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SYMPOSIUM ARTICLE

Who's to Blame for the Climate Crisis?

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Abstract
Climate change presents a paradox for moral judgment: its harms are immense and predictable, yet they arise from diffuse collective processes that seem to frustrate attributions of blame. Thus, many believe responsibility can only be coherently understood in forward-looking, structural terms. I argue, however, that a small but powerful group of actors, which I call the "Carbon Axis," bears responsibility in a thick, backward-looking sense. The standard excuses (e.g., insignificance, ignorance, and lack of intent), which may exculpate some ordinary contributions to harm, afford this group scant moral cover. If anyone is culpable for the climate crisis, the Axis is.

Keywords: climate change; blame; culpability; Carbon Majors; structural injustice; collective responsibility; corporate responsibility; individual responsibility; climate justice

> "One is no more at liberty to rain malignant melanomas than nuclear missiles down from the heavens upon random people in other states."
>
> —Henry Shue (2014, 152–153)

1. Introduction

There once was a man named Thomas Midgley Jr., who lived on our planet between 1889 and 1944. While Midgley himself is now largely forgotten, our world still very much bears his imprint, owing especially to just two of his many inventions. The first of these is tetraethyllead (TEL), a gasoline additive trademarked as Ethyl; the second, a chlorofluorocarbon (CFC) that would eventually be called Freon. Both were meant to solve specific problems: the former, engine knocking, which made gasoline less efficient; the latter, refrigeration. They served these ends well. Unfortunately, though, both also created new problems: TEL is responsible for worldwide, decades-long atmospheric lead poisoning, which has been credited with spikes in crime, neurological disease, and other major social ills (Ritchie, 2022), while Freon was a key driver of the ozone crisis. Reflecting on the legacy of these two inventions, one historian has claimed that Midgley has had a more adverse "impact on the atmosphere than any other single organism in Earth's history" (McNeill, 2001, 111). Others have expressed similar views (Bryson, 2004; Pearce, 2017).

In defense of Midgley, there was probably no way he could have anticipated the ozone-depleting effects of CFCs when he first synthesized Freon. The same exculpating ignorance cannot be claimed with respect to TEL, however. Rather, there is definitive evidence that Midgley and the executives at Standard Oil, General Motors, and DuPont with whom he worked closely were well aware of the damage leaded gasoline could cause, and yet still eagerly pushed forward with developing and distributing it. This involved, among other things, publishing scientific articles falsely defending

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TEL's safety and staging dramatic events to dupe legal regulators and the general public (e.g., Midgley, 1925). Perhaps most notoriously, in October 1924, during a week in which five of the 49 workers at a Standard Oil TEL production plant died of lead poisoning, and another 35 were hospitalized, Midgley held a press conference in which he washed his hands with TEL, breathed in its vapors for a full minute, and then declared: "I'm not taking any chance whatever. Nor would I take any chance doing that every day" (Harford, 2017; Markowitz & Rosner, 2002, 21, 27). Of course, what he did not disclose is that immediately following this event he went into recovery for lead poisoning—and not for the first time (Markowitz & Rosner, 2002, 19). So, despite knowing very well what would come of his stunt, Midgley proceeded anyway in order to ensure the viability, and so profitability, of this fully patented new product.[1]

Prominent scientists at the time saw this for what it was and protested (Harford, 2017; Markowitz & Rosner, 2002, 20, 28). After all, the dangers of lead were well-known since Roman times (Harford, 2017). And yet, the industry continued publishing misleading or simply false reports on the safety of TEL, which were shared uncritically by major news outlets, including *The New York Times* (The New York Times, 1924; Markowitz & Rosner, 2002, 23). Perhaps most disconcertingly of all, Midgley and his conspirators—including Frank A. Howard, a senior executive of Standard Oil of New Jersey (The New York Times, 1925)—did all of this despite having alternatives to TEL. Indeed, an enduring mystery about this whole historical affair is why the companies involved did not opt instead to use ethanol (also known as ethyl alcohol), which functioned equally well, was cheap to produce, and only caused negative health effects if consumed in its liquid form. The only apparent explanation is that any given "farmer could distil ethyl alcohol from grain," which meant the solution "couldn't be patented," nor "its distribution profitably controlled" (Harford, 2017). TEL, on the other hand, was proprietary—and thus far more lucrative.

There's much more one could say about this, although it'd all be much of the same: Industry cover-ups and denials, institutional capture and cooptation, phony scientific reports and manufactured disinformation, and just rapacious recklessness. The consequences of Midgley's deeds, however, are as ubiquitous as they are tragic. According to the UN: "Banning the use of leaded petrol has been estimated to prevent more than 1.2 million premature deaths per year, increase IQ points among children, save USD 2.45 trillion for the global economy, and decrease crime rates" (United Nations Environment Programme [UNEP], 2021). Yet decades passed before the first independent clinical studies confirmed the ill effects that wary scientists had predicted (1969), and more still until the first country banned the additive (Japan in 1986). The last country to follow suit, Algeria, only did so in 2021.

Now, it is of course the case that TEL would not have gone on to poison the world had it not been so widely used by consumers everywhere. There is no reason to deny or downplay this. I argue, however, that this episode reveals something important: that harms can be produced through uncoordinated collective action, and experienced just as diffusely, *and yet* still have traceable, individual origins—in this case, back to Midgley himself and his executive backers at Ethyl Corp., Standard Oil, GM, and DuPont. This cabal knew what harm TEL would cause, was aware of easy, effective, and unharmful alternatives, but nevertheless carried on—again, by suppressing dissent and skepticism, distorting the public debate, and allowing people to suffer and die—simply to turn a profit. If there are any real villains in this world, Midgley and co. would surely be among them.

But what does this have to do with climate change? In this article, I argue that there are Midgley-equivalents living among us now, who are well and truly blameworthy—in a thick, moral sense—for the climate crisis. In more specific and philosophical terms, this article aims to make a targeted,

[1]While recovering from lead poisoning shortly after synthesizing Ethyl for the first time, Midgley reportedly phoned his employer, Charles Kettering—an executive of a GM subsidiary—and said: "Can you imagine how much money we're going to make with this? We're going to make 200 million dollars [roughly equivalent to USD$3.77 billion in 2025], maybe even more!" (Fourtané, 2018; Veritasium, 2022).

but (I believe) politically significant, intervention into the now decades-long debate over individual responsibility for climate harms. The sizable literature on this question admits of many nuances and angles, and many ways of conceptualizing the relevant actors and notions of responsibility, which defies any simple summarization. But I would suggest two features are characteristic of much work in this area. The first is a focus on *either* everyday, ordinary people as the relevant units of analysis (i.e., as potential responsibility bearers) *or* a vaguely specified group of collective actors—typically just states, or states and corporations.[2] The second recurring feature is to conceptualize responsibility narrowly, as consisting of just positive, forward-looking, "political" duties to reform problematic (harmful) structures or social practices.[3] This latter feature speaks, I think, to the enduring influence of the late great I.M. Young,[4] as well as to the well-known theoretic difficulties of establishing a coherent, backward-looking account of moral responsibility for collective harms like climate change.[5]

