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Responsibility and Climate Change

Abstract: I begin by providing some background to conceptions of responsibility. I note the extent of disagreement in this area, the diverse and cross-cutting distinctions that are deployed, and the relative neglect of some important problems. These facts make it difficult to attribute responsibility for climate change, but so do some features of climate change itself which I go on to illuminate. Attributions of responsibility are often contested sites because such attributions are fundamentally pragmatic, mobilized in the service of a normative outlook. We should be pluralists about responsibility and shape whatever conceptions can help to explain, guide, and motivate our responses to climate change. I sketch one such notion, 'intervention-responsibility', and argue that it should be ascribed to international regimes and organizations, states and other jurisdictions, individuals, and firms. Each has different capacities and thus different intervention-responsibilities responsibilities, but these differences are not always mirrored in public discussion. In particular, the moral responsibility of firms has been greatly neglected.

Keywords: Climate change, Firms, International regimes, Pluralism, Responsibility

Introduction

Millions of dollars have been spent denying what is clear: Climate change is occurring and people are responsible. What may be surprising is how difficult it can be to move from this often denied yet relatively uncontroversial general claim, to more specific claims about who is responsible for what.

People are changing climate by perturbing the global carbon cycle. Yet it is difficult to estimate precisely or even roughly the damages that will result from this perturbation. Increasing the atmospheric concentration of a trace gas like carbon dioxide does not cause people to drop dead. The warming of the Earth's surface which results from the perturbation of the carbon cycle does not cause the death of a grandmother in Verona. The carbon cycle is being perturbed, a warming is occurring, and people will die – but the enormous complexity of the social and physical systems that mediate between the perturbation, the warming, and the deaths makes causal knowledge or attribution extremely difficult or even practically impossible. What is true of deaths is true of other damages as well.

Even when damages can be attributed to the anthropogenic perturbation of the carbon cycle, there are problems about how to value them. These damages

will occur over centuries, and how they are valued depends enormously on economic constructs such as the discount rate. According to the Stern Review, on a 'business as usual' scenario, climate change damages will be more than an order of magnitude greater than what another leading economist, William Nordhaus, estimates. The differences between them are largely due to different choices regarding the discount rate.¹

Here is what we know. Humanity is transferring fossil carbon to the atmosphere at an almost unprecedented rate. Unless something unexpected intervenes, this will result in vast damages to much that we care about: human lives, property, species, natural ecosystems, and so forth. In addition to causing incremental damages to what we value, this transfer of fossil carbon risks disrupting climate in a way that will be truly catastrophic. It should be obvious, unless we are completely lost in theory, that it is not possible to know the full extent of these risks and damages; and even if we were to know them, it would not be possible to value them using standard economic tools. To put the point bluntly: It is downright ludicrous to suppose that we can do a reliable benefit-cost analysis of a climate change that could be catastrophic and will in any case affect virtually everything we value over the entire planet for many centuries to come.² Of course we know this, but we often go on as if we did not, especially in the community that is supposed to think rigorously about how to manage these problems.

In the face of such considerations it is reasonable to wonder about causes and responsibility. Who is causing the problem? Who is at fault? Who should bear the costs? Who should change their behavior? Should someone go to jail?

In order to think clearly about these questions we are going to have to sharpen up the way that we talk about responsibility. This is difficult because 'responsibility' (and its cognates) is used in many different ways, and questions of responsibility are often discussed without using the word at all. In addition, one doesn't have to go very far into the literature before running into foundational questions in metaphysics, philosophy of science, ethics, and moral psychology. I map some of the terrain in this essay and take some modest steps towards imposing some order, but I make no claims about having provided a definitive or complete account.

I begin by providing some background to conceptions of responsibility. I then identify some of the characteristics of climate change that make responsibility-

¹ For discussion, see Dale Jamieson, *Reason in a Dark Time: Why the Struggle Against Climate Change Failed – and What it Means for our Future* (New York: Oxford University Press, 2014), Ch. 4.

² I first argued this in Dale Jamieson, 'Ethics, Public Policy, and Global Warming', *Science, Technology, and Human Values* 17/2 (1992), 139-153.

claims so contested in this domain. I go on to revisit the notion of responsibility, and characterize a conception that I call ‘intervention-responsibility’. Finally, I draw some conclusions.

Responsibility

The word ‘responsibility’ and its cognates are used in many different ways, and the language of responsibility is entwined in a broad range of disputes and discussions in the history of philosophy and in contemporary philosophy.

Aristotle, it has been claimed, was the first to construct a theory of moral responsibility, but some scholars have found aspects of our present concerns with responsibility in the Homeric epics.³ Still other scholars, focused primarily on use of the English word ‘responsible’ and its cognates in other European languages, have claimed that the notion of responsibility only found a home in philosophical discourse in the eighteenth century, and then primarily in debates about representative government.⁴ These scholars see our present concern with individual moral responsibility as presupposing the political and social backgrounds created by the revolutions of the eighteenth century. They see Mill as the bridge from the political notion of responsibility, to the notion of individual moral responsibility that is most discussed in the contemporary literature.

The dominant theme in the contemporary discussion concerns the relationships between responsibility, free will, determinism, and related concepts. Although philosophers often use highly stylized examples, this literature is meant to bear on whether we are individually responsible for any of our actions, and if so which. While *Philpapers*, the largest online bibliography of philosophical papers, lists nearly 6,000 papers on free will, it lists only a little more than 1,200 on moral responsibility, 154 on responsibility in applied ethics, and has no category at all for political responsibility or responsibility in general. Despite the intense discussion of foundational matters, deep disagreement remains.

