

# How would we know if we made a climate difference?

## 0. Abstract

Individual denialists deny that adding any given individual's emissions in isolation ever causes climate harms. They accept that the emissions of large groups do cause climate harms. This requires assuming a metaphysical threshold where large numbers of actions have effects but that certain subsets of those actions have no effect. Most objections to individual denialists do not grant that there could be such a threshold. Granting this assumption in order to make an internal criticism, I go on to systematically consider which kinds of justification could be made for the claim that there is a relevant difference between individuals and large groups. I find all the justifications on offer wanting partially as, from a scientific point of view, there is nothing privileged about the emissions at the level of the individual as opposed to larger or smaller levels. I discuss how a claim about the potential value of working with others could have been misconstrued as supporting the more radical claim that individuals do not make a climate difference.

## 1. Introduction

Broome ([2019](#)) discusses several philosophers who have denied that individual people cause harm via emissions and resultant climate change. He calls these philosophers 'individual denialists'. Influential examples include Sinnott-Armstrong ([2005](#)), Kingston and Sinnott-Armstrong ([2018](#)), Maltais ([2013](#)), and Cripps ([2013](#)). I am going to introduce a new puzzle for these denialists.

Two preliminary notes: first, while this puzzle is aimed at denialists in the context of climate change, this discussion may have relevance for other kinds of group or structural harms. For instance, some might deny that certain kinds of microaggressions involve any harms by themselves, and that they only cause harm when there is sufficient repetition or aggregation. Second, when considering actions, this paper will be limited to the harms, which are the primary phenomenon at issue with respect to individual responsibility and have attracted the greatest discussion. A fuller account would consider benefits from emissions and how to weigh those costs and benefits against each other. Such a project is beyond the scope of this paper. However, this paper does offer a considerable contribution to this discussion; the original claim of Sinnott-Armstrong ([2005](#)) was that individuals do not cause harm *at all*; if this claim can be undermined, we are in the realm of the more subtle and complex questions of comparing the costs and benefits of emitting. These questions involve morally interesting presumptions and considerations themselves ([Fleurbaey et al. 2019](#)), but they do not prioritize groups over individuals (or individuals over groups). Moving the debate beyond the idea that individual emissions do not cause harm would be a significant advance.

With those clarification, we can move on to characterizing individual denialists.<sup>1</sup> Individual denialism holds that individuals make No Difference when only their emissions are changed:

(No Difference) Individual emissions do not cause morally relevant climate harms when they are added or removed, holding other emissions fixed.

Of course, some volume of individual emissions is needed to give content to this claim. While the individual denialists are not always explicit, we could take mean or median annual personal emissions from the industrialized world to be the right order of magnitude (this decade, average US CO<sub>2</sub> emissions

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<sup>1</sup> Individual denialists are also referred to as those who promote claims of “causal inefficacy” or “inconsequentialism”, cf. [Fraginière \(2016\)](#) and [Nevsky \(2019\)](#) for overviews of the relevant literature.

have ranged between 16 and 17 metric tons per year per person) or perhaps personal behaviors or actions.<sup>2</sup> Ultimately, my objection to No Difference is independent of any reasonable specified range or level of emissions that constitute individual emissions, so I can be agnostic about the reasonable range or level, either for individual annual emissions or for some significant emitting behavior like joyguzzling.<sup>3</sup>

Like several other authors, Broome ([2019](#)) does *appear* to disprove No Difference. He writes that if we adopt a reasonable (albeit low) social cost of carbon and calculate the implied cost of the emissions, we get measurable, nontrivial costs (on the order of a \$1 of social damages for the joyguzzling activity). Of course, this need not be the actual harm, just the average or expected harm, but that does not undermine the fact the figure represents positive harm. Apparently, this positive harm is a climate harm and it is caused by individual emissions, contra the No Difference claim. (Among others, Hiller ([2011](#)) and Nolt ([2011](#)) have made similar claims using parallel reasoning.)