In what follows, I break with both of these tendencies. Instead of focusing on ordinary people or an ambiguous set of collective agents, this article centers on (the executives and voluntary owners of[6]) the Carbon Majors (i.e., the biggest commercial emitters),[7] along with their allies and servants in government, law, finance,[8] media,[9] and the applied sciences (especially in the top-emitting states). For ease of reference, I refer throughout to these Midgley-class actors as the "Carbon Axis" (or just the "Axis").[10] Second, while I share the common view that the entities and agents constituting the Carbon Axis have positive "structural" or "political" duties to remedy the climate crisis (in the Youngian sense),[11] my core claim is that they *also* bear moral responsibility in the form of blameworthiness or culpability for the climate harms they are (and have long been) causing or contributing to.[12]

My argument unfolds as follows. I begin by articulating a general account of blameworthiness (Section 2). I then consider potentially exculpating factors—that is, reasons for regarding particular contributions to harm as not (at least fully[13]) blameworthy (Section 3). I acknowledge that these factors—that is, the standardly proffered moral excuses—can be plausible, at least to some degree, with respect to quotidian individual contributions to climate harm; I maintain, however, that they offer scant moral cover to the Carbon Axis. Section 4 concludes.

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[2]Consider, for example, Placani (2025), Schwenkenbecher (2014), Hormio (2023).

[3]See, for example, Blomfield (2023), Eckersley (2016, 346); Goodhart (2023), Cripps (2013), Sardo (2023), von Allmen (2022, 2024).

[4]Sometimes this is explicit, as with Eckersley (2016), Sardo (2023), or Sparenborg (2025).

[5]Dale Jamieson (1992) was perhaps the first to identify this point, but it is now widely acknowledged in the literature, including in many of the pieces cited above.

[6]I set aside thorny questions here related to the principal–agent problem.

[7]For information on the Carbon Majors, see, for example, Sadai et al., 2025; Callahan & Mankin, 2025; https://carbonmajors.org/.

[8]According to one report, "[i]n the decade since the Paris agreement, top banks—through their lending and underwriting decisions—financed almost $9 trillion in oil, gas and coal operations" (Banking on Climate Chaos Coalition, 2026, 4).

[9]Consider the recently fomented resistance to plant-based alternatives to animal products: "…a resurgent focus on meat has swept the US, pushed by industry lobbyists and online wellness influencers who advocate greater protein consumption via the carnivore diet" (Milman, 2025). For a similar story concerning propane, see Tabuchi (2023b). These are, of course, just two examples among many.

[10]This appellation is meant to be provocative, but not metaphorical: although I cannot pursue the point here, I believe there are strong grounds for regarding the Axis as violent aggressors, who have made (at least) their capital liable to self-defensive resistance.

[11]Or what Hansson (2022) calls "task responsibilities."

[12]Indeed, I believe the Axis's failures to live up to the remedial duties plausibly ascribed to them are also blameworthy, as I argue below.

[13]On the idea of blame being scalar, see Sliwa (2020).

2. What Makes an Action Blameworthy?

The question of what makes a given action morally blameworthy is immensely complex, with ample room for disagreement and debate. But for present purposes, it suffices to adopt a highly simplified account, according to which an action may be regarded as blameworthy—at least provisionally—if it is:

> *wrong* (say, because it violates a valid moral principle);

and if the agent committing this wrong does so

> *voluntarily* (i.e., in accordance with his or her own volition, and not because of overwhelming external pressures or constraints);

and

> *deliberately* (i.e., with a relevant form and amount of awareness).

Of course, each of these three factors could be much more extensively elaborated and qualified. For instance, what counts as a wrong action—actually causing harm, doing something that is expected to cause harm, putting others at risk, etc.—and the extent to which wrongness presupposes bad character are hotly debated.[14] Likewise, acting voluntarily could be understood in manifold ways—for example, as acting with alternatives or without coercion. So, too, with the deliberateness criterion, which could be taken to mean acting intentionally, or at least in awareness of the nature of the action, the (likely) consequences of that action, and/or the moral portent of those consequences.

While I mostly set these issues aside here, some further clarifications are introduced below. My key claim, however, is that, so long as (some plausible version of) these three criteria are characteristic of a particular contribution to climate change, then we may regard that contribution as morally blameworthy, at least in a *pro tanto* sense.

3. Standard Excuses

Of course, a common view (in both public and academic discourse) is that it is exceedingly difficult, if not impossible, to establish culpability for climate harms. This is because one or more exculpating conditions are thought to apply, which can (either jointly or severally) render harmful actions less (or not) wrong, voluntary, or deliberate. These include:

(a) *Insignificance*: Many individual contributions are virtually imperceptible, and certainly far from causally decisive (i.e., harmful climate change would occur with or without them).
(b) *Epistemic limitations*: Emissions are rarely generated in (full) awareness of the harmful effects they cause. And even when (some amount of) awareness does exist, other epistemic limitations may make reducing emissions seem irrational or unnecessary.
(c) *Necessity*: In many cases, agents may have no choice but to emit.
(d) *Demandingness*: Even when not emitting (or emitting less) is technically possible, doing this may nonetheless be so costly or otherwise burdensome as to exceed the bounds of ordinary moral obligation.
(e) *Attribution*: The climatic effects of particular emissions flows are too remote in time or space to establish a coherent causal link between them.

[14] See, for example, Sher (2005), Mason (2019), Moore (2009).

(f) *Intentionality*: Climate harm is almost never directly intended by those generating emissions (even when such harm is foreseen).

I do not deny that these considerations can excuse some contributions to climate harm, at least partially. I claim, however, that all are less compelling than they may initially appear even in application to everyday, ordinary people, but certainly in relation to the actors constituting the Carbon Axis. Moreover, I squarely reject the common (if often implicit) view that one or more of these excuses being valid in some cases entails that no one can be plausibly regarded as blameworthy in any case. Rather, I argue, even if we assume that the vast majority of agents are (more or less) blameless for the climate harms they cause or contribute to,[15] we should nonetheless conclude that a small but highly powerful cohort of actors—that is, the Carbon Axis—*are* blameworthy. To establish this, I examine each of the standard excuses above in turn.

3.a. Insignificance

The first—the insignificance objection—is perhaps the most familiar, and, for many, the most compelling. While there are many versions of this objection,[16] perhaps the best-known comes from Walter Sinnott-Armstrong, who argues that taking a Sunday joyride in a gas-guzzling SUV is not morally wrong because such an "individual act is neither necessary nor sufficient for global warming" (Sinnott-Armstrong, 2010, 334).[17] Even more strongly, Sinnott-Armstrong claims that:

> …my act of driving does not even make climate change worse. Climate change would be *just as bad* if I did not drive. … [T]here is no individual person or animal who will be worse off if I drive than if I do not drive my gas guzzler just for fun. Global warming and climate change occur on such a massive scale that my individual driving makes *no* difference to the welfare of anyone (Sinnott-Armstrong, 2010, 337; emphasis added).

