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I. Climate Justice: Ethical Aspects

1. Climate Change and Justice

1.1 Introduction: The Circumstances of Justice

According to a common understanding, the subject matter of justice can be characterised as follows:

> »Principles of justice are statements of what persons are owed either by others or by institutions and policies.«[1]

But why are people owed anything at all and by whom, and how does this come about? Brian Barry, for example, identifies the notion of »justice as reciprocity« as playing the fundamental role in questions of justice:

> »Every society of which I have read has some notion as to the rightness of meeting reasonable expectations that a favour will be returned, of pulling one's weight in co-operative enterprises, of keeping agreements that provide for mutual benefits, and so on.«[2]

In particular, the notion of reciprocity plays a fundamental role in the two main types into which theories of justice are sometimes categorized. Barry calls the idea embodied in the first type of theories »justice as mutual advantage« and the idea embodied in the second type »justice as impartiality«.[3] Both types of theories are distinguished by the different answers they give to the cardinal question »Why should I be just?«.

1 Moellendorf 2015: 173.
2 Cf. Barry 1991a: 212.
3 Barry 1989: 8. For similar categorisations cf. de-Shalit 1995: chapter 4; Page 2007a: 226.

In addressing this question, the first type of theories appeals to self-interest as a motivation for acting justly, together with the insight that cooperation frequently yields greater benefits than acting alone. David Hume, for example, considers selfishness an integral part of the human condition, which cannot be changed but nevertheless harnessed for mutual benefit. Successful cooperation does not require feelings of sympathy or a sense of fair play. All that is required is the self-interested calculation that »I foresee, that he will return my service, in expectation of another of the same kind […].«[4] The second type of theories is characterised by an abstraction from the personal perspective of individual agents and an attempt to establish an impersonal viewpoint that can be agreed upon by all, rather than relying solely on the self-interested rationale of *quid pro quo*. John Rawls, for example, readily acknowledges people's »inclination to self-interest«, but he also attributes to people a »public sense of justice« that makes their »secure association together possible«.[5] Rawls' so-called »original position«—a hypothetical situation in which people try to determine the principles of justice for a society behind a »veil of ignorance« that obscures their empirically contingent properties, abilities, and socio-economic status—is perhaps one of the most famous theoretical devices attempting to create the conditions for impartial negotiations.[6] This impartial standpoint, in turn, is necessary to ensure fair and equal cooperation among individuals. Thus Rawls, just as Hume, considers society a »cooperative venture for mutual advantage«[7] but with the important difference that »the idea of reciprocity implicit in the notion of a well-ordered society«[8] is built on an impartial viewpoint rather than on an individual perspective.

But why is cooperation among individuals—and thus principles of justice governing their cooperation—necessary at all? In other words, how do questions of justice arise in the first place? In his *A Treatise of Human Nature*, Hume makes a famous conjecture about the origin of justice:

4 Hume 2009: 334.
5 Rawls 1999: 4 f.
6 Cf. ibid.: chapter III.
7 Ibid.: 4.
8 Ibid.: 13.

> »Here then is a proposition, which, I think, may be regarded as certain, that tis' only from the selfishness and confin'd generosity of men, along with the scanty provision nature has made for his wants, that justice derives its origin.«[9]

Hume's idea is that questions of justice do not arise necessarily among people but only given certain empirically contingent conditions, namely brute self-interest and scarce resources. Many have followed Hume in this account.[10] Rawls, for example, refers to the conditions that must be met in order for questions of justice to arise as the »circumstances of justice« and characterises them as the »normal conditions under which human cooperation is both possible and necessary.«[11] Put simply, it is only because there is a »moderate scarcity« of resources on the one hand, and potential »conflict of interests« among people over the distribution or uses of those resources on the other that questions of justice arise in the first place.[12] Were it not for these circumstances »there would be no occasion for the virtue of justice«.[13]

Now, it seems human-induced climate change represents a paradigmatic case in which the circumstances of justice obtain because it involves a finite resource to be divided fairly: the atmosphere—all people have an interest in using it (primarily through emissions of GHGs) and it is limited in its absorptive capacity. Accordingly, framing climate justice in terms of distributive justice has been the dominating approach in the debate from the very beginning. Recently, however, more and more commentators have urged to expand or even revise this prevailing framework for different reasons. A variety of these reasons as well as the alternative approaches connected to them will be addressed in the next sections.

9 Hume 2009: 318.
10 For more on Hume's account and his critics cf. Hope 2010.
11 Rawls 1999: 109.
12 Ibid.: 110.
13 Ibid.

1.2 Climate Justice: Distributive, Intergenerational, International, or Global?

As indicated in the last section, distributive justice has been the prevailing framework for analysing and addressing questions of climate justice.[14] The rationale motivating this intuitively appealing framework is quite straightforward and the underlying train of thought can be characterised as follows.

The atmosphere is a finite resource because its absorptive capacity is limited. Of course, this atmospheric limit is not primarily a natural but rather a normative one. The absorptive capacity of the atmosphere becomes limited in light of the normative statement that the adverse effects of current climate change ought to be minimized and the adverse effects of future climate change ought to be prevented. There is no doubt current climate change has been caused primarily by GHG emissions connected to human activities and will continue as long as GHG emissions continue.[15] And it is also clear that climate change has had and will have mainly adverse effects on people, living organisms, and the environment; effects that will reach far into the distant future and will potentially expose future generations to harm.[16] Therefore, if these adverse effects are to be minimized or prevented, then the average global temperature increase—and the global GHG emissions causing it—must be limited. That is why the main goal of the Paris Agreement is to keep global warming »well below 2°C above pre-industrial levels« and undertake efforts to limit it to 1.5°C.[17] This goal translates to a so-called *remaining carbon budget* (RCB): For a 50 % chance of limiting global warming to 1.5°C the RCB is roughly 500 gigatons of carbon dioxide ($GtCO_2$); for a two-thirds chance of limiting it to 2°C the RCB is roughly 1150 $GtCO_2$.[18] Given that economies worldwide—and particularly in the

14 Cf. Caney 2018a; Harris 2010: 33; Kallhoff 2015: 143; Page 2006: chapter 1; Posner / Weisbach 2010: chapter 4; Roser / Seidel 2017; Singer 2002; Tremmel / Robinson 2014: chapter 6; Vanderheiden 2008: 47f; Wolf 2009: 348.

15 Cf. IPCC 2023: 4.

16 Cf. ibid.: 5, 12.

17 UNFCCC 2015: Art. 2(a).

18 Cf. IPCC 2023: 82. Since different GHGs have different capacities to absorb energy and different lifetimes in the atmosphere, they are usually stated in *CO_2 equivalents* (CO_2-eq) by multiplying emissions with their respective *Global*

Global North—rely heavily on carbon emissions, global decarbonisation processes require to significantly reduce emissions—what is called »mitigation«—and to adjust to the effects of climate change that have already happened and will happen in the future—what is called »adaptation«.[19] In sum, since almost all human activities are connected to GHG emissions in one way or another, and since GHG emissions must be limited if dangerous climate change is to be minimized, the atmosphere becomes a finite resource with plenty of conflicts of interests over how to use it justly. Consequently, and in keeping with the common understanding of justice as what people owe to one another, climate justice debates have focused in large part on the question »who has what responsibility to bear the burdens of mitigating it or adapting to it.«[20]

A distinctive characteristic of climate change is that it is a »severely lagged phenomenon.«[21] It is estimated that a substantial part of carbon dioxide (CO_2), one of the most important GHGs produced by human activities, remains in the atmosphere for several thousands of years.[22] GHG emissions produced by human activities today have a significant long-term influence on the climate system and affect the living conditions of temporally remote future generations. Since this is a nearly universally accepted scientific fact, most commentators who consider climate change as raising issues of justice at all also consider climate change a topic for intergenerational justice.[23] And even those commentators who do not share this view because they do not believe the relationship between present and future generations in the context of climate change is best

Warming Potential (GWP) to make them commensurable. The GWP measures a GHG's capacity to absorb energy and thus its potential to warm the earth. Being the point of reference, CO_2 has a GWP of 1 by definition, whereas Methane (CH_4), for example, has a GWP of roughly 27–30. For definitions cf. also IPCC 2023: 122, 124.

19 For a definition of these terms cf. ibid.: 120, 126. Cf. also section 3.1 (»Mitigation, Adaptation, and Loss and Damage«) of the second part (Policy Aspects) of this expert report.

20 Hayward 2012: 843.

21 Gardiner 2011: 32.

22 Cf. Knutti / Rogelj 2015: 362.

23 Cf. the commentators in footnote 14, all of whom conceive of climate justice as involving an intergenerational dimension.

framed in terms of justice still think that present generations have obligations to future generations.[24]

Nevertheless, applying the framework of (distributive) justice in an intergenerational context faces substantial challenges, and it is far from clear whether the circumstances of justice really obtain in an intergenerational context.[25] Particularly contractualist theories of justice have difficulties accommodating the intergenerational dimension of climate change.[26] For example, Rawls himself is reluctant about applying the concept of justice to the relationship between generations because according to his conception of justice as fairness society is a »cooperative venture for mutual advantage«[27], and remote future generations simply are, and cannot be, part of this cooperation:

> »It is a natural fact that generations are spread out in time and actual economic benefits flow only in one direction. This situation is unalterable, and so the question of justice does not arise.«[28]

Rawls tries to remedy this problem by introducing the idea of a »just savings principle«, according to which the people in the original position agree on a savings rate determining how much to transfer to the next generation, thus ensuring that each generation is cared for.[29] As Rawls himself has seen, this does not resolve the problem unless further (and controversial) assumptions are made since people in the original position are contemporaries but do not know to which generation they belong:

> »Earlier generations will have either saved or not; there is nothing the parties can do to affect that. So to achieve a reasonable result, we assume first, that the parties represent family lines, say, who care at least about their more immediate descendants; and second, that the principle adopted must be such that they wish all earlier generations to have

24 Cf. e.g. the consequentialist accounts of Birnbacher 2016, Broome 2012, and Gesang 2011, as well as the communitarian accounts of de-Shalit 1995 and Hiskes 2009.

25 For discussion specifically of the circumstances of justice in an intergenerational context cf. Brandstedt 2015. For the challenges of climate justice in an intergenerational context cf. section 2 (»Climate Change and Intergenerational Justice«).

26 Cf. section 2.2.3 (»The Non-Reciprocity Challenge«).

27 Rawls 1999: 4.

28 Ibid.: 254.

29 Cf. ibid.: section 44.

> followed it. These constraints, together with the veil of ignorance, are to insure that any one generation looks out for all.«[30]

Rawls' solution to intergenerational justice has been criticised on various grounds. Two of the biggest problems are the following. First, obligations to future generations are now grounded in the »motivation assumption«[31], according to which the family lines represented in the original position are said to have a natural desire to benefit their offspring.[32] As Barry points out, this motivation assumption makes for a questionable normative basis since the entire idea of justice as fairness is based on self-interested agents whose benevolence towards others cannot simply be presupposed.[33] Second, the allocation of goods (of whatever kind) across generations that are separated by significant amounts of time can only be adequately determined by a distributive theory of justice if there are sufficiently reliable predictions about many important future developments: the demographic development of future generations, their interests and preferences, societal development in general as well as technological advances. All these factors relevant for just allocation are not easy to predict and present profound difficulties for distributive theories of justice.[34]

Another distinctive characteristic of climate change besides being a time-delayed phenomenon is that it is a truly global phenomenon:

> »[…] the atmosphere is, of all planetary natural resources, the one that comes closest to being a pure public good in that GHGs released anywhere have similar effects, making it a common as well as an essential resource.«[35]

30 Rawls 1999: 255.

31 Ibid.: 111.

32 This resembles the famous »chain of love« model advocated by John Arthur Passmore. According to this model, every generation takes care only of their immediate descendants, but in doing so every generation is taken care of by its preceding generation so that the chain of love ties together all of them (cf. Passmore 1980: 88 ff.). Critics, however, point out that the chain of love model was »hopelessly unrealistic« (Birnbacher 2009: 288) because it would conceive of generations as uniform entities when in fact the real factors having an influence on societal welfare were politicians and powerful families.

33 Cf. Barry 1991b: 253.

34 Cf. Müller-Salo 2017: 11.

35 Vanderheiden 2008: 79.

Thus, in addition to characterizing climate change as a topic of distributive and intergenerational justice, it is also frequently considered a topic of international or global justice, where those terms are often used interchangeably. Both international or global climate justice concern the question whether there are any principles of justice governing the obligations between countries (or between people who do not live in the same country), and, if so, what these principles might look like and how they can be grounded.[36] In this debate, positions commentators take can roughly be divided into cosmopolitanism and noncosmopolitanism, where the former claim and the latter deny that there are global principles of justice. Particularly relevant in the context of climate change are commentators arguing in favour of cosmopolitanism on the grounds that dangerous climate change violates human rights, for example, the right to a stable climate or the right to life, health, and subsistence.[37] Critics of cosmopolitanism usually do not deny that climate change is a global phenomenon, but they point out the difficulties or appropriateness of enforcing global principles of justice. For example, for the costs of climate change mitigation and adaptation to be distributed fairly on a global level, a viable supranational legal structure would be required but does not exist yet. Another objection is that the content of obligations is not universal but relative to cultural background, and this background can only be provided by nation states. Finally, critics claim that nation states still are the most important factor when it comes to promoting people's welfare.[38]

Climate change as a fundamentally global and time-delayed phenomenon that has adverse effects on people, living organisms, and the environment has generated a huge and continuing debate over distributive and intergenerational justice to determine how our finite atmosphere is to be used fairly. That is why, in the ethical part of this expert report, we focus on the intergenerational and distributive aspects of climate justice.[39] However, this prevailing framework of climate justice has also been challenged from different perspectives.

36 Cf. Moellendorf 2012; Tremmel / Robinson 2014: chapter 9.
37 For discussion of these proposals cf. Bell 2013.
38 For this criticism of cosmopolitanism cf. the overview in Moellendorf 2012: 132.
39 Cf. sections 2 (»Climate Change and Intergenerational Justice«) and 3 (»Climate Change and Distributive Justice«).

The following sections will present the most prominent of these alternatives.

1.3 Utilitarianism, Economics, and Discounting

As suggested in the previous section, the intergenerational dimension of climate change poses significant challenges for theories of justice. Distributive theories of justice, and more generally theories of justice based on the notion of reciprocity, have both conceptual and empirical difficulties with taking into account obligations to distant future generations. The conceptual problem consists in generating obligations at all since non-existent future generations cannot be part of a reciprocal relationship and therefore cannot participate in a reciprocal system of rights and obligations. The empirical problem lies in the uncertainties involved in predicting societal developments in general. If we cannot say with sufficient probability how a society will evolve in the distant future, how can we fairly distribute the goods it produces across generations?

