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From Guilt to Taxes**

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Shared National Responsibility for Climate Change: From Guilt to Taxes

*Christopher L. Kutz**

1. Introduction

The enormous actual and anticipated costs of human-caused climate change are a product of both past and future. The now-industrialised nations of Western Europe and North America have contributed over half of carbon dioxide (CO₂) emissions over the last century, even if the European nations have made aggressive efforts to reduce their future carbon impact. By contrast, the swiftly industrialising nations have made a lesser historical contribution (for example India and China have contributed roughly 11 per cent) but are projected to make a proportionately much larger aggregate future contributions than North America and Europe.

Climate change will cause large future costs, whether in the form of reduced productivity (if energy restrictions are implemented); mitigation costs (to fend off rising sea waters and reduce the risks of violent weather and drought); prevention costs (through large-scale geo-engineering); or pure damages. The question of who will bear those costs, and how they might be allocated or transferred between states, has been one of, if not the, most important issues impeding meaningful international agreement on remedies and reductions. In particular, the debate has centered around the implications of a principle of ‘historical responsibility’, favoured by e.g. China and India. Such a principle would impose the principal burden of present and future costs on states historically responsible for the CO₂ rise, independent of future contributions. By contrast, European and North American nations have urged principles of allocation that pay greater heed to current and future causal contributions, based partly on the grounds that current generations cannot be taxed to pay for the contributions of excusedly ignorant prior generations. By contrast, they argue, states now pursuing development goals in full awareness of the risks of climate change must accept a significant burden of responsibility for these choices.

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This Chapter takes up the debate about historically- versus future-based allocations of responsibility in both an ethical and an empirical dimension. The ethical dimension of the Chapter concerns how one might justify either historical or prospective responsibility for citizens, in relation to the acts of others, whether compatriots or not. I will consider the problems of reasonable historical ignorance and political change, as variable affecting allocation. I will also take up the question of the priority of relative deprivation of current or future individuals, as against prospective responsibility. Lastly, I will take up the question of what forms of political and legal institutions might be best suited to the problem of global allocation, specifically whether global taxes, trading schemes, and/or direct wealth or technology transfers are best suited.

2. The problem

The current situation is extremely unfortunate: 2013 marked the passing of the 400 parts per million (ppm) CO₂ benchmark, a symbolic threshold significant both for the absolute level of CO₂ in our atmosphere, and for the pace at which we reached it. Seeking the relatively modest target of a 2 degrees Celsius (2°C) rise in temperatures will require reductions dwarfing the Kyoto Protocol¹ levels – levels that did not find any accord with the largest current emitters of CO₂ – would require future cuts in the neighbourhood of 80 per cent from 1990 levels. China has been rapidly implementing low-carbon energy technologies – but even more quickly adding coal-fired electricity generation. India and Brazil also forecast a quickly increasing rate of greenhouse gases (GHG) production, through a quickly increasing energy, transportation, and agricultural sectors. The future share of emissions from the major developing economies (the BRICs), assuming no great policy shift, is expected to account for two-thirds of total GHG emissions.

Extrapolating from these trends, and notwithstanding a genuine if variable commitment by the European Union and the United States (US) to carbon reduction, the world can expect a continuously increasing CO₂ level and a temperature increase estimated to exceed 2 degrees Celsius. While experts differ in the details of their proposals, we can take Nicholas Stern's 2008

¹ Kyoto Protocol to the United Nations Framework Convention on Climate Change, Kyoto, 10 December 1997, in force 16 February 2005, 2303 UNTS 148 (Kyoto Protocol).

calculations as reasonable starting point for discussion purposes.² According to Stern, in order to stabilise GHG levels at under 500ppm in CO₂ equivalents, a level thought possibly sufficient to avert catastrophic climate change, the world as a whole must reduce its emissions by 50 per cent (relative to 1990 levels) by 2050, to an average level of 2 ton of CO₂ per person. Even with much higher per capita cuts in the developed world (of roughly 80 per cent of 1990 emissions by 2050), this carbon budget constraint puts enormous strain on both developed and developing nations to reduce current and/or expected carbon emissions. As Stern says, the 2 ton per capita target is so low that even equitable adjustment between developed and developing states will not offset the fact that all states will have to make dramatic adjustments.³

The implications of such a programme are daunting, since it effectively relies on a de-carbonisation of the energy and transportation sectors, through technological innovation, and a halt to deforestation. Because contemporary developed nation living standards have been built on the back of a fossil fuel economy, without a carbon budget, as are the aspirations of the developing world, reconciling global anti-poverty economic development with a newfound strict carbon budget can seem like squaring the circle.⁴ I do not mean to dismiss the possibility that the technological innovation that we seek may itself drive economic growth – and it is certainly possible that even industries unconcerned with carbon emissions may come to find alternative energies more attractive than eventually dwindling fossil fuel supplies. But the contemporary environment is essentially one in which we are asked to trade-off immediate and enduring costs, in reductions in consumption and productivity, against gathering and potentially catastrophic

² N. Stern, 'Key Elements of a Global Deal on Climate Change', London School of Economics and Political Science (30 April 2008), at [http://eprints.lse.ac.uk/19617/1/Key_Elements_of_a_Global_Deal-Final_version\(2\)_with_additional_edits_post_launch.pdf](http://eprints.lse.ac.uk/19617/1/Key_Elements_of_a_Global_Deal-Final_version(2)_with_additional_edits_post_launch.pdf).

³ By way of comparison, excluding the US and Canada, developed country emissions are about 10-12T per capita; the US and Canada are in the 18-20T range; China is at about 5T. Source: M. Wolf, 'Living with limits: growth, resources, and climate change' (2012) 12(6) CP 772.

⁴ It is true that post-war France, Sweden, and Japan have come to rely on nuclear power and other low-carbon alternatives for their electricity needs, as part of their development programmes. But we are clearly in a period of transition away from nuclear power, and it is unclear whether the turn to natural gas (accelerated since the Fukushima accident) is merely a short-term bridge to renewable and carbon-neutral generation, or will be a significant long-term part of energy production. Indeed, French Prime Minister Manuel Valls has just announced that France will reduce its nuclear dependence to 50 per cent by 2025. See 'Quand Manuel Valls prônait la sortie du nucléaire,' Le Monde, 2 April 2014. The movement away from nuclear power, and China and India's rapid growth of coal consumption (which involves building a lot of coal infrastructure) suggests that global development and carbon-intense usage will continue hand in hand. See International Energy Agency, '2013 Key World Energy Statistics', at www.iea.org/publications/freepublications/publication/KeyWorld2013.pdf, especially at 46 et seq.

costs of ecological calamity, for ourselves and future generations.⁵ It is, as Martin Wolf has remarked, a potentially zero-sum calculation we are asked to make. And for that, we need our moral and policy courage screwed to the utmost.