In support of this position, he presents an analogy:

> Global warming is … like a river that is going to flood downstream because of torrential rains. I pour a quart of water into the river upstream (maybe just because I do not want to carry it). My act of pouring the quart into the river is *not a cause* of the flood. Analogously, my act of driving for fun is *not a cause* of global warming (Sinnott-Armstrong, 2010, 335; emphasis added).

There are at least two major flaws with this argument.

The first is that it treats "very little" as equivalent to "none." The Sunday joyride is not, on Sinnott-Armstrong's view, a *minuscule* addition to global aggregate climate harm but rather *no addition at all*; it is an act that makes "no difference" to anyone's welfare. The problem with such a reductive view of causation is that it opens the door to paradox: As Richard Tuck (2018) argues, if each individual act really has *no* impact—that is, if the contribution to harm is not very little, but simply nil—then how can the aggregation of those zeros equal something?[18] And equal something they must, for otherwise it is unclear how climate change would occur. In other words, Sinnott-Armstrong must either deny that global warming is the product of anthropogenic activity or concede that however small the impacts of individual acts may be, they are more than nothing and

[15]To be clear, I do not endorse or reject this view here.

[16]See, for example, Vance (2023), Spiekermann (2014), Sandberg (2011), Sandler (2010), Nefsky (2019).

[17]NB: While my focus here is on Sinnott-Armstrong's insignificance argument, this is just one of several he presents. I take up the others (related to attribution and demandingness) below, albeit in conversation with other thinkers.

[18]For more discussion of this point, see Mittiga (2024, chap. 4). For similar arguments aimed at Sinnott-Armstrong directly, see, for example, Hiller (2011), Sandberg (2011), Schwenkenbecher (2014).

thus *not* devoid of significance. Given that he explicitly discards the former, it is not clear how he can resist the latter.

Others have recognized this issue and offered a more coherent account of the significance of individual contributions. Säde Hormio, for example, argues that precisely because "the natural carrying capacity of the atmosphere has long been exceeded," "there are no [longer any] harmless emissions"; rather, in every instance, "[i]ncreased emissions lead to increased temperature effects and more harm" (Hormio, 2023, 2). In much the same vein, Melissa Lane argues that because each additional emission contributes to aggregate causal harm, every emitting act has some moral import (Lane, 2018).[19] John Broome has taken this a step further by attempting to quantify these harms; he claims that the lifetime emissions of just one person in a developed country are enough to "wipe out more than six months of a healthy human life" (Broome, 2012, 74).[20] Such impacts surely *seem* significant.

This leads us to the second major flaw in Sinnott-Armstrong's argument. In his flooding analogy, the harmful impacts of the climate crisis are described as occurring "downstream," while we—the weary water wielders—are situated "upstream." This suggests that climate change is something remote from us. Perhaps 20 years ago this was a (more) defensible view to take, although even then it would not have been without its problems.[21] Today, however, such a view is entirely implausible. We are not facing a situation in which harmful climate change may occur later in time or space (or perhaps not at all). Rather, harmful climate change is already occurring everywhere and growing more severe with every additional emission. Thus, the moral question we must confront is not (as Sinnott-Armstrong would have it): *Would the crisis happen (or be just as bad) without our personal contributions?* but: *How much worse will the crisis become because of our contributions?*

Thus, if we refuse to regard "small" as "none," and if we accept that our situation is not one in which harm may or may not occur, but one in which harm is already occurring and can only grow more severe, then attributions of blameworthiness cannot be overcome by appeal to insignificance alone. For all emitting actions in the context of our already-greenhouse-gas-saturated atmosphere are necessarily harmful and thus morally significant.

This is true even for minor individual actions, like Sinnott-Armstrong's gas-guzzling joyride. But of course, the difficulties with sustaining the insignificance objection are far more severe when applied to the actions of the Carbon Axis—as even Sinnott-Armstrong acknowledges (2010, 334, 336). There are any number of alarming facts and figures one might cite in evidence of this claim. Just consider, for instance, the widely discussed finding that 71% of global industrial emissions between 1988 and 2015 were attributable to just 100 companies (Riley, 2017). Or the fact that 10 countries are responsible for over two-thirds of global emissions each year, and just three—China, the US, and India—for 42.6% (Friedrich et al., 2023). Clearly, it would be absurd to regard these massive emissions flows as "insignificant" and thus excusable.

But straightforward emissions are not the only way in which Carbon Axis members contribute to climate harms. Rather, much like Midgley and co., the Carbon Axis devotes considerable resources toward creating and maintaining political and legal environments in which such massive emissions remain possible, despite the harm they cause (Schneiderman, 2022). A striking example of this is the growing use of investor-state dispute settlement (ISDS) processes, which are secretive corporate tribunals—born of international trade and investment treaties—meant to adjudicate between private capital and public governments. According to a recent UN report, the "weaponized" use of ISDS presents "a major obstacle to the urgent actions needed to address the planetary environmental and human rights crises," as "[f]oreign investors use the dispute settlement process to seek exorbitant compensation, with the fossil fuel and mining industries already winning over $100

[19]See also Kagan (2011).

[20]This has been affirmed in subsequent work by Broome (2019). See also Hormio (2023) and Cullity (2019).

[21]As Sinnott-Armstrong himself seems to acknowledge elsewhere in the article (2010, 332).

billion in awards" (as of 2023; Boyd, 2023, 2). Indeed, the sums being sought are often so extreme that the mere possibility of arbitration can be enough to stymie action. For this reason, Nobel Prize-winning economist Joseph Stiglitz describes ISDS as "litigation terrorism" (Malo, 2019). Examples are manifold:

> One Singapore-based company, Zeph Investments, is suing Australia for A$300bn (£155bn) because its government turned down a proposed mining project; the company argues Australia breached free-trade treaty obligations that it relied on. … New Zealand backed off cancelling existing offshore oil permits due to ISDS fears in 2018. Denmark chose 2050 rather than an earlier date for its oil and gas production phase out deadline due to fears of "incredibly expensive" ISDS claims. In 2017, France diluted plans to phase out fossil fuel extraction by 2040 after threats of ISDS litigation from Vermilion, a Canadian multinational… (Neslen, 2024).

The UN attributes cases like these—which are becoming more audacious, frequent, and costly each year—to a "catastrophic" global "regulatory chill." As the same report explains, "regulatory chill" occurs whenever

> …a State responds to the potentially high costs associated with perceived or actual threats of ISDS arbitration by reversing, withdrawing, weakening or not enforcing legitimate regulatory measures to address the climate crisis, protect the environment or fulfil human rights (Boyd, 2023, 16).

This extorted staying of the public hand ensures that climate harms can continue to occur. Such contributions, while indirect, are nonetheless significant. Thus, the shadowy group of lawyers raising ISDS suits on behalf of carbon capital is also blameworthy in this respect.[22]

3.b. Epistemic limitations

Another standard excuse—again, both in academic and public discourse[23]—holds that many agents face (or, historically, have faced) epistemic limitations that either wholly exculpate their contributions to climate harm, or at least significantly diminish the extent to which blame could be ascribed to them for those contributions.

