“We are faced now with the fact that tomorrow is today. We are confronted with the fierce urgency of now. In this unfolding conundrum of life and history, there is such a thing as being too late.” – Martin Luther King, Jr.

Introduction

We are in a climate emergency. This may seem like a tired and overused political slogan, but I think it encapsulates the moment. This is what the world currently looks like, according to the World Meteorological Organization: entire towns in Germany and the Netherlands have been washed away by floods; hundreds and thousands of people have been evacuated from the Chinese province of Henan (also from floods); Turkey recorded its hottest ever day of 49.1°C; Finland and North America baked in unprecedented heatwaves; Greenland’s ice cap was composed of more than 40% meltwater; Greece and Turkey are suffering from widespread wildfires.¹ Looking back to last year is unnerving; looking forward is ominous. But this is just the beginning. Forecasting from the United Nations Environment Program tells us that we are headed for 3.2°C warming, even if all pledges made under the Paris Agreement are

fulfilled. In 2006, Al Gore said that climate change “is not a political issue so much as a moral issue.” A year later, then-Australian Prime Minister, Kevin Rudd, declared that climate change is the “biggest moral issue of our generation.” Indeed, I think Gore and Rudd are right to point to the moral seriousness of climate change. After all, it is preventable, it is caused by human activity, and it will result in immense suffering and death. Given how climate change impacts our moral life, it is a wonder that we have failed to effectively implement a pathway out of this disaster. Perhaps this failure is because we are not sufficiently attentive to the moral, political, and economic sacrifices that climate change demands of us. Or maybe the moral considerations are simply not convincing enough to guide and motivate our behavior. Whatever the reason, the fact remains: we need action on climate change somehow, so finding any reason to act, even an amoral reason, is a priority. Therefore, the focus of this paper is to look past the moral dimension of climate change and turn to amorality. I will explore reasons to act from a purely self-interested perspective, and in doing so, offer a baseline account for climate action that would satisfy the demands of even the most cold and pragmatic theories in international relations.


[5] Indeed, it is difficult for any liberal metaethical theory to explain why this moral problem renders individual obligations. Utilitarians struggle to explain the causal chain from emitting greenhouse gas emissions to harming other individuals, thus failing to offer an account of disutility. Deontologists struggle to encapsulate polluting activities within the categorical imperative, and similarly, virtue ethicists find it hard to explain how polluting is a vice. On top of all of this, climate ethicists need to explain how, why and to what extent we are obliged to make sacrifices for future generations. See Stephen M. Gardiner, “A Perfect Moral Storm: Climate Change, Intergenerational Ethics, and the Problem of Corruption,” 87-98, and Walter Sinnott-Armstrong, “It’s Not My Fault: Global Warming and Individual Moral Obligations,” 332-346, in Gardiner, Caney, Jamieson, and Shue, ed., Climate Ethics: Essential Readings.
I do not, however, want to dispose of moral considerations altogether. Doing so would neglect critical features of climate change, not only in climate ethics but also in international climate politics. Indeed, the organization that oversees climate negotiations, the United Nations Framework Convention on Climate Change (UNFCCC) puts plainly the moral dimensions of climate change. According to the Convention, states are required to reduce greenhouse gas emissions in a way that attends to the moral demands of the developing world. For instance, developed states are obliged to account for their disproportionate responsibility in creating the problem of climate change, as well as their relative capability to respond to the problem in the form of costly mitigation and adaptation. This **differentiated burden sharing** arrangement has been made, at least at first glance, in pursuit of fairness, placing moral concerns at the center of the political process. But perhaps unsurprisingly, some IR theorists find this troubling. Those who seek to reduce international politics to merely a brutish power play between inherently self-interested states find ‘idealist’ concepts like fairness distracting, or worse, **constraining** to agreement-making. From a pragmatic perspective, this seems like a serious problem. If these IR theorists (known hereafter as ‘rationalists’) are right to posit a trade-off between optimal agreements and moral considerations, then how can we take into account claims to justice, fairness and morality in climate politics? One may argue for a less rationalist approach: adopt a more critically inclined IR theory that takes norms and ideas, such as constructivism and English school theory, seriously in the international order. In doing so, ideals like fairness can be understood as being constitutive of politics, rather than causally related to it. Debates in the literature have in fact proceeded on this front: rationalists posit a trade-off between morality and politics in climate negotiations, whereas constructivists embrace moral considerations.

This debate is premised on the view that principles of fairness—expressed through the equity principles in the UNFCCC—requires some states to make a **material sacrifice**. Rich states, for instance, are required to make a material sacrifice by adopting heavier and more costly mitigation and adaptation burdens under a fair differentiated burden sharing
framework. The main point of contention in the literature surrounds arguments about this sacrifice: does it make climate agreements that are achievable and realistic less likely (the rationalist view)? Or is the pursuit of fairness important in multilateral cooperation, and sacrifices can therefore help broker agreements (the constructivist view)? I argue that the more important question is not whether or not fairness inhibits cooperation, but rather, do the equity principles require states to make sacrifices in the first place? As I will demonstrate in this paper, there is good reason to believe that the equity principles in international climate politics do not necessarily require states to make material sacrifices. As such, states may be motivated for reasons other than fairness, such as by self-interest, when observing these principles. By demonstrating how the equity principles can be in the self-interest of all states, rationalists can no longer plausibly reject this approach to climate politics, and can join constructivists in embracing these principles and the associated policies.

This paper will proceed as follows: section one will offer an overview of equity in international climate politics and a review of the literature on the supposed trade-off between moral considerations and optimal agreements. In the second section, I will take a game theory approach to model a hypothetical scenario in which fairness, as an added variable to a climate agreement, increases the probability of cooperation amongst all states. Finally, in section three, I will conduct a case study to provide context for my findings in section two. This case study will look at how the ‘bottom-up’ approach to climate agreements was negotiated after the Copenhagen Accord in 2009.

SECTION I

The Equity Principles

The equity principles reflect power asymmetries in the international order. This asymmetry means that climate change poses varying threats to

[6] Differentiated burden sharing is, as I will explain later, the main policy feature of the equity principles.
different states, including: the extent to which states have contributed to climate change, the level of vulnerability to the effects of climate change, the capacity to respond to climate change, and the relative diplomatic power to lead multilateral solutions. Translating these structural inequalities into action-guiding principles involves various moral frameworks and theories of justice, most notably those related to distributive and corrective justice. Beginning with a categorical claim to the “right to development,” negotiators of the UNFCCC (particularly those from the Global South) sought to avoid the trade-off between development goals and abatement measures, which would inevitably constrain development opportunities. To do so, a balance was struck between negotiators that took into account moral responsibility for historical emissions which disproportionately fell on the side of the Global North, and the respective capability to solve the problem. These two considerations taken together—historical responsibility and relative capability to respond—form the “common but differentiated responsibility and respective capabilities” (CBDR-RC) principle.

In regards to responsibility, debates focused on the difference between “luxury” and “subsistence” historical emissions, with China and the G77 focusing on a “carbon debt” that the Global North owed the South due to their earlier development. In regards to capability, negotiators acknowledged the need for “forward-looking” burden-sharing arrangements that were sensitive to current development objectives. Using the CBDR-RC principle as a guide, the Convention assigned stronger obligations to the Global North, stating that they ought to “take the lead” in

[10] Ibid., 485-488.
combating climate change. Furthermore, the Convention obliges developed parties to provide direct financial and technological transfers to developing parties, noting that the mitigation commitments of developing parties are contingent on such transfers.\footnote{United Nations Framework Convention on Climate Change, 1771 U.N.T.S. 107, 165; S. Treaty Doc No. 102-38 (1992); U.N. Doc. A/AC.237/18 (Part II)/Add.1; 31 I.L.M. 849 (1992).}

Together, these articles and the CBDR-RC principle can be known as the equity principles. In operationalizing these principles, the earlier and more ambitious model from Kyoto set up a binary between developed and developing parties (referred to as Annex 1 and Annex 2 parties, respectively), obliging Annex 1 parties to commit to legally binding mitigation pathways while exempting Annex 2 parties from any commitments. This model attracted criticism on the basis that absolving Annex 2 parties from mitigation obligations was ineffective in reducing greenhouse gas emissions.\footnote{This criticism is widespread. For a good overview, see Christina Voigt, “Equity in the 2015 Climate Agreement: Lessons from Differential Treatment in Multilateral Environmental Agreements,” Climate Law 4:1-2 (2014): 50-69, https://doi.org/10.1163/18786561-00402005; Geir Ulfstein and Christina Voigt, “Rethinking the Legal Form and Architecture of a new Climate Agreement,” in Toward a New Climate Agreement: Conflict, Resolution and Governance, 183-199, ed. Todd L. Cherry, Jon Hovi, and David M. McEvoy (Abingdon, GBR: Routledge, 2014).} During the 2011 Congress of Parties (COP17) in Durban, parties agreed to establish a new treaty (which would come to be known as the Paris Agreement), and to modify the operationalization of the equity principles. Negotiators acknowledged the need for greater nuance in burden sharing, noting that so-called developed and developing parties are not homogeneous, and as such, the Annex system had to be reformed.\footnote{Voigt and Ferreira, “Dynamic Differentiation,” 291.} Furthermore, for a new agreement to be effective, it had to have the support of major emitters like China and the United States, who had both been left out of the Kyoto Protocol—China because it was considered a developing party, and the US because it could not get Congressional support due to the perceived unfairness of the Annex system. This was to be a sharp warning for US participation in further agreements—as the US climate envoy, Todd Stern declared during the early
negotiations for Paris, “if equity’s in, we’re out.” The Paris Agreement abandoned the Annex system and instead invited all parties to submit mitigation pathways that have been developed in light of the CBDR-RC principle. These “nationally determined contributions” (NDCs) are dynamic and flexible—they are designed to reflect each state’s highest possible ambition (with consideration to CBDR-RC), and to change and become more ambitious over time. The agreement also acknowledges the need for developed parties to support developing parties to implement their NDCs, which is an arrangement that came to be known as conditional NDCs. These conditions, reflecting the equity principles, oblige developed states to provide support in the form of financial or technological transfers to developing states. Negotiating ways to fulfill conditional NDCs will be a key topic at the forthcoming COP in Glasgow, thus, equity will continue to dominate global climate negotiations.