One prominent type of approach in climate ethics that sidesteps these and other problems for theories of climate justice are consequentialist moral theories applied in the context of climate change. Consequentialism is an umbrella term for moral theories according to which it is the consequences of an action determining whether it is morally right or wrong. The most widespread form of consequentialism is utilitarianism, which uses the positive and negative effects an action has on people's well-being as a standard to morally evaluate actions. Accordingly, its primary goal is to achieve »the greatest net happiness for all affected«.[40]

Applied to the case of climate change, the utilitarian rationale translates to designing climate policies in such a way that they maximize the happiness in the world for present and future generations.[41] Utilitarian theories, therefore, do not frame the problem of climate change as a problem of justice in the first place and thus attempt to justify obligations towards future generations in a different

40 Singer 2002: 40.

41 Cf. Gesang 2011: 72 f. There are also consequentialist positions adopting a human rights approach in climate ethics as opposed to classical utilitarianism. Cf. Birnbacher 2016.

way. Instead of arguing that not implementing far-reaching mitigation policies would be unjust towards future generations, this type of approach rather appeals to the general moral principle according to which we ought to increase people's well-being. Since future generations will benefit greatly from far-reaching mitigation policies implemented today and thus increase their well-being, appeal to this principle immediately generates obligations towards future generations.

One reason utilitarianism is an important position in debates about climate change is that many economic models are, implicitly or explicitly, based on utilitarian ideas, and these economic models are highly influential tools in climate policy.[42] One distinctive utilitarian idea besides maximising the overall net happiness and the emphasis on an action's consequences is the claim that utility is »measurable, interpersonally comparable, and aggregatable«.[43] Utility is thus thought of as being in principle amenable to operationalisation. For example, the market price of commodities people buy can be used as an indication for the extent to which these commodities contribute to people's well-being. The well-being of individuals can thus be given a value and added to yield aggregate well-being. In determining a particular course of action, one must calculate which action produces the greatest aggregate well-being, an idea particularly suitable for economic models. Since it is a central question in climate justice not only whether present generations have obligations to future generations at all but also—if the answer to this question is positive (which most commentators agree)—how much future generations are owed, economic models seem to be well-equipped to balance present (economic) sacrifices against future (economic) benefits:

> »How do increases in future well-being weigh against sacrifices of present well-being? It is just the question an economist asks when she does a cost-benefit analysis of a particular project such as a wind farm, or a particular policy such as imposing heavy taxes on transport. Economists have techniques for answering it.«[44]

42 Cf. Roser / Seidel 2017: 67.
43 Gesang 2011: 76 [our translation].
44 Broome 2012: 134.

There are many controversial issues surrounding the employment of utilitarian ideas and economic models in climate ethics, but one of the most important points of contention is the so-called practice of discounting.[45] Discounting is standard practice in *cost-benefit analysis* (CBA) and refers to the devaluation of future commodities. The discount rate expresses the degree to which future commodities are devalued and can be thought of as a reverse interest rate with the same compound effects over time. For example, if the discount rate for 1 kilo of rice is 6 %, then the value of 1 kilo of rice one year from now is 94 % of present rice. After 100 years, the value of 1 kilo of rice will have dropped to 0.21 % of its present value.[46]

The following reasons are frequently given to support discounting. For one thing, economists assume people have a »pure time preference«[47]: as a rule, people value the consumption of commodities (e.g. a piece of chocolate cake) today more than in the distant future. For another, economists assume that commodities and money have a »diminishing marginal benefit«[48]: The more commodities and money a person already possesses the less additional value extra commodities and money will produce—100€ simply has not the same value for a poor person as for a rich person. Against the backdrop of the widespread economic assumption that the world economy will continue to grow and therefore will lead to future generations being far richer than present generations, it follows that the same commodities will produce fewer benefits for future generations than for present generations. Finally, if the overall goal is to maximise well-being, and if well-being (particularly that of future generations) increases the more present generations save today, then without discounting present generations would have to pursue a very harsh policy of austerity, which most utilitarians and economists find excessive and unwarranted.[49] All of these reasons support the conclusion that discounting is necessary in order to assign prop-

45 Cf. Jamieson 2014: chapter 4. For an overview of the controversy over discounting cf. also Broome 1994 and Weisbach / Sunstein 2009. For an in-depth utilitarian account of the problem of climate change addressing a wide range of issues cf. Gesang 2011, in particular chapter 4.

46 Cf. Broome 2012: 138.

47 Ibid.: 149.

48 Ibid.: 144.

49 Cf. Roser / Seidel 2017: 66.

er values to costs and benefits with respect to their occurrence in time and thus to make them commensurable for a CBA that covers a significant amount of time.

The importance of the discount rate in climate policy is revealed by a (still ongoing) controversy sparked by two prominent economists, Nicholas Stern and William Nordhaus, who derive very different recommendations for climate action based on their respective economic models.[50] Stern advocates for drastic mitigation measures whereas Nordhaus proposes much more modest climate policies. The key difference between their economic models is the discount rate, Stern's being 1.4 % and Nordhaus' being 5.5 %. The difference in assessing future climate costs and benefits using these different discount rates is vast. For Stern, costs in 100 years will have a value that is over 50 times higher than for Nordhaus, and harms in 200 years are valued almost 2800 times more. Thus, it is no surprise that Stern sees climate change as a much bigger problem than Nordhaus and therefore urgently calls for comprehensive climate action.[51]

The debate over discounting is highly complex and some commentators even suggested that »defenders and critics of discounting are simply talking past one another«.[52] A small consensus seems to be that discounting commodities is ethically justifiable but discounting people's well-being is not.[53] For example, Derek Parfit has presented a *reductio ad absurdum* of the practice of discounting when applied to future harms to people:

> »Suppose we are considering how to dispose safely of the radio-active matter called *nuclear waste*. If we believe in the Social Discount Rate, we shall be concerned with safety only in the nearer future. We shall not be troubled by the fact that some nuclear waste will be radio-active for thousands of years. At a discount rate of five per cent, one death next year counts for more than a billion deaths in 500 years. On this view, catastrophes in the further future can now be regarded as morally trivial.«[54]

50 Cf. Nordhaus 2008; Stern 2007.
51 Cf. Weisbach / Sunstein 2009: 440.
52 Ibid.: 438.
53 Cf. Broome 2012: 153; Gesang 2011: 135; Weisbach / Sunstein 2009: 437.
54 Parfit 1986: 357.

Furthermore, Dominic Roser and Christian Seidel have pointed out that appealing to pure time preference as a justification for discounting commits the *is-ought fallacy*: The psychological fact that people prefer consuming things now to consuming them later does not say anything about the acceptability of this behaviour.[55] They go on to argue that it also makes a difference whether individuals discount future risks affecting only themselves—e.g. when making decisions regarding their own retirement plans—or whether the discounted risks also affect others, which is clearly the case when discounting is used to decide on climate policies.[56]

There may be legitimate moral reasons to discount future well-being, which are offered by *prioritarianism*. According to this position, it is legitimate to discount future well-being under the condition that well-being has—similarly to money—a diminishing marginal value, i.e. if the value of adding well-being to a person decreases the better off this person is.[57] This would justify giving priority to the worst off because they benefit more from additional well-being than those who are better off.

Finally, a more fundamental objection has been raised against utilitarianism in general. Since utilitarianism is concerned only with maximising the aggregate well-being regardless of how the well-being is distributed among individuals, this position admits of potentially extreme inequalities.[58] For example, given two different climate policies where the first generates slightly higher net benefits for future generations than the second one, but where the first reinforces or creates great inequalities, utilitarians would have to prefer the former to the latter—a result many would find unacceptable.

1.4 Procedural Justice and Feasibility

Theories of climate justice can be assessed by applying them under real-world conditions. In this context, theories of climate justice and their focus on distributive, intergenerational, and global aspects of

55 Cf. Roser / Seidel 2017: 67.
56 Cf. ibid.
57 Cf. Meyer / Roser 2006: 236 f. Cf. also section 3.2.4 (»Emissions Prioritarianism«).
58 Cf. Rawls 1999: 23.

justice have been criticised for not being feasible. Critics argue that these types of theories would neither guide nor directly promote the implementation of effective climate policies. This is either because these theories were too complex to guide action or because they did not motivate parties to comply.

The discussion about climate theories' feasibility is part of the larger debate about the relation between ideal theory and non-ideal theory. The underlying question is how far ideal theorising about justice ought to include considerations about unfavourable circumstances and obstacles to compliance in the non-ideal »real world«.[59] Here, an important part of the debate has provided insights about types and sources of feasibility constraints such as individual resistance to embrace necessary lifestyle changes in the face of climate change, the orientation of democracies towards short-term preferences, and the interlinkage of present maldistributions within climate change with broader forms of injustice in the past (e.g. colonialism), to name but a few.[60] Stephen Gardiner has subsumed the different types of constraints (and their potential to mutually exacerbate their detrimental effects) in his concept of climate change as a »perfect global storm«.[61]

In addition to this more analytical contribution, critics of climate justice accounts focusing on more ideal considerations have argued that neglecting these constraints in normative theorising will make it impossible or at least very difficult to produce effective climate policies and motivate climate action.[62] However, it is far from clear that theories of climate justice ought to be measured by their ability to motivate and promote climate action. A variety of different accounts of (political) philosophy's role in the climate crisis have been suggested: While theorists such as Eric Posner and David Weisbach argue for a turn to purely policy-oriented considerations beyond normative theorising, others such as Joshua McBee have sketched an evaluative role within policy formation, while still others such

59 Cf. Heyward / Roser 2016: 5. Cf. also the differentiation of three aspects of non-ideal theory: Kenehan / Katz 2021: 6.

60 Cf. for a description of such constraints e.g. Kenehan / Katz 2021: 5; Heyward / Roser 2016: 5.

61 Gardiner 2011.

62 Cf. Kenehan / Katz 2021: 2.

as Kirsten Meyer attribute a more corrective role to normative theorising within climate change.[63]

A connected question is whether—and if so, how—normative theorising about climate justice ought to include issues of non-compliance. Reflecting on how partial or non-compliance with mitigation burden assignments ought to be addressed within normative theorising can offer valuable insights for theories of justice that primarily focus on distributive, international, and also intergenerational considerations.[64] Different answers have been discussed, for example, a potential obligation to mitigate more if others do not live up to their obligations, or instead a duty to political action in the face of non-compliance.[65]

In light of these criticisms in the context of feasibility, remedies have also been sought by broadening the respective scope of justice (and injustice) that ought to be addressed by a theory of climate justice. Conceptualizations of climate justice have long been focused primarily on the context of distributive, global and intergenerational justice. However, scholars investigating justice issues in other environmental contexts have urged to overcome this »narrow« understanding of justice. David Schlosberg, one of the most prominent theorists in environmental justice, claims that »[i]nequitable distribution, a lack of recognition, limited participation, and a critical lack of capabilities, at both the individual and group level, all work to produce injustice.«[66] And a purely distributive paradigm is, according to Schlosberg, unable to address these diverse roots of injustice. A theory of climate justice limited to a distributive understanding of justice would overlook many other important aspects and causes of injustice in the context of climate change. Most importantly because more narrow understandings of justice do not have the conceptual tools to address this *injustice* in the first place, especially because injustice entails further forms beyond maldistribution. Nor are they able to effectively promote the realisation of justice via the implementation of the respective theory of justice because they overlooked

63 Cf. Posner / Weisbach 2010; Meyer 2021; McBee 2021.

64 Cf. e.g. Caney 2016. Cf. also section 3 (»Climate Change and Distributive Justice«).

65 Cf. Heyward / Roser 2016.

66 Schlosberg 2007: 39. Cf. also the second part (Policy Aspects) of this expert report.

important further *causes of injustice* and thus seek justice in contexts that constantly generate new forms of injustice.[67]

The shortcomings of a primarily distributive account of climate justice have nicely been illustrated by Marion Hourdequin who describes the limitations of the »pie metaphor« underlying many distributive schemes:

> »So one problem with the pie case, described in very abstract terms, is that it omits context, and what might at first seem like obvious distributive principles can turn out to be not so obvious after all, once the context is filled in. However, there is another problem with the pie metaphor: by focusing attention on the size of the slices in a fixed pie, the metaphor can distract from further questions about *who decides* and *through what process* distributive decisions are made.«[68]

In accordance with authors such as Schlosberg, Hourdequin argues that addressing the question of *who decides* requires a theory of justice to include aspects of recognition, whereas the question about the *process* through which a decision was made requires the inclusion of aspects of procedural justice. Such an »inclusive understanding of justice« leads to the trivalent model of justice in which justice is understood as a concept encompassing issues of distribution together with issues of recognition and participation, where the latter is concerned with adjusting the respective procedures in which decisions are being made.[69] Following this concept, injustice can be addressed effectively only by involving all domains of justice and by acknowledging their interlinkages:

> »Improved participatory mechanism can help meliorate both other forms of injustice [misrecognition and distributive inequity] but those forms of injustice must be addressed in order to improve participation.«[70]

Beyond the general implication that climate justice ought to be reconceptualised in line with this trivalent model, theorists in this context have outlined how a climate governance system ought to be

67 Cf. Schlosberg 2007: 13. Cf. Schlosberg / Collins 2014: 361.

68 Hourdequin 2019: 272.

69 Cf. Schlosberg 2007: 24. Cf. also Hourdequin 2019: 271: »I will argue for a multi-dimensional conception of justice—which incorporates procedural, participatory, and recognition justice«.

70 Schlosberg 2007: 28.

structured. As the opportunity to participate and to shape decisions in the current climate governance is highly dependent on power and wealth, these sources of potential injustice need to be considered and compensated by improving the decision procedures.[71] Most importantly, this can be achieved by making sure that those who will be affected by policies have the opportunity to participate in the policymaking process, which also includes that their perspective and status as participants is recognized.[72]

Because both recognition and participation require the adjustment of relations and procedures, important insights into reforming the climate governance system have been developed through the lens of procedural justice accounts and their focus on impartiality and equality of opportunity as fundamental principles for the creation of just (political) procedures.[73] Furthermore, procedural justice has also been described as a solution to reasonable disagreement among the parties in the climate governance system about fundamental aspects of climate justice such as the choice and defence of a specific principle of distributive justice for the assignment of mitigation burdens. This can also be seen as a contribution to the feasibility constraints of climate justice since this disagreement may be the major cause of political inertia or dispute. As a consequence, authors such as e.g. Luke Tomlinson, Marco Grasso, Simona Sacchi, Eric Brandstedt and Bengt Brülde have argued for a shift away from substantive considerations about the outcome of climate justice (esp. distribution) to the development and implementation of fairness criteria for the climate governance system (procedural justice).[74] Still,

71 Cf. Grasso / Sacchi 2015: 783; Hourdequin 2019: 282; Schlosberg / Collins 2014: 361. For a more detailed analysis of potential shortcomings regarding issues of (non)recognition and (non)participation within climate governance and theories of climate justice cf. Kortetmäki 2016.

72 »[M]eaningful participation requires not just formal opportunities to offer one's views, but interlocutors, institutions, and processes that take seriously those perspectives« (Hourdequin 2019: 273). Cf. also section 1.5 (»Justice and Recognition«).

73 For a short characterization of procedural justice and its two basic elements of impartiality and equality of opportunity cf. Page 2012b: 942.

