

Note on Method

No one needs academic theorists to tell them what is right and wrong. On the contrary, judgments about what is right and wrong are best made by ordinary people whose own experiences of the struggles of life give them understanding of realities and empathy with others. Theorists can make two modest contributions. First, they can answer misguided objections to common-sense principles of right and wrong raised by other theorists and thereby restore the situation to common-sense zero. And, second, they can sometimes systematize some of the plurality of common-sense principles into a coherent whole that gives appropriate weight to different principles and constructs a manageable and memorable package of principles.

Historical Responsibility: Accountability for the Results of Actions Taken

“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.”¹

Calls for historical responsibility in the context of climate change are mainly calls for the acceptance of accountability for the full consequences of industrialization that relied on fossil fuels. Greenhouse gases are multiple, but the single most important greenhouse gas cumulatively to date is, by far, CO₂. 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 toward those who have industrialized. The costs of industrialization, on the other hand, have been universally distributed in the form of 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 is that the nations that have controlled the process of industrialization, and have benefitted 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 greenhouse gases injected into the atmosphere by industrialization.

Questioning the Relevance of Historical Responsibility to the Case of Climate Change

To this contention that the nations that are the proprietors and the main beneficiaries of industrialization should mainly bear its costs the primary response is that the contention is harsh -- indeed, un-

¹ Shue, Henry (1999). ‘Global Environment and International Inequality’, *International Affairs* [London], 75:3, 531-45, at 533.

fairly harsh -- for two main reasons. Individuals in the present and future in the industrialized nations would, in effect, suffer for (A) ‘crimes’ they did not commit and (B) ‘crimes’ that were not crimes when the actions in question were done. It 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 grand-children for this ‘crime’ that was anyway not a crime -- 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, the offenders are mostly 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. 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 live amidst affluence produced by means of those emissions. A nation contains continuing structures and institutions; past, present, and future are part of a single national community. If I had inherited a suit from my father and it had turned out that my father had not paid the tailor, I would be bound to pay the tailor or to return the suit to the tailor.²

B. The analogy with the inherited suit obviously assumes that there is a bill to be paid. This takes us to the second objection: “no offense”. The answer to this objection needs to be more nuanced. The contention that past emitters ought to have paid does in a way impose *ex post facto* carbon pricing. There was no requirement to purchase a 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 the talk about ‘crime’ rests on a bad analogy. Here is a better analogy, although it is admittedly highly over-simplified.³ Four of us want to walk through a small desert, and we each have one large trunk. We see only one camel, so we decide to load all four trunks on this one 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.

There are two observations about this little adventure that, while true as far as they go, are deeply misleading, but a third that is much more accurate. 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 each is highly misleading. It is true that it was the fourth trunk that broke the camel’s back and that the camel was fine carrying the first three trunks. But the camel broke down because he was asked to carry four trunks. 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. In a very important sense, it was four trunks that brought down the camel: the first, the second, the third, and the fourth. The analogy of a budget is helpful here too: the budget for using this camel without harm was three trunks; while the first three trunks did not harm the camel, they exhausted the no-harm budget. The first three trunks are why the camel was harmed by the fourth. The fourth was the precipitating cause of the breakdown, but it was far from the whole explanation.

² I owe this example to Simon Caney -- compare his ‘Human Rights, Responsibilities, and Climate Change’ in Charles Beitz and Robert Goodin (eds.), *Global Basic Rights* (Oxford: Oxford University Press, forthcoming [2009]), which contains a critique of Shue, ‘Global Environment and International Inequality’, giving more emphasis to historical responsibility.

³ If space and time permitted, one could run through a collection of variants on the basic story.

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 they are the villains in the story. We are simply observing that they are in the story. The explanation for why the fourth traveller has no way to move her trunk includes them. Without their first three trunks, her fourth trunk would not be such a problem for the camel.

The main point of the camel story is that neither bad intentions nor foresight is necessary to responsibility for bad results. If one intended the bad results or even only foresaw the bad results, one bears even more responsibility. 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 actor.

It may seem unfair that the first three travellers should have to suffer -- to bear a burden -- because they performed a perfectly innocent act. It may seem unfair, but it is only unfortunate. And it is unfortunate for all concerned. A world that contained stronger camels would have been a more fortunate world, an easier 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. But the planet's atmospheric chemistry works the way it works, and camels carry what they can.