The Equity Principles and (Non)-Ideal Climate Justice

After decades of diplomatic deadlock in climate negotiations, moral and political philosophers looked to more practical-based solutions, particularly in instances of partial or non-compliance to the principles of climate justice. This focus on practicality prompted the emergence of “non-ideal theory” in the literature, which is a methodological approach used to produce better action-guiding normative prescriptions in politi-

[15] States, for instance, are obliged to report on their progress and submit new and more ambitious targets every 5 years.
[16] For instance, article 4.5 and 7.13 of the Paris Agreement note that support shall be provided to developing countries for their mitigation and adaptation actions. “Adoption of the Paris Agreement [UN Doc. No. FCCC/CP/2015/L.9/REV.1],” document, Framework Convention on Climate Change, United Nations, December 12, 2015, http://undocs.org/FCCC/CP/2015/L.9/REV.1
cal philosophy. There are two general conceptions of non-ideal theory: the first, developed by John Rawls, and the second, by Amartya Sen. Broadly, they both seek to develop principles that are firmly based within the non-ideal conditions of the real-world, yet are also designed to move towards an ideal world in which abstract and utopian principles of justice are formulated. In the context of climate change, non-ideal theory seeks to develop action-guiding principles that are sensitive to the realities of the international order, while also helping to establish a more ideal reality of comprehensive and just climate action. The focus of non-ideal theorists in regard to the equity principles has been investigating whether they sufficiently reflect the non-ideal reality of international politics. The chief concern amongst non-ideal theorists is whether the equity principles are too “ideal,” and as such, act as a constraint to agreement-making in climate politics.

For instance, the equity principles seek to redress an injustice by obliging developed states to share a greater burden in climate action. The injustice, as it is presented, arises from the fact that developing states are significantly less responsible for climate change, and are less capable of mitigating and/or adapting to climate change than developed states. Thus by differentiating burdens and applying a heavier load to developed states, the equity principles seek to move towards a fairer ideal—one that takes into account both historical responsibility and present capability, and thus avoids a trade-off between climate action and development in low-income states. However, non-ideal theorists question this approach by focusing on whether developed states would realistically be willing to adopt heavier burdens for the sake of fairness—even if they ought to—in ideal terms. As I will outline, these theorists argue that states, in reality, will only be willing to adopt a policy if it is in their material self-interest to do so. Material self-interest is, they argue, a fea-

sibility requirement for non-ideal proposals. In the following discussion, I have identified two broad groups within the debate on non-ideal theory, feasibility, fairness, and the equity principles. The first group, which I refer to as the ‘opponents’ of the equity principles, posit material self-interest as a feasibility requirement, and as such argue that a trade-off between equity and feasibility is necessary; the second, known as the ‘supporters’ of the equity principles, do not posit such a trade-off.

**Opponents of the Equity Principles**

According to Eric Posner and David Weisbach, if the equity principles constrain agreement-making in climate politics, they cannot be considered just. In their monograph, *Climate Change Justice*, they argue that a system of “International Paretianism” — in which all states must believe themselves materially better off in virtue of their participation in a treaty — is a necessary condition for feasibility in climate negotiations. For a state to believe themselves better off from a treaty, there must be a baseline against which a cost/benefit measurement can be conducted. Posner and Weisbach suggest a “business-as-usual” baseline, that is, a scenario where no abatement measures are in place and climate change continues to get worse. According to that measurement, they argue that a climate treaty would be net-beneficial to all states due to the projected costs of climate change, and would therefore satisfy the feasibility demands of International Paretianism. However, if differentiated burden sharing is introduced through the equity principles (or as they describe, “distributive policies”), then mitigating would be too costly for some states, and thus will not satisfy the system. This is not to say that Posner and Weisbach are morally indifferent to issues such as global poverty.

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[22] This term comes from the concept of Pareto optimality, which states that a distribution is efficient if and only if there is no other way to distribute that leaves at least one other agent better off and no one worse off.

but rather, that “influential claims about climate change justice are both vulnerable in principle and dangerous in practice.”

Thus, for climate treaties to be optimal, they must have a sole focus on reducing greenhouse gas emissions. It would be a cruel irony, they argue, if the very injustices that the Convention seeks to remedy were perpetuated—or worse, exacerbated—by pursuing ideal climate agreements that willfully disregard the non-ideal reality of political feasibility.

Concerns over the trade-off between feasibility and equity have also been raised by Robert Keohane. When writing on the nature of cooperation in multilateral institutions, Keohane argues that altruism is a particularly weak force for encouraging cooperative behavior, and that institutional arrangements held together by altruistic principles will inevitably falter.

He points out that the Kyoto Protocol's top-down approach of legally binding mitigation targets for rich states relied too heavily on altruistic means for differentiating burdens, which led to poor compliance from states like Japan, Canada and Australia, and ultimately, a sub-optimal climate treaty. Thus, a climate treaty should satisfy the material self-interests of all states for it to be effective, noting that “institutional arrangements have to somehow induce the states to do the right thing for what, to an altruist, would be the wrong reasons.”

Climate ethicist John Broome has echoed these arguments by noting that the aim of poverty alleviation and international distributive justice should be separated from climate policy. This is because arguments for fairness, justice, and morality are not sufficiently persuasive in international politics if material self-interest is at stake. A more pragmatic and effective approach would be to ap-

[24] Ibid., 190.
[26] Kohane, “Beyond the UNFCCC.”
peal to self-interest by designing a climate treaty that is Pareto optimal, and address international injustices through a different forum, such as a separate treaty.\[27\]

Other theorists and philosophers have raised further points about equity and feasibility, but I suggest that they all offer a similar argument.\[28\] For the sake of simplicity, I will outline the shared premises of these types of arguments. I call this argument *the argument for infeasibility*. The first premise posits a necessary condition of feasibility: a policy is feasible only if states agree to the policy. This leads to the question: what will states agree to? Here, opponents of the equity principles turn to the rationalist school of IR theory, which claims that international politics is structured on power and coercion, and accordingly, that states always act according to their material self-interest. In regards to the question of what states will agree to, rationalists hold that states will only agree to a policy if it is in their material self-interest, which leads us to the second premise: a policy is feasible only if it is in a state's material self-interest. At this point, opponents look at the equity principles and ask, are they in the material self-interest of states? Given that the equity principles oblige rich states to make an economic sacrifice in the form of differentiated burden sharing, opponents of the equity principles argue that the equity principles are not in the material self-interest of rich states. Thus, we have the conclusion: *the equity principles are infeasible*. The argument is summarized below:

**Premise 1:** Feasibility requires that states agree to a policy.


Co-premise: A state will only agree to a policy if it is in their material self-interest.

Premise 2: A policy is feasible only if it is in a state’s material self-interest.

Co-premise: The equity principles are not in the material self-interest of all states.

Conclusion: The equity principles are infeasible.