However, many of those who endorse No Difference will deny that Broome and these others have disproven the No Difference claim. For instance, Kingston and Sinnott-Armstrong ([2018](#)) write that what matters is “not the effects of groups of acts divided by the number of acts, but the difference that marginal additions will make” (174). If so, I would agree. Those who endorse No Difference could grant that thousands of actions in large groups do cause significant harms but claim that apportioning fractions of these harms to individuals commits a fallacy of division. Calculating a social cost of carbon,

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<sup>2</sup> Sinnott-Armstrong ([2005](#)) and Kingston and Sinnott-Armstrong ([2018](#)) discuss “joyguzzling” which involves driving a fuel-inefficient vehicle for an afternoon for fun; Broome ([2019](#)) estimates that this involves a one-off pulse of 25kg of CO<sub>2</sub>.

<sup>3</sup> A terminological point: some participants in this literature use misleading phrases like individual emissions “do not cause climate change” (e.g. [Aufrecht 2011: 202](#), [Jamieson 2007: 167](#), [Sinnott-Armstrong 2005: 299](#)). In [Fraginière’s \(2016\)](#) overview of the literature, he similarly writes “nobody’s emissions, taken individually, are either necessary or sufficient to cause climate change”. This kind of phrase is meant to draw attention to the extent of climate change as a physical phenomenon and the inability for individuals to prevent or generate it as a whole. However, this is a straw man, as can be seen with the analogous phrase that households “do not cause water usage”. The relevant question is “Do households *contribute* to water usage?” (or perhaps “*How much* do households contribute to water usage?”); similarly, the relevant question for individual denialists is “Do individual emissions *contribute* to climate change?” (or perhaps “*How much* do individual emissions contribute to climate change?”)

for instance, involves aggregating expected harms from a large number of emissions, followed by estimating the expected marginal effects of those emissions. However, physically speaking, the individual denialists could claim, individuals do not ever *by themselves* cause *any* harm, even, for instance, the slight strengthening of some flood such that it gets close enough to pool in one additional house (cf. [Sinnott-Armstrong \(2005: 290\)](#): ‘my joyride by itself does not cause the massive quantities that are harmful’).<sup>4</sup> By “ever”, they would mean that, regardless of the initial stock of emissions in the system, the addition of only an individual’s emissions would not have morally relevant effects. In this manner, they could say, dividing up the harms that come from group emissions (as Broome, Hiller and Nolt do) and saying that individuals are responsible for their fraction of the total harms mistakes the contribution which they caused—in particular, in isolation, *no* contribution. More precisely, they could say that changing only an individual’s emissions while keeping everything else fixed leads to no difference in climate harms. Obviously, they deny that this claim can be iterated arbitrarily many times to generate arbitrarily large groups with no effects, but they do think it holds in single cases. In other words, they endorse No Difference for single individuals, but not its repeated iteration for arbitrarily large groups. While this is a contentious claim to which I believe there are plausible objections (cf. [McKinnon \(2014\)](#)), I will grant that the individual denialist has the resources to systematize and motivate this anti-iteration move because I wish to challenge the individual denialist on her own terms.

In the debate, those who dispute No Difference typically reject the metaphysical assumption that changing an individual’s emissions in isolation has no climate effects at all or, more generally, that there

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<sup>4</sup> Note that, by harm, I mean what these authors sometimes call “morally relevant harms”. In other words, some of these authors believe that there are effects of individual emissions (e.g. small changes in CO<sub>2</sub> concentrations in the system) but they deny that these effects lead to climatic effects (e.g. strengthening of a given flooding event) or that these climatic effects lead to morally relevant harms (e.g. the flooding event leading to pooling in one additional house just at the edge of the event). For reasons similar to those of Morgan-Knapp and Goodman ([2015](#)), I do not think introducing these extra complex thresholds makes important differences. While there are indeed multiple thresholds within climate systems, my claim is that sometimes, some of the emissions are such that they lead to morally relevant harms. More precisely, my thesis is that my interlocutors do not have the resources to *resist* this claim or to *justify* its negation.