One set of distinctions that is central to the contemporary discussion is between causal, moral, and legal responsibility. They can be distinguished as a first approximation by considering the following cases. If Jack has a seizure and breaks Jill’s model airplane, we may say that Jack was causally but not

3 For overview and references relevant to this paragraph see Andrew Eshleman, ‘Moral Responsibility’, in Edward Zalta (ed.), *Stanford Encyclopedia of Philosophy* (2014), <<http://plato.stanford.edu/entries/moral-responsibility/notes.html#5>>.

4 See Richard McKeon, ‘The Development and the Significance of the Concept of Responsibility’, *Revue Internationale de Philosophie* 11/39 (1957), 3-32; and Paul Ricoeur, ‘The Concept of Responsibility: An Essay in Semantic Analysis’ in his *The Just*, trans. David Pellauer (Chicago: The University of Chicago Press, 1992), 11-36.

morally or legally responsible for Jill's loss. If Kelly fails to shovel her sidewalk and Sean slips and falls, we may say that Kelly is morally but not causally or legally responsible for Sean's injury.⁵ If Pat is married to a profligate he may be legally but not causally or morally responsible for his partner's debts.

How plausible these particular examples are will depend on jurisdictions, intuitions, and background theories. In any case it is difficult to weave commonsense intuitions about responsibility into a single coherent concept, and theorists disagree about how various inconsistencies should be resolved.⁶ The conceptual landscape of responsibility is not fully tamed. Some would say that it is a wilderness.

Nevertheless, there are some conventional views in this area. For example, it is widely held that causal responsibility is necessary but not sufficient for moral and legal responsibility; and that moral responsibility is not necessary for legal responsibility.

While the latter view is virtually unchallenged, the former view has been called into question.⁷ The basic thought (or feeling or emotion or facial expression) that drives the former view is this: How can you be morally or legally responsible for something you did not bring about?!

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The view that causal responsibility is necessary for moral responsibility is closely related to Mill's Harm Principle and is near the heart of contemporary liberalism.⁹ While philosophers and political theorists argue about the scope of the Harm Principle and the meaning of its key terms, it is a mark of a liberal state that it largely keeps its nose out of its citizens' harmless behavior.

Nevertheless it is clear that in various societies at various times, people have been held to be morally responsible for what they have done and not just for

5 This example is from Jules Coleman, *Risks and Wrongs* (New York: Cambridge University Press, 1992), p. 274.

6 For a survey of some of the relevant results from experimental studies and an attempt to reconcile them see Gunnar Björnsson and Karl Persson, 'A Unified Empirical Account of Responsibility Judgments', *Philosophy and Phenomenological Research* 87/3 (November 2013), pp. 611-639.

7 For example by Carolina Sartorio, 'How to be Responsible for Something Without Causing It', *Philosophical Perspectives* 18 (2004), 315-336.

8 For discussion of some difficult cases and a defense of this claim see Julia Driver, 'Attributions of Causation and Moral Responsibility', in Walter Sinnott-Armstrong (ed.), *Moral Psychology*, Vol. II (Cambridge: The MIT Press, 2007), 423-439.

9 In *Shame and Necessity* (Berkeley: University of California Press, 1993), Ch. 3, Bernard Williams claims the link between causal and moral responsibility goes even deeper. The canonical statement of the Harm Principle is the following: 'The only purpose for which power can be rightfully exercised over any member of a civilized community, against his will, is to prevent harm to others.' (J.S. Mill, *On Liberty*, Ch. 1, sec. 9, available in many editions including on the web at <<http://www.econlib.org/library/Mill/mlLbty1.html>>.

what they have brought about.¹⁰ Indeed, many people are morally appalled by such apparently harmless acts as consensual gay sex or flag burning, but are completely unmoved by deaths caused in war or by environmental pollution.

Contemporary psychologists such as Jonathan Haidt and Daniel Gilbert have argued that our everyday moral conceptions – even those of liberals – are only loosely associated with harm-causation. Haidt has argued that considerations involving fairness and reciprocity, in-group loyalty, authority and respect, and purity and sanctity, in addition to considerations about the causation of harm, are at the foundation of morality as experienced by many people.¹¹ Gilbert brings these considerations to bear on the question of climate change when he writes that

‘global warming doesn’t [...] violate our moral sensibilities. It doesn’t cause our blood to boil (at least not figuratively) because it doesn’t force us to entertain thoughts that we find indecent, impious or repulsive. When people feel insulted or disgusted, they generally do something about it, such as whacking each other over the head, or voting. Moral emotions are the brain’s call to action. Although all human societies have moral rules about food and sex, none has a moral rule about atmospheric chemistry. And so we are outraged about every breach of protocol except Kyoto. Yes, global warming is bad, but it doesn’t make us feel nauseated or angry or disgraced, and thus we don’t feel compelled to rail against it as we do against other momentous threats to our species, such as flag burning. The fact is that if climate change were caused by gay sex, or by the practice of eating kittens, millions of protesters would be massing in the streets.’¹²

Indeed, part of what makes understanding the relations between causal and moral responsibility even more difficult is that ‘responsibility’, even when modified by a term such as ‘causal’, is already, arguably, a normative notion. Robert Goodin writes:

‘The notion of causal responsibility is not the unambiguous, technical term it seems. The ascription of causal responsibility for

10 Indeed, non-consequentialists could be said to endorse such a view. One could try to ablate the distinction between what one does and what one brings about by claiming that one brings about what one does, but to my ear that stretches the language, papers over a significant disagreement, and obscures one of the most important links between consequentialism and liberalism.