Now, on the most pessimistic assessment of current responses, we may be well past the point of facing a choice between making investments in mitigation versus accepting short-term costs in adaptation and response. We may have settled for response rather than prevention. But the bill must be paid – either a preventative bill that all logic and decency says should be paid as soon as possible; over the next 50 years; or a clean-up bill that will need to be paid bit-by-bit. This is a scandal of human rationality, to be sure: we are effectively hiding from the problem under current policies.⁶ At best, Western Europeans are congratulating themselves that a historical (but volatile) investment in nuclear power, plus a declining economy, will mark the way to the much more difficult cuts that are to come. The US can congratulate itself that the windfall of natural gas is easing emissions considerably. But though the modest emissions decreases of the US and Europe are promising, they are not yet at a level that can stanch the rise of temperatures. Globally speaking, we are digging ourselves quickly into a deepening hole, with no plans to stop digging.

For purposes of this Chapter, I stipulate the following two points, despite current pessimistic trends: first, that an international agreement that will significantly mitigate warming is possible, at substantial cost; and second, that the costs of dealing with the consequences of the inevitable warming cannot simply be left where they fall, mostly on the poorest of the world's poor in Africa and Asia, but will be shared on a progressive basis by the wealthier nations. My aim is to discuss how we might best think about national responsibility for the costs of climate change adaptation and mitigation: what are the ethical principles for allocating responsibility between and among nations? My discussion will concern both ethical principles and the moral psychology necessary to give those principles motivational effect. Although I will mostly consider the question of responsibility from the perspective of the developed world – that is, of nations who have produced most of the cumulative emissions – I will also discuss the responsibilities of

⁵ For a comprehensive discussion of the harms of a 2 degree rise, see A. Guzman, *Overheated* (New York: OUP, 2012). Guzman counts disease and regional conflict as the foremost risks of climate change, and those risks will rise sharply before much progress can be made, even under an optimistic political scenario.

⁶ I do not regard the problem as linked to the dispute about future discount rates on investment decisions. The costs we would avoid through mitigation, or repair through adaption, are fundamentally non-monetisable costs in human suffering and death (as well as intrinsic environmental costs in mass extinction).

developing states. My general argument is that we do well to pay heed to the collective responsibilities of individuals *as* citizens of particular states, both historically and projectively, in thinking about climate change responsibilities. This is for four basic reasons:

First, our politics are organised collectively, around nation-states. Accounts that treat collective interests as irrelevant to underlying moral facts will fail to apply to the system of law and politics we have developed.

Second, conceptually, the collective aspect of GHG production matters – the significant outflows of GHG come from joint projects, usually enacted at national scale: power facilities, manufacturing and heavy industry, large scale agriculture and deforestation. We need an account of the problem that is true to its origins.

Third, psychologically, collective motivations matter – they are how we focus and coordinate our most important political commitments. Given that climate change is the paradigm of a collective action problem, in which success depends on broad cooperation while the incentives to free-ride are enormous, we must be able to make use of the collective solutions we have developed as moral animals.⁷

Fourth, tapping these motivations may enable some progress towards the kind of systems necessary to tame climate change.

This Chapter is organised as follows. First, I lay out a conceptual vocabulary for dealing with the moral concept of responsibility, and relate that moral concept to the legal concept at the center of this volume's discussion. Next I apply this concept to the doubly shared issue of responsibility for climate change mitigation – doubly-shared because the responsibility encompassed not merely the shared responsibility of citizens of many states, but also the shared responsibility of those states. My approach is to argue for a conception of shared *legal* responsibility that allows legal and political obligations to be supported by a plausible moral psychology. In my view, any significantly redistributive political and economic institutions must, to be feasible, be able to draw on the resources of actual moral psychology: the capacity of individuals and collectives to

⁷ The collective action aspects of the problem are well-discussed by Seumas Miller, in his contribution to this volume, S. Miller, 'The Global Financial Crisis and Collective Moral Responsibility', in P.A. Nollkaemper and D. Jacobs (eds.), this volume, at ____.

see themselves as rightful ‘owners’ of the responsibilities attributed to them. Attempting to impose financial liabilities on states, and the citizens whose taxes cover those liabilities, will be met with evasion and resistance unless citizens and their political leaders can come to see those liabilities as embedded in a coherent story about responsibility and the claims of justice, both distributive and corrective. In other words, an account of responsibility must meet demands for both philosophical coherence and psychological realism.⁸ Last, I will offer a preliminary argument for the virtues of a system of carbon taxation rather than tradable emissions permits, as best fitting the psychological constraints I discuss.

3. What is responsibility: individual and collective?

There is no room to develop here a full theory of individual moral responsibility to account for responsibility for global climate change, nor would it evidently be useful. Our commonsense practices of attributing responsibility, and much of the philosophy theorising those practices, emerges from purely local, individual contexts that do not generalise to the broad-scale, long time horizon, marginal individual effects characteristics of the climate change problem. Nonetheless, we do need a more specific vocabulary for this discussion.⁹

First, I want to make some distinctions between three types of responsibility, recognising that different theorists use different labels.¹⁰

When we tie a past event to the doings of an agent, we ascribe responsibility for that event to that agent: this can be called *attributability*, and it is fundamentally retrospective. The crucial point is that attributability is only weakly normative. Accounts of causal responsibility are attributive in

⁸ This point is akin to the demand John Rawls makes, that a theory of justice needs to be sensitive to the ‘strains of commitment’ to the ideal it designates – that is, such a theory needs to be embedded in a moral psychology. See J. Rawls, *A Theory of Justice*, rev. ed. (Cambridge: MA: Belknap Press, 1999), sec. 29, as well as ch. 8 (‘The Moral Sentiments’). See also S. Krause, *Civil Passions: Moral Sentiment and Democratic Deliberation* (Princeton: Princeton University Press, 2008).

⁹ I develop a number of these points at greater length in C.L. Kutz, *Complicity: Ethics and Law for a Collective Age* (New York: CUP, 2000); and C.L. Kutz, ‘Responsibility’, in J.L. Coleman and S. Shapiro (eds.), *The Oxford Handbook of Jurisprudence and Philosophy of Law* (New York: OUP, 2001).