Unless we price significant portions of the carbon emissions for which humans are responsible, carbon emissions will not go down substantially. If there are to be prices, there must be people who pay them. Who, then, should be charged? Is it unfair for these charges to fall upon the still-benefitting descendants of those who engaged in the largest cumulative per capita emissions? Unfair compared to which alternative bearers? Should the charges fall instead on the yet-to-benefit descendants of those who engaged in the least emissions? What could possibly make the latter choice more fair? 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. It is evidently fairer to charge those who are benefitting more rather than those who are benefitting less. Some third-party payer -- an imaginary philanthropic foundation from a distant planet, perhaps -- would be preferable to either of the real choices. Among the real alternatives, however, the benefitting descendants are a fairer choice than the non-benefitting non-descendants.

I do not believe that my ancestors who were among the large early emitters would have thought it unreasonable that I should have to pay for their emissions, if, as we now think, someone has to.⁴ I said earlier that if I had inherited a suit from my father, but the tailor had not been paid, I ought to pay the tailor. Suppose my father had not paid the tailor because he had misunderstood what was happening and had mistakenly thought the suit was a gift provided out of friendship; and then he died before the bill, which he would have paid himself if he had known about it, was presented. My ancestors freely caused large carbon emissions because they thought there was no limit to the carbon that could be emitted, if indeed they understood even that they were emitting carbon at all. They knew that most resources are limited. They did not freely waste money, food, water, or time, because they understood that these are all limited. They freely emitted carbon because they did not understand that carbon emissions are limited (nor, in the beginning, did they even have the concept of the absorptive capacity of the atmosphere -- the "sky" seemed to extend indefinitely [Atmosphere, as distinguished from "sky", is itself a relatively modern, scientific concept: why shouldn't "smoke" simply drift off into the limitless sky?]). This is why they were not evil and therefore did not deserve to be punished for their emissions, nor do I deserve punishment as their surrogate.

Nevertheless, if someone somehow could have explained to them what atmospheric absorptive capacity is and could have noted that absorptive capacity for CO₂ might be limited in such a way that it might be reasonable for users to pay for it, I think they might have agreed that they should receive a bill

⁴ I owe this extra wrinkle in the argument to Professor Stephen Gardiner, University of Washington, Seattle.

(and that if it arrived after their deaths, it should be paid by their heirs). If what had seemed a gift from nature turned out to need to have a price, they might willingly have acknowledged that their share of the price ought to be paid. I can see no reason why they should have considered themselves to be exempt.

Questioning One Assumption underlying the Standard Formulation of Historical Responsibility

The primary objection usually made against the argument for historical responsibility is that it rests upon an undefended 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. The question is: what, if anything, is wrong with this fact? It is objectionable for some to have more than others only if such an unequal distribution violates some principle. It is being implicitly assumed 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 women and disrespectful of their equal dignity because it presupposes that the quality of their judgment 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 is required to be provided. It is not simply obvious that emissions in particular ought to be subject to equality of distribution.

It is sometime 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 are indeed 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. Not all necessities are required to be distributed equally.

Perhaps overall welfare ought to be equally distributed; even if so, not every individual constituent of welfare would need to be distributed equally. Must everyone have the same size house? It is the total package of welfare, not the individual components of the package, that would be subject to the distributive requirement. Thus, the fundamental challenge to assertions of historical responsibility is that it is not being asserted simply that there is some general kind of historical responsibility or other that is somehow relevant, but is instead being claimed quite specifically that historical departures from cumulative equality are objectionable in the instance of emissions. This asserts the violation of a presupposed requirement of cumulative equality in one factor contributing to welfare, but the basis for this requirement in the case of this factor is not evident.

Re-formulating the Basis of Historical Responsibility for Climate Change

Rather than appealing to a simple principle of equal distribution that is supposed to be self-evident, but is in fact not only not self-evident but is highly controversial, one can, I think, make a some-

what more complex but less contentious argument that draws on the emerging science.⁵ It is important, first, to be a little more explicit about what the dispute concerns. I have been saying, and it is indeed usually said, that it is about the distribution of emissions. But the issue concerns the assignment of rights to emit without paying -- without being required first to purchase a permit -- as we move to an arrangement within which more and more emissions will require permits.⁶ What we tend to call the right to emit is a little more strictly described as the right to emit free of charge. The basic question can be simplified as: who ought to be allowed to emit without being required to purchase a permit?