I suggest that there are two types of responses to the argument that the equity principles are infeasible. The first challenges the empirical assumption about the trade-off between equity and feasibility, and the second challenges the normative validity of non-ideal arguments altogether. The first empirical argument reflects, to some extent, ideas in the English school of IR theory about norms and values in international society. 29 In short, proponents of this view argue that the equity principles do not act as a feasibility constraint because states do in fact care about fairness and justice, and as such, agreements that are considered fair will have a better chance of soliciting compliance. 30 This argument is particularly consequential in the context of climate change because cost/benefit analyses are fundamentally opaque, so there is an epistemological constraint to states ever knowing if adopting the equity principles is in their material self-interest. 31 Thus, the best course of action is an

[31] Oran Young, “Does Fairness Matter in International Environmental Governance? Creating an Effective and Equitable Climate Regime,” in Toward a New Climate Agreement: Conflict, Resolution and Governance, 16-29, ed. Cherry, Todd L., Jon Hovi, and
agreement that states at least think is fair and reasonable, which is to say a climate treaty under the conditions of the equity principles. As Voigt and Ferreira note:

While effectiveness depends on participation, participation in turn depends on states’ own perception of fairness and equity with regards to other states’ contributions towards addressing the problem and therein lies the fundamental importance of finding a workable solution for differentiation in the climate regime.32

The other normative response is best articulated by philosopher Simon Caney. Caney questions the non-ideal approach of taking International Paretianism as a set feasibility constraint in climate treaties, arguing that the apparent difficulty of compelling states to act justly is not a moral argument in itself, but rather an example of why normative argumentation is needed in international politics in the first place. To posit, as he argues, that “ought” implies ‘can’ is reasonable (if not uncontroversial), but to claim that ‘ought’ implies either ‘is likely to’ or ‘will’ is obviously implausible.33

The Gap in the Literature

The empirical argument, offered by supporters of the equity principles, challenges the second premise of the feasibility argument: a policy is feasible only if it is in the material self-interest of states. Supporters argue that this is in fact not the case—a policy can be feasible if it is considered fair or just, regardless of its impact on the material self-interest of states. This method of non-ideal argumentation and adjusting the feasibility calculation to produce different action-guiding principles is an important exercise. Indeed, Voigt and Ferreira may be right to suggest that unfairness itself is a feasibility constraint. After all, this view would likely have the support of a large portion of IR scholars, ranging from constructivists to English school theorists. But it does little to appease

rationalist scholars who see material self-interest as the defining feature of state behavior. In many ways, this disagreement reflects the familiar divide in IR theory between rationalists and constructivists.

There is, it seems, a deadlock in this debate. The equity principles are either feasible or infeasible depending on where one sits on the constructivist/rationalist divide. But as I will demonstrate in this paper, this need not be the case. I seek to offer a path forward for the equity principles that satisfies the feasibility constraints set out by both opponents and supporters. To do so, I will look more closely at the assumptions that structure the current debate. Supporters and opponents assume that states need to be motivated by fairness in order to observe the equity principles. This account sees the equity principles as having a moral function—it is the mechanism by which states discharge their duty to be fair in climate negotiations. In other words, the equity principles are moral principles, and insofar as using moral ideals to guide state behavior is disputed—particularly between rationalists and constructivists—there will be a seemingly unresolvable deadlock in the literature. This assumption, that fairness motivates uptake of the equity principles (known hereafter as the ‘fairness assumption’), premises the views from supporters and opponents on feasibility. Supporters, for instance, argue that the equity principles are feasible because they are observed in pursuit of fairness. On the other hand, since opponents deny the possibility that fairness motivates state behavior, they argue that the equity principles—assuming that they are only observed in pursuit of fairness—are infeasible. Relying only on fairness to motivate state behavior, the opponents argue, is dewy-eyed idealism that will result in a sub-optimal climate treaty.

However, how can we be sure that the only motivator for observing the equity principles is fairness anyway? Certainly, they have been formulated to reflect the unfair international order, and to ensure that collective action is sensitive to these dynamics. Furthermore, they are expressed in moral language—not only in the UNFCCC and other climate agreements, but also by diplomats during negotiations. Despite this framing, I suggest that there may be other reasons why states observe the equity
principles that are not based on any conception of fairness, but rather cooperation itself. This is to say that the equity principles could be instrumental to cooperation for reasons relating to material self-interest, rather than only fairness.

In short, my argument is this: the equity principles could be in the material self-interest of all states, which makes them feasible according to the constraints set out by both supporters and opponents of the equity principles. I claim that they could be in the material self-interest of all states, rather than definitively claiming that they are, because I seek to only problematize the assumption that the only motivator for observing the equity principles is fairness. As I will demonstrate in this paper, while we have reason to believe that fairness motivates uptake of the equity principles, we also have reason to believe that material self-interest also motivates uptake. This argument has important implications for the literature on equity and feasibility. Consider, for instance, the argument for infeasibility presented by the opponents. A premise in this argument states that the equity principles are not in the material self-interest of all states. If, however, I challenge this premise and demonstrate how the equity principles could be in the material self-interest of all states, the rationalist conclusion that the equity principles are infeasible no longer holds. On the other hand, my argument would also satisfy the feasibility conditions that supporters posit, because fairness can still be a motivator of the equity principles, albeit not the only motivator.

To develop my argument, I will address the fairness assumption from the perspective of the opponents. I will take their feasibility conditions as ‘set’ and work to find ways for the equity principles to satisfy those conditions. In doing so, I adopt a rationalist conception of international politics, and grant the associated assumptions: states are inherently materially self-interested and will only cooperate in a treaty if it is in their material self-interest to do so. Although I am adopting a rationalist framework, I should note that I am not a committed rationalist. In fact, I find the premises it adopts and the assumptions it makes implausible. Despite its pretense to realism, rationalism fails to offer a dynamic and realistic account for what interest or power is in international relations.
It reduces and flattens these concepts into a crude cost-benefit calculation. But in reality, these are floating, culturally and historically contingent concepts that are laden with normativity. However, focusing on the serious shortfalls of rationalism misses the point of this paper. Rather, by demonstrating how equity principles can operate under even the most brutal and implausible conditions of a rationalist worldview, I am better able to support the case for their feasibility. I will start by adopting their working assumptions and apply them to the problem of cooperation in climate negotiations, and ultimately reckon with the critical question: could the equity principles be in the material self-interest of all states?

**SECTION II**

If states are defined as selfish actors, jealously guarding their territories and material power, how can they cooperate under anarchic conditions? Consider this question in the context of climate change: states need to coordinate themselves to avert ecological destruction and find ways to share both the atmosphere and the environment in a sustainable manner. In this context, the atmosphere and the environment can be understood as a global public good, which needs coordination to avoid descending into what Garret Hardin describes as the “tragedy of the commons.” When examining the issue of climate change, Hardin’s warning is particularly potent because it helps explain the diplomatic deadlocks that have often characterized international climate negotiations. For instance, in situations where individual agents have access to a common resource (such as the atmosphere), it is in their self-interest to maximize their use of the public good. But this approach, left uncoordinated, would quickly deplete the commons and go against the common good. Thus, it appears that it is collectively rational to restrict use of the

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commons but individually rational (presupposing egoism) to maximize personal use, unfettered by collective constraints. Given that rationalists define states as self-interested rational egoists, it would seem that individual rationality (unrestrained use of the commons) would prevail, thus causing the tragedy of a depleted commons.

However, I argue that it is too early to resign ourselves to the pessimistic conclusion that collective action for climate change is impossible through a rationalist lens, because there are at least two solutions. The first, which comes from the realist tradition, claims that hegemons can wield their power in a way that coerces other states to cooperate. The second, coming from liberals, claims that multilateral institutions can help coordinate a collective effort in a way that is in the self-interest of states. Although realists have made modest contributions to the literature on cooperation in climate politics from hegemonic stability theory, it is mostly used to describe alliance structures in the security issue-area. For that reason, I will develop my argument with the aid of the literature from liberal institutionalism. After all, I hope to explain how the

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equity principles are in the self-interest of all states from an institutional context—the UNFCCC.

Opponents of the equity principles offer an all-things-considered calculation that renders the equity principles as a net cost for developed states, due to heavy mitigation burdens under a differentiated burden-sharing arrangement. But I suggest that this claim needs to be better investigated. In this section, I aim to show that this calculation rests on unsubstantiated assumptions about the relative costs of certain actions in climate agreements. By tweaking some of these assumptions, I will demonstrate how the net-costly calculation could easily be net-beneficial. To unpack, tweak, and test assumptions about the relative costs of certain actions in climate agreements, I turn to game theory. Game theory helps me to unpack the assumptions in the literature, isolate and alter them, then construct a thought experiment to observe how they can enable or constrain cooperation in a climate agreement. This method will demonstrate how the premises that support the fairness assumption ought not be taken for granted. That is, game theory gives me the methodological framework to problematize the fairness assumption.

This section will proceed as follows: I will first set up my method of analysis, outline my working assumptions, and offer a critical defense of this method. I will then move to the substantive section of my argument and demonstrate how the equity principles can be in the self-interest of egoist states. I will finish by bringing the discussion back to the focus of this paper, namely, problematizing the assumption that fairness is the only motivator for observing equity principles.

**Introducing Game Theory and Working Assumptions**

Let me start by reiterating the rationalist perspective: states are rational egoists. States, as the primary actors in international politics, seek to maximize their welfare without regard to other states. As Keohane argues, “welfare” can be understood as a set of consistently ordered principles, the aggregate of which make up the “national interest.”[39] The logic

of anarchy and the asymmetrical division of power in the international order means that securing the state through the maximization of military and economic strength is a universal priority, which is to say that material power constitutes the welfare that all states pursue.