11 See his *The Righteous Mind: Why Good People are Divided by Politics and Religion* (New York: Pantheon Books, 2012).

12 ‘If Only Gay Sex Caused Global Warming’, *Los Angeles Times*, published online July 2, 2006, <<http://articles.latimes.com/2006/jul/02/opinion/op-gilbert2>>.

an outcome represents the conclusion of a moral argument, not the premise of one.’¹³

While he overstates the case, the normativity of the ascription of causal responsibility can be seen from the fact that social change movements are often directed towards getting people to accept causal responsibility for harms, rather than towards getting them to accept moral responsibility for harms for which they already acknowledge causal responsibility. So, for example, the abolitionists spoke of ‘blood sugar’ in their attempts to get ordinary citizens to see that their consumption of sugar was causally implicated in the horrors of slavery. William Fox, in his 1791 pamphlet, *Address to the people of Great Britain on the propriety of abstaining from West Indian sugar and rum*, wrote that

‘so necessarily connected are our consumption of the commodity the misery resulting from it, that in every pound of sugar used, (the produce of slaves imported from Africa), we may be considered as consuming two ounces of human flesh.’¹⁴

Climate activists make similar attempts today in order to get us to see that even apparently innocent behaviors like driving and meat-eating are causally implicated in producing climate change.

Thus far we have distinguished causal, moral, and legal responsibility, and discussed the relationships among them, but no account has yet been given about what distinguishes moral responsibility from these other notions. Mill writes:

‘Moral responsibility means punishment. When we are said to have the feeling of being morally responsible for our actions, the idea of being punished for them is uppermost in our mind.’¹⁵

For Mill and many who have been influenced by him, what distinguishes moral from causal responsibility is its relation to sanctions. What distinguishes moral from legal responsibility is that moral sanctions can be informal and even internal. According to Mill,

‘[w]e do not call anything wrong unless we mean to imply that a person ought to be punished in some way or other for doing it – if not by law, by the opinion of his fellow creatures; if not by opinion,

13 Robert Goodin, *Protecting the Vulnerable* (Chicago: University of Chicago Press, 1985), p. 26. See also Marion Smiley, *Moral Responsibility and the Boundaries of Community: Power and Accountability from a Pragmatic Point of View* (Chicago: University of Chicago Press, 1992), and Williams (1993).

14 Available at <<https://archive.org/details/addressstopeople00foxw>>.

15 J. S. Mill, *An Examination of Sir William Hamilton’s Philosophy*, Third Edition (London: Longmans, Green, Reader, and Dyer, 1867), p. 454.

by the reproaches of his own conscience. This seems the real turning point of the distinction between morality and simple expediency.¹⁶

So to summarize. Causal responsibility concerns what we bring about and ascriptions are often value-laden. Moral responsibility invokes an action's liability to sanctions. Legal responsibility implies that particular, formal sanctioning practices may be appropriate.

Beginning with the work of H.L.A. Hart and Joel Feinberg in the 1960s and 1970s, contemporary theorists have attempted to map the concept of moral responsibility and have made important distinctions along the way.¹⁷ Some of the most important distinctions are those between forward and backward looking responsibility; and the kind of thing that can be morally responsible, grounds for judgments of moral responsibility, and sanctions that are appropriate to particular judgments. However, as the literature has mushroomed it has become increasingly difficult to get a clear view of the broad domain.¹⁸ Sometimes distinctions seem to be cross-cutting. As I have already pointed out, some topics have gotten a great deal of attention (typically those which are foundational and individual), while others have received much less attention (typically those that are contextual and political). In recent years a literature on collective responsibility has emerged, but is much smaller than that devoted to other topics (209 papers are listed in the *Philpapers* bibliography). As we move from metaphysical questions about responsibility to more practical questions, and from there to questions of collective responsibility, the topic moves from generally unsettled to neglected. In addition, as we shall see, there are features of climate change itself that also make the application of responsibility concepts difficult.

Climate Change

The problems that climate change presents are quite different from those that we are used to confronting in everyday life. This makes the application of the language of moral responsibility even more difficult and indeterminate than in many other cases. Elsewhere I have identified six features that help to distinguish the problem of climate change from other problems and I briefly reprise them here.¹⁹ None of these features are unique to climate change, though they are more extreme in this case than others, and no other problem that I can think of displays all of these features.

16 J. S. Mill, *Utilitarianism*, Ch. 5, available in many editions and on the web at <<http://www.utilitarianism.com/mill5.htm>>.

17 For an overview (and taxonomy of his own), see John Gardner, 'Hart and Feinberg on Responsibility', in Matthew H. Kramer, Claire Grant, Ben Colburn, and Antony Hatzistavrou (eds.), *The Legacy of H.L.A. Hart: Legal, Political, and Moral Philosophy* (Oxford: Oxford University Press, 2008), 121-149.

18 For an overview see Eshleman (2014).

19 Jamieson (2014), Ch. 5.

The first feature that makes climate change different from most other problems is the magnifying power of technology. Simple acts such as starting a car or adjusting a thermostat have broader and more extensive reach than previous forms of transportation and thermoregulation such as walking and fire-building. The growth and development of technology, especially in regard to the production and management of energy, is to a great extent responsible for this. While once people had the power to disrupt their local environments, now people have the power to alter the planetary conditions that allowed human life to evolve and that continue to sustain it.