¹⁰ For a somewhat different set of terms, although with overlapping conclusions, see Chapter 2 in this volume, R. Pierik, ‘Shared Responsibility in International Law: A Normative-Philosophical Analysis’, in P.A. Nollkaemper and D. Jacobs (eds.), this volume at ____.

the sense that they construct an explanatory narrative between an act and a later event, attributing the latter to the former. They are weakly normative in that an ascription of responsibility need not import a judgment of blame or a demand for response. I can ascribe responsibility for the torn living room rug to my puppy, without thinking my puppy is the kind of thing that can be subject to genuine blame. The judgment is normative in that, in any event resting on a host of conditions and contributing causes, we seek some rather than others in making our ascription – and changing our interests or values may change our ascription. I may come to see that the role of my son in leaving open the kitchen door is a better explanation of the rug's destruction by the puppy, because it was a more unusual event – or the choice of the rug maker to soak his wool in a saline solution that tastes good to a dog. Such quasi-factual judgments may lead to a judgment of blame, but are not the same.

Next, we have responsibility in the sense of *accountability*. Accountability is referred to as 'responsibility' in the primary sense in the Articles on State Responsibility.¹¹ Though accountability is often treated as a synonym for responsibility (and in ordinary language often is that), it is worth marking a conceptual distinction. While puppies, winds, and children all can be the subjects of ascriptive responsibility, only those kinds of agents that are proper targets of what philosopher Peter Strawson famously called the 'reactive attitudes', including gratitude and resentment, can be accountable.¹² To be accountable is to be a proper subject for these attitudes, and, more to the point, to be someone from whom a response (or account) is claimed, or to whom a sanction (or a benefit) may be administered. Accountability, then, is something like liability to praise or blame, but we should recognise that those two words mark only two points on a much broader spectrum of accountability relations. You may be accountable to give an explanation, which explanation may show why you are neither to be praised or blamed, for instance because you were sleepwalking (and so non-responsible in the capacity sense). Or you may be accountable in needing to repair damage you caused, for which you are ascriptively responsible, even though, again, you were not to blame. Moral, like legal, regimes of strict or vicarious liability exist: if my children break your window through their play, because of a freak bounce of

¹¹ Articles on the Responsibility of States for Internationally Wrongful Acts, ILC *Yearbook* 2001/II(2) (ARSIWA). Chapter IV of the ARSIWA provides that responsibility is a state of liability to repair or indemnify, in virtue of a breach of an international obligation attributable to a state. For discussion, see P.A. Nollkaemper and D. Jacobs, 'Shared Responsibility in International Law: A Conceptual Framework' (2013) 34(2) *MIJIL* 359.

¹² There is, of course, a fourth sense of responsibility as a capacity to be accountable, presumed in my treatment here. See P. Strawson, 'Freedom and Resentment' (1962) 48 *PBA* 1.

a ball, I must still offer to fix your window (though perhaps you must refuse the offer, if I have not been negligent in supervising my children). Or, to take a further example, if in backing up my car I run over your cat who has run under my wheels, I surely must get out of the car, find you, and bring you your cat with my condolences.

The last relevant form of responsibility is *projective responsibility*: responsibility for future conduct. This is duty-based responsibility, where these duties arise from specific roles we inhabit, voluntarily or not, from prior ascriptions of responsibility and accountability, or from general moral (or political or legal) duties. We are responsible, going forward, to pay our debts and clean up our messes; to act as good children of our parents and parents of our children; to care as good stewards of the earth; to respect each other as moral equals; and to manifest that respect in our material treatment of each other. Such responsibility entails a liability to moral assessment – to fault and blame, praise and respect. It is the social and psychological counterpart to a morality of duty.

I also want to emphasise two aspects of this conception of responsibility: responsibility, in all three of these senses, is *socially embedded* and *relational*. By ‘socially-embedded’, I mean that the particulars of any ascription of responsibility, accountability, capacity, or duty are highly relativised to a particular social location. Behaviour that in some times or cultures is seen as unremarkable, or not an appropriate object of social commentary, becomes in others a mark of social shame. The history of the gradual European rejection of public bodily emissions, described by Norbert Elias, renders vividly the historical relativity of these norms.¹³ A similar relativity, both historical and geographic, characterises pollution norms. In North America, no more than forty years ago, it was utterly unremarkable to throw a bag of garbage from a car onto the highway, while now the same act would bring social opprobrium and a stiff fine. Meanwhile, the absence of a littering norm is evident in many developing countries.¹⁴ Responsibilities to future generations come to make ethical and epistemic sense as we come to understand processes of change and resource exhaustion. The list could be extended. I offer here an observation about our social practices of responsibility, not an argument for a deep moral relativism. It may well be

¹³ N. Elias, *The Civilizing Process* [Über den Prozeß der Zivilisation, 1939] (Oxford: Blackwell Publishers, 1994).

¹⁴ The emergence of cleanliness norms, both for individual bodies and for public spaces, is obviously tightly linked to issues of class and wealth, but not exclusively so. The wealthy, in any period, have never had greater compunctions about the industrial pollution from their capital assets than any other group.

true, and I think it is, that there are certain things for which we should be held responsible, independent of whether our society licenses the practice now. But the judgments we actually make about responsibilities, both retrospective and projective, necessarily rest on a constellation of values, habits, and presumptions that vary with our location in society, and our society's location in space and time.

The point about relationality is more controversial, and has deeper implications. While I have been writing as though judgments or ascriptions of responsibility are brute metaphysical facts, inscribed in a metaphorical heavenly book of accounts, they are in fact judgments we make of each other – moreover, of others with whom we claim (perhaps falsely) to share a social understanding. To be in a position to ascribe responsibility is to already be in a relation with another in which it makes sense, even vicariously, to make moral demands on that other agent. This point holds, at least, for accountability and projective responsibility: it does not make sense for me to blame someone for a harm to a third party unless I stand in a relation to that person that has content going beyond the mere ascription of blame. To take an extreme example, there is a kind of category mistake in blaming, say, a slave trader for the crimes he committed. We can fault him, regard him as ascriptively responsible, and so forth – but to hold him to account supposes that we can imagine ourselves in actual confrontation with him – a confrontation that our temporal dislocation does not permit. Less extremely, but perhaps more controversially, imagine that we discover that a remote tundra population is deliberately releasing large amounts of methane into the atmosphere, by burning peat. If there are no common social or commercial ties that bind us, talk of accountability seems beside the point – and this is true from their perspective towards us as well.