These constraints can take various forms. For instance, a considerable amount of skepticism and confusion exists about climate change, owing to the complexity of the crisis and, more significantly, to decades of exposure to well-funded disinformation campaigns (Oreskes & Conway, 2011; Supran & Oreskes, 2021; Vanderheiden, 2008, 192–202). This has left many even well-intentioned people with uncertainty as to how to reduce emissions, or even if reductions are actually necessary. Whether or not this kind of ignorance is morally exculpating depends on the duties of scientific literacy one believes ordinary citizens to bear (Vanderheiden, 2016). But there can be no doubt that this kind of confusion and manufactured misdirection has inhibited a great deal of climate action.

Another epistemic issue is that, in our increasingly media-saturated and deteriorating world, agents are near-constantly bombarded by conflicting information and perspectives on an enormous array of major problems, of which climate change is but one. For many, confronting such an

[22]While it may be difficult to calculate the relative significance of such indirect contributions, this does not foreclose attributions of blame. For even if we lack the specificity afforded by, say, direct emissions accounting, it is reasonable to infer that such indirect contributions matter from the fact that the Carbon Axis invests so heavily in them. The burden is therefore on the indirect contributors to show that their work plays no meaningful role in facilitating the climate harms more directly caused by the agents they serve or support. Such claims are, of course, unlikely to be made, except perhaps in the context of a criminal case or war tribunal; only there might we expect to find the Axis's Eichmann-equivalents pleading innocence.

[23]On this, see Gardiner (2011, 416).

overwhelming moral landscape—and undertaking the complex balancing and prioritization judgments that can be necessary to move forward within it—can provoke a sense of "issue overload," and with that, feelings of personal inefficacy or helplessness.[24] If the whole world is on fire, we might forgive those who are paralyzed by the question of where to point the hose first, or whether there is any point in fighting such massive and myriad fires at all.

Third, even those agents who recognize the seriousness of the climate crisis, and have a sufficiently concrete sense of what kind of response is needed, may still feel constrained by uncertainty about whether others will act in kind to the extent needed. This is an example of the "assurance problem." As Rawls explains, this problem arises when achieving some shared, collective goal requires the cooperation of many individuals, none of whom have a guarantee that others will do their fair share (Rawls, 1999, 238). In such a situation, personal action—however inclined one may be to undertake it—may well seem irrational, given that it can only become effective if many others act in kind. For instance, Blake may strongly believe that air travel must significantly diminish, and accept that this would mean personally flying less or not at all; and yet he may think that, so long as there are no mass restrictions on flying in place, unilaterally foregoing air travel would be pointless, or worse. The most obvious solution to this problem is the Hobbesian one: the erection of regulation, oversight, and punishment regimes, which underwrite faith in cooperation by assuring each person involved that all others have at least an external reason to do their part (Rawls, 1999, 505).[25] Until such regimes are established, however, the assurance problem may excuse inaction for many individuals.

But to what extent do these epistemic constraints bear on the blameworthiness of the Carbon Axis? Certainly, many members have claimed that at least their historical emissions are blameless, given that they were generated in ignorance of the harm they could cause.[26] This claim has been well addressed by various ethicists and political theorists over the last two decades.[27] Permitting some simplification, most now believe that, *if* ignorance can exculpate these actors, it can only do so up to the point at which a clear scientific consensus emerged about the extent of the climate problem and its anthropogenic origins. Most put this point at around 1990, which is probably generous. After all, academic work detailing the greenhouse effect first began to emerge in the 19th century, with surprisingly accurate predictions for how emissions would drive global warming being made as early as 1896 (Clark, 2009; Thompson, 2019). In the 1960s, scientists working for US President Lyndon Johnson produced a report detailing how carbon dioxide emissions, especially those generated by burning fossil fuels, were precipitating potentially grave climatic changes (Nuccitelli, 2015; President's Science Advisory Committee, 1965). Similarly, it is now well known that research scientists at Exxon (now ExxonMobil)—one of the world's largest oil and gas producers—learned of the nature and extent of the climate crisis in the 1970s,[28] and were able even then to make "remarkably accurate projections of just how much burning fossil fuels would warm the planet" (Tabuchi, 2023a).

Of course, taking these examples into account only serves to narrow the temporal range of moral excusability that ignorance may afford. But there is a more general reason to doubt how much claims of ignorance can excuse. Consider: If ignorance was really the reason why the Carbon Axis has acted as it has—that is, if we are really to believe that they would not have emitted (so much) if only they had been aware—then we should expect to have seen significant changes once the problem was fully brought to light, be that in 1990 or earlier. And yet, as Simon Caney observes, "those responsible for emitting excessive amounts of greenhouse gases have continued to do so even when they have been made aware of the consequences of their actions" (Caney, 2010a, 208). Indeed,

[24]Lichtenberg (2010, 559) captures this well.
[25]For a similar argument, applied to climate change, see Dietz (2016).
[26]See, for example, Gardiner (2011, 415–416).
[27]See, for example, Kingston (2014), Zellentin (2015), Bell (2011), Singer (2010, 190); Caney (2010b, 130ff).
[28]See, for example, Supran et al. (2023), Kaiser and Wasserman (2016), Goldenberg (2015).

over the last three decades, emissions have not only *increased*, but the rate at which they have been increasing has also increased[29]—and all of this despite solid scientific consensus concerning the dangers of climate change and manifold international agreements to pursue decarbonization.

The other two epistemic constraints discussed above—issue overload and the assurance problem—similarly fall short in application to the Carbon Axis. Concerning the first: While it is true that climate change is just one issue among many that governments and public actors are tasked with addressing, given its scale and urgency, it is clearly one that ought to be prioritized (Mittiga, 2024, chap. 2). Yet one of the most striking aspects of the climate crisis is just how completely it has been neglected internationally. The only obvious reason why this is so—that is, why virtually all of the Carbon Axis has failed to act, despite the resources and expertise available to them—is that meaningfully addressing it would require challenging, or even abolishing, carbon capital. Unfortunately, though, the very actors that ought to be strictly regulated have come to do the regulating in most or all of the top-polluting states.[30] Inaction, then, is not the natural consequence of an overly complex moral reality, but the intended outcome of systemic global efforts to capture and corrupt political power.[31]

The assurance problem may seem more likely to exculpate. For surely no rational governmental or commercial actors would put themselves at a disadvantage by undertaking climate action without institutional guarantees that similarly positioned others will do the same. Unilateral action, however morally desirable or even imperative it may be,?show "^unwanted"$^[mini get_anchorinfo]>[32] would again seem, at best, *pointless*—insofar as no state or corporation can alone reduce emissions to the extent needed to prevent catastrophe—or, at worst, *suicidal*—given the brutal reality of global capitalist competition. As noted earlier, however, a clear solution to this problem exists: that is, the establishment of an effective, international climate governance regime that has the power not only to monitor and regulate, but to compel and punish. That such a regime does not already exist is itself indicative of a blameworthy dereliction of moral responsibility, particularly on behalf of the most significant emitters.[33]

In short, then, there is little reason to believe that epistemic constraints can excuse the Carbon Axis—assuming that they even face such constraints in a meaningful way. The Axis has long been aware of the harmful nature of its actions, and yet—even in the cold light of that awareness—it has continued to emit, and in ever greater amounts, all while resisting (or preempting) external pressures to reform.