74 Brandstedt / Brülde 2019; Grasso / Sacchi 2015; Tomlinson 2015. For the general shift to issues of participation and recognition in the light of reasonable disagreement within the parties of the climate governance system cf. also Hourdequin 2019: 272.

the challenge of formulating an account of procedural justice that is both itself not the object of reasonable disagreement and, given its minimalism, sufficiently »rich« to provide guidance for adjusting climate governance procedures remains challenging.[75]

1.5 Justice and Recognition

Climate change has been framed »as another environmental condition that demonstrates the broader social injustice of poor and minority communities.«[76] Differences regarding culture, ethnicity, gender, social class, or political convictions are often crucial for the designation of groups that are subsequently confronted with marginalisation and discrimination.[77] What is more, these differences and the resulting lack of recognition of these groups can be one of the causes for various injustices. In the face of climate change, particularly theorists of gender justice and environmental justice have argued that an account of climate justice focused only on distributive, international, and intergenerational aspects is unable to address these forms of injustice. The problem of nonrecognition cannot be remedied by merely adjusting distributive schemes but only by redesigning relations within societies and by implementing decision procedures that ensure successful participation.[78] Recognition has also been described as entailing different conceptualisations of justice beyond the »academic« context. Theorists such as David Schlosberg and Lisette B. Collins demand the inclusion of understandings of justice of local communities or grassroot movements and their specific conceptions of how we ought to treat nature or the environment. As a consequence, these considerations of climate justice are often more fragmented and specifically tailored to the satisfaction of needs of specific local communities and, overall, more pragmatic and more focused on policy.[79] In the following, we shed light on some of the major criticisms of theories of climate justice stemming from the context of gender justice and environmental

75 Cf. Grasso / Sacchi 2015: 784.
76 Schlosberg / Collins 2014: 362.
77 Cf. Newell et al. 2021.
78 Cf. Schlosberg 2007: 14 ff. Cf. section 1.4 (»Procedural Justice and Feasibility«).
79 Cf. Schlosberg / Collins 2014: 359.

justice. We will address issues of nonrecognition within climate justice theories, particularly of women and Indigenous People, but also of the non-human nature.[80]

One of the criticisms focuses on an incomplete conceptualization of vulnerability in »mainstream« climate justice theories. Most importantly, they fail to include the »gendered« nature of climate vulnerability: Negative impacts of climate change like health risks disproportionately affect persons in the Global South and, within this group, women are in general more severely affected than men because their socio-economic status is frequently lower.[81] What is more, the capacity to adapt to climate change is also gender-related since it depends, among other things, on the respective obligations and activities that provide different obstacles and opportunities to adapt, and which are in turn gendered such as duties of care work.[82] A comprehensive account of climate justice would thus have to include this gendered nature of climate vulnerability while avoiding stereotyping women either as passive, helpless victims of climate change or as »environment-saviours«.[83] These stereotypes bear the risk of reinforcing the gender-related vulnerability.[84] Although gender has been described as »the most crucial category of climate injustice«[85] the mechanisms of not recognizing persons and their specific needs in the face of climate change have also been observed with regard to other politically, socially, or culturally marginalized groups.[86]

Accounts such as those of environmental justice or gender justice emphasise that a broader understanding of justice is also a major precondition for a successful political response to climate change because it is both the root of injustice in the present and an encompassing precondition for social justice over time.[87] Proponents of feminist philosophy, gender studies and environmental justice

80 Cf. for further aspects section 4 (»The Climate Justice Movement«) of the second part (Policy Aspects) of this expert report.
81 Cf. Terry 2009: 6–8.
82 Cf. ibid.: 7.
83 Bee / Park 2023: 549.
84 Cf. Perkins 2018: 350.
85 Ibid.: 349.
86 Cf. Newell et al. 2021.
87 Cf. Schlosberg / Collins 2014: 362. Cf. also Newell et al. 2021.

have criticised accounts of climate justice and climate policies that frame »climate change as a problem that needs mainly technical and economic solutions«:[88] Such »technological« approaches ignore the various dimensions of climate vulnerability sketched above, overlook power dynamics as one of the main reasons of climate injustice, and promote a misconceived relation to nature.[89] These approaches are thus the target of the more fundamental critique of the (economic) system as a whole:

> »Calls for climate justice and gender justice are in effect a reiteration that problems inherent in the expansion of the global capitalist system [...] cannot sustainably be addressed from within the system.«[90]

Important discussions investigate shortcomings of »mainstream« accounts of climate justice both in mitigation and adaptation policies. For example, mitigation strategies informed by narrow understandings of climate justice have been accused of overlooking the gendered nature of lifestyles and culturally influenced working practices such as farming practices, which both can highly influence a person's capacity to contribute to climate mitigation and his or her respective vulnerability to be negatively affected by mitigation policies.[91] Similarly, gender-related conceptualisations of bodies[92] or culturally shaped conceptualisations of the environment (e.g. in »place-based movements«[93]) can impede or promote adaptive pathways and need to be taken into account to ensure efficient policies and to prevent a reinforcement of »vulnerability, exclusion

88 Terry 2009: 15.

89 Cf. Bee / Park 2023: 554 f. They interpret this technological reductionism in accordance with other areas where emerging technologies are framed as solutions for complex social challenges that require an inclusion of the categories of race, class, age, and gender.

90 Perkins 2018: 353. Cf. also the similar pledge for a transformative approach to climate justice which does not only apply a broad understanding of justice but also puts it into the broader global economic and social context: Newell et al. 2021.

91 Cf. Terry 2009: 8–11; Bee / Park 2023: 552; Perkins 2018: 349.

92 For the need to critically examine the »population-poverty-environmental-nexus« and underlying assumptions about gender, responsibility, procreation, and its link to climate change cf. Bee / Park 2023: 553 and Terry 2009: 8.

93 Newell et al. 2021.

and inequality«.[94] Conceptualisations of climate justice that take these considerations into account may both contribute to climate mitigation, adaptation, *and* social justice, e.g. by efficient policies tackling air pollution.[95]

Beyond minorities or marginalised groups such as Indigenous People, women or ethnic minorities, accounts of climate justice focusing on distributive, global and/or intergenerational justice have also been criticised for excluding the non-human nature from the scope of obligations of justice. Proceeding from his understanding of justice as encompassing distribution, recognition, functioning, and participation, Schlosberg argues for the application of justice to non-human nature.[96] In the context of climate change, he criticises an illegitimate misrecognition of nature, exemplified by »[…] the domination of nature by extractive industries, the invisibility of nature in political planning (even despite warnings decades ago), and the disparaging of the natural world in discussions of the mitigation of impacts on human communities at the expense of nature.«[97] Here, »mainstream« approaches to climate justice have been accused of overlooking the underlying need to reconsider the relationship of humans with nature in general, for example by shaping concepts and uses of nature beyond the paradigm of domination.[98] This call to »reconnect« with nature has also been taken up by feminist philosophy and theories of post-humanism.[99] One of the central claims is to include the non-human nature as a direct subject of justice.[100]

Overall, such an encompassing, »transformative« approach to climate justice integrating these theoretically and empirically highly diverse aspects is, however, philosophically contested or at least both theoretically and practically very challenging.[101]

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94 Bee / Park 2023: 551. Cf. also Terry 2009: 12 f.
95 Cf. Schlosberg / Collins 2014: 362, 368. Cf. similarly Terry 2009: 6.
96 Cf. Schlosberg 2007: 4, chapter 6.
97 Ibid.: 140.
98 Cf. ibid. 142. Cf. Jamieson 1996: 331 f.
99 Cf. Bee / Park 2023: 553.
100 Cf. Schlosberg 2007: 138. For the elaboration of his theory of ecological justice cf. ibid.: chapter 6.
101 As an insight into the challenging road to such an intersectional and transformative approach to climate justice cf. for example Perkins 2018: 354. For

2. Climate Change and Intergenerational Justice

2.1 Introduction: Three Conceptions of Future Generations

The term »generation« is central in climate justice debates, yet it is ambiguous and rarely defined. Because of its ambiguity, some have even proposed to drop the term »intergenerational justice« altogether and replace it with »justice to future people«.[102] However, the term may be helpful if its use is sufficiently clarified. Three uses frequently occurring in climate justice debates can be identified.[103]

First (1), »generation« may be used in a genealogical sense and refer to a particular group within a family, i.e. parents, children, or grandchildren. Second (2), it may be used in a sociological sense and refer to a particular age group within a society, i.e. younger and middle-aged people and the elderly. Third (3), it may be used in a chronological sense and refer to all those people living at a particular time.

The choice of a particular use of the term »generation« not only determines the number and size of generations living at a specific time but also partly fixes the temporal relationships between (past, present, and future) generations. For example, according to the first use (1), up to four generations may exist simultaneously within a society, whereas according to the third use (3) there always exists only one generation at any given time. This also means that according to (1) the first »future generation« for parents are their children, whereas according to (3) the »future generation« comprises all those people not yet born given a specific time.

The respective conception associated with the different interpretations of the term »(future) generations« in turn has an influence on the question which relationships qualify as either intragenerational or intergenerational. Here »intragenerational« denotes relationships

an illustration of the difficulty to show how climate change may actually harm broader aspects of nature such as ecosystems or species cf. Palmer 2011.

102 Cf. Caney 2019: 157. Caney also rejects the term »generation« because he thinks that individuals, and not generations, are the fundamental bearers of rights and duties. Cf. ibid.: 159 f.

103 For the following classification cf. Birnbacher 1988: chapter 1.3. For more detailed overviews of the different uses of the term »generation« cf. Gardiner 2011: chapter 5.1 and Tremmel 2009: chapter 3.

within a given generation and »intergenerational« denotes relationships *between* given generations, regardless of how exactly »generation« is being defined. For example, the relationship between parents and their children counts as an intergenerational relationship according to the first use of »generation«, whereas it counts as an intragenerational relationship according to the third use. Depending on the definition for a particular age group (0–30 years for younger people, say) and the time at which people become parents, the relationship between parents and children according to the second use may be said to be either intragenerational or intergenerational.

No matter how you slice it, though, there is no one right conception of (future) generations simply because the question which conception ought to be chosen is not just an empirical but primarily a normative question. Preferring a particular conception of (future) generations to another is in large part motivated by theoretical purposes and practical goals. The variety of conceptions of (future) generations is not necessarily problematic if the respective conception employed and the role it plays within a train of thought or argument is made clear. Simon Caney has put the point in the following way:

> »Given that our ultimate concern here is to address the substantive normative question of what responsibilities and rights persons have, there is nothing to be gained from stipulating that one of these usages [of the term ›future generations‹] is better than the others. Rather, what we should do is examine the competing normative arguments and their implications for who should be included in the scope of justice.«[104]

In this context, a distinction is often drawn in the literature between overlapping and non-overlapping generations, i.e. the (non-)possibility of spatio-temporal co-existence of groups of people.[105] The question whether the lives of certain groups of people can or do overlap (or not) is even more important in intergenerational justice than a particular conception of generation because it is crucial for determining whether, and if so to what extent, the circumstances of justice obtain.[106] For example, it is a widely held belief that there is an »absolute difference in power«[107] between present and future

104 Caney 2018b: 476.
105 Cf. Gosseries / Meyer 2009: 3 f.
106 Cf. section 1.1 (»Introduction: The Circumstances of Justice«).
107 Barry 1991b: 243.

generations because present generations can affect the well-being of future generations but not vice versa. But this is true only if present and future generations are conceived of as non-overlapping. If the term »generation« is conceived of in the genealogical sense so that present and future generations do overlap (e.g. grandparents and grandchildren) then there is the possibility of future generations affecting the well-being of present generations.[108]

This immediately raises the question whether the subject matter of intergenerational justice ought to be concerned with issues of justice arising between overlapping or non-overlapping generations. One prominent proposal is to conceive of intergenerational justice exclusively in terms of non-overlapping generations, i.e. present and future generations are defined so as to exclude any possible interaction:

> »What is distinctive about the notion of obligations to future generations is, I think, that it refers to generations with which the possessors of the obligations cannot expect in a literal sense to share a common life.«[109]

According to this proposal, the term »future generations« refers to those people with whom present generations cannot interact because they are temporally too remote. Some commentators have objected to this definition of future generations on the grounds that it was unnecessarily restrictive, and limited the scope of intergenerational justice to issues arising between present generations and people in the very remote future.[110] Other topics considered to be pertinent to intergenerational justice—such as fair pension systems, national debt distribution, and the regulation of the education sector—would fall by the wayside. However, or so critics argue, although substantial changes in social policy regarding these topics may have long-term consequences for the remote future, they may also affect people in the near future.[111]

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108 Cf. McCormick 2009: 454. Cf. also section 2.2.3 (»The Non-Reciprocity Challenge«).

109 Cf. Golding 1986: 61 f. To be sure, Golding is very reluctant to acknowledge obligations to future generations because he contends that obligations can only arise within a moral community, and that future generations »are members of our moral community is highly doubtful« (ibid.: 69).

110 Cf. Birnbacher 1988: 25 f. and Tremmel 2009: 25.

111 Cf. ibid.

Climate change presents a special, hybrid case for intergenerational justice. On the one hand, greenhouse gases (GHGs), which contribute to climate change and are caused primarily by humans, can have a very long lifetime in the atmosphere and thus impact the climate system in the very distant future. For example, the lifetime of methane (CH_4) is 11.8 years, the lifetime of nitrous oxide (N_2O) is 109 years.[112] Although carbon dioxide (CO_2) does not have a single lifetime in the atmosphere because it is partly absorbed by the ocean and land biosphere, it is estimated that about 15–40 % of CO_2 emissions remain in the atmosphere for more than 1000 years.[113] Since human (economic) activities account for most of the global CO_2 emissions, anthropogenic emissions affect the future climate system—and thus future generations, whichever way you define them—for centuries and even millennia to come.[114] Therefore, climate change raises ethical challenges between generations that definitely do not overlap.[115] On the other hand, climate change is not exclusively a case of intergenerational justice regarding non-overlapping generations. For example, it has been estimated that the generations born in the second half of the 20th century are responsible for a large part of the CO_2-induced warming occurring between 1850 and 2000: the 1950–1975 generation added roughly 0.23°C, and the 1975–2000 generation added another 0.25°C.[116] This means it is possible, in theory at least, for parents' emissions to have an effect on the lives of their children and grandchildren, and thus with overlapping generations.

In sum, climate change presents a special case of intergenerational justice because it raises ethical challenges for overlapping as well as for non-overlapping generations due to its mid- and long-term repercussions for the climate system. The importance of this point lies in the fact that different ethical challenges arise in each case, challenges that must be addressed employing different conceptions and frameworks. For example, many theories of justice are based on reciprocity, i.e. roughly the idea that the circumstances of justice re-

112 Cf. IPCC 2021: 1017.
113 Cf. Knutti / Rogelj 2015: 362.
114 Cf. IPCC 2021: 21.
115 Cf. Karnein 2015.
116 Cf. Friedlingstein / Solomon 2005: 10835.

quire that people be able, in principle, to interact and cooperate with one another.[117] Obviously, the notion of reciprocity cannot straightforwardly be applied to the relationship between non-overlapping generations.[118] But although conceptual problems like this one are distinctive of climate justice due to its long-term consequences, one should not lose sight of the fact that human (economic) activities connected to GHG emissions have an effect not only on remote and abstract unborn people, but also on people one may possibly encounter in one's lifetime.