Let us see how these points illuminate the discussion of climate change. First, the debate over historical responsibility has been, for the most part, a debate between people who agree on the ascriptive point, but disagree about accountability. In particular, it is uncontested that the majority of cumulative GHG emissions date from the beginning of the Industrial Revolution through, say 1990, and are ascribable to the developed Western world. Disagreement centers on whether the developed world is accountable – answerable for – these emissions, at least those before major policy actors could reasonably be thought to have known about the ecological damage they did through energy production. The question of projective responsibilities also lies

open to political debate. Even if one settled the question of blame, and attributed accountability for cumulative emissions to the developed world, one might think that the essential task going forward is catastrophe prevention, and that the primary consideration ought to be limited emissions, period – thus shutting down the high emissions energy plants typical of the developing world. More directly, whatever theoretical conclusion one draws about the ideal distribution of responsibility, one might conclude, given the stakes, that even an unjust but effective policy response is better than no response.

Second, for practices of responsibility to take hold, the act or harm for which one is being held responsible must be socially located. This is a matter of education and persuasion. We can discuss in the abstract about ideal global policy responses, but until the rancher in Nebraska; the SUV driver in New Jersey; or the subsistence farmer in the Congo come to see their practices as not only part of a globally significant harm, but as being choices among alternatives and not simply naturally given pathways, the talk of responsibility will be so much angelic hand-waving. Judgments of responsibility must have a target they can hit to be meaningful interventions in our attempts to regulate our common lives. The target is the conscience, by which I mean the field of choice, of individual agents, acting on their own or as the policy representative of others. Put another way, talk of responsibility is premature until the social and epistemological ground is tilled and seeded.

Third, while we can talk about what must be done by various parties to the climate change problem – changes in land use or energy extraction, for example – we cannot ascribe responsibility outside a real network of relations of accountability. This entails two further points. First, the logic of responsibility presupposes a context of exchange, both social and economic. Doubtless we can have duties of beneficence towards those about whom all we know is that they suffer, but responsibility is a subset of justice, and justice requires relationships. A truly global conception of responsibility requires a global conception of justice. Second, the need for a global conception of justice, founded in reciprocity, in turn, presupposes a global culture of common reason and claims. The relevant social and political relations, at the global scale, are still largely interstate relations. We do not have a conception of global responsibility that rests on individual actors, although, under human rights law and rhetoric, individuals can be the objects of these politics. Indeed, one of the chief human rights problems today is that many of the most

significant actors are collectives, but not states – they are transnational corporations. I believe it follows from these points that the conception of responsibility we must deal with will be, in the first instance, a responsibility grounded in collectives. I will now say a bit about what that could mean.

4. The ethics of climate change responsibility: individual versus collective perspectives

Current *political* debate on climate change response seem to be based on two types of proposals: historical versus future-oriented.¹⁵ Historical proposals allocate future responsibilities on the basis of past acts – past acts of GHG emission by the developed world, in this case. Those who have done most to generate the problem have the greatest responsibility to pay. Future-based proposals, by contrast, treat history as a sunk cost, and look instead to the marginal impacts of future contributions.

In political debates, especially between the US and the major developing economies of China, Brazil, and India (the BRICs), these conceptions lie at loggerheads. From the perspective of the BRICs, had the developed states not emitted so much GHG, the emissions of the developing states would be harmless. Thus put, although China's emissions are rapidly increasing, that fact is only causally and normatively significant because of a baseline set by the incautious development of the west. Ascriptive responsibility for the high marginal cost of BRIC emissions lies with the developed world – and so also accountability (they must incorporate this responsibility into a public understanding), and future responsibilities. While this does not necessarily mean that the BRICs have a free pass for future emissions, it means that their projective responsibilities should be defined in terms commensurate with a historically limited patrimony of emissions.

By contrast, on the US view (and perhaps *sotto voce* on the European view), these historical emissions are morally blameless, since it is only recently that states realised that GHGs were harmful at all. Moreover, the problem of climate change will require great efforts from all emitters, and it would be simply irresponsible to create an international system without serious

¹⁵ There is an excellent summary of this debate in D. Weijers, D. Eng and R. Das, 'Sharing the responsibility of dealing with climate change: Interpreting the principle of common but differentiated responsibilities', in J. Boston, A. Bradstock and D. Eng (eds.), *Public Policy: Why Ethics Matters* (Canberra: ANU E-Press, 2008) ch. 8.

efforts and incentives put before all states. Even after technology transfer and the interstate income flows that would follow from international trading, there is no feasible way to limit BRIC responsibility in any way that is more than symbolically reflective of differing historical responsibilities. Given the clash between these views, as well as the short-term self-interest of state leaders, the debate between these moral positions is seen as an explanation, indeed an excuse, for inaction.

Within philosophical debate, however, it is harder to see a clash. Most philosophers and economists are, at root, moral cosmopolitans, in the following sense: they believe that what matters, fundamentally, is the welfare of people taken as individuals, independent of the contingencies of attachment to particular states and territories. No morality that can survive critical reflection can endorse a world that accepts the stark differences in life-chances of children born in Western Europe, say, versus Sub-Saharan Africa. Nor can one think that we must weigh equally the costs to an affluent American of moving from a system of private transport to a socialised one, to the costs of an Indian peasant, asked to forgo the advantages of a truck to bring his produce to market. Any other view is to moralise an international *status quo* that is itself not even morally neutral, but a product of deliberate immiseration and subordination by the developed world towards the rest.

Once we accept that the equal weight of the moral claims of individuals to decent lives and prospects, wherever located, we can see that the historical and future approaches are concurrents, not competitors. Both history and future-directed moral equality dictate approaches to climate mitigation that place nearly all the costs of mitigation and adaptation on the developed world, to be handled through a variety of wealth and income transfer mechanisms. This point about ethical convergence is made from the perspective of utility by Peter Singer, and from the perspective of rights (rights to a decent existence) by Henry Shue.¹⁶ We do not need to endorse the further

¹⁶ See P. Singer, *One World: The Ethics of Globalization* (New Haven: Yale University Press, 2002), at 14-50 (ch. 2); H. Shue, 'Global Environment and International Inequality' (1999) 75 IA 531. See also H. Shue, 'SBSTA Technical Briefing: Historical Responsibility', 4 June 2009, at http://unfccc.int/files/meetings/ad_hoc_working_groups/lca/application/pdf/1_shue_rev.pdf.