The spatial reach of climate change, especially in relation to the acts that contribute to it, is a second feature that helps to differentiate this problem from others. Climate change is a global phenomenon that is insensitive to the locations of the emissions that contribute to it. The atmosphere does not care where greenhouse gas (GHG) emissions occur. It responds in the same way whether they come from the poles, the equator, or somewhere in between. For those who suffer from climate change, it is as if millions of acts that occur very far from you, all over the world, are in some way associated with the pain in your foot.

A third difference between climate change and other problems concerns the temporal reach of GHGs. Imagine that after reaching an atmospheric concentration of 450 ppm sometime in the next decade, we immediately stop all carbon dioxide emissions. By the year 3000, neither atmospheric concentrations of carbon dioxide nor global mean surface temperature would have returned to their pre-industrial baselines, and sea levels would still be rising.²⁰ It is as if someone steps on your foot, politely says excuse me, and then walks away, while the pain in your foot persists for the rest of your life.

A fourth difference between climate change and most other problems we face is the systematicity of the forces that give rise to it. People pay an enormous amount of attention to computing carbon footprints and arguing over responsibility for emissions, but the fact is that the manipulation of the global carbon cycle is intrinsic to the existing global economy. Whether we are producers, consumers, or just trying to get by, as long as carbon is the lifeblood of the global economy, no one has clean hands.

A fifth feature of climate change that makes it different from other problems is that it is the world's largest and most complex collective action problem. It is the largest, since everyone is a climate change actor and virtually

²⁰ Susan Solomon Gian-Kasper Plattner, Reto Knutti and Pierre Friedlingstein, 'Irreversible Climate Change Due to Carbon Dioxide Emissions', *PNAS* 106 (2009), 1704-1709.

everyone will be affected by climate change. It is the most complex for many reasons, including the high degree of connectivity in the climate system, the non-linear nature of many of the relationships, threshold effects, and buffers that exist in the system. What I want to emphasize here are the differences of scale that are involved in moving from human action to the climate system, and back to damages.

Consider a radically oversimplified story that begins with me emitting some molecules of carbon dioxide. These molecules may stay in the atmosphere for centuries or even longer, but what is most likely is that within five years they will dissolve into the ocean or be taken up by the biosphere. When carbon dioxide molecules dissolve in the ocean, they are usually replaced in the atmosphere by other molecules that radiate from the ocean. As the oceans warm, the velocity of these emissions increases, and it is likely that the original carbon will soon be returned to the atmosphere. However, a tiny fraction sinks to the ocean's depths and is eventually stored in carbonate rocks, where it may remain for tens of millions of years or more. The fate of carbon molecules in the terrestrial biosphere is even more various, but they are usually returned to the atmosphere within a decade or two.²¹ The result of these exchanges is a perturbation of the carbon cycle, which produces a generalized warming, which affects the global climate system, which in turn affects the distribution, frequency, and intensity of various meteorological events. These events occur in specific environments and can result in anything from a heat wave or storm in an uninhabited part of the world, to an insurance claim for a BMW damaged in a hailstorm, or to the collapse of a government. For my particular carbon emission to have a causal effect in producing these harms it must in some way be active at all of these levels, from increasing concentrations of atmospheric carbon dioxide, to producing untoward meteorological events that actually result in harms. The influence of my emission must travel upward through various global systems that affect climate, and then downwards, damaging something that we value. The sense of implausibility, ignorance, and downright confusion that such a scenario elicits can be illustrated by the following example.

I, along with many other people, toss an invisible smidgen of something into a blender. A man takes a drink of the resulting mixture. Am I responsible for the graininess of the texture, the chalkiness of the taste, the way it makes him feel after drinking it, his resulting desire for a beer? You might think that I am a smidgen responsible, since a smidgen is the amount that I tossed into

21 David Archer and Victor Brovkin, 'The Millennial Atmospheric Lifetime of Anthropogenic CO₂', *Climatic Change* 90 (2008), 283-297.

the blender. But it is really difficult to feel responsible given the thresholds, non-linearities, and scalar differences that intervene between my action and the outcomes.

A sixth difference between anthropogenic climate change and the problems that we are used to confronting concerns the extent to which climate change is world-constituting. Climate change will radically repopulate the world because it is highly contingent which particular individuals come into existence, and climate change will quickly affect on a very large scale who marries whom and what children are conceived. In introducing this concern Derek Parfit rhetorically asks, '[H]ow many of us could truly claim, "Even if railways and motor cars had never been invented, I would still have been born?"'²² Similarly, the people of the future can ask (also rhetorically) whether they would have been born had the world not gone down the path of emitting more than 30 billion tons of carbon dioxide per year. It is this concern that should give us pause when we are tempted to say that climate change deprives future people of the climate that they would otherwise have. Had there not been climate change, they probably would not have existed.

The problems with which climate change confronts us are importantly different from textbook collective action problems that have us trying to find solutions to an overgrazed commons or an overexploited fishery. In the climate change case, the distance from my particular acts to the damages that occur is far greater on several dimensions than in the cases with which we are normally confronted.

Still, it seems strange to suppose that together we can kill many people without any of us individually being morally responsible for the outcome. When the problem is stated in this way the solution seems obvious: as individuals we have responsibilities regarding how we act as members of collectives. As Parfit has written, 'Even if an act harms no one this act may be wrong because it is one of a set of acts that together harm other people.'²³

It is a challenge to precisely formulate and interpret this claim.²⁴ Still, the basic intuition that Parfit articulates, that as individuals we have duties regarding how we act as matters of collectives, underlies the claim that we are morally responsible when we needlessly drive and thoughtlessly fly. This intuition is indeed one of the threads that make up the tapestry of commonsense morality. It can be seen as providing a moral basis for volunteer fire departments, parent-

²² Derek Parfit, *Reasons and Persons* (Oxford: Oxford University Press, 1984), p. 361.