[29]See World Resources Institute (2022), Friedrich et al. (2023), Mittiga (2025, 156).

[30]In claiming that the Carbon Axis holds the reins of power, I do not mean this in a conspiratorial sense, but rather quite literally. In many high-emitting states, key political leaders owe their positions or power to the active support of carbon capital. In many more cases still, carbon industry leaders and their lobbyists are *gifted* control of executive and regulatory agencies as a form of patronage and protection for their businesses. In fact, these industry insiders are sometimes even granted control of central policy and diplomatic institutions, affording them enormous global power, as when Exxon's Rex Tillerson was appointed head of the US State Department in the first Trump government. But even in less thoroughly oligarchic administrations, much the same can occur. Consider former US President Biden's Treasury Secretary, Janet Yellen, who, despite presenting herself as a climate leader, owned a considerable amount of fossil-fuel stocks and received millions in "speaking fees" from many of the banks financing fossil-fuel development.

[31]For empirical evidence to this effect, see Povitkina (2018), Mildenberger (2020).

[32]To be clear, I do not deny that strong moral reasons to act unilaterally exist, particularly in non-ideal contexts, as Caney (2014) has argued. My point is only that these reasons can sometimes be—perhaps excusably—outweighed by the kinds of prudential concerns I am describing here.

[33]We might add here that the assurance problem appears most relevant when *only* sufficiently broad collective action can achieve a desired outcome. But this is not the case for climate change. Rather, as noted above (in Sections 3.a and 3.b), even unilateral reductions in emissions can serve the end of reducing harm—particularly when undertaken by the biggest polluters. (Consider, e.g., Quilcaille et al., 2025.)

3.c. Necessity

Exculpatory appeals to necessity occur often in political life, especially in dire contexts like emergency or war. They aim to excuse actions that would, in more ordinary or felicitous conditions, be unacceptable (i.e., immoral or illegal). The essential claim is one about constrained choice, concerning both *whether* and *how* to act. These constraints, if severe enough, cast doubt on the autonomy of an actor or the voluntariness of an action, and thus undermine attributions of blame. After all, how could we hold someone morally responsible if she had no choice but to act, or to act as she did?

In the climate ethics literature, various thinkers have appealed, at least implicitly, to necessity as a way of excusing certain emissions-generating activities. Consider Henry Shue's well-known distinction between "subsistence emissions"—which follow from activities that are "vital" in the sense of being "essential for survival, or human decency"—and "luxury emissions"—which correspond to activities that are "frivolous" or at least "inessential for either survival or decency" (Shue, 1993, 55). While there is some debate over how best to understand "vital interests,"[34] Shue's distinction can clearly be understood as one between necessary and unnecessary emissions, and thus between (potentially) excusable and clearly inexcusable emissions-generating activities.[35]

It is not a full account, however, as we also need a sense of how constrained the means for achieving those vital interests are in any given situation. In other words, for necessity to be a valid excuse, we need reason to believe there were no (more) acceptable alternative courses of action. Göran Duus-Otterström attempts to capture this by stipulating that emissions can be counted as "subsistence emissions": "if, and only if, (1) the emissions satisfy a vital interest *and* (2) at the time of emitting, there is no reasonable alternative way of satisfying this vital interest using fewer emissions" (Duus-Otterström, 2023, 921). While (2) is plausible, it should be formulated more broadly: We should not care just about the consequentialist logic of reduced harm, but about the broader moral imperative to avoid violating relevant moral or legal norms, rules, or principles where possible.

Taking this into account, I would propose a more expansive view, according to which "unnecessary" emissions can be understood as[36]: (i) those that result from actions that are themselves *unnecessary* for satisfying one's most vital interests (such as driving a gas-guzzler on a Sunday afternoon[37]); and (ii) those that result from actions that are *necessary* for satisfying one's most vital interests but that are *unnecessarily* undertaken in ways that result in greenhouse gas (GHG) emissions (such as producing energy with coal or fracked gas when clean, cost-effective alternatives like solar and wind are available).

Now, it is certainly true that not everyone has choices about whether to emit in many situations. Indeed, a lot of climate-harming appears to be essentially inertial: the ineluctable product of participating in systems that are extremely difficult to change (unilaterally, at least) and from which it is effectively impossible to extricate oneself (at least without suffering severe deprivation).[38]

But what about the Carbon Axis? A common view—shared even by some of capitalism's sharpest critics[39]—is that the unyielding structural logic of global market competition similarly compels these actors to engage in all sorts of harmful action as a matter of survival, and so necessity. As David Graeber explains:

[34]See, for example, Duus-Otterström (2023), 921.

[35]There are of course other accounts besides Shue's; see, for example, Baatz, 2014.

[36]The following draws closely—at times verbatim—from Mittiga, 2019, 180n.56. (See also Mittiga, 2024, 34–35.)

[37]See Mittiga (2024, 35).

[38]For instance, an employee may be automatically enrolled in a pension scheme that invests heavily in fossil fuels, and be afforded no option for individual exemption.

[39]Including Karl Marx—see, for example, *Das Kapital*, vol. 1, chap. 10.

> The structure of the corporation is … designed to eliminate all moral imperatives but profit. The executives who make decisions can argue—and regularly do—that, if it were their own money, of course they would not fire lifelong employees a week before retirement, or dump carcinogenic waste next to schools. Yet they are morally bound to ignore such considerations, because they are mere employees whose only responsibility is to provide the maximum return on investment (Graeber, 2011, 320).

In extending this to the case of climate change, we might consider the various occasions in which corporate executives, including some in the energy industry, have publicly called on political leaders to regulate their activities so as to reduce emissions[40]—messaging that Graeber equates with a serial killer calling on cops to stop him before he strikes again.[41] The essential idea of these pleas is that commercial actors are forced—in the most existential sense—to take any advantage available to them, even when their moral scruples would incline them not to. They are mere playthings of global and inescapable market forces, or so the argument goes.

There are two problems with this "compelled-by-capitalism" view. First, there is ample reason to think that the public pleas for climate regulation made by (a handful of) commercial actors are simply insincere—more the stuff of public relations than actual advocacy for responsible governance.[42] Perhaps the most compelling evidence of this is how often the very same actors who publicly exhort climate action simultaneously lobby behind closed doors to prevent that action from being undertaken.[43]

Second, and relatedly, the "compelled-by-capitalism" view misses the extent to which many of the actors in the Carbon Axis have contributed to the design and maintenance of the very structures they claim to be bound by (Schneiderman, 2022). Indeed, the Axis, perhaps uniquely, possesses the power:

(i) to *reform* the system in ways that would reduce or prevent climate-harming;
(ii) or, failing that, at least to *organize* and *advocate* for such reforms (e.g., to insist that they be part of international accords of all types so as to defuse collective action problems);
(iii) or, failing that, at least to *accept* such reforms when pressed upon them externally.