Chinese argument, of a right to unconstrained development, to see that the primary burden of mitigation costs should fall elsewhere.¹⁷

One might conclude that no more philosophical discussion is needed, except to further underscore the point that current practices will weigh most heavily on the world's most vulnerable, both in this and future generations.¹⁸ What we need, instead, is an account of a political path towards the neighbourhood of what cosmopolitan justice prescribes – a shifting of resources to improve the lives of the least well-off regardless of nationhood.

As a matter of first principle, I believe that the cosmopolitan justice approach is sound, and that ideally, climate change responsibility should take national groupings as, at most, instrumentally significant – administratively convenient ways to organise production and transfer. But the purely cosmopolitan approach still misses something important, namely the political and motivational force of collective conceptions, particularly (in the modern age) conceptions that attach to the nation-state. These conceptions – part of the social embodiment of responsibility – are not mere sociology, but essential to understanding the potential of our responsibility system.

So what would a national and historical perspective mean for climate change costs? I will develop this below in more depth, but the first point to recognise is that just as the events of our individual histories accumulate to us, as parts of our identities and as part of the fabric of our accountability, so too the events of our collective histories. I said before that faultless harms may still accrue to our account, demanding repair. Should I, as a farmer, accidentally and unforeseeably drain my region's water table and so deprive my neighbour of his water, I cannot simply accept the new state as the normative baseline – rather, I must work to restore my neighbour's access to water, at cost to my own baseline. This holds true even if it was my father or grandfather who sank the well that drained my neighbour's access to water. Perhaps we will come to a conclusion that bygones are bygones in this case – but that conclusion will follow from

¹⁷ Nor should we endorse China's failure to adopt emissions-limiting policies. The point in the text is that the West should shoulder the principal burden of mitigation independent of China's specific responsibility to sustainable development.

¹⁸ There is no economic or philosophical consensus about the correct discount rate, if any, to be applied to the interests of future generations. For a discussion of discount rates in the context of climate change, see M.L. Weitzman, 'Why the Far-Distant Future Should be Discounted at Its Lowest Possible Rate' (1998) 36 JEEM 201; E. Posner and D. Weisbach, *Climate Change Justice* (Princeton: Princeton University Press, 2010), ch. 7; D.A. Farber, 'From Here to Eternity: Environmental Law and Future Generations' (2003) 111 LR 289.

complex considerations of fairness and the impossibility of projecting counterfactual futures.¹⁹ It will not follow simply from the fact that the original act was faultless, nor that it was done by my ancestor, not me. Insofar as I stand in a line of moral succession, identifying with a family line, I am responsible for these claims, independent of the positive law of inherited debt.

The claims of a collective past weigh also, independent of a current generation's fault. This point emerged recently in the statements of French President François Hollande, commemorating the end of France's colonial slave system. While Hollande insisted on the clean hands of the Republic in the matter of slavery, since none of the Republics tolerated its legal existence, he followed Jacques Chirac's lead, in the matter of French complicity in the German genocide, by declining to take that historical fact as an absolution. Whatever the Republic's views of slavery, France had profited greatly from it. And so Hollande apologised. The instability in Hollande's view came from the separate claim of reparations, particularly in relation to Haiti, which Napoleonic France had required to repay the costs of its self-liberation. Here he cynically invoked the words of Aimé Césaire, to declare that the crime of slavery was so great, money could not assuage the guilt.²⁰

Whatever one might think about the claims of reparations for slavery as against a broader (and equally deep reaching) obligation by France towards ex-colonies, or more generally towards the world's poorest, it is clearly important to anchor France's moral identity in an account that takes its full history of slavery, colonisation, and exploitation seriously. That history defines modern France, as much as its contemporary social democracy and relatively generous international aid programmes. Its forward-looking responsibilities must be understood in terms of the specific character of its national identity – that is to say, in an identity rooted in both past acts and future ambitions.

The case of GHG emissions is simpler in one way, but more complicated in another. We can remove fault from the equation, and so remove questions of blame, guilt, and guilt-based reparations from the discussion. But the historical legacy attaches to the collective transformation of our environment into sources of carbon-based energy for our shared creation of industrial life.

¹⁹ I discuss the supersession of historical claims in C.L. Kutz, 'Justice in reparations: The problem of land and the value of cheap talk' (2004) 32 PPA 277.

²⁰ F. Hollande, 'Discours sur l'esclavage', 10 Mai 2013, at www.elysee.fr/assets/pdf/intervention-du-president-de-la-republique-a-l-occasion-de-la-journee-nationale-des-memoires-de-la-traite-de-l-esclavage-et-leurs-abolitions.pdf.

Insofar as this history is ours, so are the traces of responsibility. To be a citizen of a state is to come in a family lineage (whenever one's ancestor's were adopted into the territory), to be bearer of responsibility for that lineage. We must face the future in the shadow of the collective past.

5. Collective guilt and collective responses

I have asserted more than argued for the relevance of history in thinking through forward looking reparative responsibilities. I have felt entitled to this assertion because I do not think that the relevance of the past is seriously in debate. I now want to complicate the picture of responsibility in one more direction, however, and more controversially. Talk about responsibilities is itself best seen as anchored in a moral psychology. And talk about national responsibilities is best seen as anchored in a conception of *collective guilt*. This is controversial because collective guilt – or, more accurately, demands that a nation or people act on the basis of collective guilt – is usually thought to be the toxic waste of social psychology. Claims of collective guilt form the basis for genocide and other crimes of race. Even to raise the question, from the outside, of whether collective guilt is appropriate is to stir up a cauldron of trouble, bringing out people's strongest individualistic inclinations and blameshifting arguments.²¹

I do not want to deny the pitfalls of collective guilt. But I do want to take a chance here and try to show how collective guilt might be thought of as a social *resource* rather than a social curse, and how it might be used to induce the participation of individuals in schemes to solve collective harms. In particular, a guilt-based system can provide the motivation necessary to legitimate the imposition of nation-based carbon taxes.

Note that I use the term 'induce' rather than 'justify' with respect to participation, since I take myself (and others) to have shown already that participation in a collective act that does wrong can justify imposition of reparative responsibilities on those individuals. I will shortly explain the form I believe this accountability takes, and why its basis must rest on a thicker reed than

²¹ One recent example that makes the point sharply is the way in which any non-Israeli's use of the word 'apartheid' to characterise the Palestinian occupation meets sharp criticism from within Israel, even as the word is routinely used internally by the Israeli left. See J. Goldberg, 'Is Israel an Apartheid State?', Bloomberg View, 29 April 2014, at www.bloombergvew.com/articles/2014-04-29/is-israel-an-apartheid-state.

collective action alone offers. But my principal focus is on collective guilt – or feelings of complicity, if you prefer – as a motivational rather than normative resource.