²³ *Ibid.*, p. 70.

²⁴ See Jamieson (2014), p. 172, for discussion of these challenges.

teacher associations, and faith-based social welfare programs, and supporting the negative assessment of those who do not do their part in sustaining such institutions.

However, the intuition seems to apply mainly to small, homogenous groups that think of themselves as acting together. Only in extraordinary circumstances and for short periods of time can it be extended more broadly (e.g., to an entire nation during wartime). Extending the intuition seems to require specific enemies (e.g., Nazis), goals (e.g., winning the war), and means (e.g., resource conservation). Climate change, however, does not share these features. There is no specific enemy, the goal is ill-defined, and the means are (too) many. Moreover, rather than extraordinary, the circumstances of life in a warming world are the 'new normal'.

Furthermore, the most common models of collective responsibility discussed by philosophers do not fully capture the relations between individual emissions and climate change damages.²⁵ One common model is the Cumulative Model in which every relevant input produces a relevant output, though the inputs and outputs may be imperceptible. It is this model that is demonstrated by a case in which each of a thousand torturers turns a knob that imperceptibly increases the electric shock delivered to a victim. No single torturer is responsible for causing a perceptible increment of pain, but since the torturers together cause the pain, it is plausible to think of them as each causally responsible for some increment even if it is imperceptible. A second model is the Threshold Model in which no effect occurs unless a specific level of collective contribution is achieved (e.g., a car will not get out of the mud unless four people push). There are different ways of assessing the causal contributions of individuals in such cases, but what matters for our purposes is that on this second model, inputs produce outputs only when some particular threshold has been reached.

A cursory look at an introductory atmospheric science text shows how inadequate the Cumulative Model is to the complex relations between individual emissions and climate change damages. This model only seems plausible, I think, because of the seductiveness of the 'bathtub' analogy that is often used in thinking about carbon emissions. On this analogy, emitting

25 This point has been made by Walter Sinnott-Armstrong, 'It's Not My Fault: Global Warming and Individual Moral Obligations', reprinted in Stephen Gardiner, Simon Caney, Dale Jamieson, and Henry Shue (eds.), *Climate Ethics: Essential Readings* (New York: Oxford University Press, 2010), 332-346; Parfit (1984), Ch. 3; Jonathan Glover, "It Makes No Difference Whether or Not I Do It", *Proceedings of the Aristotelian Society*, Supplementary Volume 47 (1975), 171-209; and Shelley Kagan, 'Do I Make a Difference?' *Philosophy and Public Affairs* 39/2 (2011), 105-141. For an overview of work on collective responsibility (including discussion of important work that I cannot canvas here), see Marion Smiley, 'Collective Responsibility', in Edward Zalta (ed.), *Stanford Encyclopedia of Philosophy* (2010), <<http://plato.stanford.edu/entries/collective-responsibility/>>.

carbon is like running water into a bathtub and damages occur when the tub overflows. This is quite intuitive and can be useful for pedagogical purposes but it is quite misleading if taken seriously. The carbon from individual emissions does not stack up, overflow the atmosphere, and cause damages. Rather, the carbon emitted from joyriding in a '57 Chevy very slightly perturbs the global carbon cycle, affecting various fluxes and feedbacks, in ways that are difficult to quantify. The molecules themselves may stay in the atmosphere for centuries, be absorbed by the biosphere within a few years, or wind up in the oceans. In any case we will never know the fate of the particular molecules that were emitted.

The Threshold Model is somewhat more applicable because thresholds in the climate system actually exist. However, what this analogy does not capture is the dynamic nature of the climate system, the fact that there are vast numbers of differently structured processes that occur simultaneously, the differences in scale that are involved in moving from individual emissions to damages, and the fact that the system at each level is open to a vast number of influences, many of which are not causally active at other scales. In the end the relation between my emissions and climate-related harms is not at all like the relation between my pushing and the car getting out of the ditch in the threshold case. It is such considerations that led Walter Sinnott-Armstrong to claim that 'my individual joy ride does not cause global warming, climate change, or any of the resulting harms, at least directly'.²⁶ He goes on to say that

[w]e should not think that we can do enough simply by buying fuel-efficient cars, insulating our houses, and setting up a windmill to make our own electricity. That is all wonderful, but it does little or nothing to stop global warming and also does not fulfill our real moral obligations, which are to get governments to do their job to prevent the disaster of excessive global warming. It is better to enjoy your Sunday driving while working to change the law so as to make it illegal for you to enjoy your Sunday driving.²⁷

There are some hedges here. Sinnott-Armstrong claims that his individual joyride does not cause climate change 'at least directly' but nevertheless suggests that it should be 'illegal'. He says that the climate-friendly acts he mentions are not 'enough', that they do 'little or nothing' to stop global warming, yet he says that they are 'wonderful'. His main point seems to be that because these individual acts have little or no effect on producing harms, they do not

²⁶ Sinnott-Armstrong (2010), p. 336.

²⁷ *Ibid.*, p. 344.

engage the full machinery of moral responsibility. What is morally required is that we ‘get governments to do their job to prevent the disaster of excessive global warming’.