In light of these complexities, it seems prudent to follow Stephen Gardiner in his advice not to be too restrictive with respect to one's use of the term »generation« and rather tailor it to the particular case given that the multifaceted climate justice debates require different perspectives in different contexts:

> »Talk of ›generations‹ gains its point from the need to confront a certain kind of severe moral problem that is best conceived of in generational terms. […] Since the intergenerational problem can arise for groups of different temporal sizes and over different time-frames, it makes sense to be flexible about what one is willing to count as a generation.«[119]

In debates about intergenerational justice in general, and in debates about climate justice in particular, there is a prevailing focus on ethical challenges arising between present and future generations that do not overlap or at least that are temporally far removed from one another. That is because in this case problems of intergenerational justice are particularly salient and call into question the applicability of our usual conceptual frameworks.[120] In the following, therefore, the five biggest and most widely discussed challenges arising between non-overlapping present and future generations will be considered in more detail.[121]

117 Cf. Barry 1991a: 212.
118 Cf. section 2.2.3 (»The Non-Reciprocity Challenge«).
119 Gardiner 2011: 147 f.
120 Cf. Jamieson 2014: chapter 5.
121 Hence, for simplicity's sake, the qualifier »non-overlapping« will mostly be dropped in subsequent sections.

2.2 Five Challenges for Intergenerational Climate Justice

2.2.1 The Conceptual Change Challenge

The distinctive mark of intergenerational justice is the involvement of significant temporal distance. The people between which justice relations are supposed to obtain are separated by more or less significant periods of time. How much time, exactly, and whether intergenerational justice ought to include justice relations between overlapping generations in addition to non-overlapping ones is a matter of some debate, and has been discussed in the last section in the context of the respective conceptions of (future) generations.

But what difference does temporal distance actually make from an ethical point of view? One may be tempted to ponder the question, perhaps half-jokingly, what posterity has ever done for us.[122] Since posterity by definition has not done—and cannot do—anything for us, one may conclude that present generations do not have any obligations towards future generations.[123] However, most commentators believe present generations do have moral obligations to future generations that are either temporally remote in a significant way or do not even exist yet; what is highly controversial is how these moral obligations can be grounded and what their precise content should be. Thus, regardless of the details of the how and the what of moral obligations there seems to be a broad consensus among moral philosophers that temporal distance alone can make no relevant difference for moral evaluation. Many seem to share Derek Parfits intuitions when he writes:

> »Remoteness in time has, in itself, no more significance than remoteness in space. Suppose that I shoot some arrow into a distant wood, where it wounds some person. If I should have known that there might be someone in this wood, I am guilty of gross negligence. Because this person is far away, I cannot identify the person whom I harm. But this is no excuse. Nor is it any excuse that this person is far away. We should make the same claims about effects on people who are temporally remote.«[124]

122 Cf. Barry 1991a: 231, who is paraphrasing this famous question taken from a newspaper article.

123 Cf. also section 2.2.3 (»The Non-Reciprocity Challenge«).

And indeed, one would be hard-pressed to disagree with Parfit. If inflicting harm is morally objectionable and provides us with reasons to refrain from it, then why should the point of time at which the harm occurs make any difference? What is morally objectionable about harm is the suffering it causes. Just because there may pass more or less time between causes (certain kinds of actions) and effects (certain kinds of harms) does not seem to have an influence on the question whether a certain kind of action is morally objectionable and therefore should not be done. Planting a bomb with the intention to harm people is wrong regardless of whether a timer is being used because it makes no moral difference precisely when the suffering and death caused by the explosion occurs.

However, some commentators have pointed out that under certain conditions great periods of time can make a difference for the moral evaluation of certain kinds of actions. This is the case when the concepts deployed in moral evaluation change over time. Cases like this therefore constitute what may be called the »Conceptual Change Problem«. Martin Golding, for example, considers an account of rights and obligations according to which membership of a moral community, which is characterised by a shared conception of the good life, is required for making legitimate claims.[125] Even though (non-overlapping) future generations cannot literally be part of a moral community comprising only present generations, Golding acknowledges they can nevertheless be members of it insofar as they will share its conception of the good life. However, he is highly doubtful this will be the case. The greater the period of time we imagine between present and future generations, the more difficult it will become to make reliable predictions about future generations' conception of the good life and hence about whether they can be meaningfully included in present generations' moral community.[126] Golding thus concludes that present generations' obligation to promote future generations' well-being decreases as the temporal distance between them increases. Consequently, present generations

124 Parfit 1986: 357. Cf. also Barry 2003: 490: »The fundamental idea that location in space and time do not in themselves affect legitimate claims has the immediate implication that the vital interests of people in the future have the same priority as the vital interests of people in the present.«

125 Cf. Golding 1986: 64.

126 Cf. ibid.: 68 f.

should focus on the well-being of those generations immediately succeeding present ones since they will much more likely share their conception of the good life and thus be part of the moral community.[127]

Terence Ball has developed a more radical version of the Conceptual Change Problem.[128] He argues that intergenerational justice is strictly speaking incoherent and therefore concludes that present generations could not act justly towards future generations even if the former did recognize obligations towards the latter. Ball's argument is based on three premises. First (1), concepts of political and moral discourse, such as the concept of »justice«, are subject to profound historical change, second (2), how these concepts change over time, and thus what shape they will assume in the future can impossibly be foreseen, and third (3), for one party to act justly towards another requires a shared concept of justice. Ball's argument then is straightforward. Since future generations will inevitably have a concept of justice that is profoundly different from and cannot be anticipated by present generations, it follows that present generations cannot act justly towards future generations because they do not share the same concept of justice.[129]

Even though Ball's argument does not establish that it is in principle impossible for present generations to act justly towards future generations, he cites strong historical evidence in favour of premises (1) and (2) (premise (3) is taken for granted). For conceptual change is a historical fact few would deny. And the concept of »justice« does not seem to be an exception. To illustrate his point, Ball refers to slavery in the American South before the Civil War, an institution not considered unjust by many Southerners.[130] Thus it seems likely, or at least possible, that future generations 200 years from now will have a profoundly different concept of justice than present genera-

127 Cf. Golding 1986: 70. There are communitarian accounts of intergenerational justice attempting to generate obligations towards (remote) future generations despite Goldings's misgivings. For example, Avner de-Shalit invokes the concept of »humanity« and Richard P. Hiskes develops the concept of »reflexive reciprocity« to include future generations among the addressees of moral obligations (cf. de-Shalit 1995: 63; Hiskes 2009: chapter 3).

128 Cf. Ball 1985.

129 Cf. ibid.: 322 f.

130 Cf. ibid.: 328 f.

tions. If so, then it is impossible for present generations to act justly towards future generations simply because actions considered just by the former might not be considered just (or even unjust) by the latter. Unlike Golding, however, Ball does not draw the conclusion that present generations do not have any (or decreasing) obligations towards future generations. Just because present generations cannot (intentionally) act justly according to some hypothetical future concept of justice, this does not give them licence to act in any way they like. Present generations' actions are still bound by the requirements of justice—requirements constituted by the prevailing but mutable concept of justice operative in their respective political and moral discourse.[131]

2.2.2 The Non-Existence Challenge

Perhaps the most obvious thing to note about non-overlapping future generations is the simple fact that they do not (yet) exist. Barring some major global apocalypse wiping out all of humanity, *there will be* people inhabiting the earth in the future. But as a matter of definition, non-overlapping future generations do not exist *now*. The fact that future generations do not exist now poses serious difficulties for establishing that the circumstances of justice obtain between present and future generations. The two difficulties most frequently discussed arise in the context of attributing rights to future generations and in the context of theories of justice based on the notion of reciprocity.[132] In either case, the non-existence of future generations seems to prevent establishing the obtaining of the circumstances of justice. After all, is it coherent to attribute a right to someone, or to include someone into a reciprocal relationship, who does not even exist? This is the so-called »Non-Existence Challenge«.[133]

131 Cf. Ball 1985: 333 f.

132 For the first difficulty concerning rights attribution cf. Beckerman / Pasek 2001: chapter 2; de-Shalit 1995: chapter 5; FitzPatrick 2007; Gosseries 2008; Hiskes 2009. For the second difficulty concerning reciprocity cf. Barry 1991a; Corvino 2022; Gosseries 2009; Heath 2013; McCormick 2009; Page 2007a.

133 Gosseries 2008: 450.

Given the power asymmetry between present and future generations and the potentially large-scale effects the former can have on the latter, there are very few commentators claiming that present generations have no obligations at all towards future generations.[134] And there are also many who think that the concept of an obligation and the concept of a right mutually entail each other.[135] Therefore, if present generations have obligations towards future generations, then future generations must have corresponding rights. But how can one attribute rights to people who do not exist? Many prominent commentators in the debate simply do not seem to be troubled by future generations' non-existence and see no difficulties—conceptual, empirical, or otherwise—in attributing rights to future generations; so why not use the powerful language of rights to draw attention to those people who will be most affected by current climate (in)action?[136] Here is Annette Baier making her case by appealing to an analogy with past generations:

> »I conclude that no conceptual error is involved in speaking of the rights of future generations. The concept of a right includes that of the justified power of the right-holder or his spokesman to press for discharge of obligations affecting his particular interests, or to renounce this power. The concept has already shown itself capable of extension to cover the rights of past persons and could as easily accommodate the rights of future generations if we saw good reasons thus to extend it.«[137]

Critics of attributing rights to future generations have quickly pointed out that things may not be that simple, and that the fact that future generations do not exist must be taken seriously:

> »Future generations by definition do not now exist. They cannot now, therefore, be the present bearer or subject of anything, including rights. Hence they cannot be said to have rights in the same sense that presently existing entities can be said to have them. This follows from the briefest analysis of the present tense form of the verb ›to have‹.«[138]

134 Even commentators who doubt the very coherence of the concept of intergenerational justice concede that present generations have obligations towards future generations. Cf. the previous section 2.2.1 (»The Conceptual Change Challenge«).

135 For an overview cf. O'Neill 1996: chapter 5.2.

136 For an overview of human rights approaches in climate change cf. Bell 2013.

137 Baier 1981: 175. Cf. also Feinberg 1981: 148.

Wilfred Beckerman and Joanna Pasek have taken up this point and developed it into a thorough critique of the idea of attributing rights to future generations.[139] Their argument runs as follows:

> »(1) Future generations—of unborn people—cannot be said to have any rights.
> (2) Any coherent theory of justice implies conferring rights on people.
> Therefore, (3) the interests of future generations cannot be protected or promoted within the framework of any theory of justice.«[140]

The argument is obviously valid, but is it sound? The controversial premise, of course, is (1), although premise (2) has also been contested.[141] Beckerman and Pasek back up premise (1) with an ontological assumption: for any entity to possess a property it is a necessary condition for that entity to exist, i.e. non-existent entities simply cannot possess any properties (except in fictional and hypothetical discourse). Since having rights is a property like any other, and since future generations are non-existent entities, it follows that future generations cannot have rights.[142] For the very same reason, Beckerman and Pasek also reject the idea of future generations' rights to be claimed vicariously by present institutions. Future generations do not exist and cannot have rights, hence they also cannot delegate their rights to representatives.[143] Beckerman and Pasek's ultimate concern as well as complaint is that attributing rights to future generations incoherently treats them as quasi-people who happen to have the peculiar property of non-existence, when in fact there simply are no such people:

> »The notion that unborn people can have rights is rather like thinking about unborn people as some special class of people waiting out in the wings for the cue for them to enter on to the stage and play their many parts. But there is no such class of people as unborn people.«[144]

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138 De George 1981: 159.
139 Cf. Beckerman / Pasek 2001: chapter 2.
140 Ibid.: 14.
141 Cf. Tremmel 2009: 50.
142 Cf. Beckerman / Pasek 2001: 15.
143 Cf. ibid.: 20 f. Examples of present persons or institutions purporting to represent future generations' rights include the Hungarian Ombudsman for Future Generations and the Finnish Committee of the Future. Cf. Tremmel 2021.
144 Beckerman / Pasek 2001: 19.

Commentators usually are unimpressed by Beckerman and Pasek's argument. Some concede their argument but play down its significance.[145] Others try to show that even if it must be admitted that future generations do not have rights now, they will have rights in the future, and that it is possible for present generations to violate future generations' future rights. The argument runs as follows. Future generations' future rights are determined by their future interests, which will likely be very similar to ours regarding environmental resources: they will likewise have an interest in clean air, water, and soil. Since present generations have a causal influence on future environmental resources by pursuing different kind of environmental policies, depleting environmental resources will harm the interests and thus violate the rights of future generations.[146]

One example often figuring in arguments to illustrate this possibility consists in variations of a time bomb scenario. Imagine a time bomb set to go off years into the future, potentially harming and killing people not yet born. There is consensus among commentators that planting such a time bomb would be wrong. Of course, Beckerman and Pasek themselves also think planting a time bomb would be wrong, but not because it would violate someone's rights but simply because it would violate the general moral obligation not to inflict harm. According to their account, rights imply obligations, but not vice versa.[147] But other commentators have tried to analyse the time bomb scenario in a way so as to show how the perpetrator's actions violate (future) people's rights.

One strategy is to appeal directly to the causal chain of events leading from the planting of the bomb to the killing of people and the intention of the perpetrator to bring about precisely this outcome. The actions of the perpetrator *will* predictably harm and kill people in the future and *will* therefore violate their right to life, even though no one's rights are violated at the time the bomb is planted.[148] This strategy basically concedes Beckerman and Pasek's point, but the perpetrator's actions can still be considered wrong because they violate the future right to life of future people.

145 Cf. Tremmel 2009: 49.
146 Cf. Vanderheiden 2008: 130.
147 Cf. Beckerman / Pasek 2001: 17 f.
148 Cf. Feinberg 1984: 97. For a similar analysis cf. Roser / Seidel 2017: 37 f.

Another strategy pursues an indirect route. According to this strategy, the perpetrator's actions are not only wrong because they violate future people's right to life, but also because they violate a closely related right, the right that one's life not be put at risk by someone else's actions. The perpetrator's actions thus violate not only the right of those (future) people who will actually be affected by the explosion (their right to life), but also the right of those (present and future) people who may be affected by the explosion, i.e. all those people whose life is being put at risk by the perpetrator's actions, regardless of whether they will actually be harmed or not. Therefore, the perpetrator's actions can be considered wrong even if, by some accidental technical defect, the time bomb does not go off and harms no one.[149]

2.2.3 The Non-Reciprocity Challenge

The second difficulty also generated by the fact that (non-overlapping) future generations do not exist—besides the one concerning rights attribution discussed in the previous section—is often called the »non-reciprocity problem«[150]. The reason why this problem is prominently discussed in the literature is that the notion of reciprocity seems to form a core element of the conception of justice in many societies.[151]

In particular, proponents of a broadly contractualist framework of justice encounter profound difficulties when they try to apply (or are challenged to apply) it in an intergenerational context. Roughly speaking, contractualism (at least the widespread Rawlsian version of it) is the idea that the principles of justice governing a society ought to be such that everyone subject to these principles would agree to them if they were to decide on the terms of their cooperation in a hypothetical negotiation process.[152] Put simply, then, the intergenerational challenge for contractualism is that the »living cannot cooperate with the dead, or with those who have not yet been

149 Cf. Karnein 2015: 45.
150 Page 2007a: 231.
151 Cf. Barry 1991a: 212. Cf. also section 1 (»Climate Change and Justice«).
152 Cf. Rawls 1999: 10.

born.«[153] Time's arrow makes sure that society's benefits—as well as its (environmental) costs—are flowing in one direction only, from the past to the present and further into the future. Each generation inherits massive benefits from past generations, partly passing them along to and partly producing new benefits for future generations. However, this transfer of benefits is not a mutual exchange. There is no reciprocal relationship between past, present, and future generations because producers and recipients of intergenerational benefits are not identical. Present generations cannot reciprocate the benefits generated by past generations, just as future generations cannot reciprocate the benefits generated by present generations.