As I averted earlier, attempts to justify political programmes out of collective guilt are likelier to breed resentment than support. New Zealand's land reparations to the Maori and the limited case of US reparations to interned Japanese-Americans are two of the rare success stories of reparations programmes self-imposed by a state and accepted by its public. Notably, both programmes were only feasible years after the original injury.

These reparations programmes reflected real policy achievements. What is discouraging is that they might also be thought as easy cases. In all three cases, public support benefited from the direct legislative or judicial acknowledgement that grave wrongs had been done as a matter of state policy.

The problem is forward-looking: how to coordinate a solution. This problem obviously intersects the historical perspective as well. Whatever the technical solution to climate change, it will be costly – as costly as any technical accomplishment in human history. The cost will probably be more than any nation-state or international organisation can bear.²² Even if one nation – say, the US, could bear the costs on its own, it is politically unimaginable. Moreover, a coordinated solution, such as one involving a global system of tradable emissions permits and/or harmonised taxes, will tend to drive down carbon reduction costs for all parties, through the logic of comparative advantage.²³ So funding the technical solution requires finding a way to coordinate among many payers. The problem of coordination is hard enough in the abstract, since there are, by most estimates, more than enough states in a position to shoulder the burden of mitigation – that is, the technical approach could be funded even if one or more contributors decide to ride free. Thus, there are a great number of possible arrays of contributors, rather than a single coordination solution. Still, a principle of equal division might have seemed a fair solution, even if it imposes costs where none need be borne, since any particular state could have escaped contribution. What makes the problem more difficult is the way history hangs over the

²² Note that according to Guzman, mitigation efforts could be worthwhile even if only the US bears the costs, in self-interested terms.

²³ N. Stern et al., *STERN REVIEW: The Economics of Climate Change*, 449 et seq. (part VI, 'International Collective Action') at http://mudancasclimaticas.cptec.inpe.br/~rmclima/pdfs/destaques/sternreview_report_complete.pdf.

coordination problem, lending a dimension of moral argument to the problem of division – a moral dimension not exhausted by abstract fairness in division.

What can the dark motivations of guilt supply to the problem of coordinating mitigation costs? We think of ‘guilting’ people as the worst possible way of motivating them – as likely to spur resistance or resentful compliance as genuine conformity. While fear of guilt may itself be a potent moral emotion, stirring us to act rightly against impulse, when the wrongful acts are in the past, guilt would seem to be entirely paralysing.

But it does seem that guilt can provide a positive motivation, not just a paralysing one, when one thinks about guilt as a way of orienting us around the historical dimension of our act. Here guilting someone may provoke not just resistance but thought – it can make clear another pattern of interpretation of how we act. In the individual case, to point out that one has, in fact, acted shabbily – say, by indulging oneself in what one thought at the time was an important principle of self-realisation, and what one later in life regards as self-dramatisation – can be a spur to understanding how one is caught in a web of obligations. Guilt here does not necessarily move one to try to repair the past, but to understand it. Or so I want to suggest.

If guilt can be a motivating emotion, then it must be one that we can feel – and not just as a passing fancy or an induced cringe, but as a sustainable sense that we *owe something*, that we have a duty of repair in virtue of some wrong to which we are attached. We speak most easily of guilt in cases of direct, personal violation of a norm, usually in relation to an act or omission of our own. Shame is the more vicarious emotion – one easily felt at the disgrace, say, of a member of one’s family. So this presents a challenge already, for with the exception of a few industrialists, none of us contributes to global warming in a way that would seem to license talk of guilt, individual and collective. To talk in this abstract way, in the context of climate change, is perhaps already to stretch the semantics of ‘guilt’ beyond what it can bear. And yet what I am after – what I take to be a genuinely possible emotional state – is one that looks to what we have done as a basis for a duty of repair to those harmed by our acts.

The route to an account of such an emotion, I believe, goes by way of an understanding of collective action. I have developed that account at length in other work.²⁴ In my view, collective obligations can arise from a common and spontaneous perception of a need for supra-individual action – of a situation that calls for us to orient ourselves and our agency around the projects of an *us*.

Consider, as an example, the Boston Marathon bombing of 2013. People were gathered at the course end to celebrate the winners. There was a loud flash, a bang, screaming, and blood. Some ran away, moving separately, escaping the danger and the chaos. But many ran into the smoke, looking for the worst injured. One of the most moving photos of the scene involved two men rushing a third, badly injured man, to medical help – having already engaged in the difficult business of providing a tourniquet for his leg.²⁵ They volunteered, as it were, for the collective mission. Assume, as is probably the case, that one person alone could not both tie off the bleeding limbs and bring the victim to medical care. Before the collective action is launched, each witness to the injury has an obligation to the victim, to render what assistance she can. But once they become aware of the other potential rescuer's presence and readiness, the obligation transforms, from one running between individuals, to one that flows from the rescuers as an incipiently cooperating group to the victim. Each individual's planning and deliberation shifts from the question of what she should do – form a group or not – to what *they* should do, for example how to deploy most efficiently their individual and collective capacities.²⁶

We can modify the example to suit the context of climate change. Imagine Janice, who has just returned from a conference on climate change, and who is now inspired to do her part of reducing carbon emissions by turning off her car whenever idling more than seven seconds. She realises that this gesture is nothing but narcissism unless many others do the same, or make other individual gestures at individual reduction. Fortunately, many of us join her, and we note the growing trend in behaviour at traffic lights, in parking lots, and read about it in the news. At that point we are co-participants in a collective project of carbon reduction. Each of us, like Janice,

²⁴ See Kutz, *Complicity*, n. 9; and also C.L. Kutz, 'The Collective Work of Citizenship' (2002) 8 LT 471.

²⁵ T. Rohan, 'In Grisly Image, a Father Sees His Son', New York Times, 16 April 2013. The back story of one of the men, peace activist Carlos Arredondo, is very poignant as well.

²⁶ See Pierik, 'Shared Responsibility in International Law: A Normative-Philosophical Analysis', n. 10, this volume, at ____.

has shifted in practical orientation towards the problem and the world: each now confronts it, in instrumental stance of deliberating about how we together will act.