For reasons that I have discussed previously, I will grant this assumption, which for many reasons is the ‘hard case’ for climate ethicists, and demonstrate how the equity principles can operate even within rationalist conditions. Explaining how states cooperate in anarchy is a difficult task—as Keohane notes, there is a common belief that institutionalists must “smuggle in idealistic assumptions about [state] motivations” in order to offer a plausible account of cooperation in anarchy.40 Furthermore, “egoists...have difficulty solving bargaining problems, since they do not recognize norms of fairness that can provide focal points for agreement. Cool practitioners of self-interest, known to be such, may be less able to cooperate productively than individuals who are governed by emotions that send reliable signals, such as love or reliability.”41 However, while it may be difficult, rational egoists can cooperate without idealistic motivations. We can, as Keohane has demonstrated, posit rational egoism along with realists, without ending up at the pessimistic conclusion that cooperation is only plausible under conditions of hegemonic leadership. But to make this case, we need to turn to game theory, then to abstract international politics, and finally to a purely theoretical domain that assumes the perfect rationality and egoism of actors.

I should note that I am using game theory at an elementary level, rather than in the formal way that would be expected of mathematicians and experimental economists. I seek to use this theory in an instrumental way by positing international cooperation in the simplified and abstracted context of a game.42 This approach has significant advantages and

[40] Ibid., 67.
is familiar to social science. For example, Max Weber argued that, “in order to penetrate the real causal interrelationships, we construct unreal ones.”43 By constructing unreal scenarios in which perfectly rational and egoistic actors face cooperation dilemmas, we can conduct a causal analysis between these actors and cooperation, assess their plausibility, and offer a baseline account of cooperation in anarchy. Note that this approach does not require us to commit to the view that the working assumptions are correct, but rather claim that if it were the case that states are rational egoists, they can cooperate under these conditions.

Game theory models hypothetical scenarios, known as games, and observes how actors would interact within that given environment. The decisions of actors within a game (otherwise known as ‘players’) depends on the rules of the game, and the expected utility of a given action in the context of interdependence with other players. In a two-player game, the expected utility—or payoff—in a given round of play is calculated according to the following structure: the benefits of mutual cooperation (CC) relative to mutual defection (DD) and the benefits of unilateral defection (DC) relative to unrequited cooperation (CD).44 To better illustrate this, consider the well-known “Prisoner’s Dilemma” game:

Imagine that there are two guilty partners in crime who are separately being questioned by the police. Both prisoners know that if neither confess, the police will only have enough evidence for a minor conviction, equivalent to say, a thirty-day prison sentence each. So the payoff of mutual cooperation (CC) is a relatively short prison sentence. If, however, both defect by way of confessing, the police will secure

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a more serious conviction, equivalent to a one-year prison sentence each (DD). This, so far, would give each prisoner sufficient incentives to not confess (CC).

However, let’s imagine now that the police have introduced an additional incentive to confess: if one prisoner confesses (or in other words, defects) and the other does not confess (that is, he cooperates), the rat will go free without a conviction (DC), and the recalcitrant partner will secure a heavy sentence of five-years (CD). Thus, assuming that the prisoners are rational egoists, the ordering of preferences would be as follows: (1) defect, by ratting-out your partner and go free without a prison sentence (DC); (2) cooperate with your partner and not confess, securing 30-day prison sentence (CC); (3) both confess, securing a one-year prison sentence (DD); (4) individually confess when your partner does not confess (they’re the rat), and secure a five-year prison sentence (CD). To put this in game theory terms, DC>CC>D>DD>CD.

**Strategies to Change Payoff Structures**

Game theory offers more than just a descriptive account of cooperation. Those seeking to increase the chances of cooperation in collective action problems can turn to game theory to find strategies that alter payoff structures. For example, if states play the Prisoner’s Dilemma not once, but repeatedly over time, the payoff structure can change to favor mutual cooperation over unilateral defection when the long-run benefits of cooperation over time outweigh the short-term benefits of defecting. Therefore, through repetition, or as Kenneth Oye puts it, expanding the “shadow of the future,” mutual cooperation becomes more likely. Changing the payoff structure of the prisoner’s dilemma through repeated plays raises an interesting question: how else can we change payoff structures to encourage mutual cooperation over defection? At this point, it might be tempting to introduce ideational factors—states will be more willing to cooperate if cooperation constitutes a moral good in some way, or because dom-

inant norms in the international society encourage cooperation (particularly those relating to a so-called rules-based international order). But the point of this project is to find rational egoist reasons, so how—in game theory terms—can we alter the payoff structure to encourage cooperation?

Robert Jervis has looked at this question in the issue-area of military security, and has offered various strategies. Of particular importance to my argument, and perhaps the most intuitive strategy is to simply change the material payoff itself. There are, as Jervis points out, multiple ways to do this, but all involve two elements: (1) decreasing the payoff of defection and (2) increasing the payoff of cooperation, relative to the actions of the other player. As I will argue in the following section, the equity principles perform the role of altering the payoff structure in the climate regime. Before I explain how the payoff structure is altered, I must first explain how my hypothetical world will be established, note its limitations, and introduce an important working assumption.

Hypothetical World and Some Limitations

Using game theory as an all-encompassing method for understanding and explaining the nature of cooperation in international politics can be misguided, as there is a notably rigidity to its premises and assumptions—particularly those relating to rational egoism. Therefore, mechanically applying these insights to the real world risks building theory that has little or no practical relevance to international relations. For instance, consider the egoism assumption: if players are considered egoists, they seek to maximize utility without regard to other players, which can imply that they are also anomic individuals, distinct and separate from each other. However it seems implausible to coherently map this

[49] Keohane has offered a good overview of the limitations of game theory. In particular, he points out that game theory assumes that actors’ choices are voluntary, which too easily ignores the power inequalities among nations. He also discusses the problem with
assumption onto the real-world. If we did, we would have to assume that states are not linked by experience, shared values, ethical standards, common practices, or indeed, an expectation of future interactions. But as Hedley Bull tells us, there is such a thing as a society of states, composed of shared norms, customs, and expectations, which affects, at least to a certain degree, the behavior of states.

Despite these limitations, I suggest that there are good reasons to push ahead with this method. For instance, trying to explain the conditions of cooperation in international politics is bedeviled by the motivation problem. There are countless reasons why states are motivated to cooperate (or defect) in international regimes, and any analysis of cooperation could not possibly identify all of them. Thus, the scope of these types of analyses must be narrow. For reasons I have discussed previously, my scope will be narrowed around the gap in the literature, which is finding rational egoist motivations to cooperate in a climate agreement, with reference to the equity principles. But my findings are not designed to offer a comprehensive account of cooperation in the climate regime. Rather, I aim to show that by isolating only one motivator for cooperation—rational egoism—cooperation can still occur, or indeed be enhanced, by the equity principles. Isolating a single motivator for cooperation necessarily abstracts the world, which is why game theory, used as a ‘tool’ for abstraction, is a justified method for my purposes.

As a final note defending this method, I will explain how my hypothetical world will be constructed. The hypothetical world will consist of a simplified climate treaty. The features of this treaty will be reflective of the features of the UNFCCC, but abstracted to fit within a game theory context. I will also introduce a proposition, which along with the features of the treaty, form the necessary and sufficient conditions in which the equity principles can enable cooperation. This approach, of positing simplified premises to construct a hypothetical world, allows me to isolate and defend each supporting principle, while highlighting how the atomistic assumption that I have outlined, and notes that rationalism is oftentimes confused with egoism in game theory settings. Keohane, After Hegemony, 70.
opponents of the equity principles make contrasting assumptions. For instance, I offer a proposition about the relative costs of a differentiated burden sharing arrangement for rich states, whereas opponents, who also make a proposition about this cost, assume that the cost is different from mine. By narrowing in on this difference, I aim to demonstrate the fragility of this proposition. This is to say that if my proposition is at least plausible, we should not be secure in the belief that equity principles have a net cost for rich states. One may still wish to maintain that the equity principles are in fact net-costly for rich states, but in order to do so, they would have to take a stand on the proposition that I will uncover in the following section. Indeed, this is perfectly acceptable, but I suggest there ought to be a greater burden of proof to hold such a position, because as I will demonstrate, the assumptions that premise this view are no better than guesswork.