Doubts about the "necessity" of the Axis's contributions arise and are compounded at each of these three points, but above all when they militate against reforms that would lessen or prevent the devastating impacts of their activities. And militate they have. For, like Midgley and co., members of the Carbon Axis are not indifferent to the propagation of their harmful products and services; quite the opposite: in the last century, they have pursued ever more encompassing and destructive forms of extraction, production, marketing, and what we might call "regulatory emancipation" (i.e., the evasion or annihilation of political and legal barriers to, or even official oversight of, their activities)—and always with a zeal that would make a missionary blush (Brewer, 2015, 133–5). If the relevant agents were merely acting out of necessity, how might we account for such fervent, sustained efforts?

3.d. Demandingness

A close cousin of the necessity excuse is that from demandingness, which holds that individuals should not be blamed for the moral bads they fail to prevent or the moral goods they fail to promote

[40]See, for example, Revkin & Banerjee, 2001; The Seattle Times, 2007.

[41]https://youtu.be/QOVnb3y8hm4?si=kTeiFtETRURDLsqA

[42]As has been detailed in a US governmental report (House Committee on Oversight and Accountability and Senate Committee on the Budget, 2024).

[43]See, for example, House Committee on Oversight and Government Reform, 2021; Boren et al., 2020; Kramer, 2020.

when success is only achievable through great personal cost and sacrifice. The essential idea is that there is a "reasonable" limit to what morality can require of any particular agent, and burdens in excess of that limit can be excusably shirked.

The relevance of this objection to the climate crisis is perhaps obvious. Particularly in the most emissions-intensive economies in the world—those of the affluent West—acting in ways that avoid or limit contributing to climate harm can be exceedingly difficult (where it is even possible). Jose may want to install solar panels on his house, but could only do so by taking on a second job or selling off family heirlooms. Natalia may sincerely wish to forego all plane travel, but this would come at the cost of important job opportunities or cherished time with loved ones. These kinds of sacrifices are of course possible, but also undeniably hard to bear. And herein lies the essential point of the demandingness objection: that when the costs of acting morally—or of not acting immorally—become too great, this may excuse those who fall short.

However reasonable this view may seem, we must be careful not to generalize too much here. For even when the costs of undertaking moral action (or eschewing immoral action) are indeed immense, other factors may render concerns about demandingness moot. Consider the abolition of slavery. When the British government began seriously considering abolition, many involved in the industry—that is, the slaveholders and traders, along with their auxiliaries in finance, shipping, and so on—complained that emancipation without compensation (for "lost property") would be economically ruinous for them. This may well have been true. But is that enough to render continued participation in (or toleration of) the slave trade excusable? I think not. Some practices or industries are simply so odious—so offensive to moral feeling—that there can be no valid moral excuse for preserving or participating in them. Or, at the very least, the potential costs of reform cannot serve that exculpatory function.[44] To claim, then, that continuing to enslave people—or, from the perspective of government, to permit slavery—was blameless because the costs of doing otherwise were unduly demanding is absurd.[45] Much the same is true, I argue, with respect to the climate crisis: Those who are most responsible for poisoning our air and water, decimating biodiversity, displacing millions from their homes, and causing millions more to die—that is, the Carbon Axis—cannot be excused simply because acting otherwise would be extremely (even ruinously) costly for them.

The moral character or consequences of a given practice are not the only things that can undercut the demandingness excuse, however. Rather, I argue, emergency situations can also necessitate and so legitimate the imposition of exceptional burdens, and thus foreclose appeals to demandingness as an excuse for not doing what is needed. Consider war, which often involves saddling individual citizens with extreme burdens—from food rationing, to displacement, to conscription. Yet, few would think the demandingness of these burdens provides a morally valid excuse for shirking them. What seems to matter most in cases like these, morally speaking, is not the weight of the relevant burdens, but people's sense that the sacrifices asked of them are likely to be effective and are more or less equitably distributed among the relevant population.[46] This suggests that what counts as *overly* or *unacceptably* demanding will vary in relation to the circumstances. And with the most existential threats—including wars and, I would argue, climate change—the "too-demanding" threshold is likely to be very high.

[44]Perhaps there is a general principle here as to why this is the case. We might think, for instance, that the more harmful or evil a given practice is, the less exculpatory power the demandingness objection commands. While this seems plausible, I cannot pursue the point here.

[45]That being said, if a given industry or practice is sufficiently politically powerful or culturally entrenched, there may be prudential reasons to rescue those impacted from the burdens of reform by socializing the cost of their losses: namely, to attenuate resistance and thus the prolongation of the objectionable practice. This seems to be part of what motivated the British government to offer compensation during the abolition of slavery (Anson & Bennett, 2022). Notably, some (e.g., Broome, 2024) have proposed doing much the same—that is, buying off the carbon capitalists—for essentially the same (prudential) reasons.

[46]Even this latter concern about fairness may prove insignificant if the threat is extreme enough (see Mittiga, 2024, chap. 2).

In short, demandingness may excuse some ordinary people in some ordinary circumstances. But it offers little moral cover to those participating in extremely immoral industries, or perhaps to anyone in truly exigent circumstances.

3.e. Attribution

Even accepting that the Carbon Axis's emission-generating activities are (at least to some extent) climatically significant, deliberate, and unnecessary, one might still worry that if we cannot identify direct causal links between those activities and particular instances of climate harm, then it makes little sense to speak of blame. This is more of a practical or epistemic objection than a moral one: It is not predicated on a denial that such cause-and-effect relationships exist; rather, the claim is just that these relationships are so diffuse and complex as to preclude coherent ascriptions of culpability.

As an initial response, it bears emphasizing that attribution science has come a long way in recent years, such that it is increasingly possible to draw causal lines between discrete emissions flows and particular climate events (like heatwaves, hurricanes, or droughts).[47] Nevertheless, whether these efforts are, or ever will be, sufficient to establish culpability in the way that conventional moral thought would seem to require is unclear. As Dale Jamieson once observed, conventional moral thought assumes that "harms and their causes are individual, that they can be readily identified, and that they are local in space and time" (Jamieson, 1992, 148). Yet even the most advanced forms of attribution science are only likely to yield probabilistic estimates of how much given emissions flows exacerbated the severity or likelihood of particular climate harms. Thus, we face a thorny predicament: "Despite the fact that serious, clearly identifiable harms" are occurring "because of human agency, conventional morality" has "trouble finding anyone to blame" (Jamieson, 1992, 149).

While this may prove a real difficulty for prosecuting a criminal case against a particular actor, I see little reason for accepting that it can preclude moral attributions of culpability for climate-harming. So long as we understand the basic causal relationship, and can demonstrate that a relevant agent participated in that (harm-producing) causal process both *deliberately* (i.e., with the relevant form and amount of awareness) and *unnecessarily*, this suffices for regarding that agent as blameworthy.