I realize that the post-Kyoto goal is yet to be decided and that one of the most difficult choices faced by this Group is the specification of the proposed level of emissions that it takes to be compatible with the FCCC requirement of avoiding “dangerous anthropogenic interference”. In order to lay out the logic of the re-formulation concretely, however, I will assume a specific goal by way of illustration. I personally believe that there is a strong case for choosing the goal of limiting warming to 2° C above pre-industrial levels. Others who do not accept this particular goal may of course view this as a hypothetical example with an arbitrary goal; I believe the general logic of the position, which is meant to be my primary contribution, remains, whichever goal one selects from within the range of what could plausibly be genuinely believed to be likely to avoid dangerous interference with the climate system. The logic holds provided any firm limit on emissions is adopted, as some goal must be.

If we want to limit global warming, for example, then, to 2° C above pre-industrial levels, we must avoid emitting the trillionth ton of carbon to be confident of having even a 50% chance of meeting this target.⁷ We have already emitted 0.5 Tt C and are therefore already committed to 1° C of warming. “Having taken 250 years to burn the first half-trillion tonnes of carbon, we look set, on current trends, to burn the next half trillion in less than 40”.⁸ Recent research suggests that the most helpful way to conceive our challenge, if we want to avoid warming of more than 2° C, is as the challenge of remaining within a total cumulative carbon budget of 1 Tt C, although of course it may turn out that this cumulative cap needs to be revised as time progresses.⁹ Total cumulative emissions of carbon must not surpass 1 Tt C or global average surface temperature will, with 50% confidence, rise more than 2 ° C above pre-industrial levels, due to CO₂ alone. As shorthand, then, we can view our challenge as staying within a cumulative carbon budget of 1 Tt C, or avoiding the trillionth ton.¹⁰

Accepting that the fundamental specific challenge has the shape of a need to stay within any cumulative budget of carbon emissions has radical implications for how we ought to behave. First, it shows

⁵ Needless to say, this re-formulation may not be acceptable to all proponents of the argument, which comes in several variations.

⁶ It may also be about the financing of adaptation if adaptation is not funded with revenues from permits.

⁷ Allen, Myles R., David J. Frame, Chris Huntingford, *et al.*, ‘Warming caused by cumulative carbon emissions towards the trillionth tonne’, *Nature*, 458 (30 April 2009), 1163-1166.

⁸ Allen, Myles, David Frame, Katja Frieler, *et al.*, ‘The Exit Strategy’, *Nature Reports Climate Change* (30 April 2009), 2 [online journal].

⁹ Three factors might cause us to revise the cap: (1) we might make revisions regarding our conception of “dangerous anthropogenic interference in the climate system”, and change the 2° C target; (2) we might choose a larger or smaller cap to reflect risk preferences regarding the costs of abatements and climate change damages; or (3) as scientific uncertainty resolves, we might find we need to revise the cap even while holding the target and risk preference fixed. I am grateful to David Frame for these points and other helpful suggestions.

¹⁰ Hence the appropriateness of the earlier camel story. Obviously if our goal were to be more ambitious than remaining below 2 ° C above pre-industrial levels, we would need to adopt an even tighter budget. At this point what is crucial is that we move aggressively downward in our carbon emissions; the ultimate target can be, and surely will be, adjusted as time goes by.

that the problem is inherently intergenerational. ‘Intergenerational equity’ is not an additional peripheral aspect of the question that we may optionally take up or not, as we choose; the central question is essentially intergenerational. One budget is shared by us and every foreseeable generation to come. Consequently there is no such thing as doing what is fair “except for the intergenerational part”; in the concrete instance we face, what is fair is pervasively intergenerational.

Second, because we, together with all the generations who follow in our wake, must stay inside a single limit, carbon emissions are zero-sum across generations. That carbon emissions are zero-sum across all emitters across foreseeable time is profoundly important. Every ton of carbon emissions for which one person is responsible is one less ton of carbon emissions available for all the other persons who will live during the foreseeable future. We are in direct competition for a scarce resource with our own great-grandchildren, and everyone else’s great-grandchildren. Every time I fly across the Atlantic is one less time that anyone else can fly across the Atlantic in a plane burning fossil fuel. Bringing these two features together, we must understand our challenge as inter-generationally zero-sum.

