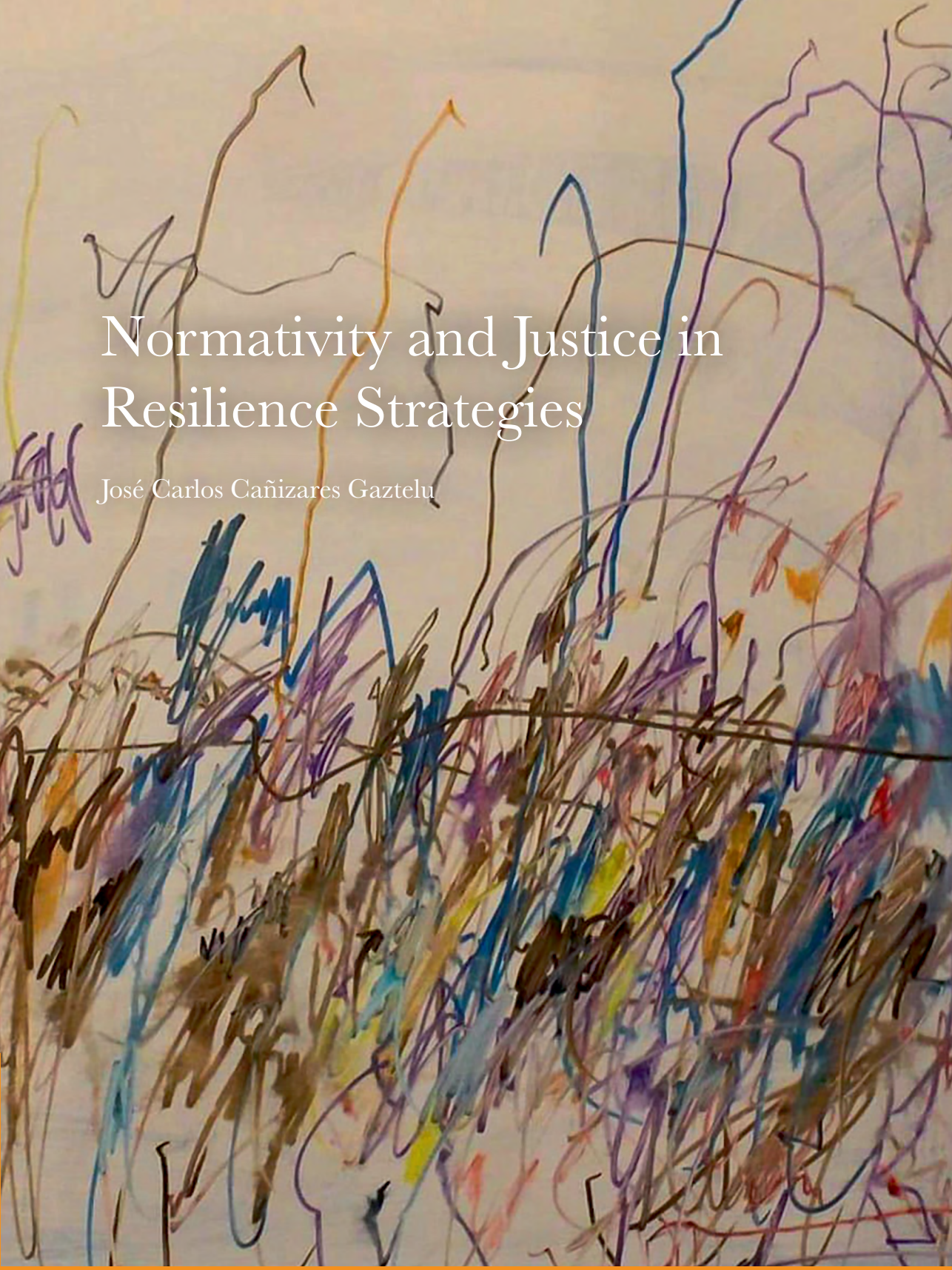

Normativity and Justice in Resilience Strategies

José Carlos Cañizares Gaztelu

Simon Stevin Series in the Ethics of Technology

Normativity and Justice in Resilience Strategies

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by José Carlos CAÑIZARES GAZTELU
Master of Science in Philosophy of Science, Technology and Society, University of Twente, Enschede, Netherlands
Ingeniería Superior de Telecomunicaciones, Universidad de Sevilla, Sevilla, Spain

born in CÁDIZ (Spain)

This dissertation has been approved by the promotors.