As I have already pointed out, we should be skeptical about whether there is a causal relation between any particular act that emits GHGs (e.g., the Sunday drive) and climate change damages (e.g., a BMW dented in a hailstorm). The emissions that come from a Sunday drive are vanishingly small relative to the total GHG forcing, and intervening between the action and harms are various thresholds, non-linearities, and feedbacks that occur at different scales. In light of all this it is not clear that we can say that my Sunday drive in any way and to any extent caused a particular meteorological event, much less the socially mediated harms that may follow. The obstacles to making such claims are both epistemological and conceptual. In these kinds of cases we do not know and likely never will know whether some particular emission had any causal relevance for a particular harm. Even if we knew that a particular emission had some causal relevance, it would still remain a difficult conceptual question whether we would want to say that the emission caused the harm given the scalar differences between them. For all practical purposes, climate change damages are insensitive to individual behavior.²⁸

The sting of this result cannot be easily balmed by transferring our supposed duties to the political domain, as Sinnott-Armstrong suggests. For the same problem that arises with individual acts of emissions reduction arises for individual political acts, though perhaps not quite as sharply or always in the same ways. When it comes to voting, writing letters, making modest campaign contributions, or even occupying Wall Street, it is hard to feel that my individual act has much efficacy.²⁹

Together we are changing the composition of the atmosphere in a way that will cause the deaths of many people. As terrible as this fact is, it does not immediately translate to the robust conclusion that individuals’ who emit carbon are morally responsible for their emissions.

Responsibility Revisited

It is time to revisit the notion of responsibility. What we have learned is that while the elements of responsibility may be ancient, its origins as an

²⁸ There are other reasons for being skeptical about the efficacy of individual behavior as well (e.g., the ‘rebound’ effect). For discussion, see Maria Csutora, ‘One More Awareness Gap? The Behaviour–Impact Gap Problem’, *Journal of Consumer Policy* 35/1 (2012), 145–163.

²⁹ See also Avram Hiller, ‘Climate Change and Individual Responsibility’, *The Monist* 94/3 (2011), 349–368; and Ronald Sandler, ‘Ethical Theory and the Problem of Inconsequentialism: Why Environmental Ethicists Should be Virtue Oriented Ethicists’, *Journal of Agricultural and Environmental Ethics* 23 (2010), 167–183.

active participant in philosophical discourse are recent. Responsibility is a contested site, with partisans of particular normative outlooks arguing for attributions of responsibility, while their opponents deny or reassign the attributions. Fairly typical examples are these:

A: 'Our lax gun control laws are responsible for gun violence.'

B: 'No they are not. It is the evil and maniacal shooters who are responsible. And anyway, these things just can't be stopped.'

A: 'Everyone who buys a shirt without paying attention to where it comes from is responsible for sweatshop labor.'

B: 'Are you kidding? It is the greedy, factory owners who are responsible, not the consumer. We've got other things to do besides read labels.'

Conceptions of responsibility are constructed, and then mobilized for particular purposes. Arguments in this domain are primarily a matter of persuading others to share one's outlook, rather than directed towards bringing others to see some fundamental truth about the nature of responsibility and the application of the concept.

This general perspective is widely (though not universally) shared among writers on responsibility. Early in the contemporary discussion Jonathan Glover wrote:

'Our attitudes toward people and what they do are influenced by our knowledge of them and their situation; but we are not forced by any facts, even the truth of determinism, to modify our attitudes. It is up to us to choose which considerations to accept as excuses or mitigation.'³⁰

The point of attributions of responsibility is practical. Given its modernity, flexibility, and the cross-cutting nature of its dimensions and uses even on particular occasions, it is not surprising that it is a domain in which pluralism dominates. One attribution (or conception) of responsibility does not immediately drive out another. As Bernard Williams writes,

'There is not, and there never could be, [...] just one correct conception of responsibility [...]. [W]e ourselves, in various circumstances, need different conceptions of it.'³¹

³⁰ Jonathan Glover, *Responsibility* (London: Routledge and Kegan Paul, 1970), p. 10. An extremely influential early expression of this general view can be found in P. F. Strawson, 'Freedom and Resentment', *Proceedings of the British Academy* 48 (1962), 187-211. Strawson and Glover are primarily concerned with individual moral responsibility and insulating it from grand metaphysical theses.

³¹ Williams (1993), p. 55.

Of course not anything goes. There are (relatively speaking) some fixed points. For example, you may persuade me that I am responsible for a particular evil because I refrained from acting, but you will not convince me that I am responsible for the crucifixion of Jesus. An attribution of responsibility that relies on backwards causation will not, here and now, with me anyway, gain traction.³² Although normative considerations will be in play (often in the background), arguments will have to be given that appeal to the superior practical and conceptual utility and coherence of the conceptions and attributions being forwarded.

For those who want us to take responsibility for climate change the task is to construct and diffuse a notion of responsibility that supports attributions that engage and motivate us. The challenge is not to convince us that some ‘off the shelf’ concept applies, but rather to shape and promote a notion that will achieve this purpose.

Conflict around this task is inevitable. Not everyone believes that climate change is real, not everyone who believes that climate change is real believes that it is anthropogenic, not everyone who believes that anthropogenic climate change is real believes that something can or should be done about it. There were analogous views regarding slavery, but this did not deter abolitionists from shaping a conceptual outlook that promoted and supported their values. And rightly so.