Faced with the problem that intergenerational relationships threaten to fall outside the scope of justice, most proponents of the idea of justice as reciprocity usually refine the notion of reciprocity so as to accommodate intergenerational relationships. More specifically, the vast majority of contractualists tries to address the Non-Reciprocity Problem by broadening the notion of reciprocity in such a way so as to include not only *direct* but also *indirect* reciprocal relationships. The basic idea runs as follows:

> »[…] the ›nonreciprocity‹ problem stems from the adoption of an overly narrow, direct conception of reciprocity. Cooperation, however, can also be sustained by systems of indirect reciprocity, where there is no requirement that the person *to whom* one supplies a benefit be the person *from whom* one receives a benefit.«[154]

Indirect reciprocity can assume two main forms: benefits can be transferred from one generation to the next either in a »descending« or an »ascending» form (sometimes also characterised as »downstream« and »upstream«).[155] According to the descending or downstream model, older generations pass along benefits to younger generations. Each generation received benefits from preceding generations, which is to create an obligation to transfer benefits to succeeding generations as well. This descending model of indirect

153 Heath 2013: 41. For a comprehensive critique of contract theories in the context of intergenerational justice cf. Gardiner 2009.

154 Heath 2013: 33.

155 Gosseries 2009: 123.

reciprocity is the most widespread.[156] The ascending or upstream model runs the opposite way, where younger generations transfer benefits to older generations, trusting that they in turn will receive benefits from younger generations when they grow older. Defenders of this ascending model of indirect reciprocity often refer to certain kinds of pension schemes as a prime example.[157]

The notion of indirect reciprocity is intended to make room for reciprocal relationships in an intergenerational context. As proponents often point out, this is often neglected because critics missed the simple fact that generations—at least conceived of in the genealogical and the sociological sense—[158] would always overlap, which opens up the possibility of intergenerational cooperation. They conclude against critics that the power asymmetry between present and future generations was only relative and not absolute, given that (overlapping) future generations can affect the well-being of present generations after all. Furthermore, many proponents of indirect reciprocity claim that their refined model of intergenerational justice can also be used to address the problem of how to account for obligations of justice between non-overlapping generations. The interactions between overlapping generations would create a »chain of cooperation«[159] or a »chain of justice«[160] reaching far into the future. Assuming compliance with the obligations of justice, each and every link in the chain of generations is treated justly by its respective overlapping generations, thus ensuring justice obtains along the entire chain.

Regardless of whether accounts of indirect reciprocity succeed in describing a functioning system of reciprocal relationships between

156 Cf., for example, Edward Page, who calls this form of indirect reciprocity »intergenerational stewardship«, where the idea is that »existing persons are bound by duties of indirect reciprocity to protect environmental and human resources for posterity in return for the benefits inherited from their ancestors« (Page 2007a: 233).

157 Cf., for example, Joseph Heath, who also emphasises that savings systems create the illusion of self-sufficient generations saving for their own retirement, when in fact »they require an extensive system of intergenerational cooperation« (Heath 2013: 66).

158 Cf. section 2.1 (»Introduction: Three Conceptions of Future Generations«).

159 Corvino 2022: 3.

160 McCormick 2009: 455.

generations, there still remains the fundamental question of how such a system of transfer could be normatively grounded. The justificatory basis for such a system implicit in many versions of indirect reciprocity seems to be that the simple fact that receiving something from someone (e.g. present generations receiving benefits from past generations) creates an obligation to provide something for someone else (e.g. present generations are required to pass along or produce benefits for future generations). But although intuitively plausible, it is difficult to see how receiving unsolicited gifts creates any kind of moral obligation to distribute gifts oneself, at least in an intergenerational context in which providers and recipients of gifts are not identical.[161] One popular line of response comprises what Axel Gosseries calls »the proprietarian family of approaches«[162], according to which the benefits received from previous generations must not be conceived of in terms of property in the first place. Since generations do not really own what they inherit from previous ones, they also have no right to keep this heritage and must therefore pass it along to future generations. This train of thought is reflected in various proverbs, which describe the relation between humans and nature in terms of custodianship rather than ownership, and that each generation only borrows the earth from the next future generation.

2.2.4 The Non-Identity Challenge

One of the most discussed, and most recalcitrant problems in intergenerational justice is the so-called »Non-Identity Problem« (NIP).[163] Applied to the context of climate change, the NIP leads to the very troubling conclusion that even if present generations do nothing about climate change, go on emitting GHGs unimpeded and further deplete the earth's resources so that future generations will have a significant lower quality of life, future generations

161 Cf. Barry 1991a: 232.

162 Gosseries 2009: 128.

163 The problem has multiple independent sources, but it is primarily associated with Parfit, who provided a detailed analysis of it in several writings and serves as the main point of reference in the debate. Parfit provides his most comprehensive treatment in his seminal *Reasons and Persons* (Parfit 1986: chapter 16). Cf. also Parfit 1982; 2010; 2017. Adams 1979 and Schwartz 1978 already raised the problem, which was also further developed by Kavka 1982.

cannot be said to have been harmed. Thus, present generations would do nothing morally wrong if they continued to pursue a climate policy of »business as usual«.

There are two connected reasons why the NIP represents such a grave challenge. First, if the NIP turns out to be a genuine problem that cannot adequately be addressed, then a very popular way of grounding obligations towards future generations becomes unavailable, namely appealing to potential harm to future generations as a moral reason to address climate change. And second, many prominent moral theories are affected by the NIP because it is based on very intuitive premises many moral theories subscribe to.

In its basic form, the NIP presents a challenge for all those kinds of moral theories that are based on a »comparative notion of harm« and on a »person-affecting view of morality«.[164] A person-affecting view of morality makes the moral wrongness of an action in large part dependent on whether the action inflicts harm on another person. The idea behind this train of thought is the rather common intuition that »what is bad must be bad for someone«.[165] A more formal expression of it runs as follows:

> »*The Person-Affecting Principle*. An action can be wrong only if there exists some particular person who is worse off after that action than they would have been if some other action had been performed instead.«[166]

The Person-Affecting Principle implies that an action making no one worse off cannot be morally wrong. And what it means for someone to inflict harm on someone else is frequently spelled out as causing another person to be worse off than the person otherwise would have been. This idea is captured by the so-called »comparative notion of harm«, which, just as the Person-Affecting Principle, often assumes a counterfactual form:

> »On this view, an act X harms a person P only if X causally makes P worse off than P would have been, had it not been for X.«[167]

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164 Huseby 2010: 194. For an extended analysis cf. Boonin 2008.

165 Parfit 1986: 363.

166 Mulgan 2006: 9. Parfit calls this principle the »Person-affecting Restriction« (Parfit 1986: 394).

167 Huseby 2010: 194. Parfit calls this conditional the »Two-State Requirement« (Parfit 1986: 487).

Thus, to determine whether a particular action is harmful the well-being of the person potentially affected by the action must be evaluated regarding two hypothetical scenarios, one in which the action is being performed and affects the person's well-being and one in which the action is not being performed. If the action, on balance, makes the affected person comparatively worse off, then the action is harmful, otherwise not.

There is one more premise required to generate the NIP. But this premise consists in a claim widely accepted as a scientific fact and is rarely disputed:

> »*The Time-Dependence Claim*: If any particular person had not been conceived when he was *in fact* conceived, it is in fact true that he would never have existed.«[168]

This claim simply states that the time of conception is constitutive of the identity of the person emerging from it. It does not imply that the time of conception is the only relevant factor, just that if the time of conception differs, then the identity of the emerging person also differs.

Now, Parfit imagines a society that must choose between two different environmental policies about how to use certain kinds of resources—»Conservation« or »Depletion«, the latter leading to a significantly lower quality of life for future generations in several hundred years than the former—and considers the question whether future generations would be harmed if the society were to choose the Depletion policy. If so, this would give present generations a strong moral reason to choose the Conservation policy instead because harming future generations would be morally wrong.[169]

However, based on the intuitively acceptable premises of the NIP, no harm to future generations would occur in the Depletion scenario. Implementation of either policy—Conservation or Depletion, the former consisting in drastic mitigation and adaptation measures to combat climate change, and the latter in »business as usual«—would have such a profound impact on people's lives that in either scenario different people would meet and different children would be conceived (even in partnerships involving the same people different children would be born due to different times of concep-

168 Parfit 1986: 351.
169 Cf. ibid.: 361–364.

tion). According to the Time-Dependence Claim, this would have the consequence that in several hundred years two entirely different sets of individuals would exist in the respective scenarios. Assuming that the set of individuals in the Depletion scenario would still have lives worth living despite having a significantly lower quality of life than the set of individuals in the Conservation scenario, they cannot be said to have been harmed by present generations because they would owe their existence to the Depletion policy. According to the comparative notion of harm, the people in the Depletion scenario are not worse off than they otherwise would have been because the alternative would have been non-existence. Given that their lives are still worth living, having a lower quality of life is still preferable to having no life at all. Hence, the people in the Depletion scenario are on balance not worse off. Since, according to the Person-Affecting Principle, no one is worse off and thus no one has been harmed, no moral wrong has occurred. Applying the NIP to the case of climate change leads to the conclusion that present generations would not harm future generations and thus would do nothing morally wrong if they did nothing to combat climate change.

This highly counterintuitive conclusion, which is as compelling as it is unacceptable, sparked a huge and still ongoing ethical and philosophical debate. Many solutions have been proposed—none of which have gone unchallenged—and so far no consensus has been reached. For the purposes of this chapter, we will focus on those approaches that are particularly relevant in the case of climate change.[170]

There are commentators who accept the NIP (at least for the time being). For example, one proposal consists in acknowledging the lack of a solution and advocates for a precautionary approach until a satisfying answer to the NIP is found.[171] Another, more radical proposal is not to consider the NIP a problem to be solved at all, but rather as a sound argument to be embraced. Non-identity cases are atypical due to the unusual circumstances they involve, which is why these cases create a tension between our intellectual assessment and

170 The NIP also occurs in contexts not involving an intergenerational dimension. For a comprehensive overview of solutions to the NIP cf. Roberts 2022. For an in-depth treatment cf. Boonin 2014.

171 Cf. Davidson 2008: 482.

our moral intuitions about them; but in the end the latter must yield to the former and the non-identity argument accepted.[172] A third proposal relies on a point frequently neglected in climate justice: that climate change does not only affect remote future generations but also people in the near future.[173] Based on this fact, the argument has been made that present generations can harm future generations whose identities are not affected by current climate policies (for example, because they are already born) and thus are not subject to the NIP. This alone would suffice to justify robust climate action.[174]

Those commentators who do not accept the NIP pursue a range of different strategies by modifying, attacking, or abandoning various concepts or premises the NIP involves. The two most prominent types of strategies focus on one of the two central premises of the NIP, i.e. either on the person-affecting view of morality or the comparative notion of harm.

The first type of strategy aiming at the Person-Affecting Principle itself is primarily employed by impersonal accounts of moral wrongness, i.e. accounts according to which an action can be morally wrong without involving harm to particular persons. Many consequentialist theories fit that bill. According to classical utilitarianism, for example, »the greatest net happiness for all affected« is to be pursued.[175] Since the Conservation policy would lead to a society with an overall higher quality of life and thus more happiness and well-being than the Depletion policy, choosing the Depletion policy would be morally wrong. Other consequentialists concede the NIP as valid only on the societal but not on the individual level. Individuals reducing their emissions would benefit others immediately and thus benefit people not subject to the NIP, even though the benefits would be small. Nevertheless, not reducing emissions would harm others and would therefore be morally wrong.[176] However, consequentialist theories face other difficult problems already discussed.[177]

172 Cf. Boonin 2008: 147 f.
173 Cf. section 2.1 (»Introduction: Three Conceptions of Future Generations«).
174 Cf. Tank 2021: 89.
175 Singer 2002: 40.
176 Cf. Broome 2012: 63.
177 Cf. section 1.3 (»Utilitarianism, Economics, and Discounting«).

The second type of strategy targets the comparative notion of harm. For example, some commentators have proposed an alternative account of harm to defuse the NIP: the so-called »threshold conception of harm«, according to which an action is harmful if it causes another person to fall below a specified threshold.[178] No comparison between the hypothetical states of an individual's well-being is needed to determine whether harm has been inflicted because the threshold serves as an independent criterion. For example, if the climate (in)action of present generations causes future generations to fall below a certain level of quality of life, then present generations inflict harm on future generations regardless of the identities of the latter. It is widespread within the framework of the threshold conception of harm to adopt a version of »sufficientarianism«, according to which an action is wrong if it causes someone not to be sufficiently well-off, where this notion is tantamount to a »plausible understanding of what it means to have a good life«[179] and its respective preconditions. What it means to have a good life is notoriously vague, and that is also the main challenge for the threshold conception of harm, namely to specify and justify the threshold.[180]

2.2.5 The Responsibility Challenge

Regardless of which conception of (future) generations is adopted, present and future generations are sometimes treated as quasi-individuals between which justice relations are somehow to be established. This makes it seem as if moral relationships between present and future generations are like moral relationships between individuals, when in fact the relationships are much more complex. Dale Jamieson has illustrated well the difference between the two cases. Consider the following example:

> »Jack intentionally steals Jill's bicycle.«[181]

178 Cf. Meyer 2003.
179 Huseby 2010: 205. Cf. also Meyer / Roser 2009; Page 2007b; Shue 2014: chapter 2.
180 Cf. Meyer 2016: chapter 4. Cf. also section 3.2.3 (»Emissions Sufficientarianism«).
181 Jamieson 2014: 149.

This example presents a clear case for moral evaluation. There is no doubt about who the perpetrator and who the victim is, what the causal connection between them is, and that the action performed can be unequivocally categorized as one person harming another. Jack's action, therefore, is morally wrong. The case of climate change, however, cannot be construed in the same way by using the same underlying moral template. Jamieson suggests the climate change case much more resembles the following example:

> »Acting independently, Jack and a large number of unacquainted people set in motion a chain of events that causes a large number of future people who will live in another part of the world from ever having bicycles.«[182]

Even though one may have a feeling of moral unease about this case, the clarity distinctive of the case of Jack and Jill has all but evaporated. Perpetrators and victims are no longer clearly identifiable, the causal connection is extremely thin, and it is far from clear whether what Jack and the large number of unknown people did even constitute actions apt for moral evaluation because the actions are not coordinated and they may even lack specific, let alone uniform, intentions.