In both these cases, there is a collective obligation, to be sure – an obligation of each individual to do his or her part in achieving a goal that can only be achieved together, if it is to be achieved at all. It is essentially collective, insofar as it makes reference to the group formed around the future project of relieving suffering. But it is at the same time individual, grounded in individual claims to help, and individual duties to relieve suffering. The morality of projective responsibility, in other words, is a morality of collaboration.

Getting the place of commitments right matters because it is only through a less confining form of collective action, I believe, that we can get an accurate understanding of the normative situation at stake in climate change. Establishing our responsibility, as citizens of developed states, for carrying a significant burden of carbon reduction costs, means showing how the problem of atmospheric CO₂ is a function of our collective action. But emitting CO₂ together is not plausibly seen as a matter of agreement, much less joint commitment. I suggest, however, that it can nonetheless be seen as a form of collective action. Indeed, many mass phenomena can be seen in such terms, as individuals responding to one another and so jointly constituting a normative system that guides individual choice. This is, basically, an account of a trend or *Zeitgeist*: individual orientation around widespread emergent social norms. In such cases, a collective behaviour moves beyond mere parallelism because of the individual roles in sustaining the social norm.

I now modify the discussion again, from prospective to reparative responsibility. Consider tailpipe emissions, especially in the United States, from large and inefficient automobiles.²⁷ The taste for such automobiles was a product of many factors, including low fuel prices; but also of socially reinforced trends of admiring (rather than disdaining) large SUVs; collective action effects of individuals feeling that they were endangered by others' large cars unless they too bought large cars; and the general dis-inhibiting effect of seeing others in such cars as well. The trend of SUV purchases exploded, helped out by the forces of corporate marketing to be sure. No

²⁷ I put aside the carbon emissions generated by industrial production, taking in place in one state but consumed in another. One can see such production as a matter of cooperation between producers and the consumers who look to take advantage of the reduced costs of mass production, and so the emissions generated by the production are fairly attributable to the consumers as well.

one individual's choice of what car to drive probably made a difference to anyone else's behaviour, taken on its own – but overall a network of collective choices was built up out of these individual interactions. And so, in such a case, we can say that the global increase of CO₂ emissions is attributable to the collective, and not merely parallel, acts of US consumers. The same phenomenon happened in reverse a couple of years ago, when oil prices first spiked and awareness of global warming began to emerge. In the US large cars moved from the category of admired to scorned, and the Prius became the new Hummer. The shift in the *Zeitgeist* reflected, again, interdependent patterns of approval, criticism, and reinforcement. None of it occurred by way of agreement or commitment, but the interdependency was sufficient to make this a case of collective action.

The account I have just sketched, of mutual orientation and stabilisation of a norm, can account for the collective aspect of contemporary emissions. It can, therefore, partially ground a reparative duty. But it does so by locating the responsibility of American consumers on the same ground as that of, say, Indian and Chinese consumers. It does not account for the problems of history, and history's inequities. To do that, we need an account that can reach back over time. This may seem a stopping point. How can we connect, say, the carbon emissions of third millennium drivers with the emissions of 1890s industrialists? The story of interdependent adjustment cannot do it.

Instead I offer a tentative suggestion: there can be cases of asymmetric collective action – that is, action that is collective with respect to some participants, and not collective with regard to others (or at least not mutually collective). In particular, we can regard ourselves as collective participants in a shared history with our predecessors, even if they would not have regarded us as co-participants in their shared project. The possibility of such asymmetry should not be doubted. Take, for example, an overly zealous fan at a soccer match. He takes it upon himself to help his team by shining a mirror into the eyes of the goalie on the opposing team. He sees himself as a member of the soccer team writ large, entitled to credit for their win (if they win). The actual team on the field is not only ignorant of his participation, but would demand that he stop immediately if they knew, because of the poor sportsmanship. It is plausible to say that the fan is acting jointly with the team, but the team is not acting jointly with him.

We moderns might fall into the same boat. As Ernest Renan and Benedict Anderson have shown, national identities are projects of active imagination – of new generations seizing aspects of the past and maintaining some while repressing others.²⁸ To be a national, a member of a nation, is to participate in, and not merely accept, this process – maintaining myths, enmities, and allegiances with the past. The work of maintaining such an identity, at least for those who share it, carries with it responsibilities for bearing the burden of that identity. It is our patrimony, and as such is both burden and inheritance – the family estate that must be kept in repair to be worth keeping at all. As an anchor to a collective identity, it exists apart from who we are and yet it is made through our process of self-definition in relation to that anchor.

6. Guilt and taxes

I will now bring the question of guilt back to bear. I have been invoking a notion of collective responsibility and the importance of the individual emotion of guilt, as anchors for a climate change policy. I now want to suggest that guilt can be the anchor of a tax system in particular. But I want to emphasise first that it is individual feelings of guilt I refer to, not collective guilt. While some writers, notably Margaret Gilbert, believe in the existence of collective emotions, such as guilt, I am skeptical about such claims.²⁹ I believe, instead, that talk of collective emotions makes sense, if at all, as a way of speaking about a complex of emotions held by individuals, partly in response to an external stimulus in the world, and partly in response to our inherent and powerful interest in coordinating our emotions with one another. To take an obvious example, we speak naturally of the collective pride of Spaniards in their 2010 Soccer World Cup victory. But it would require more metaphysics and philosophical argument than necessary to justify any literal sense to the claim that some entity called ‘Spain’ felt an emotion called ‘pride’. Rather, and most naturally, many Spaniards found themselves in an interlocking and intersubjective emotional experience in relation to their team, in which each person’s pride mirrored another’s. The result is a wave of emotion – a wave made up of individual emoters.

²⁸ E. Renan, ‘Qu’est-ce qu’une nation ?’ [‘What is a nation?’], Conférence faite en Sorbonne, le 11 mars 1882, at http://fr.wikisource.org/wiki/Qu%E2%80%99est-ce_qu%E2%80%99une_nation_%3F; B. Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (London: Verso, 1991).

²⁹ M. Gilbert, ‘Collective Guilt and Collective Guilt Feelings’ (2002) 6 JE 115.

We can make a similar point about guilt. I think it does not make sense to say that the US, or Goldman Sachs, or any other collective, feels guilt or shame – except as a summary of the attitudes of individual members. Nonetheless, I think an acknowledgement of collective responsibility can be a basis for individual guilt in a way that does reflect the fundamentally collective structure of the situation. On my view, collective responsibility just is individual responsibility for collective acts – but it is a basically non-causal form of responsibility, in which I am answerable in part for what you have done, because what you have done is part of a project you shared with me. I call this ‘inclusive responsibility’, as opposed to my exclusive responsibility for the acts or harms for which I am directly, personally responsible. In the present case, ascriptions of collective responsibility, including for emissions of prior generations, pose deliberative problems for individuals: how ought they feel, or act, in relation to what the collective has done?