This is far from making the problem unique. The consumption of any non-renewable resource is inter-generationally zero-sum. Any unit of it that I consume is one less unit for everyone else across time to consume. Over the time-scales that matter to humans, the planet’s capacity to deal with carbon without rises in surface temperature is non-renewable, even if over several centuries the atmospheric carbon will break down.

Since we all share the same emissions budget and the budget is zero-sum, if one wants to be fair, one needs to leave for others their fair share. Presumably this means that one should use only one’s own fair share. But how can we think about what are fair shares of carbon emissions?

The distributive principle for free carbon emissions (emissions without purchase of a permit) needs to be a distributive principle appropriate to an inter-generationally zero-sum resource that is indeed a necessity of life for as long as the predominantly fossil-fuel energy regime survives. That regime has a budget of 0.5 Tt C emissions remaining before the dominance of fossil fuels must be ended (if warming beyond 2° C above pre-industrial levels is to be avoided). So the principle must be appropriate to the distribution of these 0.5Tt C.

One point that is perfectly obvious is that any acceptable distribution of the inter-generationally zero-sum quota of 0.5 Tt C must be compatible with every individual’s benefitting from the minimal amount of carbon emissions made necessary for a decent life by the now-dominant fossil-fuel energy regime. I realize that there is no plan for the distribution of emissions permits to individuals around the world, but the logic of the situation is clearest if we think of the situation as if there were going to be permits for individuals. We would then need a priority list specifying who gets [free] emissions first from the remaining, but rapidly diminishing, pool of 0.5 Tt C. Obviously, unless some people are to be condemned to death for lack of benefitting from a minimal amount of carbon emissions, those who can least afford to pay for emissions ought to be at the top of the list of those who do not have to pay for emissions.

The next step in the argument is not equally obvious, but it seems to me to be the only prudent approach. We do not know for how long the pool of 0.5 Tt C [hereinafter, often, “the pool”] will have to supply the for-now-unavoidable carbon-emission needs of the poorest. As already mentioned, if we do not reserve any of the carbon emissions for the poorest, that is, if we continue business as usual in the past, the pool will likely be exhausted in about 40 years -- by 2050. The longer that the poorest people on the planet must rely for survival on carbon emissions within a dominant fossil-fuel energy regime, the longer they will need to draw from this pool. If we are serious about not making the lives of the poor impossible, and we believe the science, we must reserve enough of the remaining pool for the poorest to use to maintain themselves at a decent level of existence for the duration of the period during which they must depend on the fossil-fuel regime. Obviously, the longer they are dependent on fossil-fuels, the longer they will need to draw upon the pool and the more of it that will be needed strictly for them. (The pool could be enlarged only by allowing warming beyond 2° C above pre-industrial levels.) The time period of the dependence of the poorest on carbon emissions can be shortened by making affordable alternative energy without carbon emissions available to them sooner.

It is absolutely vital not to confuse the number of Tt C withdrawn from the pool by the poor without charge [without requiring purchase of a permit], a , with the total number of Tt C withdrawn from the pool altogether, B . Sum a will be only a fraction of sum B , quite possibly a very small fraction, depending on all the variables affecting the purchase of permits, including how many are created, to whom they are distributed, what percentage are auctioned, etc., etc. The pool of 0.5 Tt C remaining will be consumed by both those who are not required to have permits and those who, by whatever means, acquire permits. Anything better than business as usual in the past should extend the life of the pool beyond 2050 somewhat -- the farther the arrangements depart from business as usual, the farther beyond 2050 the viability of the pool will be extended.