could be a threshold below which adjusting emissions has no climate effects at all. Kingston and Sinnott-Armstrong (2018) make a version of this metaphysical assumption explicit, by holding that climate change is “emergent” (175). On their view, there is some volume of greenhouse gas emissions which causes, in an emergent manner, harmful climate effects; however, any subset of these emissions would be too small to generate those emergent causal properties. The following response attempts to object to the individual denialists while *also* granting such a contentious metaphysical assumption. In this manner, I think we can avoid talking past each other; in short, this is an *internal* critique to the individual denialist position.<sup>5</sup> I argue that, even if there were such emergence, it would have to be consistent with the other individual denialist claim that there is the right causal property at the group level, yielding some bounds on a threshold on quantities of greenhouse gases such that, above the threshold, the gases (sometimes) cause harmful climate effects but, below the threshold, the gases never cause harmful climate effects.<sup>6</sup> I argue that the individual denialist’s *own* claims put pressure on her to explain how we could know where the threshold is. After surveying several ways of defending knowledge of the threshold’s position, I will argue that we do *not* know, leaving the individual denialist position—at best—undermotivated.

This dialectical space has not, I believe, been considered in the published debate on this topic.

Considering it leads to two new points. Firstly, the best way to support No Difference would be an appeal to empirical science but, from a scientific perspective, there is no evidence-based reason for making the threshold above individual emissions as opposed to either greater or lesser. Secondly, in the absence of scientific evidence, endorsing No Difference appears to be a mere appeal to incredulity.

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<sup>5</sup> In a sense, it is doubly internal because I also granted to the individual denialist that they have the resources to respond to the issue of iterated emissions.

<sup>6</sup> To be precise, by ‘never’, I mean regardless of (a) the size of the emissions below the threshold and (b) the extant stock of emissions in the system before the emissions in question.

## 2. Groundwork

Before assessing the individual denialists' reply to Broome, we should distinguish No Difference from two other positions:

(No Traceable Difference) Individual emissions do not cause any *traceable* morally relevant climate harms.

The individual denialists do not mean this. If they were to say that it is difficult with our scientific knowledge to attribute specific climate harms to specific individuals, then one could not seriously object ([James et al. 2019](#)). However, that we cannot currently attribute harms in this way does not imply that there are no harms to attribute. A few decades ago, we could not detect a human signal in the climate noise, but with greater computing power and more sophisticated modelling, we can show greater and greater likelihood that human emissions are driving climatic trends and, in some cases, even individual events. That we were not able previously to detect or attribute these trends did not show they were not occurring then and now that we can does not mean that these detection and attribution activities *created* them.

Another position that is distinct from No Difference is:

(Some Difference) Individual emissions *sometimes* do not cause morally relevant climate harms.

The individual denialists do not mean this, either. If they were to say individuals cause morally relevant harms, but not *every* time they emit, then it would again be hard to object. Indeed, the force of my argument is supposed to push the individual denialists *towards* accepting some version of Some Difference whereby some individual emissions cause morally relevant climate harms and some (perhaps many) do not.

### 3. A Puzzle for Denialists

By contrast to the views in the previous section, here is a view that Sinnott-Armstrong and many other individual denialists *do* accept:

(Group Difference) National and global emissions *do* cause morally relevant climate harms.

For instance, Sinnott-Armstrong is explicit that climate change can be addressed (i.e. prevented or ameliorated) by governments and countries, which can introduce systematic incentives for societies to shift towards lower-carbon trajectories. While (actual) annual global emissions are determinate, so require no further specification, national emissions vary widely, so some range or level of emissions would have to be introduced to give this claim content. While the individual denialists rarely do so, I presume that large industrialized nations are their primary targets, so the national emissions of Germany or the United States are of the right order of magnitude, but once again it is less important for the structure of my argument what order of magnitude is adopted. (I believe it is not so consequential which order of magnitude is adopted to provide content for Group Difference, however, since I believe *all* national emissions can have morally relevant climate effects. I believe my interlocutors would agree.)

But now there is the puzzle for the denialists. While No Difference says that individuals have no causal climate impact, Group Difference says the global community or national groups do have causal climate impact; these claims together generate tension. It would be more natural to say either that *both* individuals and groups *do* or that *both do not* have an impact. So here is the puzzle for the individual denialist to explain:

(Difference) There is a difference between groups and individuals which gives rise to Group Difference and No Difference.