Remorse is one possible response – but given the ignorance of prior generations to the effects on the environment, anything but the most abstract sense of remorse seems peculiar. Nonetheless, a sentiment of reparative guilt is easily derived – perhaps not as a free standing emotion, but as an element that figures into the further deliberations about what kind of burden individuals from developed states ought to bear in climate change. John Rawls’ approach to understanding the import of fairness provides an example. While his decision-theoretic argument for the difference principle is the best known, I believe his more powerful exposition stems from the arbitrariness of fortune, and the responsibility of co-citizens to build institutions that can correct for that arbitrariness. The arbitrariness of fortune is connected to something we might consider instead as *beneficiary* (or survivor’s) guilt, and the response to such guilt is to think through what a principle of fair contribution would look like – why a robust conception of democratic equality, in Rawls’ terms, requires transfers from the advantaged to the disadvantaged.

The resource of guilt, then, may enable us to continue our discussion of climate corrective institutions with greater control. It may even point a thumb on the scale in relation to the central institutional question in climate change policy: whether a ‘cap and trade’ or a ‘carbon tax’ architecture would better promote reduction in carbon emissions. Both function through the internalised discipline of market mechanisms, although both also rely on a significant role for the state in monitoring and enforcing compliance. Roughly, a cap-and-trade model relies on an initial

agreement to allocate carbon emissions permits either in the aggregate to different states, or specifically to carbon emitters within states. Firms that can more cheaply reduce their emissions (through their current practice or through accessible improvements) below the permitted level can then sell their excess permitted capacity to those firms facing steep costs for actual reductions. Because of the great international differentials in access to carbon reducing technology, a global trade offers significant efficiency advantages.

At the same time, permit trading presents a number of concerns. The chief one discussed in the literature has to do with the temptations of corruption and the problem of enforcement. Under a global system, presumably states would be responsible for enforcing their own emitters' compliance with permits – but states would have almost no incentive for doing so. Say country A is allocated a small number of permits, and is already using expensive reduction technology. It will seek to buy from poorer country B its unused permit capacity, if doing so is cheaper than making its own reductions. So far so good – global emissions drop at the lowest cost. But note that country B has every incentive to collect the price of the permits it has sold (or to pass that money on to its domestic producer) – and no incentive to actually enforce the reduced net amount of emissions capacity among its producers.³⁰ Knowing this, country A's citizens have no reason to support the scheme in the first place, which they might regard as merely punitive to their state, without providing any economic benefit. Whether or not they feel specially responsible for climate change policy, such a policy would make them mugs.

A carbon tax scheme, by contrast, sets a price paid by carbon producers at whatever level is sufficient to shift production towards more efficient means, or to enable the collecting state otherwise to offset the carbon emissions. Now there are technical problems estimating or adjusting the level of the carbon tax – though the problems may not be insuperable. But the carbon tax system has a major motivational advantage: motivations line up much more clearly with compliance. Under such a system, the taxes are collected by each state. Each state therefore has an incentive to maximise its tax revenues. Rich country A's citizens can accept a higher tax rate, potentially, because they can see that money as flowing to cure inequities that would otherwise result from an even-handed assessment of climate change costs – for example, aid to

³⁰ This discussion is indebted to G.E. Metcalfe and D. Weisbach, 'The Design of a Carbon Tax' (2009) 33 Harv ELR 499.

the poor in their own state, who will be more affected by rising heating costs, or technology transfer to poorer nations. And poor country B can see itself as the beneficiary of a global tax scheme that treats its obligations to reduce emissions as commensurate with its own responsibilities. More generally, a carbon tax scheme might be organised in a way that is commensurate with the assessment not just of differential collective responsibility by various states, but also shared responsibility for the global problem. Such a policy response recognises the weight of history while also confronting the future.

I can put the point more generally. We conceive of taxes, domestically, as a way in which the collective burdens of citizenship are shared, by the principles of fairness that are both responsive to local norms and priorities, as well as to universal considerations, such as basic vulnerability, diminishing marginal utility, and proportionality to benefit. The particular tax burden appropriate to an individual is fixed through a combination of theoretical, administrative, and political considerations, and as such is a fully institutional obligation. But its institutional artificiality does not undermine the moral point that one should pay one's share of taxes – that moral point, which is properly anchored in a sense of warranted guilt or shame if one cheats, is prior to the institutional determination. It is a matter of the basic morality of community membership: one has a moral obligation, as an individual, to meet the demands of collective membership. This does not distinguish taxes from the morality of the domestic marketplace: observing constraints of meeting promises and bargaining in good faith are also moral demands that are logically prior to particular bargains and situations. But the morality of taxes points to an understanding of shared responsibility as the morality of the marketplace does not. Taxes anchor themselves in a public morality; markets in a private morality.

7. Concluding remarks

I have argued thus far that the responsibility to mitigate climate change reflects both facts about a shared history, and a global responsibility of the fair division of the benefits and burdens of development. These intersecting, vertical and horizontal, collective obligations find their natural expression in the morality of taxation, of individual obligations in relation to our shared identities, as citizens of nations existing over time, and as equal members of an interdependent

and mutually vulnerable world. A sense of guilt over historically imprudent development, as well as over undeserved inequalities, can provide the legitimacy such a daunting tax bill demands. By contrast, while the demands of a market-based system are also anchored in a common conception of the problem of global warming, those demands are not easily seen as incidental to the individual obligations of citizenship. This suggests not only that the internal, moral psychological mechanisms of compliance will be weaker for a permit system, but that it will be much harder to construct a narrative to ‘sell’ the system to separate polities. Put conversely, market-based systems work best where they can legitimate themselves on grounds of efficiency rather than justice. But the demands of climate change are much too strong for efficiency to do the motivational work.

This discussion of the moral foundations of a conception of shared responsibility is not meant to provide a knock-down argument for the superiority of a tax mechanism for distributing burdens. My aim was instead much more modest: to indicate the continuities between an individual conception of moral responsibility and a collective, or shared, conception of legal-political responsibility. The moral emotion of guilt is the matrix in which both are embedded. Guilt and taxes may not be the happiest combination in the quiver of institutional designers, but they are among the most forceful and specific.