmental pre-conditions of human society as we know it. Now we must "achieve" our own future in the sense that we must gain control of the threatening forces we ourselves have created, nuclear weapons on the one hand and high-emission lifestyles on the other, that could, if mindlessly allowed simply to continue indefinitely in the same direction, wreak havoc that no one wants. We did not intend to create the threat of either nuclear winter or severe climate change, but we did in fact through the unanticipated consequences of our own activities make them both possible. And now we need to make them both impossible once again, if we wish to ensure a secure world for future generations. Otherwise, our legacies to our grandchildren will be dominated by these Frankenstein's monsters.³⁴

Second, we have stumbled into a game with very high stakes that we only partly understand.³⁵ We have inadvertently launched a process of change that

33 Schell, *The Fate of the Earth*, "The Second Death," 166 and 174.

34 Compare Darrel Moellendorf, "Frankenstorms," *Dissent* [on-line, 31 October 2012]; reprinted in Moellendorf, *The Moral Challenge of Dangerous Climate Change*, 211–12.

35 I have formulated a decision principle for such uncertain contingencies in "Deadly Delays, Saving Opportunities: Creating A More Dangerous World?" in Gardiner, Caney, Jamieson, and Shue (eds.), *Climate Ethics*, 146–62, at 147–8; reprinted in Shue, *Climate Justice*, 263–86, at 265. For a complementary but much deeper analysis, see Lauren Hartzell-Nichols, *A Climate of Risk: Precautionary Principles, Catastrophes, and Climate Change*, in preparation [draft on file with author].

we at present have no effective plan for stopping – the rock is rolling towards the downward slope. We can still stop it, but we have to do so in reality while it is still stoppable. Elsewhere in *The Fate of the Earth* Schell argues as follows:

Up to now, every risk has been contained within the frame of life; extinction would shatter the frame. It represents not the defeat of some purpose but an abyss in which all human purposes would be drowned for all time. We have no right to place the possibility of this limitless, eternal defeat on the same footing as risks that we run in the ordinary conduct of our affairs in our particular transient moment of human history. To employ a mathematical analogy, we can say that although the risk of extinction may be fractional, the stake is, humanly speaking, infinite, and a fraction of infinity is still infinity. In other words, once we learn that a holocaust might lead to extinction we have no right to gamble, because if we lose, the game will be over, and neither we nor anyone else will ever get another chance.³⁶

It is not that it yet seems likely that the earth's climate will run wildly out of control – it is that it is very, very important that it never become likely, because the stakes are far too high relative to the insignificance of the lifestyle we would need to give up in order to return to much greater safety. And we do not know exactly how urgent action is because of the very uncertainties that opponents of action irrationally invoke in support of passivity! Nasty surprises happen. For example, at the annual meeting of the parties to the UNFCCC in 2009, held in Copenhagen, the assorted politicians present, including some heads of state, solemnly committed themselves finally to holding to 2°C the rise in average global temperature above the level that was normal in previous millennia that will result from climate change; and the 2°C commitment was formalized in 2010 in Cancun.³⁷ But no serious measures to abate emissions have yet followed, and meanwhile some of the best atmospheric scientists in the world have calculated that, given continuing patterns of GHG emissions, our current trajectory is towards a dramatic rise of 4°C – twice as bad as what our “leaders” just finished promising would be the worst.³⁸ Even 4°C does not presage human extinction, but it would guarantee disastrous death and disruption to some human societies.³⁹ And it raises the deeper questions: who is going to lead the turn away from the path that has the abyss at its end, and when are they going to get

36 Schell, *The Fate of the Earth*, “A Republic of Insects and Grass,” 95.

37 Lavanya Rajamani, “The Cancun Climate Agreements: Reading the Text, Subtext and Tea Leaves,” *International and Comparative Law Quarterly*, 60 (2011), 499–519, at 500–1.

38 Potsdam Institute for Climate Impact Research and Climate Analytics, *Turn Down the Heat: Why a 4°C Warmer World Must Be Avoided*, A Report for the World Bank (Washington, DC: World Bank, 2012). Available on-line at: climatechange.worldbank.org.

39 Also see Mark Lynas, *Six Degrees: Our Future on a Hotter Planet* (Washington, DC: National Geographic Books, 2008), 183–212.

started? The US certainly has no less responsibility than any other nation to cooperate in averting catastrophe and arguably has considerable reasons why it ought to lead the way.⁴⁰

Conclusion: time for energetic US action

When one sees the practical convergence of the triply hybrid principle of historical responsibility, the pure imperative not to do harm, and the pure duty not to threaten the physical pre-conditions of human life through indefinite climate disruption, it is undeniable that the US national government ought now to be undertaking ambitious robust actions to lead the global exit from the threatening carbon regime into the non-carbon regime that could restore human security. Action is overdue. That action by others is overdue as well is no excuse for further delay by anyone.

Acknowledgement: I am grateful to Harald Stelzer and two anonymous reviewers of this journal for valuable comments.

⁴⁰ For general advocacy of “a duty to construct institutions that discourage future non-compliance”, see Simon Caney, “Cosmopolitan Justice, Responsibility, and Global Climate Change,” at 769; reprinted, at 136. For thoughtful reflections specifically on the responsibility to lead on climate, see Aaron Maltais, “Failing International Climate Politics and the Fairness of Going First,” *Political Studies* (2013). Doi:10.1111/1467-9248.12073 [on-line early view]; and Steve Vanderheiden, “Coaxing Climate Policy Leadership,” *Ethics & International Affairs*, 26 (2012), 463–79.