Difference is key to my argument. In order to address the puzzle, the individual denialists need to motivate a difference between the group emissions and the individual emissions. The way I will

understand this difference is to posit a threshold set of emissions whereby emissions below that threshold (i.e. subsets of that threshold set), when removed or added, make no difference to the morally relevant climate effects (regardless of the initial stock of emissions in the system) whereas emissions at or above the threshold (i.e. sets or supersets of the threshold set) sometimes make a difference to morally relevant climate effects (dependent, for instance, on the initial stock of emissions in the system).<sup>7</sup>

Unlike Broome, I am going to grant Sinnott-Armstrong and the other individual denialists the claim that there *could* be some such threshold. I want to engage the individual denialists on their most favourable terrain. Indeed, I will go further and grant them the claim that there *is* a threshold whereby some set of emissions is required in order to cause any morally relevant climate effects. I still think we can show that accepting Difference is unjustified, because there is no good reason to think that this threshold would be at the level that the individual denialist claims; in other words, I do not think the individual denialist can show that the threshold lies in the right place to make the difference between individuals and groups that the individual denialist wants to demonstrate.

#### 4. Potential Ways to Answer the Puzzle

To assess this puzzle for the denialists, consider two ways one might come to know where the threshold is that generates Difference, a priori and a posteriori:

(A Priori) We know Difference a priori.

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<sup>7</sup> From the vagueness literature, there are a variety of epistemological or metaphysical claims which can be adopted to avoid such thresholds. However, they often work by relaxing the point value threshold to some type of *range* of values over which a threshold could occur or is stretched to occur. For my purposes, this is not an important distinction as I mean the threshold to be inclusive of non-point value thresholds—the threshold could be a set or range of values of emissions. My claims apply *mutatis mutandis* to thresholds of such complex forms.

A Priori appears implausible. We certainly do not know that the climate system *exists* a priori; it would be incredible if we knew how it *works* a priori.

Furthermore, there is nothing analytic about the notion that an individual's emissions have no causal contribution to (morally relevant) climate effects. Some philosophers believe we can discover truths by considering the meanings of the terms and determining that the subject contains the predicate. But by simply analysing the terms here, we cannot determine that the meaning of 'individual' or 'group' contains the information about whether their emissions can have a causal contribution to climate harms.

(A Posteriori) We know Difference a posteriori.

Here are two ways we might defend A Posteriori:

(Natural Language Datum) Difference is a truth of natural language.

When considering whether a grain or a thousand grains of sand makes a heap, we appeal to actual language use. Some philosophers have suggested that the problem of climate change is relevantly identical (these cases are called 'sorites paradoxes' or 'paradoxes of the heap').<sup>8</sup> However, whether you take individuals to make a causal difference to climate change is not intuitively a matter for natural language use. Neither is whether groups do. Unlike with sorites paradoxes, you cannot set the endpoints by appealing to natural language. These are matters upon which we refer to natural science, not to language users' usage of the terms.

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<sup>8</sup> For instance, Nefsky (2011) uses the example of sorites cases to suggest that even when the endpoints are defined, we do not know that there are tipping points or boundaries between them. Dialectically, this is slightly different than my use. She uses the example to argue that we need not adopt No Difference *even if we have endpoints*; I am claiming that the individual denier *cannot use* sorites-style arguments *to show that the threshold would be where they believe it to be*—i.e. between the individual and the group—since the endpoints in the sorites are fixed by natural language users and that is not an appropriate way to set endpoints in the climate case.

This brings us to:

(Climate Science Datum) Difference is a truth of climate science.

This is, I believe, the most plausible basis individual denialists could use to support Difference.

Difference is, at its heart, an empirical scientific claim. Unfortunately, no defenders of Difference have attempted to defend it scientifically. There is good reason for this: climate science has not shown Difference to be true! At best, our *current* science supports No Traceable Difference. But absence of evidence is not evidence of absence.