Against the backdrop of climate change and the respective complexities of moral responsibility, some commentators have raised the question whether individuals can be held morally responsible for climate change at all. Most prominently, Walter Sinnott-Armstrong considered the question whether there are moral reasons against wasteful driving, i.e. whether it is morally wrong for an individual to drive a gas-guzzling and GHG-intensive SUV on a sunny Sunday afternoon just for fun.[183] Sinnott-Armstrong reviews 15 principles that play a role in the climate justice debate and that may be used to categorize wasteful driving as morally wrong, but finds all of them wanting. He does not exclude the possibility that there might be a principle successfully categorizing wasteful driving as morally wrong, but until it is found his conclusion seems to stand that »global warming is such a large problem that it is not individuals who cause it or who need to fix it. Instead, governments need to fix it, and quickly.«[184]

182 Jamieson 2014: 150.
183 Cf. Sinnott-Armstrong 2010.

One of Sinnott-Armstrong's main arguments figures in his rejection of many of the principles under scrutiny and focuses on the harm caused by wasteful driving, or more precisely, the lack thereof. His point is that a Sunday drive, considered as a single and isolated event, does not constitute a harmful action simply because the GHG emissions produced by it do not cause or contribute to climate change.[185] Since there is no causal connection between a Sunday drive and climate change (even if there was it would be infinitesimally small so as to be negligible), no harm is being done and therefore no moral wrong has occurred. In general, the fact that it is difficult to establish a causal connection between the emissions of a single individual and climate change is sometimes referred to as the »Problem of Causal Inefficacy«.[186]

One line of response to the problem of individual moral responsibility is not to appeal to the causally inefficacious emissions of individuals at all, but rather to focus on the individuals themselves and argue that engaging in behaviour such as wasteful driving somehow undermines our moral agency and character.[187] Another line of response is to argue that actions connected to individual emissions may not be harmful in itself, but they may be harmful if taken together with other actions of a similar type. For example, one may draw on Parfits idea that actions without bad consequences can still be wrong if they belong to a larger class of similar actions that as a whole are responsible for causing harm:

> »Even if an act harms no one, this act may be wrong because it is one of a *set* of acts that *together* harm other people.«[188]

Steve Vanderheiden, for example, has applied Parfits idea to the case of climate change. He argues that the »wrongness of some act may depend upon how many other people are able to benignly commit that same act«.[189] Although GHG emissions may not be intrinsically harmful, they become harmful if they exceed a threshold where emitting more GHGs leads to dangerous climate change. And by

184 Sinnott-Armstrong 2010: 343 f.
185 Ibid.: 334.
186 Fragnière 2016: 800.
187 For an overview of such »Noncausation-Based Arguments« cf. ibid.: 803 ff.
188 Parfit 1986: 70.
189 Vanderheiden 2007: 87.

being an action that together with similar actions produces harmful outcomes the action itself can be said to be morally wrong.

A third line of response is to follow the direction gestured at by Sinnott-Armstrong himself, namely that it is »better to enjoy your Sunday driving while working to change the law so as to make it illegal for you to enjoy your Sunday driving.«[190] Commentators here argue that individuals do have responsibilities, however, these responsibilities are not moral but political in kind. Political responsibility can be generated in different ways. For example, some proponents of utilitarianism think individuals may assume a political obligation to adopt climate-friendly behaviour, not because this would decrease their contribution to climate change (this contribution was practically zero anyways), but because by being a role model one may give others incentive to behave climate-friendly as well, and this may have a measurable impact on climate change.[191] Another way to generate political responsibility is to point out that individuals are responsible not in virtue of their personal contributions to climate change but rather in virtue of their participation in »social, economic, and political structures that rely upon the combustion of fossil fuels while simultaneously disempowering vulnerable communities.«[192] Since the consequences of climate change represent a structural injustice, they must be addressed on a political level.[193]

Finally, another strategy is to target the individualist conception of harm underlying many arguments against individual responsibility. For example, Eric Godoy has argued that if Sinnott-Armstrong's argument is sound then it applies not only to individuals but also to states since no state by itself produces enough emissions to cause climate change. If we do not want to reach the conclusion that no one—neither states nor individuals—is responsible for climate change, then the notion of harm must be rethought.[194] One such proposal has been developed by Elizabeth Cripps, who offers a col-

190 Sinnott-Armstrong 2010: 344.
191 Cf. Gesang 2015: 139.
192 Cf. Sardo 2020: 39.
193 Cf. also section 1.5 (»Justice and Recognition«) and the second part (Policy Aspects) of this expert report, especially section 5 (»Climate Justice and Litigation«).
194 Cf. Godoy 2017: 111 f.

lectivized version of moral responsibility given that it is difficult to hold individuals responsible:

> »A number of individuals who do not yet constitute a collectivity [...] can be held *morally responsible* for harm which has been caused by the predictable aggregation of individual actions.«[195]

Cripps illustrates the plausibility of this kind of collective moral responsibility with the following example. Imagine a small lake with many teenagers swimming in it and who together create so much movement in the water that one child drowns as a result. Cripps now argues that even though no one intended harm and no water disturbance produced by a single teenager was sufficient to cause the drowning of the child, the teenagers could be held morally responsible under certain conditions. The three central conditions are first (1), whether the teenagers knew or could have reasonably foreseen that their actions together would cause harm, second (2), that there were others performing the same actions that together would bring about that harm, and third (3), whether the harm could have been avoided by acting otherwise.[196] Cripps then goes on to apply her model of collective responsibility to the case of climate change and concludes that it meets all the conditions previously stated. For one thing, it is well-known that the cumulative effects of human (economic) activities producing GHG emissions lead to harmful climate change and that many countries (primarily rich countries of the Global North) jointly contribute to this harmful outcome. For another, given the resources of these countries, alternative activities with lower emissions would have been or are possible.[197] Cripps concludes that although this principle of collective responsibility for climate change may not always legitimize coercive measures to combat climate change, it would put the burden of argument on those participating in the harmful activity.[198]

195 Cripps 2011: 174. For an account based on »joint agency« cf. also Kallhoff 2015.
196 Cripps 2011: 174 f.
197 Ibid.: 184 f.
198 Ibid.: 185.

3. Climate Change and Distributive Justice

3.1 Introduction: Scope, Currency, and Pattern of Climate Justice

Anthropogenic climate change is primarily the consequence of the increased emission of GHGs into the atmosphere. Since roughly 1750 these increases »are unequivocally caused by GHG emissions from human activities«, especially resulting from fossil fuel combustion and industrial processes.[199] GHG emissions are thus predominantly a result of economic and other collective actions and only to a minor extent the result of single acts of individuals. According to a common interpretation, the major goal of theories of distributive justice consists in providing a framework for a just distribution of benefits and burdens resulting from economic activities.[200] Climate change therefore raises important issues of distributive justice regarding the assignment of mitigation burdens or benefits, such as emission permits.

In general, theories of distributive justice develop answers to the following tripartite key question: *Who* should get *how much* of *what*? Theories of climate justice, just as the broader theories of distributive justice, differ in their answers about the addressees of a distribution (scope), the target that a distribution ought to promote (pattern), and the content of a distribution (currency).[201] Although the attempt to categorize (distributive) theories of climate justice in this way will have to simplify matters, it can nevertheless provide important insights regarding their implications and basic assumptions.[202]

The question of distributive justice's scope (who) in the context of climate change has already been discussed in section 2, in which we have demonstrated that climate justice raises important and intricate questions regarding obligations towards future persons. Climate justice focuses in the first instance on the extent to which present persons are obligated to safeguard preconditions for an at least basic

199 IPCC 2023: 4.

200 Cf. for an introductory overview: Olsaretti 2018: 2.

201 Cf.: »*who* (scope) should get *how much* (pattern) of *what conception of well-being* (currency)» (Page 2007b: 2). Meyer and Roser narrow the question down to: »Distribute what, how, among whom?» (Meyer / Roser 2006: 233).

202 Cf. Gesang 2011: 47.

living standard for the yet unborn. The realisation of this objective does, however, require an agreement on the distribution of the correlating responsibilities and burdens in the present. Climate justice hence includes both an *inter*generational and an *intra*generational dimension.[203] Since the latter requires a cooperation on a global scale, theorists have differentiated between *intergenerational* issues of climate justice and *global* issues of climate justice.[204] In the following, we use distributive justice as an umbrella term which refers to both types of justice (global and intergenerational). In our view, addressing both issues of justice as distributive issues reveals how closely they are interlinked. The distribution of present mitigation burdens is both a distributive issue of global justice (Who should be assigned which mitigation burden?) and of intergenerational justice (Up to which point do present generations have to mitigate to protect future persons from excessively high impacts of climate change?).[205]

In the following, we provide an overview over answers that have been developed to the question of the currency of justice (*what* ought to be distributed?) and to the question of the pattern (*how much* of it for whom?) in the context of climate change.

What are the specific benefits and burdens that ought to be (re)distributed in the context of climate change? The goal of limiting the increase of the average global temperature to a specific degree to a fixed date is most importantly targeted at reducing climate-induced impacts in the farer future. Present actions addressed at slowing down climate change are primarily anticipating expected negative outcomes that have yet to come and that will mainly affect persons in the following decades. The debate about distributive justice in the context of climate change thus relies on a positive answer to the question if we owe something to future generations. It presupposes that present actions ought to be normatively assessed also in view of their potentially negative impacts on future persons.[206]

One of the implications of this intergenerational perspective is the obligation to reduce GHG emissions in the present, a goal which is

203 Cf. section 2.1 (»Introduction: Three Conceptions of Future Generations«).

204 Cf. Meyer / Roser 2006: 224.

205 Cf. for a similarly broad understanding of *global* climate justice: Moellendorf 2012.

206 Cf. Caney 2021: section 3 »Intergenerational Justice«.

often operationalised within theories of distributive (climate) justice by the assignment of permits to emit. Overall, emission reductions are one important part of the so-called mitigation costs, a term which denotes costs resulting from the common effort to halt or at least slow down anthropogenic climate change. Note that the regulation of emissions usually also includes the regulation of activities that reduce the earth's capacity to sequester GHGs, i.e. activities destroying natural sinks such as forests.[207]

However, using permits to emit or emissions as a metric for usages of the atmospheric absorptive capacity as the main currency of climate justice is an incomplete way to proceed. They are best seen as preconditions for the distribution of something more general and of moral importance, such as the (preconditions for the) well-being of persons.[208] In fact, the narrow view on distributive issues has been criticised as »isolationism«, whose exclusive focus on climate change impacts on people's well-being would ignore other factors such as poverty, lack of education or power asymmetries and their potentially significant impact on people's well-being.[209] Proponents of »integrationism« thus urge to see emission reductions as one aspect within an encompassing distributive scheme that is targeted at safeguarding the well-being of persons.

Another point of controversy is that the specification of emissions permits presupposes assumptions about levels of well-being that ought to be safeguarded and how climate change will affect the realisation of these levels.[210] In particular, suggestions about how a certain amount of emissions ought to be distributed between different states presupposes assumptions about an overall emissions budget that ought not to be exceeded if severe damages tied to climate change are to be avoided. This distributive approach thus presumes that the global community has agreed upon an »atmospheric budget«, based on scientific assessment of an amount of emissions that can be released in the future without endangering the political

207 Cf. Baatz / Ott 2017: 5 f.
208 Cf. Torpman 2019: 751 or Meyer / Roser 2010: 231 f.
209 Cf. for a short introduction Caney 2021; Baatz / Ott 2017: 13.
210 Cf. for short introductions e.g. Roser / Seidel 2017: 59; Page 2013: 231 f.; Meyer / Roser 2010: 230.

goal of an overall reduction of climatic effects.[211] The best-known parameter for establishing such an atmospheric budget is to agree on a limit to overall global temperature rise. In contrast to other issues of distributive justice which are often targeted at a just distribution of scarce goods the distribution of emission shares is further complicated by the fact that the respective scarcity itself is already controversial.[212] The involved parties of this distribution thus do not only have to agree on the respective share of emissions but also on a threshold beyond which emissions are framed as exhausted given that there is no natural limit.

Another issue in the debate about the currency of (distributive) climate justice revolves around the distribution of the costs of adaptation and compensation, i.e. the just distribution of the occurring climate change impacts. Most accounts focus on the negative costs (burdens) that result or will result from those impacts of climate change that have not been mitigated. However, for the sake of completeness, a distributive approach also ought to provide guidance for the distribution of potential benefits, i.e. for the distribution of positive impacts of climate change.

Although both the distribution of mitigations costs as well as the costs of compensation and adaptation overlap in some respects (and in fact, their distribution can be guided by the same distributive principle), they are often described and discussed in separate debates.[213] For reasons of simplicity, we will follow this common »atomistic« approach to the distribution of costs in the context of climate change and describe accounts distributing emissions entitlements (»justice in emissions«) and principles guiding the distribution of burdens (»justice in burdens«) separately.[214]

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211 Cf. Page 2013: 236. Cf. also the role of the IPCC's remaining carbon budget (RCB) considered in section 1.2 (»Climate Justice: Distributive, Intergenerational, International, or Global?«). For an elaborated presentation of the political debate about the distribution of emissions cf. the second part (Policy Aspects) of this expert report.

212 Cf. Meyer / Roser 2006: 226.

213 For the distinction between mitigation and adaptation costs cf. e.g. Page 2012a: 302. For the difficulty of keeping adaptation and mitigation costs apart cf. e.g. Caney 2005: 751 f.

214 Cf. Page 2013: 236.

Importantly, both debates within distributive climate justice refer to considerations about *why* and *how much of* something ought to be distributed. These questions address the pattern of justice. Its core function is to provide guidance regarding the question of whether a distribution is just or not. Diverging answers can be traced back to different ideals that proponents of the distributive theories pursue.[215] Simplifying somewhat, one may characterise the different approaches as follows: Egalitarians give priority to distributions that realise or at least support equality. Prioritarians favour distributions that provide the largest benefits to the worst off. Sufficientarians argue for distributions that prioritise pushing the highest number of individuals above a threshold of sufficiency, whereas utilitarianists demand the realisation of distributions that generate the highest net benefit. Libertarians start assessing distributions from the perspective of legitimate property acquisition. Important additional ideals guiding distributions in other accounts are desert, compensation and perspectives from feminist philosophy.

The pursuit of these different ideals does not necessarily imply different distributions. For example, generating the highest net benefit and promoting sufficiency can converge regarding the specific distribution that is suited best to realise these ideals. However, in other cases, they can diverge, and on a theoretical level the distributive theories provide different philosophical rationales along which distributions shall be evaluated. In other words: why a specific distribution is owed and should be chosen over other options of distribution is based on the adherence to a particular ideal—equality, improving the situation of the worst off, sufficiency, desert, compensation, or others—and the evaluation of a distribution is then made against this background. Conflicts over just distributions in the context of climate change—how the costs of mitigation, adaptation and compensation ought to be distributed between present and future persons—are thus closely linked to broader disagreements over the ideals to which a distribution should aspire.