Composition of the doctoral committee:

Rector Magnificus	chairperson
Prof.dr.mr.ir. N. Doorn	Delft University of Technology, promotor
Dr. S.M. Copeland	Delft University of Technology, copromotor

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Reserve member:

Prof.dr.ir. B. Taebi	Delft University of Technology

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The cover picture is a photo of a painting of the author's son, Juan Cañizares Pinto.

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1. Introduction

Three decades ago, resilience was a theoretical concept found only in ecology and psychology, which stood for the ability of ecosystems and children to overcome those stresses or challenges which threatened their persistence and their development, respectively. Today, resilience is used in many societal contexts for understanding how people or systems respond to risks and for improving their performance in this regard. During the recent Covid-19 pandemic, for example, tropes about the resilience of our populations were omnipresent in the media, and many policy discourses appealed to resilience as an aspiration of our national economies, our political strategies for managing the pandemic, or the organization of our healthcare systems. Similarly, approaches based on resilience are now common in areas as varied as engineering design and safety, national security, development, disaster risk management or urban planning, and they enjoy a high status among current efforts towards adapting to climate change. Yet, despite their broad appeal within and outside academia, resilience-based approaches have also raised many concerns, and a growing tide of authors is now dismissing them as inappropriate for climate adaptation action and other societal efforts.

This predicament raises at least two difficult challenges, one theoretical and one more practical. First, there is need to reflect on the status and significance of a term that is so widely used in academia and across the science-policy divide, but whose meaning and value are so fiercely disputed. Second, given that resilience is already informing many large-scale and significant societal efforts, we have to ask under which conditions such efforts could be appropriate. In turn, this raises the need for a systematic assessment of resilience approaches, one that is both sensitive to the merits of these approaches and responsive to the concerns of critics.

The present thesis collects five philosophical papers that aim to clarify the challenges surrounding the use of resilience in societal contexts and to propose ways for tackling these challenges. In what follows, I refer to these papers as the 'thesis chapters'. Some of the chapters in this thesis use philosophy to provide a perspective into debates that affect various areas of resilience research and practice. Others apply philosophical ideas and tools to practical problems that arise specifically with the use of resilience approaches in climate adaptation. To some extent, there is also the converse: resilience research being used for reappraising philosophical ideas and puzzles.

The rest of the introduction is structured as follows. Firstly, some controversies about the societal use of resilience are introduced (1.1). Next, the motivation of the thesis is stated in relation to existing research gaps about these controversies (1.2). The third subsection formulates and explains the questions that guide this research (1.3) and the fourth outlines the content of the chapters of the thesis (1.4). The introduction ends with a preview of the thesis chapters (1.5).

1.1. Background

Although resilience has a complex history (Alexander: 2012), its contemporary use in science, policy and other practical contexts owes much to the work of ecologist C.S. Holling. In the 1970s, Holling conceived resilience as an ecosystem's ability to maintain integrity by adapting to change, pointing out that the ecosystem management practices of his time could improve in several ways if they were based on this notion (Holling: 1973, 1978). Yet, the decisive milestone in the recent history of resilience was Holling's collaboration with the Resilience Alliance and the Stockholm Resilience Centre since the late 1990s. This venture originated what today is known as "resilience thinking". In resilience thinking, resilience no longer is an ecological notion; it is part of a generalized, systems-of-systems and multi-disciplinary perspective on complex systems and their management. In particular, resilience thinking was first applied to social-ecological systems (Gunderson and Holling: 2002), but Holling and colleagues insisted in its applicability to the design, assessment and management of any complex system operating across multiple scales and with uncertain dynamics, including engineering systems (Holling: 1996), the Earth system (Rockström et al.: 2015) and other systems-of-systems (Levin et al.: 1998; Gunderson and Holling: 2002; Folke et al.: 2010).