Two-Player Game

Although there are only two players in a Prisoner’s Dilemma game, there are currently 197 parties to the UNFCCC, and countless more civil society and corporate stakeholders. To contend with this complexity, I need to bring in my first working assumption by positing only two players in my hypothetical world. These players will roughly reflect the division between the global north and the global south (or developed and developing states) in the world order. This is obviously a crude representation of the world order, but categorizing states in this way is common practice in climate politics. For example, the UNFCCC articulates this divide in the annex system: Annex 1 parties include industrialized countries (mostly OECD countries plus the Baltic States), whereas non-Annex 1 parties include mostly developing states, with an extra 48 “least-developed countries,” which, as the Convention notes, are in particular need of assistance. But even still, categorizing the world into developed and developing states in the context of climate change can miss some important complexities. For instance, developed states have

[50] For example, a large number of states, including developed states, appeal to the CBDR-RC principle for conditional support in their NDCs. This is to say that the equity principles do not always neatly map onto the developed/developing world divide.
not acted as a homogeneous bloc in climate negotiations. The European Union has traditionally pursued ambitious mitigation objectives, while the Umbrella Group, composed of Global North states, has generally pursued more conservative targets. Similarly, the Small Island Developing States have had different objectives from the BASIC Group (Brazil, South Africa, China, and India), but both coalitions are in the developing country category. However, in line with the scope of this paper, I suggest that we can put these complexities aside. After all, even though the two groups are heterogeneous, the equity principles still require some states to incur heavier mitigation burdens, and some states weaker burdens. This means that there are benefactors and beneficiaries to a differentiated burden sharing arrangement, and as such, making at least some sort of divide between benefactors (developed states) and beneficiaries (developing states) seems reasonable. In my argument, developed states will be referred to as $R$, to represent ‘rich states,’ and developing states will be referred to as $P$, to represent ‘poor states.’

**Argument**

In this section, I will demonstrate how the equity principles increase the chances of mutual cooperation (CC), relative to unilateral defection (DC). My argument will be structured as follows: first, I will construct a hypothetical world, which will consist of a climate treaty between two players, $P$ and $R$. I will explain the theoretical costs of cooperation or defection in this treaty, and then note the payoff structure in game theory terms. I will then introduce a complicating factor so that the treaty will better reflect the asymmetrical power imbalance between the two players, and explain how this changes the payoff structure. Lastly, I will introduce the equity principles and demonstrate how they increase the chances of cooperation for both $P$ and $R$. As I will show, the chances of cooperation are improved because the equity principles increase the payoff of mutual cooperation for both players and decrease the payoff of unilateral defection. I will conclude by bringing the discussion back to the literature highlighting how the assumptions that the opponents of the equity principles make are different from the assumptions that I make in this game.
Payoff Structure of a Hypothetical International Climate Agreement

This two-player climate agreement (between \(P\) and \(R\)) has three defining features: first, the agreement seeks to halt the release of greenhouse gas emissions through abatement measures. Second, both players contribute to this objective, and third, both players contribute equally. The first two features reflect the real world—the UNFCCC seeks to halt greenhouse gas emissions through abatement measures.\(^{51}\) However, the last feature is distinctly unrealistic, because the UNFCCC has always outlined differentiated burden sharing, which means that parties have not contributed equally. That said, in order to observe its effect on the payoff structure, I need to first construct my hypothetical treaty \textit{without} reference to differentiated burden sharing, note the payoff structure, then add differentiated burden sharing through the equity principles as an added variable to the hypothetical treaty.

So, what is the payoff structure of this agreement? There are four theoretical costs to consider: the full cost of climate change without any abatement (\(C_1\)); the cost of abatement (\(C_2\)); the cost of climate change after both players have pursued abatement measures (\(C_3\)); and the cost of climate change after only one player has pursued abatement measures (\(C_4\)). The ‘full’ cost of climate change, or \(C_1\), can be understood in the following way: the release of greenhouse gas emissions causes climate change, and climate change presents a \textit{material threat} to \(P\) and \(R\). This claim, to some degree, relies on assumptions of environmental security, but for the purpose of this argument, I will assume that extreme climactic events are causally responsible for insecurities (relating to, for instance, food and water insecurity, displaced populations, and famine), which present a threat to the material power of the state.\(^{52}\) On

\(^{51}\) However, since 1992, not all parties have been obliged to abate. The Kyoto Protocol, for instance, obliged only Annex I and Annex II parties to abate, leaving non-Annex parties and the least developed states without mitigation burdens. However, since 2015, under the Paris Agreement, all parties are obliged to abate.

the other hand, $C_2$ refers to the cost of abatement. Transforming economies and changing the structural reliance on greenhouse gas emissions is extremely costly. Furthermore, adaption is also costly. For instance, adapting state infrastructure to cope with severe climactic events, such as building seawalls to protect low-lying cities is a cost-heavy exercise.

$C_3$ and $C_4$ make a calculation that relies on the two previously mentioned costs. $C_3$ refers to the cost of climate change after mutual abatement measures have taken place. Abatement reduces the severity of climate change, but may not significantly reduce the costs. This is because the process of global warming has already begun, and also because abatement is not an instantaneous process. No state can instantly transform their economies and stop the release of greenhouse gas emissions with immediate effect, but instead, pledge a pathway towards net-zero by a certain date. In the real world, this date tends to be 2050, so for the purpose of my argument, I will assume that mutual abatement means a mitigation pathway towards net-zero by 2050.\footnote{Article 4.1 of the Paris Agreement, for instance, notes that in order to achieve the temperature goal of “well-below 2 degrees”, states must be net-zero by the “second half of this century.”} Thus, $C_3$ refers to the cost of climate change after mutual abatement, given global warming has already begun, and that in the meantime (the 29 years between 2021 and 2050), greenhouse gas emissions will still be released. $C_4$ follows this same calculation, but assumes that only one player has abated, i.e., unilateral abatement. If only one player has abated, the overall cost of climate change rises because less overall abatement has occurred (to be specific, exactly half the amount of abatement has occurred, compared to mutual abatement). To summarize:

\begin{align*}
    C_1 &= \text{full cost of climate change (without abatement)} \\
    C_2 &= \text{cost of abatement} \\
    C_3 &= \text{cost of climate change after mutual abatement} \\
    C_4 &= \text{cost of climate change after unilateral abatement}
\end{align*}

With those four costs in mind, I will now construct the payoff structure. If $P$ and $R$ participate in the climate agreement and obey its rules, then there will be mutual cooperation (CC). CC incurs two costs—by obeying the rules of the treaty, players incur the cost of abatement ($C_2$) and the cost of climate change after mutual abatement ($C_3$). If one player decides to defect and the other cooperates, then the payoff for the former (DC) will be the cost of climate change after unilateral abatement ($C_4$), without the cost of abatement ($C_2$). On the other hand, for the latter (CD), the payoff will be the cost of abatement ($C_2$) and the cost of climate change after unilateral abatement ($C_4$). Lastly, if both players decide to defect (DD), the payoff will be the full cost of climate change ($C_1$). In simple terms:

Mutual cooperation (CC) = $C_2 + C_3$

Unilateral defection (DC) = $C_4$

Unrequited cooperation (CD) = $C_4 + C_2$

Mutual defection (DD) = $C_1$

At this point, there isn’t enough information to offer an ordering of preferences. I have not explained how costly each cost is, and these factors determine the payoff. For instance, is the cost of climate change after unilateral abatement more or less than the cost of abatement itself? This is a very difficult question. Calculating the costs and benefits of action on climate change requires a particular stance on an endless array of assumptions, including the discount rate, the relative merits of policy instruments for mitigation, the levels of compliance, and so on. Indeed, disagreements over these assumptions (and other related assumptions) have led two well-known climate economists, William Nordhaus and Nicholas Stern, to offer wildly different reports on the economic cost of climate change. On one hand, Stern estimates only a slight impact on GDP growth; on the other hand, Nordhaus projects a significant impact in the magnitude of trillions of dollars.\textsuperscript{54} But the disagreements

\textsuperscript{54} See Nicholas Stern, \textit{The Economics of Climate Change: The Stern Review} (Cambridge, GBR: Cambridge University Press, 2007); William Nordhaus, “A Review of the
over fundamental assumptions are not limited to mere economic questions—even scientific predictions about how Earth will respond to rising emissions are similarly uncertain, making a cost/benefit calculation no better than guesswork.\footnote{The Intergovernmental Panel on Climate Change (IPCC) is the leading scientific body that makes these predictions. For a good discussion on the difficulty of utilitarian reasoning in the context of climate change, see Young, “Does Fairness Matter in International Climate Agreements?”} So, how can we proceed?

Put simply, a complete ordering of preferences is not necessary since I only seek to demonstrate how the equity principles increase the chances of cooperation between $P$ and $R$. As such, we only need to determine how introducing the equity principles as an added variable increases the payoff of cooperation (or decreases the payoff of defection). That said, some judgments must be made about the relative merits of certain actions over others. For instance, I will need to make plausible assumptions about the relative costs of differentiated burden sharing. I will return to this point later, but for now, let me introduce the complicating factor of the power asymmetry between $P$ and $R$, and explain how the equity principles can change the payoff for $P$.