In short, there is no evidence or reason that the scientific results would carve up emissions between individual emissions and aggregated national emissions such that the Difference-making threshold happens to be between the two levels the individual denialist claims. Without such support, Difference is unjustified.

## 5. The Type of Argument that my Interlocutors Need

Are there other arguments that we could offer to show that the threshold is in the place which supports the individual denialists' views? It would be ideal to have explicit views to respond to, but here is the most intuitively appealing argument I can fashion, which, although valid, is unsound. At the very least, it serves as a template that could be used by an individual denialist to mount a stronger response to me:

1. Premise: There is a threshold set of emissions such that changes in any subset of that set causes no morally relevant climate effects under any circumstances and any set of at least that size in some circumstances causes climate effects.
2. Premise: The smallest unit is the individual.
3. Conclusion: The threshold has to at least be greater than the individual's emissions.
4. Premise: Science demonstrates that any threshold has to be below the level of group emissions.

5. Conclusion: There is a difference, namely this threshold, between groups and individuals which gives rise to Group Difference and No Difference.

Premise 1 is a general version of Difference, which for the sake of argument I am granting, although I disagree with it. Premise 2 is the plausible point that, morally speaking, there is no smaller unit than the individual (not only is this morally plausible, for methodological individualists, it is a methodological commitment). If the individual denialist rejected Premise 2, or some other premise that guaranteed Conclusion 3, she would be forced to accept the claim that the threshold could be smaller than the individual emissions at issue which would leave the view irrelevant. For instance, this could mean that driving your car for a tenth of a second would always be too small to cause harmful climate effects, but that any driving longer than a tenth of a second could cause harmful climate effects, or, in Sinnott-Armstrong's metaphysical idiom, that any emissions associated with drives longer than a tenth of a second were sufficient to sometimes cause, in an emergent manner, harmful climate effects. In short, if the threshold were so low, the individual denialist would have to accept that individual emissions do matter since it would not practically matter that there were some non-causal emissions; they would be too small to be relevant to actual individual choices. If there is a threshold, and it cannot be below the level of the individual, then conclusion 3 follows validly (at least modulo the degenerate case where the threshold is exactly the smallest level, i.e. the level of individual emissions). Premise 4 is the scientifically plausible point that groups, at least the global group, causes morally relevant harms, so have to be above the threshold. Conclusion 3 and Premise 4 validly yield the final conclusion, which supports Difference (incidentally, for a mix of a posteriori *and* a priori reasons).

While I am granting Premise 1 for the sake of argument, and I believe that Premise 4 is true (although for the trivial reason that I believe there is no threshold), I disagree with Premise 2. I believe that this intuitive argument comes from a conflation of a moral or methodological individualism and a scientific individualism. While it may be that, on some views, individuals are the *morally* smallest unit of concern,

and that, on other views, we explain phenomena through the behavior of individuals as opposed to groups, there is no guarantee that they are somehow scientifically the smallest unit of concern. Note that this argument is an attempt to justify Premise 2 (and therefore Difference) on a priori moral or methodological grounds. However, from a scientific point of view, there is nothing privileged about the level of emissions of *individuals*. For any set of individual emissions, it could be that the threshold is lower than that, such that only time-slices or worms of individuals (or perhaps individuals with smaller carbon footprints) have no effect, but individuals in whatever range is specified by No Difference *do* make a difference. This matters because if the threshold were below whatever level of individual emissions that Difference was given in terms of, the individual denialist's claims about individual emissions not causing harm would be false.

Of course, the individual denialist might have other premises that would support Conclusion 3 besides Premise 2, but I have not seen any. Regardless, I believe Premise 2 is the most plausible way of supporting Conclusion 3. I would be pleased to hear other reasons for thinking that the threshold occurs where the individual denialists believe that it does, but I do not believe an appropriate premise has been proffered. However, provided the right kind of premise, this argument at least provides a template that could be used to rebut my claims.

## 6. A Couple Objections

Before closing, let us consider two objections. The first is that I have misconstrued the commitments of the individual denialist and the second is that the point of the individual denialist view is the strength of addressing climate change together, a point which seems to have been missed.