In the context of climate change, it is the distributive ideals of equality, sufficiency and of giving priority to improving the situation of those who are worst off that are most prominently being dis-

215 For an instructive general introduction into ideals of distributive justice cf. Parfit 2002.

cussed.[216] As has been shown in section 2, climate justice is importantly an issue of *intergenerational* justice. Consequently, the distribution of mitigation costs and costs of adaptation and compensation must include considerations regarding assumptions about how different distributions will affect the well-being of future persons. The three general answers that have been developed to address the question of how much we owe future generations can be subsumed as the claims to either leave future generations *as much*, to leave them *more* than we have, or to leave them *enough* means to guarantee subsistence.[217] The connection to the broader theories of distributive justice is apparent: Leaving future generations *as much* as present persons have reflects the basic intuitions of egalitarianism, whereas the claim to provide them with *enough* takes up the sufficientarian conviction. The claim to leave members of future generations *more* than present people have can either reflect a specific prioritarian reading of distributive justice or a utilitarian approach to welfare maximization over different generations.[218]

In the following subsections we focus on justice issues arising at the intragenerational level with regard to the question of who can legitimately be assigned which emission shares. As should be clear by now, the respective answers will, however, be closely linked to aspects of intergenerational justice and assumptions about how much present persons ought to be allowed to emit while still safeguarding basic preconditions for the well-being of future persons.

3.2 Justice in Emissions: Allocating Emissions Entitlements

The global effort to halt climate change implies the obligation to reduce GHG emissions. Considerations about »justice in emissions« provide different justifications for the respective distributions of permits to emit between states. For introductory purposes the debate can be structured by distinguishing between those principles

216 Cf. Meyer / Roser 2006: 233; Gesang 2011: 47. Cf. section 1 (»Climate Change and Justice«) for further normative approaches to climate change besides accounts of distributive justice.

217 Cf. Roser / Seidel 2017: 57.

218 For an overview of links between theories of distributive justice and the application to future persons cf. Kumar 2018.

of just allocation of emission entitlements which include past emissions into their considerations and those which start from the status quo. Whereas the accounts of *Grandfathering* and *Emissions Prioritarianism* include past emissions in their normative considerations, *Emissions Egalitarianism* and *Emissions Sufficientarianism* do not.

3.2.1 Emissions Grandfathering: Past Emissions as Baseline for the Distribution of Future Emission Shares

The distributive account of Grandfathering takes the distribution and volume of past emissions as a normative baseline for the determination of future distributions of emissions entitlements. This baseline is taken to be normatively relevant because emissions in the past were not regulated. Therefore, states formed the expectation that they will be allowed to emit equally or even more in the future.[219] And it is this expectation that Grandfathering seeks to protect.

In contrast to Emissions Egalitarianism, Emissions Sufficientarianism and further principles directed at a just distribution of emissions entitlements, the principle of Grandfathering is best understood as a result of political processes and less the result of an application of established distributive principles to the climate justice debate.

Grandfathering has been the object of harsh critique from climate justice scholars. Simon Caney claims that Grandfathering contains a »perverse aspect« since it rewards those with the assignment of emission entitlements who have mainly caused the problem.[220] The main objection contends that Grandfathering is unfair towards those states that have emitted less in the past and that are being restricted in their future economic development on the basis of their comparatively small amount of emissions in the past.[221]

There are, however, a few considerations that can explain why Grandfathering has gained momentum at the international level of climate negotiations. Some authors present Grandfathering as an

219 Cf. e.g. Page 2013: 233; Meyer / Roser 2006: 229 ff.
220 Caney 2011: 88 f.
221 Cf. Page 2013: 233.

account designed to address collectively a common task, implying that all actors involved »should reduce their emissions equally«.[222] If one adheres to an absolute interpretation of this ›equal‹ emissions reduction the above sketched account of Grandfathering seems to follow naturally: If every state reduces its past emissions by, say, 20 %, then the total global emissions budget would not be exceeded. However, critics argue that an account that is efficient with regard to the goal of limiting total global emissions may still be unfair and can thus be rejected for other reasons, notably in view of the claims of persons in states of the Global South to a larger share of emissions in order to enable their economic development.

Caney describes a pragmatic explanation why Grandfathering may have gained attraction in the political arena: Grandfathering can serve as the starting point of a distributive scheme, which afterwards establishes a (more just pattern of) emissions distribution between the states involved.[223] As it is most important to involve ›high emitters‹ within this scheme, the mechanism of grandfathering may be useful to ensure their participation and then start to successively implement other schemes for emissions reduction.

Luc Bovens defends an account of Grandfathering on the basis of John Locke's classical theory of property.[224] In analogy to Locke's assumption that one may acquire property through one's own labour the distribution of emissions on the basis of past emissions can be described as legitimate acquisition of emission rights which in the past were free, available in sufficient amount for all and not known to be tied to negative climatic effects. Regarding the future distribution of emissions these past emission budget appropriations should have normative weight in so far as specifically companies have relied in their development on the assumption of an at least stable emissions budget. Although Bovens readily admits that these considerations can be outweighed by stronger normative considerations such as the prevention of direct harm, he still insists that such a Lockean defence of Grandfathering gives the principle some normative

222 Roser / Seidel 2017: 109.
223 Cf. Caney 2011: 88 f.
224 Cf. Bovens 2011.

weight.[225] In a similar vein, Carl Knight attributes to the reliance of companies and individuals on stable emissions budgets in the future the status of a *pro tanto* reason to provide high emitters with similar emission budgets. As this will be outweighed by stronger normative considerations, Knight sees a potential for the application of Grandfathering as a distributive principle for dividing emissions shares among the states of the Global North (e.g. G7-states). Within this group, past expectations of future emissions budgets may thus have to be considered when distributing emission permits and corresponding options for future economic development.[226]

To sum up, Grandfathering is—from a normative perspective—a highly contested approach to setting a global distributive emissions scheme on the basis of past quotas of emissions.[227] In view of the sustained criticism, Grandfathering seems to be rather a set of normative considerations that plead for a successive shift to the new emissions distribution order to avoid hardship for formerly high emitters who have to adapt their economies, life plans etc.[228]

3.2.2 Emissions Egalitarianism: Equal per capita Distribution of Emissions Entitlements

Rather than being a single determinate position, Emissions Egalitarianism is best seen as an umbrella term for a number of different distributive approaches to climate justice which share certain features. A common feature of the different accounts of Emissions Egalitarianism is the equal distribution of the global emission shares on a per capita basis. In contrast to Grandfathering, accounts of Emissions Egalitarianism thus share the belief that the distribution

225 Cf. Singer 2002: 31 for a critique of a Lockean approach to emissions entitlements. Following Singer's interpretation of Locke, the acquisition of emissions budgets and the absorptive capacity of the atmosphere does not—at the latest beginning with the scientific expertise laid down in the third IPCC report—meet the criteria to leave »enough and as good« for others. The appropriation of large emissions budgets from the states of the »Global North« is accordingly illegitimate.

226 Cf. Knight 2014.

227 Cf. Roser / Seidel 2017 for an in-depth presentation of accounts and justifications of Emissions Grandfathering.

228 Cf. Meyer / Roser 2006.

of emissions should not be based on past emissions and thereby potentially perpetuating an unfairness. Also, Emissions Egalitarianism aims for a convergence of emissions per capita between persons in different states. It is thus closely connected to distributive egalitarian theories.

Peter Singer has given one of the first normative elaborations of this distributive principle.[229] At the heart of Singer's argumentation is the premise that the absorptive capacity of the atmosphere is a good of humankind and thus commonly owned. In combination with the assumption that common ownership implies equal distribution, this leads to the conclusion that emission permits should be distributed on an egalitarian basis. Singer concludes that »equal per capita future entitlements to a share of the capacity of the atmospheric sink, tied to the current United Nations projection of population growth per country in 2050« is the simplest principle of fairness and therefore the one which is politically the most feasible.[230] Possible hardship that may result from the application of this principle to states who have had high emissions in the past does not—following Singer—justify a rejection of the principle. Rather, potential hardship can be alleviated by including a mechanism for emissions trading.[231] Furthermore, Singer argues that sharing emissions entitlements on an equal per capita basis leaves countries in the Global South with more emissions than for example a history-sensitive distributive approach including aspects of compensation.[232]

Significant objections to Emissions Egalitarianism have been raised, first, with regard to its general foundation in egalitarian distributive theories and, second, on the basis of pragmatic considerations, where possible hardship is only one among others.[233]

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229 Singer 2002. Cf. also Neumayer 2000. Cf. for a rights-based account of equal per capita emissions: Athanasiou / Baer 2002.

230 Singer 2002: 43.

231 For an introduction into the cap-and-trade system cf. Torpman 2019: 759. Cf. also section 2.1.2 (»Kyoto Protocol«) of the second part (Policy Aspects) of this expert report.

232 Cf. Singer 2002: 43.

233 Cf. Torpman 2019 for an insightful overview of different accounts (libertarianism, utilitarianism, fairness) and the potential to provide a justification for emissions egalitarianism on the level of principles. Cf. Bell 2008 for criticism of both the egalitarian and pragmatic foundation of »carbon egalitarianism«.

Emissions Egalitarianism is based on the premise that the absorptive capacity of the atmosphere is a common good of humankind which ought to be shared and distributed equally. Emissions egalitarianism has been rejected by denying the correctness of its premise. Critics have either questioned the way in which the atmosphere's appropriation can be conceptualised or denied that the atmosphere can be owned at all.[234] However, Olle Torpman argues that Emissions Egalitarianism can also be grounded on the assumption that the absorptive capacity of the atmosphere belongs to no one. The Lockean proviso which limits the use of resources also applies to resources which belong to no one.[235]

Other critics focus on the second premise of the basic argument, i.e. the assumption that common ownership implies equal distribution. A central counterargument against Emissions Egalitarianism is based on an understanding of justice that focuses not on equality per se but on how well individuals fare. According to this type of distributive approaches, distribution ought to be targeted at equality of capabilities or basic needs satisfaction.[236] In fact, this critique and the underlying interpretation of equality has led to the development of Emissions Sufficientarianism as an alternative distributive principle.

3.2.3 Emissions Sufficientarianism: Prioritizing the Distribution of Subsistence Emissions

The intuitively appealing approach of Emissions Egalitarianism, which starts from the assumption of a common ownership of the atmosphere's absorptive capacity that should be distributed equally, raises the problem that the equal distribution of emissions entitlements does not lead to an equal distribution of well-being. The main reason for this is that emissions do not translate into the same contributions to well-being for every individual because individuals differ in the amount of emissions that they need in order to achieve

234 Cf. Torpman 2019: 753. For further elaborations of the normative premisses cf. Baatz / Ott 2017.

235 Cf. Torpman 2019: 754.

236 Cf. ibid.: 753 and Page 2013: 234 f.

the same level of well-being.[237] A simple example is the basic need to be protected from excessive heat and the required type and amount of emissions that is required to meet this need for persons in the sub-Saharan region on the one hand, and persons in northern Europe on the other.

In response, proponents of Emission Sufficientarianism have claimed that emissions entitlements should be distributed according to the normative principle of sufficiency: instead of an equal distribution of emissions entitlements these ought to be distributed according to individual levels of basic needs satisfaction up to a specific threshold of »sufficiency«. In other words: it is equality of needs satisfaction (as a specification of sufficiency) and not equality of permits to emit that should be the goal of a just distribution.

This is based on a distinction made by Henry Shue between »luxury emissions« and »subsistence emissions« where the first type of emissions is used by individuals in order to realise »wants« or broader preferences and the second type of emissions is used by individuals in order to fulfil vital needs.[238] Accordingly, the distribution of emissions should include not only an assessment of individual ›conversion‹ capacities but also a differentiation between indispensable and luxury emissions.[239]

However, this attempt at differentiation is also the starting point for two main critical responses to Emissions Sufficientarianism. For the first group of critics the focus on emissions and their distribution is incoherent if one adheres to the broader goal of distributive justice. Instead, Simon Caney, a proponent of a more encompassing approach, recommends:

> »The distribution of greenhouse gases must then be determined by our understanding of people's entitlements. We must hold in our mind's eye our account of a just and sustainable society […] and then work back

237 For short introductions cf. Meyer / Roser 2006: 235 ff.; Page 2013: 235 f.; Caney 2012: 264. Cf. also Schlosberg 2007.

238 Cf. Shue 2014: chapter 2.

239 Amartya Sen has stressed that distributing resources neglects the fact that different individuals can have different possibilities to ›convert‹ resources. He concludes that basic capabilities should be the currency of distribution and the metric of equality: Sen 1980: 1. Other currencies of justice include primary goods, well-being or functionings.

> and ascertain what distribution of greenhouse gas emissions is entailed by this account.«[240]

This refers to the concept of integrationism introduced earlier, and its claim that the distribution of emissions entitlements ought to be treated as one aspect among many in the consideration of justice.[241] This critique welcomes Emissions Sufficientarianism's orientation towards broader targets of distribution (i.e. sufficiency) but find fault with its exclusive focus on emissions as a distributive good.[242]

The second group of critics rejects the possibility of distinguishing between luxury and subsistence emissions in the first place. They deem this account impractical because it presupposes an agreement between the parties involved about living standards and levels of sufficiency.[243]

3.2.4 Emissions Prioritarianism: Distributing Emissions to Promote Equality in Benefits

Both Emissions Egalitarianism and Emissions Sufficientarianism develop a forward-looking account of the distribution of permits to emit. Emissions Egalitarianism starts from the assumption of a common resource (the atmosphere's absorptive capacity) to be distributed among present people, whereas Emissions Sufficientarianism starts from the assumption of sufficiency as the ideal of distribution and then assigns emissions shares accordingly. This exclusively forward-looking orientation has been the target of criticism for those who urge that historic responsibilities for emissions and their negative consequences on today's absorptive capacity of the atmosphere should be included into the normative considerations about the allocation of emissions entitlements.[244] So far, only the account of Grandfathering has included past emissions into the allocation of present emissions entitlements. However, it did so by reproducing

240 Caney 2012: 295.
241 For a short introduction cf. Baatz / Ott 2017: 13.
242 It is thus a critique specifically targeted at *Emissions* Sufficientarianism and not one targeted at the broader distributive theory of sufficientarianism.
243 For a presentation cf. e.g. Page 2013: 235 f.
244 For a presentation cf. e.g. ibid.: 234 f. Cf. also the second part (Policy Aspects) of this expert report.

past distributive patterns, which is often seen as the main reason why this account is considered unfair or at least insufficiently justified.

Emissions Prioritarianism, developed by Lukas Meyer, Dominic Roser, and others, originated from the attempt to incorporate both past emissions in the current distribution of emissions entitlements and aspects of fairness.[245] In short, the main reason why past emissions and the associated benefits for present people should be taken into account is the belief »that those who were born with a large ›slice of the pie‹ have a smaller claim when it comes to splitting up the rest of the pie.«[246] In an attempt to reconcile the intuitions behind egalitarianism (everyone should be treated equally) and sufficiency (distributive justice consists in providing ›enough‹ for everyone) Meyer and Roser emphasise that the distribution of emissions should aim to provide the benefits of emissions to those who need them most, thus achieving equality of benefits over the longer term. It is this focus on improving the situation of the worst off and the understanding of justice as a state to be assessed over the whole lifespan of persons (and not at a single point in time) that marks the difference between the prioritarian approach on the one hand and egalitarianism and sufficientarianism on the other.[247] According to Emissions Prioritarianism, the correct interpretation of equality in the context of the just allocation of emissions entitlements is equality in *benefits* of emissions, not in emissions *tout court*. The priority view also starts from the intuition that, in general, everyone should receive an equal share of emissions. However, since people in the Global North and in the highly developed states (where states are a measure for groups of persons who have emitted differently in the past) have already used up a large amount of their allocated share, those states that have benefited less from emissions in the past should be favoured in the distribution of emissions entitlements.