An analogy may help to clarify. In George Eliot's *Middlemarch*, a mortally ill man, John Raffles, is left in the care of a wealthy banker, Mr. Bulstrode, who (permitting some simplification) must then decide whether (i) to tend to Raffles as prescribed by a local doctor (which may lead to his recovery), or (ii) to hasten Raffles's death by allowing him more of the substance that made him sick. For self-interested reasons, Bulstrode elects (ii), and Raffles dies. When this is discovered, Bulstrode is (rightly, I would argue) regarded as culpable for Raffles's death, even though Raffles was already mortally ill before Bulstrode acted. This suggests that, once a problem bearing significantly on others' welfare is detected, willfully exacerbating it is sufficient to ground a more general responsibility for the effects of that problem.[48]

To return to the climate case, the Carbon Axis knows (and has known for decades) that climate change is real and anthropogenic in origin. In this sense, when Axis members continue to emit unnecessarily, they become figurative Bulstrodes. The very act of knowingly and unnecessarily emitting confers blame on them for the outcomes that follow, even if the problem might have occurred, if to a lesser extent, without their particular contributions (Mittiga, 2019, 185).

[47]Consider, for instance, a recent study published in *Nature*, which shows that the emissions of "all carbon majors"—including the smaller ones, like Russia's Elgaugol—have made dozens of the heatwaves experienced in the last two decades "at least 10,000 times more likely" (Quilcaille et al., 2025, 392, 396).

[48]Another potential example is that of Julius Caesar's assassination. While Brutus's stab may have been the last before Caesar's heart stopped, those who stabbed prior were no less guilty of murder—even if Brutus's stab alone would have been sufficient.

Now, I do not mean to imply that all within the Carbon Axis are equally blameworthy. Some, of course, wield less power or face more severe constraints than others; some also contribute far more than others. To capture these nuances, and thus attenuate some of the inevitable ambiguity that arises in complex moral judgments such as these, we might endorse something like Caney's power/responsibility principle (a.k.a. the "Spiderman principle"). This principle holds that "those with the power to compel or induce or enable others to act in climate-friendly ways have a responsibility to do so" (Caney, 2014, 214).[49] Taking this a step further, we could say that those who—unnecessarily and deliberately—fail to meet this responsibility are, for that reason and to that extent, blameworthy. This is not a narrowly retributive principle, in the sense that it does not ground blameworthiness exclusively in relation to the negative (harm-inducing) actions that an agent previously undertook or is currently undertaking. Rather, it also takes into account the positive (harm-avoiding) actions that an agent reasonably could have undertaken (or could be undertaking), but did not (or is not). On this view, every inexcusable contribution to climate harm, as well as every missed opportunity to reduce or prevent harm, is blameworthy.[50] While this may appear to be extremely demanding, as Spiderman's Uncle Ben reminds us, heavy moral burdens are the cost of wielding great power.[51]

3.f. Intentionality (and the doctrine of double effect)

At this point, one may concede that the members of the Carbon Axis certainly are (and have long been) *aware* of the nature and effects of their actions (or inaction), and also grant that many of the Axis's contributions are (and have long been) *significant* and *unnecessary*, but nonetheless reject ascriptions of culpability on the ground that the Axis never *directly intended* to generate climate harms—that is to say, they never wished to harm others, or to use climate change as a means of harming. Rather, so the objection goes, Axis members were simply engaging in morally legitimate activities that *just so happened* to have the regrettable side effect of causing harm, and thus should not be blamed.

This is essentially an objection from the doctrine of double effect (DDE), which holds that it is sometimes "permissible to cause a harm as a side effect (or 'double effect') of bringing about a good result even though it would not be permissible to cause such a harm as a means to bringing about the same good end" (McIntyre, 2023). For the DDE to apply, most believe that a number of criteria must be met, including the following[52]:

(i) the action itself must be good or at least neutral;
(ii) the agent undertaking the action must only intend the good effect and not the evil one;
(iii) the evil effect cannot be the means by which the good effect is produced[53];
(iv) the good effect is sufficiently good so as to permit the evil effect.[54]

Many accounts (e.g., Walzer, 2006, 156) also stipulate that:

[49]NB: Caney adopts Dahl's conception of power, which holds that "A has power over B to the extent that he can get B to do something that B would not otherwise do."

[50]For a compelling argument along these lines, see Kramer (2020).

[51]Or, to quote another popular moral character, "From everyone who has been given much, much will be demanded; and from the one who has been entrusted with much, much more will be asked" (Luke 12:48).

[52]These formulations follow, at times verbatim, those provided by Walzer (2006, 153ff) and McIntyre (2023).

[53]See also Thomson (1991, 292).

[54]McIntyre (2023) understands this to mean that "the extent of the harm is adequately offset by the magnitude of the proposed benefit." Walzer (2006, 153) claims that the relevant action "must be justifiable under Sidgwick's proportionality rule." Thomson (1991, 292) stipulates that "the good is in appropriate proportion to the bad."

(v) the agent must strive to minimize the foreseen harm (typically, by exhausting all reasonable, less harmful, or risky alternatives).

I will not contest (iii). Clearly, it is not the case that, say, fossil fuel companies are producing energy *by means of* harming or killing people. I argue, however, that the DDE's other criteria have not been met, and thus that the Carbon Axis cannot be exculpated on this ground. We can see this by examining each point in turn.

"the action itself must be good or at least neutral." There are many actions that contribute to climate harm, and thus it is impossible to speak generally about whether they can be considered good, bad, or neutral in themselves—that is, apart from their harmful consequences. Much depends here on the level of abstraction we adopt in describing the ends of the relevant activities. Few would doubt, for instance, that agriculture is good. But what about animal agriculture? Even setting aside the fact that animal products are responsible for approximately 12–18% of global annual emissions, we might worry that the production of meat, dairy, and eggs (i) contributes to health crises of enormous scale, including heart disease, cancer, obesity, and diabetes; and (ii) results in the extreme suffering and industrialized slaughter of billions of farmed animals every year.[55] These are clear bads, inseparable from animal agriculture. And while one might object that these, too, are merely indirect or "double" effects of the more general end of provisioning foodstuffs, this merely shifts our evaluation to the level of means. For if the relevant end is providing food, and animal agriculture is just one means for achieving that end, then why should we prefer it to the alternative means available to us that do *not* produce such horrific side effects?

Likewise with energy production, transport, and many other goods and services. Most would agree that electricity and heating are very great goods. But few would accept that the extraction, refinement, and combustion of fossil fuels are good (or at least neutral) activities in themselves—that is, shorn of the climate harms they cause. Just consider how often pipelines leak, tankers spill, or coal mines sicken workers. These may be cast as yet more double effects, but as before this would only change the level of debate to one over the best means we might use to achieve the more general (and good) end of providing energy.

In short, then, there are strong reasons to question whether some of the most significant climate-harming activities and products are, in fact, good or neutral in themselves—that is, apart from their climate-harming consequences. In many cases, they appear to involve extreme bads that are impossible to separate from the performance of the action or the provision/consumption of the product itself.

"the agent undertaking the action must only intend the good effect and not the evil one." While it is likely true that the evil effects of many of the Axis's actions are not *intended* (but "merely foreseen"), we may nevertheless question the moral reasoning underpinning this criterion. At least it does not seem *obvious* that the suffering, death, and damage the Carbon Axis is causing are made any less morally condemnable by dint of being "mere" by-products of other activities.[56] This is especially so in light of other factors: that is, that the bad effects have long been known to occur (such that none can reasonably claim ignorance about them), and that far less harmful alternatives exist.