**Power Asymmetry, the Equity Principles, and a Changing Payoff for $P$**

The power asymmetry between $P$ and $R$ should be understood in the following way: $P$ is *materially less powerful* than $R$. This claim is self-evident in the real-world. $P$, describing poor states or the developing world is categorized in this way *because* poor states are less wealthy than rich states. To the extent that wealth is equivalent to material power,\footnote{There is, however, some controversy to this claim—particularly amongst liberal institutionalists. Robert Keohane and Joseph Nye have argued that in conditions of complex interdependence, state power is expressed through multiple channels. Wealth, in this context, cannot always be converted to military power, although there is some relation. For the sake of this argument, let us put aside this complication. After all, liberals agree that wealth is causally related to power, although the exact nature of this relationship is disputed. See Robert Keohane and Joseph Nye, *Power and Interdependence*} we

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can say that $P$ is less powerful than $R$. Understood in this context, abatement is extremely costly for $P$, and more importantly, relatively more costly for $P$ than for $R$. This claim lies at the foundation of the equity principles themselves. As we have seen, the CBDR-RC principle, which sets out the differentiated burden-sharing arrangement, emphasizes the respective capabilities of states when determining abatement burdens. The principle obliges negotiators to recognize how the different capabilities of states makes abatement relatively more or less costly. Indeed, as Shue points out, there is an important difference between “luxury” and “subsistence” emissions; as such, abatement should be understood as requiring different levels of economic sacrifice.\footnote{See Shue, “Subsistence Emissions and Luxury Emissions.”} Given that abatement is relatively more costly for $P$ than $R$, the payoff of cooperation changes. For $P$, CC incurs two costs: abatement ($C_2$) and the cost of climate change after mutual abatement ($C_3$). Cooperating now has a payoff that is relatively less beneficial than CC for $R$. This is because $C_2$ is higher for $P$ than for $R$, thus changing the payoff calculation for each player.\footnote{I should note that the complicating factor of the power asymmetry between $P$ and $R$ also changes the payoff structure in another way. This has to do with the cost of climate change itself. If $P$ is materially less powerful than $R$, then $P$ is also likely to be more vulnerable to the effects of climate change. In the real-world, the IPCC has identified non-Annex I Parties (in particular, low-lying island states) and the least developed countries as being more vulnerable to the adverse effects of climate change due to pre-existing human insecurities and the relative costliness of adaption. I will not, however, factor this complication into the payoff structure of the hypothetical treaty. It does not ultimately make a difference to my argument, which is focused on the cost of abatement under the conditions of the equity principles, so for the sake of simplification, I will leave this complication aside. For a discussion on the vulnerability of developing states, see Hans-Martin Füssel, “An Updated Assessment of the Risks from Climate Change Based on Research Published Since the IPCC Fourth Assessment Report,” Climatic Change 97. 3 (2009): 469-482, https://doi.org/10.1007/s10584-009-9648-5; Valérie Masson-Delmotte, Panmao Zhai, and Hans-Otto Pörtner et al., “Global Warming of 1.5° C: An IPCC Special Report on the Impacts of Global Warming of 1.5° C Above Pre-Industrial Levels and Related Global Greenhouse Gas Emission Pathways,” report, IPCC (October 2018): ii-616, https://www.ipcc.ch/sr15/download/}  

It seems, then, that given the relative costliness of abatement, $P$ might have more incentives to defect than cooperate. But if we introduce the
equity principles as an extra variable to this treaty, things change. By differentiating burdens according to the relative capability of states, the equity principles make abatement less costly for $P$. They reduce the cost of mitigation and adaption for $P$, and in so doing, assign higher costs to $R$. Again, one needs only to look at the UNFCCC or the Paris Agreement for justification of this claim in the real world. Article 9 of the Paris Agreement, for instance, obliges developed countries to provide financial assistance to developing countries in order to meet their NDC objectives. This naturally reduces the overall cost of abatement. In my hypothetical treaty, we can see that the equity principles, as an added variable, creates incentives for $P$ to cooperate by changing the payoff structure. But this is an easy case. The harder case is explaining how the equity principles could be in the self-interest of $R$. After all, if the equity principles reduce the cost of abatement for $P$ due to differentiated burden sharing, the cost of abatement is increased for $R$. How do we solve this problem?

The Proposition

Let’s return to Jervis’ discussion on strategies to change payoff structures. As he points out, when players decide what to do, they need to have some idea of what the other player will do, as the other player’s actions will affect the payoffs. To work out the expected utility of any given action, players need to calculate the probability of the other player cooperating. Because these calculations depend on the costs associated with a given payoff, players may seek to manipulate these costs in order to increase the probability of cooperation. They may, for instance, manipulate costs to lower the payoff of unilateral defection (DC) and increase the payoff of mutual cooperation (CC). I argue that the equity principles perform this role of manipulating the costs of cooperation. As we have seen, the equity principles increase the payoff of cooperation for $P$ by reducing the cost of abatement. This has the effect of making cooperation more probable for $P$ than it otherwise would be. But as I have pointed out, manipulating the payoff in this way requires $R$ to incur greater abatement burdens. In game theory terms, $C_2$ is increased

[59] "Adoption of the Paris Agreement."
for $R$ under the conditions of the equity principles. Remember that CC incurs two costs—$C_2$ and $C_3$—so given that $C_2$ is increased, the overall payoff of CC is reduced for $R$. So why would this manipulation—which increases the probability of $P$ cooperating, but decreases the payoff of cooperation for $R$—be in $R$’s self-interest? I propose that the increased cost of abatement for $R$ is overcome by the benefits accrued from an increased probability of cooperation from $P$—in other words, the equity principles generate a net benefit for $R$. If the benefits of increasing the probability of $P$’s cooperation outweigh the costs of increased abatement burdens, then $R$ has sufficient incentives to accept the equity principles.\textsuperscript{60} In other words, the equity principles would be in the material self-interest of developed states.

What exactly are the benefits associated with increasing the probability of $P$’s cooperation, and what are the costs? To answer that question, we need to return to the payoff structure discussed earlier. Assuming that $R$ decides to cooperate, there are two potential payoffs: mutual cooperation (CC) or unilateral cooperation (CD). As I have noted, CC has a better payoff than CD, because CD incurs greater costs—both incur the cost of abatement ($C_2$), but CD incurs the heavy cost of climate change after unilateral abatement ($C_4$), whereas CC only incurs the cost of climate change after mutual abatement ($C_3$). I argue that the difference between these two payoffs is significant. This is because climate change is extremely costly. In fact, climate change is catastrophic—as the IPCC tells us, climate change will cause tremendous suffering and death. Due to the magnitude of the crisis, the difference between a weak response (unilateral abatement) and a strong response (mutual abatement) becomes substantial.

In this context, let’s now factor in the increased cost of abatement for $R$ under the conditions of the equity principles, which I will call $C_2^*$.

\textsuperscript{60} Implicit in this proposition are the types of utilitarian calculations that I warned against earlier in this paper. Positing cost/benefit analysis in the context of climate change is fraught with uncertainty, which makes utilitarian reasoning extremely opaque. That said, I suggest that making at least some types of preference judgments, in a basic and rudimentary way, is unavoidable.
Under these conditions, CC now incurs $C_2^*$ and $C_3$, while CD incurs the greater cost of $C_2^*$ and $C_4$. Thus, while the equity principles make abatement more costly to $R$, they also increase the probability of $P$’s cooperation, which is to say that they increase the chances of CC over CD. Since we have established that the difference between CC and CD is significant, increasing the probability of a strong response to climate change is worthwhile, due to the severity of climate change, even if it means that $R$ will incur heavier abatement burdens.\footnote{There is, however, another contingency in this assumption. Under the conditions of the equity principles, abatement is more costly, but that also means that $R$ has abated more. If higher abatement burdens translate to a stronger response to climate change, then that means that $C_4$ also changes. In other words, the cost of climate change after unilateral abatement is different under the conditions of the equity principles because unilateral abatement is stronger than it otherwise would be. That means that the ‘cost’ of climate change is lower. Although this is an important point, I suggest that it does not ultimately make a difference to my assumption. I posit that increasing the probability of $P$’s cooperation is still net-beneficial to $R$, even though the payoff of CD under the conditions of the equity principles is relatively better than the payoff of CD not under the conditions of equity.} This is, as Jervis notes, a familiar dynamic in international cooperation. When there are significant advantages resulting from mutual cooperation, states can credibly threaten to defect unless they are offered additional incentives to cooperate.\footnote{This dynamic is also known as “issue linkage” in the literature, particularly amongst realists. See Kenneth Oye, “Explaining Cooperation Under Anarchy: Hypotheses and Strategies,” \textit{World Politics} 38.1 (1986): 11, https://doi.org/10.2307/2010349; Scott Barrett, “The Strategy of Trade Sanctions in International Environmental Agreements,” \textit{Resource and Energy Economics} 19.4 (1997): 345-361, https://doi.org/10.1016/S0928-7655(97)00016-X} This threat offers states powerful leverage for competitive bargaining. For instance, Charles de Gaulle threatened to break up the European Common Market unless parties to the agreement acceded to his demands over international food tariffs. By threatening the “disappearance” of the entire European Economic Community, de Gaulle exploited the shared benefits of mutual cooperation to secure compliance with his demands.\footnote{Jervis, “Cooperation under the Security Dilemma,” 175-178.} Following a similar logic, the cooperation of developing states in real-world climate negotiations has often been \textit{conditioned} on the presence of equity principles in an agreement.
Neumayer observes this dynamic in the context of climate negotiations, noting that “the biggest bargaining power of developing countries—especially of big ones like China, India, Brazil, and Indonesia—is their ability to obstruct. As their current emissions and populations grow faster than the ones in developed countries, any comprehensive treaty in the early next century will be futile without the cooperation of these countries.”