This redefinition of resilience was hugely successful, leading to a veritable explosion of resilience-based approaches and frameworks since the early 2000s. In particular, resilience thinking reached disciplines like safety engineering (Hollnagel et al.: 2006, 2014), urban and regional planning (Davoudi: 2014; Batty: 2013; Ahern: 2012) or socio-technical transitions (Leach: 2008; Wardekker et al.: 2009). It was also institutionalized in domains like security (Coaffee: 2013; Joseph: 2013) and risk management policy (OECD: 2003; Renn and Klinke: 2014), development discourse and policy (Béné et al.: 2012; Brown: 2012), climate adaptation (ibid), the new urban agenda (Meerow et al.: 2016; UN-Habitat: 2017) and more. In turn, this growing impact of resilience prompted the emergence of a large body of cross-disciplinary

perspectives about resilience theory and practice, which now is amply referred to as "resilience research".

In resilience research, there are a number of persisting debates and controversies about resilience and its use. This section introduces three of the most heated and important ones: the debates about the meaning of resilience (1.1.1), about its normativity (1.1.2), and about the justice shortcomings of resilience approaches and initiatives (1.1.3). Then the main philosophical contributions to these debates are briefly reviewed (1.1.4).

1.1.1. The meaning of resilience

The spread of resilience across academic and non-academic contexts has led to many concurrent understandings of this term. Indeed, resilience is commonly characterized as a polysemous term: a term that designates various concepts with distinct meanings (Strunz: 2012). In what follows, I present and discuss some perspectives on the interpretive flexibility of resilience and how to deal with it.

In interpreting resilience, one common strategy has been to directly compare different uses of resilience, hoping to reduce this variety to a few precise, clearly distinguishable, concepts. Yet, the resulting accounts are themselves quite varied. Some follow Holling (1996) in distinguishing two concepts: *engineering resilience* (the property of returning to equilibrium) and *ecological resilience* (the property of absorbing some disturbance while maintaining identity or integrity)–see e.g. (Thorén: 2014). In contrast, Delettre (2021) recognizes four distinct resilience concepts, each relative to a different view of identity. Others think that a key difference is between more static and more dynamic concepts, with some distinguishing three resilience concepts on this basis (Dovers and Handmer: 1992) and others mentioning four (Woods: 2015) or more (Carpenter and Brock: 2008). Brand and Jax (2007), in turn, argue that uses of resilience crucially vary in their degrees of normativity, with the descriptive uses being more precise and the more normative ones being more vague. Meerow et al. (2016) identify as many as five sources of variation (and therefore of potential ambiguity) between resilience concepts, thus illustrating the need for further work on this regard.

Another strategy for clarifying the meaning of resilience has been to compare this term with seemingly related ones, such as *vulnerability* (Adger: 2006; Gallopin: 2006), *resistance* (Carpenter et al.: 2001), *adaptation* (Norris et al.: 2008; Pelling: 2010), *sustainability* (Redman: 2014) and more. Again, however, this strategy has yielded many insightful but inconclusive lessons. Hansson and Helgesson (2003), for example, compare resilience with *robustness*, concluding that robustness is a special case of

resilience when the recovery time after disruption tends to zero. In contrast, for Anderies et al. (2013), resilience and robustness differ in that robustness is more precise because it refers to specific disturbances, whereas resilience is more vague because it deals with novel and unexpected ones. Beyond the different results of these analyses, something striking here is that the authors truly seem to be talking about two different things. In fact, in a closer look, they are using two different resilience concepts as a basis for comparison: particularly, where Hansson and Helgesson (2003) more or less draw on the idea of engineering resilience, Anderies et al. (2013) refer to ecological resilience (cf. above). Thus, this example illustrates that the problem of how to interpret resilience has various entangled aspects and that its resolution may have much impact on how resilience is used in practice.

1.1.2. The normativity of resilience

Nowhere are the consequences of the malleability and polysemy of resilience more visible than in ongoing debates about the normativity of resilience. Meerow et al. (2016), who identify normativity as one of their five sources of ambiguity around resilience, distinguish three broad positions on this issue: positive, negative and neutral. Let me briefly illustrate these perspectives.