The first objection is that the individual denialist need not accept the claims that motivate my puzzle. So, for instance, even the label 'individual denialist' suggests that only No Difference and not Group Difference (and, hence, not Difference) are part of the view. For this reason, the individual denialist

need not be committed to the tension between No Difference and Group Difference, removing the dialectical pressure to address my puzzle. However, while renouncing these commitments may help the individual denialist avoid the puzzle, there are two significant, and my view decisive, costs to doing so. The first is that the claim that (at least some) groups do not cause morally relevant harms is empirically implausible; for global emissions, it is “extremely likely” ( $\geq 95\%$ ) that more than half of the warming observed from 1950-2010 is anthropogenic due to global anthropogenic forcings (IPCC 2013: D.3). The second is that the resultant view lacks action-guidance: it only has the negative commitment that individuals do not cause morally relevant climate harms. If it is agnostic about whether groups cause morally relevant climate harms (and we know individuals do not cause morally relevant climate harms), then we should be agnostic about whether to respond to climate change at all, whether as an individual or to contribute to group activities. My view is that individual denialists want not only to make the negative claims about individual responsibility but also want to add positive claims about group responsibilities, which brings me to the next objection.

The second objection is that governments can, through organizing and generating systematic incentive structures, change the behaviour of individuals in ways that are not predictable from the individuals' actions themselves. This point is strongly emphasized by both Sinnott-Armstrong ([2005](#)) and Maltais ([2013](#)). By having large groups that are organized in this way, these authors suggest, there are gains in emissions reductions that are much greater than from the individuals themselves. That seems to make a difference about when we are talking about a group's emissions and those of the individuals therein.

That the efficiency of individual actions may be sensitive to the groups and organizations they are part of may well be accurate (it is ultimately an empirical claim, but a plausible one), but it does not suffice to justify Difference. In particular, we can grant that the function from size of a group to the emissions of that group is not linear (not 'additive'), but that there are benefits to being in a larger group and having more efficiencies from synergies, network effects and other economies of scale (cf. Schwenkenbecher

[2014](#)). This could be best modelled in a *super*-additive manner, where the marginal benefit from an additional individual could be larger than the marginal benefit from an earlier individual (or the average individual). A simple way of doing so is having a concave up exponential function. However, while the value of additional members may vary depending on the original size, this is distinct from a function where there is a major step-change or discontinuity from no effect given *any* individual emissions to a positive effect of group emissions of some specified size, like a country. While a super-additive function would suggest that it would be more efficient to coordinate within a large group, it would not show that isolated individual emissions do not cause harm—just that individuals could cause even less if they acted as part of a large group. Perhaps a failure to distinguish between these two types of functions (super-additive ones and ones with these major step changes) has led to endorsement of the more radical step change function. It is this latter step-change type of function that is required to justify Difference, but the basis of this objection would only suffice to provide evidence for the super-additive function.

## 7. Conclusion

Unlike most who object to individual denialists, I have granted *arguendo* that Difference could be a metaphysical possibility. But insofar as it remains unjustified and is merely asserted without any way of knowing whether it is the case, it is absurd to base our reasoning on it. This objection is new and operates internally to the individual denialist position; it is independent of the type of objections to the consistency of the theory itself which have been offered (e.g. [McKinnon \(2014\)](#)) and it is independent of the type of objections which try to show that the metaphysical presuppositions are too strong (e.g. Hiller [\(2011\)](#)). It is thus complementary to these kinds of rebuttals, as well as those of Broome [\(2019\)](#).

While I cannot claim to be exhaustive, I have considered what I take to be the most plausible kinds of justification of Difference in a systematic manner. However, I have found them all wanting. I believe that this leaves the individual denialist with an appeal that I believe to be lurking in the background, a mere

appeal to incredulity. When considering potential harm to others, we should adopt a higher bar of justification.