Joy-riding does not cause climate change but contributes to it. As a citizen of the United States I may be complicit in the torture of prisoners at Guantanamo but I do not cause their torture. One strategy would be to try to change the truth-values of these statements by subsuming contribution and complicity under some broader causal notion. This, I think, is too far a reach; and if successful would have the unwelcome effect of further weakening our (already weak) common sense causal notions, thus inviting the further challenge: ‘Alright, so joyriding causes climate change. So what? That doesn’t make me morally responsible for climate change.’ A more plausible strategy, I think, is to argue that moral responsibility encompasses ‘contributing to an outcome’ or being ‘complicit in sustaining a state of affairs’, even if these are not causal notions. This too is a reach, but one that may be manageable. In any case I shall not attempt it here. Instead in the next section I will sketch a conception of moral responsibility that I think can help to explain, guide, and motivate our responses to climate change.³³

³² It is sobering, however, to be reminded – by Williams (1993) and Haidt (2012) – just how wide the range of attributions is that can motivate people.

³³ The conception of intervention-responsibility that I develop is forward-looking, but any conception of responsibility (whether forward or backward looking) has to story to tell a coherent story about the present, past, and future. In this respect an account of responsibility is like an account of prediction, which if adequate, must have something to say about explanation (and vice versa).

Intervention-Responsibility

What I have suggested is that although there is a tendency to think of ascriptions of responsibility as fundamentally answering to deep facts about the causal and moral structure of the world, their main function is not to represent the world but rather to serve as instruments of intervention. It is in this spirit that I propose the following general, approximate account of Intervention-Responsibility (IR):

Agent A is IR for state of affairs S when 1) S is undesirable, 2) A could significantly mitigate S without excessive cost.

The philosophical mill will find a lot of grist to work on here. What exactly counts as an agent? Can agents have something like diminished capacity or be excused for their failures? How much mitigation is significant? How much cost is excessive? What do we say about our old friend ‘could’? Does this formulation express a necessary condition or something stronger? These are good questions, but I will not try to answer them here. My goal is modest. Rather than getting bogged down in familiar philosophical questions, I only want to show how this rough and ready notion might help us to think about responsibility in the context of climate change. We can worry about the details later.

Notice first that IR is a forward-looking notion. It directs us towards what difference agents can make in the world, not towards who has done what to whom and why.

Second, when we think of agents as those entities that have the capacity to intervene in a way that makes the world better, then it is natural to think of them as existing at different levels of organization. I can intervene with my brother, but so can our family, the church, and even the state.³⁴

When it comes to climate change, four families of agents suggest themselves: individual people; nations and other jurisdictions; international organizations and regimes; and firms. Each family of agents (and each agent) has the ability to intervene in climate change in some respects but not in others.

Some of these families and agents have greater capacity than others, but the allocation of attention has not always reflected agents’ proportional power of intervention. For example, a vast amount of attention has been paid to international organizations and regimes (especially the Framework Convention on Climate Change (FCCC)); quite a lot of attention has been paid to individuals, nations and other jurisdictions; but very little attention has been devoted to

³⁴ This is an example of intervening with a person rather than in a state of affairs. Is there an important distinction here? I think not, but this is more grist for the philosophical mill.

firms. In what follows I will try to provide some rough guidance about the IR for climate change of various agents and families of agents.

International Organizations and Regimes

The Framework Convention on Climate Change (FCCC) is an international regime that has an international organization at its heart. A great deal of attention has been focused on the United Nations and the FCCC and its failures have been massively documented and decried. Before each conference of the parties the world's press is full of expectations and demands that are inevitably disappointed. The fact is the FCCC cannot really be much more effective than the parties to the Convention (individual nations and the European Union (EU)) want it to be. The FCCC cannot impose binding emissions limits on countries that do not want to be bound. It cannot sanction countries that do not agree to be sanctioned. When it comes to directly reducing emissions, the FCCC is not structured in a way to deliver much by way of effective action or fairness. It should not be totally exempt from bearing responsibilities in these areas, but much of the intervention-responsibility for effectiveness and fairness must lie elsewhere (e.g., with states). However, even within these limitations there are things that the FCCC can and does do, and in some cases could do better. For example, it provides a forum for consciousness-raising and information-sharing, and it should be held to discharging these responsibilities as transparently and effectively as possible. The FCCC can also provide and facilitate mechanisms for internationalizing the costs of adaptation, shifting some of the burden away from those who have done little, towards those who have done a lot to cause the problem.

Nations and Other Jurisdictions

Nations are the primary members of the FCCC and bear enormous IR for reducing GHG emissions. They are also the site of a great deal of attention. Virtually every country in the world has an influential social and political movement directed towards reducing the emissions of its country. Some countries, such as Germany, have effectively reduced their emissions and done at least an acceptable job of discharging their IR.³⁵ Other countries, such as Australia, have been abysmal with respect to their intervention-responsibility. On an annual basis 28% of Germany's electricity comes from renewables, while the percentage is less than half in sunny Australia.³⁶

35 On July 25, 2015, 78% of Germany's electricity demand was met with renewables: <http://www.takepart.com/article/2015/07/28/germany-sets-renewable-energy-record?utm_content=buffera0c4f&utm_medium=social&utm_source=twitter.com&utm_campaign=buffr>.

36 Clean Energy Council, 'Clean Energy Australia Report 2014', (2014), p. 7, <<http://www.cleanenergycouncil.org.au/cleanenergyaustralia>>.