First, many view resilience as a positive feature that is worth attaining or improving. This position has not been argued for explicitly, but is often tacitly assumed by practitioners and policy-makers (Meerow et al.: 2016). If an institution states a commitment or aspiration to resilience, for example, the implication is that resilience is good. Likewise, social resilience is often described as an antonym of vulnerability to disasters (Wamsler et al.: 2013) or a recipe for successful social adaptation to disasters (Norris et al.: 2008), and thus as a desirable property or ability. Commonly, too, resilience is depicted as similar to, or aligned with, sustainability, which carries the same message.[1]

The view that resilience has negative implications or that it is something to be avoided is also popular. In discussing resilience as a climate adaptation approach, for example, Pelling (2010) argues that this term offers a restrictive and conservative view of adaptation, which benefits the status quo. The reported ties between resilience

[1] Sustainability has been identified with the resilience of social-ecological systems (Biggs et al.: 2015), but also with the resilience of urban networks (Meerow et al.: 2016). Resilience thinking and sustainability have also been favorably compared as agendas of research and practice with similar, if not identical, orientations and goals (Meerow and Stults: 2016; Benson and Craig: 2017; UN-Habitat: 2017; Elmqvist et al.: 2019).

thinking and second-order social functionalism (Geels: 2010; Walker and Cooper: 2011) have also led many to argue that resilience has undesirable normative implications, such as a tendency to favor technocratic or neoliberal policies and forms of governance (ibid; Joseph: 2013; Bahadur and Tanner: 2014; Olsson et al.: 2015).

Finally, others view resilience as neutral in the sense that it is a descriptive term that is devoid of normative content. This view is influential among ecologists (Brand and Jax: 2007; Derissen et al.: 2011), but I will call it the Resilience Alliance's "orthodox narrative", since this is where its more detailed and explicit accounts originate. In the Alliance's orthodox narrative, resilience is non-normative because it is neither positive and desirable, nor negative or worth avoiding (Anderies et al.: 2013). For example, there are good resilient things, such as resilient social-ecological systems, but also bad resilient things, such as Stalin's regime (Holling and Walker: 2003). Moreover, resilience can be an ambivalent feature of something: while urban resilience helps cities to absorb environmental shocks (good), achieving it can compromise sustainability (bad) (Elmqvist et al.: 2019). Indeed, proponents of this view also defend a sharp contrast between resilience and sustainability. The idea here is that sustainability is a moral term: a desirable outcome consisting in an acceptable level of well-being for present societies that is compatible with similar opportunities for future societies (ibid; Derissen et al.: 2011; Anderies et al.: 2013). In contrast, these accounts characterize resilience as a property that can be conducive to sustainability or not (ibid).

Thus, different views on the normativity of resilience reflect diverging interpretations of this term and its relations with sustainability and other terms, as well as fundamentally different stances about its practical value. As the reader may already guess, therefore, this debate is also intimately linked with questions about justice in resilience building, which I examine next.

1.1.3. Justice in resilience building

Despite its broad appeal and success, over the last years resilience has also met much criticism. Most critics express their concerns in the language of justice; others refer to problems with the sustainability of resilience initiatives. Here I illustrate some of these critical perspectives, noting their linkages with positions on debates about the meaning and normativity of resilience. In this discussion, I consider sustainability as a justice issue, since sustainability is one crucial aspect of justice between generations, or intergenerational justice (Klinsky and Dowlatabadi: 2009).

Critics point to a variety of justice shortcomings in resilience-building efforts. Many of them argue that, in practice, these efforts are yielding unequal dividends due to the way in which they are being implemented: Hodson and Marvin (2009, 2010), for example, argue that urban resilience strategies are creating elite corridors of areas with upgraded services, which exclude poorer areas–cf. Fitzgibbons et al. (2019). Others argue that such efforts can be illegitimate for other reasons, namely for being undemocratic, technocratic, or for featuring a limited participation and unequal decision power (Bahadur and Tanner: 2014). These two kinds of justice shortcomings are commonly depicted as issues of *distributive* and *procedural* justice, respectively (Meerow et al.: 2016). There are also arguments suggesting that distributive and procedural injustices arise due to deeper problems relative to the lack of *recognition* of minorities, or their marginalization, in resilience plans (ibid). Finally, as mentioned, another recurring theme is the (un)sustainability of resilience initiatives, even though this is rarely framed in justice terms. To illustrate, Meerow et al. (2019) find that most resilience plans in US cities are openly committed to green growth and that this orientation is poorly aligned with sustainability.