Similarly, Roberts and Parks note that “[developing states] have also become keenly aware of their bargaining power and ability to walk away from negotiations, and have repeatedly shown their willingness to resort to zero-sum, retaliatory tactics.” Multiple studies have found that poor nations leverage equity to bargain an agreement that better reflects their interests. Developing states know the value of their cooperation to developed states, and can leverage this value and negotiate a deal that better reflects their interests. Seen in this way, the equity principles can be understood as a mechanism that corrects power imbalances.


asymmetries to the extent that cooperation in a climate agreement can become mutually beneficial. It is important to reiterate that this type of bargaining does not necessarily mean that the player who is subject to the coercive bargaining (in this case, developed states) is losing out on an agreement. Increasing the probability of the other player cooperating is beneficial—as long as the probability is increased with additional incentives (such as the equity principles), and these incentives do not create a cost that outweighs the benefits.

SECTION III

At 3:00 a.m. on December 20, 2009, the two-decade long process of coordinating a global response to climate change seemed to be unraveling. Heads of state, ministers, and diplomats from 187 countries were gathered in the final plenary session of the 15th Conference of Parties in Copenhagen (COP15) to negotiate a post-Kyoto future. The delegates were presented with a document that was frantically cobbled together just hours earlier. In a secret meeting on the sidelines of the conference, leaders from the United States, China, India, Brazil, and South Africa had drafted this document—the Copenhagen Accord—which dramatically departed from the prior, ‘top-down’ Kyoto approach to climate governance. The Accord put forward a voluntary framework, whereby parties were invited to submit mitigation pathways without binding legal obligations. In the plenary session, Lars Løkke Rasmussen, the Danish Prime Minister and chair of the conference, gave delegates one hour to consider the Agreement. Once delegates returned to the conference hall, the lead delegate from the island state of Tuvalu, Ian Fry, switched on his microphone: “It looks like we are being offered 30 pieces of silver to betray our people and our future. Our future is not for sale. I regret to inform you that Tuvalu cannot accept this document.”

The 15th Conference of Parties was a failure. Despite optimistic expectations that Copenhagen would produce a breakthrough climate agree-

ment with more aggressive emission targets, the conference only resulted in a lukewarm non-binding political agreement, and aggravated the North-South divide. Curiously, however, one year later in Cancun, delegates were far more conciliatory. They agreed in principle to the main content of the Copenhagen Accord, including the controversial pledge-and-review system, and began the process of negotiating a ‘bottom-up’ treaty that was concluded five years later in Paris. Why did this shift happen? This question will be the focus of this section. In particular, I will investigate how pledges for climate finance by rich states, made in the context of the equity principles, encouraged poor states to agree to the new terms of a climate treaty. That is, I will look at how rich states used the equity principles to increase the probability of poor states cooperating with the Copenhagen Accord, and later, the Cancun Agreement.

**Background and Context**

To begin, we need to go back to the 2007 Conference of Parties in Bali. At the Conference, parties issued a legal mandate for negotiating a new climate treaty to replace the Kyoto Protocol, which was set to expire in 2012. The Bali Action Plan outlined a two-track approach: (1) to renegotiate emissions reductions under the Kyoto framework, which only obliged developed states to mitigate; and (2) to consider a broader agreement that would oblige all countries, including developing countries, to mitigate. These two working groups were scheduled to complete their negotiations in 2009 in Copenhagen. Disagreements over the exact outcomes of these working groups, known formally as the Ad Hoc Working Group on Further Commitments for Annex 1 Parties under the Kyoto Protocol (AWG-KP) and the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention (AWG-LCA), were one of the major points of conflict at Copenhagen.68 Developing states were unwilling to merge the two tracks into one at Copenhagen, which could have torn down the Annex system (known as the “Bali firewall”) and oblige them to pursue mitigation commitments. On the other hand,

developed states were reluctant to agree to further commitments under the Kyoto framework unless developing states—or at the very least, China—also committed to mitigation targets. This disagreement reflected, in many ways, the overall conflicting demands between developed and developing states at Copenhagen.

Developing states were mostly united in pursuing a new Kyoto-style agreement with binding legal obligations for the North and voluntary pledges for the South, in line with CBDR-RC. Furthermore, they demanded significant climate financing from the North to assist with mitigation, adaptation, technological support, and compensation for ‘loss and damage’ from climate change. However, fractures within this coalition still existed, which reflected the changing demographics of the South in the world order. For instance, within the G77, the Alliance of Small Island States (AOSIS) and the Least Developed Countries (LDC) demanded strong mitigation commitments, but the BASIC group (comprised of Brazil, South Africa, India, and China) resisted this approach due to their rapidly escalating emissions. Furthermore, the Organization of the Petroleum Exporting Countries (OPEC) also resisted these commitments in order to avoid restrictions on oil sales. Developed states presented broadly similar demands, but did not negotiate as a unified bloc. The main point of difference was between the EU and the Umbrella Group, made up of Australia, Canada, Iceland, Japan, Kazakhstan, New Zealand, Norway, Russia, Ukraine, and the United States. The EU advocated for stringent emissions reductions amongst developed states, significant climate finance, and legal compliance mechanisms, while the Umbrella Group sought weaker reduction goals, such as a 50% reduction by 2050, as well as a reliance on existing financial institutions for the bulk of climate finance to developing states. Critically, the US advocated for a ‘bottom-up’ approach to climate governance which would compel all states to individually develop mitigation targets. In essence,

they wanted to tear down the “Bali firewall” that allowed developing states such as India and China to emit without treaty obligations.71

During the opening days of Copenhagen, negotiations were sluggish. There was little progress on the main tension between developing and developed states; a ‘Kyoto II’ proposal (favored by the former) or a new bottom-up treaty (favored by the latter). After three days, a leaked document produced by Denmark appeared in the Guardian.72 It was a treaty proposal that would weaken the UN’s role in providing climate finance, force developing states to make emissions cuts, and ease the pressure on developed states with weak mitigation targets. Lumumba Stanislaus Di-Aping, the Sudanese chair of the G77,73 said that “this text threatens the success of the COP,”74 and that “it has become clear that the Danish presidency—in the most undemocratic fashion—is advancing the interests of the developed countries at the expense of the balance of obligations between developed countries and developing countries.”75 The message was clear: the participation of the G77 and China in Copenhagen was contingent on developing states taking their demands seriously.76 Denmark or any other developed state would not be able to push through a new climate treaty that weakened the “Bali firewall” without making significant concessions to developing states in the form of climate finance.

However, on the final day of negotiations, Denmark created the “Friends of the Chair” group, an exclusive committee of key polluting countries that sought to push through the deadlock and negotiate an agreement.

[73] China participates in the G77, but is not officially considered a member.
[75] Ibid.
[76] Another instance of this zero-sum negotiating style was on the second day of the conference, when developing states produced an ultimatum, stating that the discontinuation of Kyoto would be a “deal-breaker.” Dimitrov, “Inside UN Climate Change Negotiations,” 807.
This violated the democratic norm of the UNFCCC by granting great powers a diplomatic platform to dictate a ‘take it or leave it’ agreement. The Friends of the Chair agreed to a two-and-a-half page document, and labeled it the “Copenhagen Accord.” Before the document was presented to the plenary, delegates from the US learned of a secret meeting convened by China with Brazil, India, and South Africa to dilute the agreement. Without hesitation, leaders from the United States marched into the makeshift conference room to continue negotiations.77 As a result, the Accord was stripped of any legal force.

Delegates from developing countries were furious for two reasons: first, the diplomatic coup d’etat of minilateral negotiations, and second, the substance of the Accord.78 In a scathing attack, Di-Aping likened the Accord to the Holocaust, claiming that “it asks Africa to sign a suicide pact, an incineration pact in order to maintain the economic dominance of a few countries...and it is a solution based on values, the very same values, in our opinion, that tunneled 6 million people in Europe into furnaces.”79 Bolivia took aim at the procedural aspect of the Accord, arguing that “we are seeing actions in a dictatorial way, and it is not the way a world should discuss the future of humanity and the planet.”80 Similarly, Cuba declared that Obama was “behaving like an emperor”, while noting that the Accord is a “document that will extinguish the Kyoto Protocol.”81 The conference ended by the COP “taking note” of the Copenhagen Accord—it was not formally adopted. But interestingly, only a year later in Cancun, states from the South were far more conciliatory. They agreed, on principle, to a new climate treaty that violated their demands from Copenhagen, and began the process towards a bot-

[80] Ibid.
[81] Ibid.
tom-up approach to climate governance. Let us look at how and why this happened.