245 Meyer / Roser 2006. For a differentiation between history-insensitive accounts of distributing emissions entitlements *excluding* past emissions, history-sensitive accounts *including past emissions* and history-sensitive accounts *including benefits from past emissions* cf. Caney 2012: 261.

246 Meyer / Roser 2010: 235. »The simple idea is that people of the North already enjoyed much benefits associated with emissions during their lifetime and therefore a larger part of the remaining benefits should go to people in the South, which gives them the opportunity to ›catch up‹.« (ibid.: 234).

247 Ibid.: 232 ff.

This preferential treatment of states with low emissions in the past is further based on the fact that this group of states is on average more severely affected by the anticipated negative effects of climate change and is generally less wealthy. Meyer and Roser thus do not include considerations of compensation but claim to focus solely on a fair distribution of *benefits* generated by past, present and future emissions.[248] As a result, Emissions Prioritarianism can be described as a complementary form of egalitarianism that starts from an egalitarian premise and includes considerations of past distributions of benefits.

The main criticism of this account of the distribution of emission shares stem from the question whether there is a sufficiently clear link between past emissions and present benefits, and from the distribution of the benefits from past emissions among individuals within the respective states. The criticism of Emissions Prioritarianism is closely linked to the criticism of the Beneficiary Pays Principle which will be discussed in more detail in the following subsection.[249]

3.3 Justice in Burdens: Distributing the Costs of Climate Action

Preventing climate change by reducing GHG emissions and by creating absorptive sinks is one of the main goals of international climate action. However, some impacts of climate change have already occurred and cannot be prevented. Also, preventive efforts are limited, and an important branch of climate justice is thus also concerned with the question of who should bear the costs of adaptation to those effects of climate change that cannot or will not be avoided. In addition, some accounts assume an obligation to compensate those states who have had low emissions in the past but are already negatively affected by the effects of climate change in the present.

As described above, a common (atomistic) approach in climate justice is to distinguish between »justice in emissions« and »justice in burdens«. This is somewhat confusing because the reduction requirements implicitly also distribute burdens—mitigation costs—by limiting the total amount of emissions for all, even for those

248 Cf. Meyer / Roser 2010: 233 ff.

249 Cf. section 3.3.2. (»Beneficiary Pays Principle«).

states who are granted larger shares than others. The distinction between justice in emissions as a debate over the assignment of a fair distribution of remaining emissions shares and justice in burdens as a debate over the fair distribution of burdens resulting from climate mitigation, adaptation and compensation is thus helpful for the purposes of an overview, but it is difficult to draw on closer inspection.[250]

What is more, some of the consequences of climate change can also benefit different states. For example, companies exporting technologies designed to promote climate resilience will profit from the impacts of climate change. Also, some climatic changes, for example in temperature, may improve agricultural conditions in some areas. Consequently, the discussion how »justice in burdens« can be achieved requires, as a first approach, a rather simplistic structure to explain the debate. For a comprehensive assessment of the principles discussed, it is necessary to keep in mind the simplifications pointed out above.

3.3.1 Polluter Pays Principle (PPP)

Three major principles have been developed and debated which propose different reasons and distribution schemes for the burdens associated with climate change.[251] According to the *Polluter Pays Principle* (PPP), the burdens of climate change should be distributed according to a state's responsibility for causing climate change in the first place. More precisely, PPP includes both costs of adaptation and costs of compensation in its distribution scheme. Proponents of this principle usually measure a state's responsibility by estimating the GHG emissions that have been emitted within its territory in the past.[252] Because of this perspective on past actions PPP is sometimes also framed as the antithesis of grandfathering: states are assigned

250 For a constructive introduction into the debate about »atomistic approaches« cf. Baatz / Ott 2017.

251 Cf. however Shue 1999 for an instructive introduction into three accounts of burden distribution which all result, according to Shue, in the same distributive scheme that assigns the Global North the greatest burden.

252 This principle is also referred to as »contribution-to-problem-principle« (Page 2013: 237). For elaboration cf. e.g. Shue 2014: chapter 9.

higher burdens because they have had high emissions in the past.[253] Note that some accounts of the PPP also apply this distributive principle to the issue of justice in emissions. Past emissions are then considered not only as the normative baseline for the assignment of costs of adaptation and compensation, but also for the assignment of emission shares.

Although the PPP is intuitively very appealing, it faces fundamental criticism. One important group of objections concerns how exactly the PPP assigns past emissions to states. This is particularly important because not all emissions in the past have the same moral weight.

First, assigning responsibility usually requires that the respective agents know about the potentially bad consequences of their acts. In the context of emissions this means that states can only be held responsible for their emissions from that point in time onwards when the causal link between emissions and anthropogenic climate change was sufficiently understood and widely known.[254] Proponents of the PPP thus have to identify a point in time after which states can be held accountable and after which their past emissions are included in the assignment of future burdens of climate action.

Second, assigning responsibility also requires identifiable harm and identifiable agents involved in this harm, both as actors and as potential victims.[255] This is challenging for proponents of PPP because although the causal link between emissions and climate change is scientifically established, the contribution of a specific set of emissions to, e.g., the occurrence of a drought at a specific time in a determinate area of the world can usually not be identified. Also, and most importantly, a large group of those responsible for past emissions are no longer alive. Assigning burdens based on past emissions thus requires proponents of the PPP to assume that obligations resulting from past emissions can be passed on between members of the same state. This »inheritance« of obligations is, however, philosophically highly controversial.[256]

253 Cf. Roser / Seidel 2017: 129.

254 For the difficulty of clearly identifying responsible actors cf. Caney 2005: 755 f.

255 Cf. Page 2013: 237.

256 Cf. e.g. Caney 2005: 756 ff. For a defence of the assignment of responsibility to collectives cf. Vanderheiden 2008: chapter 5.

Third, the assignment of responsibility requires a clear distinction between culpable and non-culpable actions. This again poses challenges for proponents of the PPP. Given trading schemes and globalisation, focusing on past emissions of a state as those that have been released within its territory seems insufficient. A state in the Global North may outsource production processes with high emissions abroad, which would then not be factored into a state's past emissions. Conversely, a state generating high emissions through economic activities predominantly providing benefits for other states will have an excessively high emissions budget. Finally, not all emissions lead to an increase in welfare within a state. And some of the past emissions may have to be categorized as subsistence emissions, i.e. emissions necessary to safeguard prerequisites for the satisfaction of subsistence needs.[257]

In light of these challenges, two other principles that guide the distribution of climate burdens have been developed and discussed.

3.3.2 Beneficiary Pays Principle (BPP)

The development of the *Beneficiary Pays Principles* (BPP) and its corresponding proposal for the distribution of present burdens resulting from climate change has been deeply motivated by the attempt to take into account past actions of the respective states. In contrast to the PPP, however, it is not past pollution or wrongdoing but the present inequality that is relevant for the distribution of burdens in relation to present benefits of a state which are directly related to past emissions.[258] It proposes that adaptation and compensation costs should be distributed according to a state's present and future benefits which can be linked to past emissions.[259] Page concludes:

257 Cf. Caney 2021 and Caney 2005: 763 ff. for an account combining PPP and considerations regarding an »ability to pay«.

258 Cf. Roser / Seidel 2017: 131, 142. One of the interpretations of the BPP, the »wrongful enrichment BPP« refers to past wrongdoing. This reading of the BPP has been exposed to fundamental criticism. The following interpretation of BPP reads it as »unjust enrichment«, which indeed does not rely on the delineation of a state's past wrongdoing for the assignment of obligations to bear climate burdens. For a detailed description of the difficulty of identifying past wrongdoing of states in the context of climate change as a basis for the BPP cf. Page 2012a.

> »States should bear climate response burdens in line with the climate change-linked benefits they have accumulated even if no wrongdoing can be identified in their production or intergenerational transfer.«[260]

The distributive principle of BPP is thus closely related to the distributive principle of Emissions Prioritarianism presented above: both accounts take the distribution of present benefits as the starting point for the distribution of emission shares (Emissions Prioritarianism) or costs of adaptation and compensation (BPP).

Although BPP thus avoids key criticisms levelled against the PPP such as the inheritance of obligations from past members of a state, it raises other problems.

First, linking present benefits to past emissions, or more broadly, distinguishing between climatic and non-climatic benefits, can prove to be difficult.[261] Such a distinction is however a key prerequisite for the successful application of the BPP to distributive issues in climate action.

Second, the BPP would require a procedure that protects states which benefit from past emissions but are nevertheless not prosperous enough to bear burdens of adaptation or compensation. Some critics have called for including an ability-to-pay threshold in the BPP as well as a definition of a threshold above which benefits are large enough to justify respective burdens of compensation and adaptation.[262]

Beyond these issues, which aim at the potential application of an BPP, there are also deeper normative questions arising in the context of this distributive principle. The BPP's strict focus on the present distribution of benefits implies that those states that have already squandered benefits from past emissions and those that have saved some will be treated equally. Some would consider this unfair.[263]

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259 For an elaborated presentation and defence of the BPP cf. e.g. Page 2012a.

260 Ibid.: 313.

261 Roser / Seidel 2017: 136; Page 2013: 240. For a possible defence of the BPP against this objection cf. Page 2012a: 321 f.

262 For the threshold of significant enough benefits cf. e.g. Caney 2021. For the consideration of an ability-to-pay-threshold within the BPP cf. Roser / Seidel 2017: 136. For the encompassing requirement for climate policies to acknowledge the right to sustainable development of citizens within the states cf. Moellendorf 2011; 2014.

263 Cf. Page 2013: 240.

Another issue of fairness is the question of the distribution of benefits from past emissions within a state and the generations living therein. Asking members of the present generations to forgo benefits from past emissions, as the BPP requires, when members of past generations did neither have to nor did so could be interpreted as an intergenerational injustice.[264] The BPP may thus run into another difficulty in the context of inherited obligations.[265]

Finally, the question why the enjoyment of benefits can justify obligations of compensation also creates fundamental normative puzzles. Most importantly, the basis for a corresponding obligation to compensate usually results from the fact that the enjoyment of a benefit perpetuates an existing unfairness. In the case of past emissions this connection is not easily made: Several states within the Global North are enjoying benefits such as higher living standards which are not directly causally related to the presently endured climate damage affecting states and its citizens in the Global South.[266] The latter is a consequence of *past* emissions.

3.3.3 Ability to Pay Principle (APP)

According to the *Ability to Pay Principle* (APP) neither past emissions nor benefits from past emissions are pertinent to the distribution of climatic burdens, but rather the present ability of a state to bear burdens.[267] In the context of the APP, the distribution is not aimed at compensation for past injustice but at the realisation of sufficiency starting from an assessment of the status quo. What is more, the requirement to invest in climate mitigation and adaptation

264 Page 2013: 240. For a defence of the BPP against this objection cf. Page 2012a: 317 f.

265 Additionally, Caney states that the BPP is running into the non-identity problem, where the existence of specific members of a generation cannot be disentangled from their respective climate burdens or benefits, thus undermining the required correlation for assigning burdens resulting either from past actions or from present benefits based on actions of others in the past: Caney 2005: 757 f. Cf. also Roser / Seidel 2017: 116. For a defence of the BPP against this objection cf. Page 2012a: 319 f. Cf. also section 2.2.4 (»The Non-Identity Challenge«).

266 Cf. Roser / Seidel 2017: 136.

267 For an elaborated presentation and defence of the APP cf. e.g. Shue 2014: chapter 9 and Moellendorf 2014: chapter 6.

is attached to mere ability and is decoupled from a state's past contribution to the occurrence or aggravation of climate change.[268]

The APP is thus a forward-looking principle which proposes an alternative to PPP and BPP and their respective reference to the history of past emissions (and resulting benefits).[269] Note that the APP can also be used to guide the distribution of mitigation costs. In the following, we pursue the »atomistic« presentation of the climate justice debate and focus on a presentation of APP as a principle guiding the distribution of burdens.[270]

In order to guide the distribution of the costs of adaptation to climate change, APP needs to specify a standard against which a state's respective ability can be assessed. One such standard that has been discussed is to use the Gross Domestic Product (GDP) of states. Further aspects such as the accessibility of technologies that have lower emissions, better policy options to face adaptation, or more resources to make economic sacrifices can also be included in the overall assessment of a state's ability to bear climate burdens.[271] Protecting states from the assignment of burdens that are beyond reasonableness can in turn be achieved by distinguishing between those emissions that are necessary to guarantee the subsistence of the respective citizens of a state (subsistence emissions) and those emissions that can be prohibited without endangering their subsistence (luxury emissions).[272]

However, the APP's pragmatic focus on the present ability of states to bear burdens does have a downside: it forces proponents of the APP to provide a normative (and not solely pragmatic) reason for generating obligations from the mere ability to fulfil it.[273] The idea that »ought implies can« is the topic of a long-standing controversial debate within moral theory that does not easily support APP's proponents claim of the opposite relation, namely that »can« implies »ought«.

268 Cf. Page 2012a: 307.
269 Cf. Page 2013: 238. Cf. also Caney 2005: 769 f.
270 Cf. Roser / Seidel 2017: 141.
271 Cf. Page 2013: 238.
272 Cf. Roser / Seidel 2017: 144.
273 Cf. Page 2013: 239f; Roser / Seidel 2017: 145 f.

A second group of objections against APP targets its refusal to include ›historical‹ aspects of GHG emissions and the respective contribution of a state to the present scope of climate change. Here, again, the seemingly pragmatic focus on the present comes at a price: the APP ignores past efforts of states regarding climate mitigation in its distribution of climate burdens.[274] Both states of the Global North that have invested a lot in the past in mitigation efforts and states in the Global South that have made economic sacrifices to promote climate mitigation are treated on a par with states of the Global North that have neglected mitigation goals in the past and states of the Global South that have prioritized economic development over climate mitigation.

Third, assessing the ability to pay of *states* presupposes an equal distribution of this ability among its respective citizens. The distribution of burdens assigned to states can thus indirectly lead to poor individuals in richer states being burdened more than equally poor individuals in less prosperous states. However, assessing everyone's ability to pay in order to avoid this objection would make the APP a principle inapplicable to the international context. The APP thus presupposes a fair distribution of climate burdens among its respective citizens that takes into consideration their potentially highly diverging economic status.[275] Note that this issue of a fair distribution of a state's overall burden among the respective citizens equally affects the BPP and the PPP. The normative principles for the distribution of climate burdens thus rely on a fair process of implementation.

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274 Cf. Page 2013: 239; Roser / Seidel 2017: 147.

275 Cf. Roser / Seidel 2017: 145.

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