Supranational formations such as the EU and subnational jurisdictions such as individual states, regions, and municipalities also have the ability to make a substantial difference, though the record of particular jurisdictions is quite mixed. The EU has put downward pressure on the emissions of its most recalcitrant member states and for the most part has allowed other states to act as aggressively as they want in reducing emissions. Some American states, especially California, have been very effective at reducing emissions and influencing other states to do so as well. Cities such as New York, São Paulo, and Copenhagen have effectively reduced their emissions. American sunbelt cities, on the other hand, have been woefully inadequate with respect to their IR, as have many American states.

Just as international organizations and regimes have high levels of capacity in some areas and low levels in others, so it is with nations and other jurisdictions. Nations and other individual jurisdictions often have high capacity for effective action but little capacity for achieving coordinated solutions and fairness. Aggressive jurisdictions bear the costs of reducing emissions that affect everyone's climate while other jurisdictions free ride.

Individuals

Perhaps especially in the United States, individuals come in for a great deal of attention when it comes to emissions. My anecdotal impression is that most of the philosophical literature is focused on individual responsibilities to reduce emissions.³⁷ Books about what you can do to save the planet are ubiquitous, and the web is full of carbon calculators. It is almost universally agreed that when one writes or talks about a problem such as climate change, the primary obligation is to leave the audience feeling 'empowered' to take individual action.

Despite the emphasis on individual action, its efficacy has been disputed in American social movements for at least the past half-century. During the heyday of the 1960s 'new left', there were long, serious debates about whether it was more important to change the world or to change oneself. Even today one often feels pressure to take one side or another.

The fact is that individual and collective action are linked, especially in democracies.³⁸ In most cases individual actions are almost (but not entirely) negligible in directly reducing emissions, but can be quite powerful in signaling a willingness to accept laws and other norms that would effectively reduce emissions. For example, when consumers voluntarily pay more for 'green

³⁷ For discussion and references see Jamieson (2014), Chs. 5-6.

³⁸ For more on this theme see *ibid.*

energy' it helps to enable political leaders to raise the price on 'dirty energy'. The more people who bicycle under adverse conditions, the more likely we are to get transportation policies that support bicycling. Individual action may not be very effective at directly reducing emissions but it can be very effective for consciousness-raising and enabling political action.

Firms

The IR of firms escaped serious public attention in the first two decades after the adoption of the FCCC. Fortunately this is beginning to change. In a landmark 2014 paper Richard Heede showed that just 90 firms were responsible for 63% of all carbon and methane emissions from 1854-2010.³⁹ 83 of these firms were industrial producers of oil, natural gas, and coal; and 7 are cement manufacturers. Of these 90 firms, 50 are investor-owned, 31 primarily state-owned, and nine are entirely government-run industries. They are headquartered in 43 countries – 54 in Annex 1 countries (those that were already industrialized when the FCCC was signed in 1992), and 36 in non-Annex 1 countries. These firms extract resources everywhere in the world, and the energy they embody is in products consumed by virtually everyone in every country.

Since IR is a forward looking notion these historical facts may seem irrelevant. But consider this. All of these firms continue to exist with the exception of five firms that were headquartered in the old Soviet Union. Most of these firms are familiar names. The two largest emitters are Chevron and Exxon Mobile, followed by Saudi Aramco, BP, and Gazprom. More than half of the historical emissions by these 90 firms have occurred since 1988, and their emissions continue to rise each year. In many cases these firms fund misinformation campaigns and pressure governments to adopt and retain policies that favor fossil fuels over other energy sources. What these firms do not do is to use their power and market share to aggressively move us to a non-carbon future. In other words, most of these firms, most of the time, violate their intervention-responsibility and have largely not been held responsible.

Firms can be extremely effective in reducing emissions, and when then they are subjected to market discipline can coordinate effectively. However, there is no guarantee that their actions will result in fair outcomes, and they can be difficult to affect. Still, divestment campaigns and shareholder activism are promising signs that the intervention-responsibility of firms is finally becoming a priority.

39 Richard Heede, 'Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers 1854-2010', *Climatic Change* 122 (2014), 229-241. See also Peter Frumhoff, Richard Heede, and Naomi Oreskes, 'The Climate Responsibilities of Industrial Carbon Producers', *Climatic Change* (2015), published online 23 July, <DOI: 10.1007/s10584-015-1472-5>.

Concluding Remarks

In this essay I began by providing some background to conceptions of responsibility. I noted the extent of disagreement in this area, the diverse and cross-cutting distinctions that are deployed, and the relative neglect of some important problems. These facts make it difficult to attribute responsibility for climate change, but so do some features of climate change itself which I went on to illuminate. Attributions of responsibility are often contested sites because such attributions are fundamentally pragmatic, mobilized in the service of a normative outlook. I went on to claim that we should be pluralists about responsibility and shape whatever conceptions can help to explain, guide, and motivate our responses to climate change. I sketched one such notion, ‘intervention-responsibility’, and argued that it should be ascribed to international regimes and organizations, states and other jurisdictions, individuals, and firms. Each has different capacities and thus different intervention-responsibilities, but these differences are not always mirrored in public discussion. Firms, in particular, have gotten an easy ride. Divestment campaigns and shareholder activism is beginning to change this—or so I hope.⁴⁰

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⁴⁰ I believe that my view of intervention-responsibility is close in spirit to the view sketched by Iris Marion Young in her posthumous book, *Responsibility for Justice* (Oxford: Oxford University Press, 2011). I can only express my sorrow that her early death deprived us of the full flowering of her thought on this subject. On a happier note I would like to express my appreciation to Julian Culp, whose comments great and small greatly benefited both this paper and my thinking about responsibility.