**Bargaining with Climate Finance**
After a year of delicate trust-building diplomacy from the host-nation Mexico, delegates arrived in Cancun to resume negotiations on the future of climate governance. Two major agreements were reached. First, the parties agreed to a pledge-and-review system where developed states were required to define their own non-binding post-Kyoto mitigation targets and accounting rules. Developing states were obliged to submit “Nationally Appropriate Mitigation Actions” supported by finance and technology in line with CBDR-RC, meaning that mitigation pathways need to be “matched” with finance from developed states. This was a compromise solution that took the demands of developing countries into consideration. Recall the aforementioned demands of the G77 and China at Copenhagen: they argued for a *binding* Kyoto II-style agreement, with ambitious top-down mitigation targets for developed states. But this demand did not materialize in the Cancun Agreements. To be sure, there was a great deal of uncertainty at Cancun, and hopes of a Kyoto II-style agreement remained alive. Cancun did, however, mark a shift in climate politics, and put negotiations on the pathway towards a comprehensive bottom-up agreement. Second, the parties agreed to establishing a Green Climate Fund (GCF), with the overall goal of $100 billion per year by 2020. This fund was to be financed by developed states, and spent on supporting developing states to pursue mitigation pathways and adaptation initiatives. The GCF was the most ambitious climate finance project since the UNFCCC’s inception, and represents a clear application of the equity principles. As I will demonstrate, this fund was used by developed states to solicit support from developing states for the Copenhagen Agreement and later, the Cancun Agreements. In other words, climate finance was the mechanism through which the developed states increased the probability of cooperation from developing states.

*Equity, Climate Finance, and Cooperation*
There is an abundance of evidence to demonstrate how climate finance
was used by developed states to solicit support for the Copenhagen Accord and Cancun Agreements. For instance, shortly after the text of the Copenhagen Accord was publicly released, Ed Miliband, the lead delegate of the UK, stated that developing countries need to support the Accord, “otherwise we won’t operationalize the funds.”82 This statement was supported by delegates from the US, who declared that the funds in the Accord are “open to any Party interested,” implying that climate finance was conditional on support for the agreement.83 The EU also echoed these statements. Karl Falkenberg, the director-general for environment at the European Commission, suggested that parties who did not support the Accord would not qualify for climate aid: “It’s not money for free, we are helping developing countries to make more of an effort than they could do on their own.”84 Delegates from the South were aware of this strategy, which added to the increasing distrust towards the negotiations. Di-Aping declared that “it was not enough to buy coffins for everyone who will die because of climate change in Africa. I would rather burn myself than accept these peanuts.”85 The Guardian reported that other delegates felt similarly, with one (unnamed) senior African diplomat stating that “the pressure to back the West has been intense... it was done at a very high level and nothing was written down. It was made very clear by the EU, UK, France, and the US that if [developing countries] did not back them, then they would suffer.”86

In the period after Copenhagen, developed states, and the US in particular, sought to garner support for the Accord before the meeting in Cancun. The Guardian and the New York Times published cables from WikiLeaks that demonstrated how American diplomats persuaded de-

[83] Ibid.
[86] Vidal, “Climate Aid Threat to Countries That Refuse to Back Copenhagen Accord.”
veloping states to support the Accord by leveraging climate aid. In a leaked cable describing a meeting in Addis Ababa in late January 2010 between the Ethiopian Prime Minister, Meles Zenawi, and the US Under Secretary for Democracy and Global Affairs, Maria Otero, the issue of Ethiopia’s support for the Accord was prominent. Otero issued a blunt threat to Zenawi: sign the Copenhagen Accord, or the meeting would be suspended, and bilateral relations would suffer. Zenawi responded by offering his support for the Accord, but also noted that a personal assurance from Barack Obama regarding compliance mechanisms for climate aid was not being upheld. Otero promised to investigate the matter.87

In another series of cables, the Maldives’ ambassador to the US, Abdul Ghafoor Mohamed, expressed his desire for “tangible assistance,” while noting that other nations would subsequently realize “advantages to be gained from compliance” with the Accord. He proceeded to propose several climate projects costing about $50 million to the United States’ deputy climate change envoy, Johnathan Pershing. Pershing responded by requesting more concrete examples and evidence of costs “in order to increase the likelihood of bilateral assistance.”88 Having the Maldives on board was critical in ensuring compliance from the Alliance of Small Island States. Indeed, Connie Hedegaard, the EU climate action commissioner, understood this well when she told Pershing that the “AOSIS countries could be our best allies, given their need for financing.”89 From these examples, we can see how climate finance was used to persuade developing states to adopt agreements at Copenhagen and Cancun that fell short of their initial demands for a Kyoto II-style agreement.

Critical Engagement

In the previous section, I argued that the benefits of increasing the prob-

[89] Ibid.
ability of cooperation from developing states outweigh the costs of the equity principles for rich states. In doing so, I sought to problematize the prevailing assumption in the literature that the only motivator for observing the equity principles is fairness. This case study gives us further reasons to be suspicious of that view. I have shown that between 2009 and 2010, developed states persuaded developing states to cooperate by utilizing climate finance as a bargaining tool. By transferring funds from developed to developing states to assist with mitigation and adaptation initiatives, in the context of the Copenhagen Accord, climate finance was a clear application of the common but differentiated responsibilities and respective capabilities principle. By offering climate finance as an incentive, developed states were able to reach consensus on a climate treaty that better reflected their interests. Even with a cost of $100 billion per year, the equity principles were still advantageous for developed states—a climate treaty with mutual abatement obligations could only be passed with cooperation from developing states, and this cooperation could only be secured through climate finance.

But while the evidence that I have presented shows how developed states used climate finance to persuade developing states to cooperate with a treaty, it does not prove that the equity principles are necessarily in the self-interest of rich states. To make that claim, I need to establish that self-interest was the motivator for utilizing climate finance as a bargaining tool; in other words, I need to infer a causal link between self-interest and leveraging climate finance. Consider this: suppose it were the case that rich states were motivated to pursue climate finance only because they thought that it was fair. It is plausible, under these conditions, that they would still use climate finance to leverage cooperation, because doing so would lead to a fair agreement. Seen in this context, self-interest would have no explanatory power: it would be neither necessary nor sufficient to explain why rich states used climate finance to persuade poor states to cooperate. This hypothetical is persuasive. However, my argument assumes a rationalist conception of international politics, and only considers rational egoist explanations for state behavior. This is not because I am committed to rationalism, but rather because the gap in the literature requires a rationalist scope. The
purpose of this case study is not to prove rational egoism, but to show that adopting the equity principles is logically sound if it were the case that states are materially self-interested. As such, the assumption that a state can be motivated by fairness alone simply falls outside of the parameters of this study.

**Conclusion**

In 1971, John Rawls told us that justice is a kind of fairness. In a society characterized by pure equality and the absence of coercive power, justice, he argues, is maintained through fair institutions that work to benefit *all* citizens, rather than a lucky few. The state institutions that would be agreed upon in this hypothetical utopia would be considered perfectly fair—a transcendental ideal. But do we really need a transcendental conception of justice to know what is just? Or at the very least, to know what is *unjust*? Amartya Sen, the Indian economist and philosopher, does not think so. He argues that we can make comparative judgments between what is just and unjust without referring to a transcendental ideal. As Sen puts it, the knowledge that the Mona Lisa is the best painting in the world is irrelevant for someone trying to compare between a Gauguin and a Van Gogh.90 I think Sen is right. We don’t need a transcendental theory of justice to know that climate action is an imperative. We certainly don’t need a transcendental theory of justice to know that failing to act is *unjust*, or indeed, *unfair*. All we need is a comparative assessment of two scenarios—a world with climate action and a world without—then answer the question: which of the two is morally worse? As Robyn Eckersley has pointed out, climate ethicists have, for too long, gleefully disregarded the political realities of international climate cooperation by offering utopian moral principles that fail to get serious uptake in the real-world.91 Boldly facing the demands and feasibility constraints from those least motivated by moral considerations is essential for closing the “yawning chasm” between ideal and real-world

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principles, that is, to formulate genuine action-guiding principles. Now is not the time to be moral saints, but rather resolved pragmatists. When the future of the planet is at stake, we should not worry about doing the right thing when it also happens to be in our self-interest. We just need to get the job done.

Fortunately, the pragmatic choice is also the moral choice. I have shown that, contrary to rationalist assertions, the equity principles do not constrain agreement-making, but rather, enable it. This is because they are in the material self-interest of both poor and rich states—poor states because they receive a direct material benefit, and rich states because they increase the probability of cooperation from poor states. As mentioned, this is the ‘hard case’ for the equity principles. I have conceded a lot to rationalism, but even within the strict constraints that they demand, the equity principles can be operable. My account of overdetermining the equity principles—that is, demonstrating how we can act both from duty and in accordance with duty—breaks through the deadlock in the literature. It satisfies constructivist concerns about the importance of fairness, and also rationalist concerns about the importance of self-interest. We are left, it seems, with a truly action-guiding principle that can get uptake from both sides of the constructivist/rationalist divide. I have conceded a lot to rationalism, but even within the strict constraints that they demand, the equity principles are operable. We are left with a strong action-guiding principle that bridges the gap between the moralist and pragmatist frameworks.

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