Clearly it is an empirical question how long it will take to drain the emission pool consisting of the possibly tolerable 0.5Tt C,¹¹ given that both free and priced emissions will be coming out of the same pool. My suggestion -- and this I readily confess is the non-obvious next step in the reasoning -- is that all the free emissions should at least tentatively and temporarily be reserved entirely for the poorest. (A definite specification of who precisely count as the poorest is clearly needed, but this is a familiar problem to which I have nothing special to contribute.) If and when further investigation provides solid grounds for a confident judgement about the total number of people across foreseeable generations who will both be unable to afford to purchase emission permits but will also need to benefit from carbon emissions, we might choose to provide free emissions to some larger group, if we are still subject to dependence on fossil fuel. How long the pool of possibly tolerable emissions [0.5 Tt C] will last depends heavily upon the emissions by those who purchase permits, but also upon the numbers of those people across the next generations who cannot afford permits for carbon emissions but nevertheless need to rely on carbon emissions and therefore must be allowed emissions free of charge unless they are to be condemned to death or desperation. The latter number in turn depends on how long it takes for the dependence of the poorest on fossil-fuel to end. If and when the numbers become clearer, it might, depending upon what the actual numbers are, no longer be prudent to reserve all free emissions for the poorest. Until evidence to the contrary appears, however, the priority list for free emissions from the pool should contain, I would suggest, absolutely no one other than the poorest.

As promised, my argument has reached at least as strong a conclusion as the conclusion reached by those who ordinarily appeal to historical responsibility but without relying upon the controversial premise that there is a right to equal per capita emissions. The premise playing the analogous role in this re-formulation is merely that we could not in decency condemn those who need carbon emissions but cannot afford to purchase permits, by refusing to guarantee them the emissions they cannot do without. I do not claim in the slightest to have disproven the premise about equal per capita rights to emissions underlying the standard versions of the argument; I have simply not needed it because of what the nature of the challenge is empirically turning out to be, namely, the distribution of an inter-generational zero-sum carbon budget. Basically, I have not needed the stronger premise because the situation is so direly constrained by the necessity of remaining without a zero-sum emissions budget, and extreme situations are in some respects clearer. Their very starkness simplifies our choices. All that we need to be committed to is the protection of the current most vulnerable against the workings of the very permit system we feel compelled to create for the sake of the future most vulnerable.

Conclusion

Some defenders of the standard versions of the argument from historical responsibility may feel that rather than having strengthened their argument by replacing a strong and controversial premise with a weaker and less controversial one, I have simply substituted an argument of my own for the appeal to historical responsibility. What role, after all, has historical responsibility played in the re-formulation? Its role -- so far not made explicit -- is to explain why the suggestion of reserving for the poorest all the free

¹¹ Further consideration may show that fewer emissions can be treated as not constituting dangerous interference with the climate system -- see note 9, above.

emissions that would draw upon the rapidly diminishing pool of possibly tolerable emissions is fairer than any alternative, judged by common-sense standards of fairness, as follows.

We have an extremely limited pool of possibly tolerable carbon emissions from which we could allow a constrained number of people to draw free of charge; many others will be drawing down the pool using permits that have been purchased. To whom ought we to allot this limited number of free carbon emissions from this strictly limited pool [0.5 Tt C], which future investigation may indicate must be smaller still than we now hope? Clearly the free emissions should go to people who must be able to emit carbon but could not afford to purchase permits; all the alternatives condemn these people (to the risk of not having legally available essential emissions). For the most part, the people for whom free emissions would be reserved are people who historically have not benefitted from carbon emissions. Most of those who are wealthiest have become so as a result of the processes of industrialization, including the supplying of the fossil fuels for industrialization, that are responsible historically for the bulk of the cumulative carbon emissions so far. Those who would receive no free emissions are mostly those who have emitted the most cumulatively. Those who receive free emissions are almost entirely those who have not benefitted from past emissions. This is the same result one obtains from the standard arguments from historical responsibility. And it is the historical difference in benefit from past emissions -- the differential past benefit -- that justifies the differential allocation of free emissions -- the differential future benefit. The only assumption about entitlement that this argument needs is: a universal right to an absolute minimum for survival with a decent life. This assumption is difficult to deny.

The re-formulated version of the argument insists only that existing inequalities in access to emissions not be exacerbated to the point of risking forcing the worst-off below the minimum. Avoiding such an extreme exacerbation in inequality certainly seems to be the least that we ought to accomplish.

Those who still object even to the re-formulated argument from historical responsibility may simply contend that accepting the implications of historical responsibility would be too expensive for even the richest. I can only observe that not respecting these implications seriously risks leaving the poorest without access to energy if, before alternative energy is universally affordable, we adopt serious measures to avoid emitting the trillionth ton of carbon. And delay in adopting measures would be deadly for the future poorest by other means.