## 8. Works Cited

Aufrecht, M., 2011. Climate Change and Structural Emissions. *International Journal of Applied Philosophy*, 25(2), pp. 201–213. doi:[10.5840/ijap201125218](https://doi.org/10.5840/ijap201125218)

Broome, J., 2019. Against denialism. *The Monist*, 102(1): 110–29. doi:[10.1093/monist/ony024](https://doi.org/10.1093/monist/ony024)

Cripps, E., 2013. *Climate Change and the Individual Agent*. Oxford: Oxford University Press. doi:[10.1093/acprof:oso/9780199665655.001.0001](https://doi.org/10.1093/acprof:oso/9780199665655.001.0001)

Fleurbaey, M. et al., 2019. The Social Cost of Carbon: Valuing Inequality, Risk, and Population for Climate Policy. *The Monist*, 102(1): 84–109. doi:[10.1093/monist/ony023](https://doi.org/10.1093/monist/ony023)

Hiller, A., 2011. Climate change and individual responsibility. *The Monist*, 94(3): 349–68. doi:[10.5840/monist201194318](https://doi.org/10.5840/monist201194318)

IPCC, 2013. Summary for Policymakers. In T. F. Stocker et al., eds. *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge: Cambridge University Press, pp. 1–27.

James, R. A., et al., 2019. Attribution: how is it relevant for loss and damage policy and practice, in Mechler, R., Bouwer, L. M., Schinko, T. & S. Surminski (eds.) *Loss and Damage from Climate Change: Concepts, Methods and Policy Options*, 113–54. Cham: Springer. doi:[10.1007/978-3-319-72026-5\\_5](https://doi.org/10.1007/978-3-319-72026-5_5)

Jamieson, D., 2007. When Utilitarians Should Be Virtue Theorists. *Utilitas*, 19(2), pp. 160–183. doi:[10.1017/S0953820807002452](https://doi.org/10.1017/S0953820807002452)

- Kingston, E. & Sinnott-Armstrong, W. 2018. What's wrong with joyguzzling? *Ethical Theory and Moral Practice*, 21(1): 169–86. doi:[10.1007/s10677-017-9859-1](https://doi.org/10.1007/s10677-017-9859-1)
- Maltais, A. 2013. Radically non-ideal climate politics and the obligation to at least vote green. *Environmental Values*, 22(5): 589–608. doi:[10.3197/096327113X13745164553798](https://doi.org/10.3197/096327113X13745164553798)
- McKinnon, C., 2014. Climate Change: *Against Despair*. *Ethics and the Environment*, 19 (1): 31–48. doi:[10.2979/ethicsenviro.19.1.31](https://doi.org/10.2979/ethicsenviro.19.1.31)
- Morgan-Knapp, C. & Goodman, C., 2015. Consequentialism, Climate Harm and Individual Obligations. *Ethical Theory and Moral Practice*, 18(1): 177–190. doi:[10.1007/s10677-014-9517-9](https://doi.org/10.1007/s10677-014-9517-9)
- Nefsky, J., 2011. Consequentialism and the Problem of Collective Harm: A Reply to Kagan. *Philosophy and Public Affairs*, 39(4), 364–395. doi:[10.1111/j.1088-4963.2012.01209.x](https://doi.org/10.1111/j.1088-4963.2012.01209.x)
- Nefsky, J., 2019. Collective harm and the inefficacy problem. *Philosophy Compass*, 14(4), p.e12587. doi:[10.1111/phc3.12587](https://doi.org/10.1111/phc3.12587)
- Nolt, J. 2011. How harmful are the average American's greenhouse gas emissions? *Ethics, Policy & Environment*, 14(1): 3–10. doi:[10.1080/21550085.2011.561584](https://doi.org/10.1080/21550085.2011.561584)
- Schwenkenbecher A. 2014. Is there an obligation to reduce one's individual carbon footprint? *Critical Review of International Social and Political Philosophy*, 17(2): 168–88. doi:[10.1080/13698230.2012.692984](https://doi.org/10.1080/13698230.2012.692984)
- Sinnott-Armstrong, W. 2005. It's not my fault: Global warming and individual obligations, in Sinnott-Armstrong, W. & R. Howarth (eds.) *Perspectives on Climate Change*, 285–307. Oxford: Elsevier.