It also bears consideration that, as with Midgley and co., the real and final end of the Axis's harmful activities is *not* the provision of some morally good or neutral product or service (like electricity or food), but rather the enrichment of its shareholders or (some portion of) its citizenry. Although I cannot pursue this point here, I would argue that such a narrowly self-interested end renders the ostensibly "incidental" nature of the Axis's climate-harming *even more* repulsive to moral feeling, *not less.* Crimes of passion are, after all, ordinarily thought less severe and condemnable than those that emerge from cold calculation. And it is hard to see why the same intuition

[55]For more on the nexus of climate and animal ethics, see Donoso and Mittiga (2026).

[56]Thomson (1991, 293–295) makes something like this point.

would not hold at the collective level: Those who would "permit" mass suffering, displacement, and death—however "incidental" such effects may be—without much more than shoulder-shrugging indifference would seem to occupy a special class of moral villain, one more alien than most.

"the good effect is sufficiently good so as to permit the evil effect." The proportionality criterion seems hardest to sustain for those who would appeal to the DDE, as the evil effects brought on by climate change truly are immense: including, again, millions of premature deaths, extreme "untold" suffering, severe human rights diminutions, territory loss, mass extinction, and the credible risk of complete civilizational collapse.[57] It is hard to fathom what could ever warrant risking—let alone knowingly causing or allowing—such calamity. Certainly, the answer would have to be something more than cheap energy, Ryanair tickets, and the McDonald's dollar menu.

"the agent must strive to minimize the foreseen harm." Even when the Carbon Axis acknowledges these extreme side effects (which it has only recently done, and still inconsistently), it has often insisted that nothing can change (at least not immediately). And yet, the Carbon Axis has—and, in many cases, has had for decades—feasible alternatives available to it. They have, however, fiercely resisted developing or scaling up these alternatives, presumably because of the threat they may pose to prevailing business practices, the value of owned assets, or existing profit margins.[58] (Transitioning to solar, for example, would potentially mean losing the billions spent identifying and acquiring fossil fuel reserves.)

Of course, the same actors and entities constituting the Carbon Axis could mitigate potential financial losses by leading the transitions themselves. For instance, carmakers could begin limiting production to electric vehicles; industrial animal farms could transition to producing vegan substitutes. So why have they not done this? In many cases, it appears that the operant concern has been that such a transition would require embracing technologies that are, or would potentially be, less lucrative, at least for a time (Christophers, 2024). We should note, though, that while this may be true for certain businesses or industries, or at least for certain products, it is not at all obvious from a broader social perspective. Rather, as a number of economists have shown, the co-benefits that would follow from transitioning to carbon neutrality may well be sufficient to cancel out any economic costs associated therewith,[59] whereas the costs of failing to transition (or delaying it) are potentially catastrophic.[60] It is also worth stressing that many climate-friendly alternatives to products like fossil fuels, meat and dairy, and internal combustion vehicles are now already *more* cost-effective for the average consumer, particularly if existing public subsidies are taken out of the picture. But even if this were not so, avoiding a dip in quarterly profits or annual GDP does not obviously constitute sufficient moral justification for devastating the natural world, killing millions, and jeopardizing human civilization.

Taking this all into account, it appears clear that the DDE cannot excuse the Carbon Axis's core activities. Thus, we should conclude that, in many if not most cases, the Axis's contributions to harm are intentional—or, at least, not excusably unintentional.

4. Conclusion: The Culpability of the Carbon Axis

There is of course much more one could say with respect to each of the exculpating factors discussed above, and perhaps others still besides. The essential point, however, is that, while it is reasonable to believe that these factors can excuse some contributions to climate-harming (to some extent), they cannot spare all from blame. This is clearest with respect to the Carbon Axis—that is, the major carbon corporations, along with the politicians, financiers, lawyers, scientists, and media

[57]See, for example, Ripple et al. (2022), Steel et al. (2022).
[58]On these points, especially the last, see Christophers (2024).
[59]As even Stern's early report noted in 2007. But see also Stern (2015), Karlsson et al. (2020), West et al. (2013).
[60]See, for example, Wagner and Weitzman (2016), Bilal and Känzig (2024), Laville (2025).

personalities who serve them. These actors and entities do not face the volitional and epistemic constraints examined here; rather, they are quite often the sources of such constraints for everyone else. If anyone is culpable, the Axis is.

We can more readily see this by examining a prominent member of the Axis: The direct descendant of Midgley's Standard Oil of New Jersey—namely, ExxonMobil, whose executive leadership again learned about the climate problem years before most, but did nothing to change course or alert the public. Certainly, the captains of Exxon could have pursued other commercial activities after learning about the harm fossil fuels were causing—and they actually did consider doing so, by, say, developing electric cars and renewable energy technologies (Banerjee, 2016; Goldenberg, 2016). Instead of taking this path, however, the company opted to double down, expand its harmful activities, and invest heavily—over decades—in highly effective disinformation and electioneering campaigns, which protected profits at the cost of concerted political action, particularly in the US.[61] In effect, they helped manufacture the ignorance that continues to hamper meaningful action to this day.

Of course, Exxon is not unique in these regards. Many, perhaps all, major carbon[62] corporations have similarly dark histories. And they have not acted alone. A great number of politicians—especially those serving in the mega-economies of the US, the EU, China, India, Brazil, Russia, Japan, and a handful of others—are at the very least *complicit* in the moral evils of these commercial carbon giants, if not guilty for actively abetting them (through, e.g., subsidies and promotion, legal concessions and protections, willfully maintaining a lack of oversight and regulation) (Kramer, 2020). Those most directly responsible for climate-harming also have their backroom power-brokers, propagandists and marketers, lawyers and lobbyists, bankers, and astroturf cheerleaders: The talking heads and morally vacant middlemen who are ever willing to engage in more "banal" forms of evil. Like the doctors once paid by the tobacco industry to speak to the health "benefits" of smoking on TV, these public-facing drones bear significant moral responsibility for their part in propagating the climate crisis. For, as Victor Hugo reminds us: "The soul in darkness sins, but the real sinner is he who caused the darkness" (Hugo, 2012, 30).

These people and entities—together, the Carbon Axis—are well and truly blameworthy. They are and have long been aware of the problem and, even in the austere and unforgiving light of that awareness, have continued to act in harmful ways, and ever more aggressively and rapaciously over time. And, of course, all of this has been done *needlessly*, for the Carbon Axis has not only had the power to change course and consistently chosen not to, but has, again, forcefully resisted any reforms being imposed on them from outside. Together, they are like a school bus driver who, upon realizing that he is on track to collide with a brick wall, mashes even more forcefully on the gas pedal, ignoring the cries of the young passengers within or the terrified onlookers without.

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[61]See, for example, Farrell (2016), Coll (2012, 184–185, 619–620); Union of Concerned Scientists (2007), Oreskes and Conway (2011).

[62]I use "carbon" here in lieu of "fossil-fuel" as a way of indicating that these pathologies extend beyond the oil-and-gas industry; much of what I have said here about Exxon's malevolence could just as easily be put to, say, Cargill or Tyson Foods.

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