Yet, there are very different reactions to these problems, and again, these varied reactions are intimately related with definite positions in the debates reviewed above. Typically, those who view resilience at least as potentially positive tend to favor normative uses of resilience that align this property with some explicit value (e.g. sustainability). For example, Meerow et al. (2019) propose that a negotiated and long-term approach to resilience counters at least some of the procedural and sustainability concerns mentioned above. Similarly, according to Bahadur and Tanner (2014), we should understand resilience as a dynamic or transformative property, since the more static resilience concepts tend to favor the status quo and to promote technocratic orientations in planning and governance–cf. Doorn (2017), Nagenborg (2019) or Copeland et al. (2020) for similar arguments. For others, in contrast, the justice shortcomings of resilience are harder to avoid, since they are, to some extent, built-in resilience thinking. It is easy to guess where these perspectives come from. On the one hand, arguments to the effect that resilience is inherently not a pro-poor concept (Béné et al.: 2012) or that it implies neoliberal ideas or policy trends (Walker et al.: 2011; Joseph: 2013), for example, frame resilience as a negative concept for reasons related (more or less explicitly) to the injustices that resilience-based approaches supposedly tolerate or contribute to producing (Pelling: 2010; Olsson et al.: 2015). On the other hand, for those who think of resilience as neutral, resilience is not an intrinsically unjust goal. Yet, this position is also problematic from a justice standpoint, since it implies

that resilience is not clearly related to any positive value whatsoever and that it can be good or bad depending on circumstance (recall the examples of Stalinism and sustainability). Of course, both of these perspectives raise the need to explore when and how resilience might (or might not) be desirable or morally acceptable.

1.1.4. Philosophy and resilience research

Meaning, normativity, justice—these seem problems where philosophers can have a say, at least because they already are the business of various areas of philosophy. Despite these links, to this day, philosophical forays into resilience research are scarce, although not insignificant. Let me briefly review some of them.

More or less a decade back, the philosophical contributions to resilience research were limited to a few articles from philosophers of the environmental sciences (Brand and Jax: 2007; Odenbaugh: 2011; Derissen et al.: 2011; Strunz: 2012; Thorén and Persson: 2015). These articles considered resilience essentially or primarily as a theoretical term from ecological science and thus they neglected or dismissed its more transdisciplinary and practical uses. For Olsson et al. (2015), for instance, resilience thinking constitutes a form of academic imperialism, whose application to social contexts is deeply problematic. Many of these articles also vindicated the Alliance's orthodox narrative on the meaning and normativity of resilience to advise caution with its normative use in societal domains (Derissen et al.: 2011; Strunz: 2012; Thorén: 2017). Brand and Jax (2007) took this line of thought even further by distinguishing between the ecological uses of resilience (descriptive and precise) and its social uses (normative and vague) (ibid), and then concluding that the latter should be dismissed as a source of confusion and potential degradation of the former. As can be seen, this argument is aligned with the Alliance's orthodox narrative, but it also differs from it in two key respects. First, it assumes that resilience is polysemous and that some uses of the term are indeed normative. Second, it does not rely on a simple theoretical stipulation of what resilience is, being more a normative claim about how it must be appropriately conceived and used. Later I will show that these details are important.

This landscape changed a bit in the last few years, where resilience research has been attracting philosophers from other specialties of applied philosophy. One significant feature in these recent contributions is that they have begun to take the problem of justice seriously, and with attention to the specific dilemmas that arise in resilience practice, for instance, in choosing indicators of resilience (Doorn: 2017; Copeland et al.: 2020) or in designing resilience policy (Byskov et al.: 2021). Perhaps for this reason, these articles are still critical but their aim is more constructive. For

example, Nagenborg (2019) has examined which visions of urban resilience can better satisfy an acceptable ideal of the just city. Also, Doorn (2017) has discussed prominent accounts of resilience indicators in the disaster management field, documenting their neglect of distributive justice and proposing the capability approach as a suitable lens for repairing this deficit –see also Doorn et al. (2018). Indeed, some philosophers have argued that resilience not only is in some respects aligned with justice, but also that ethical and political philosophers should turn to resilience thinking for fresh ideas (Kolers: 2016; Grove: 2018). This remark therefore suggests that, besides being an area where philosophers can contribute, resilience research can potentially be a source of philosophical insight as well.

1.2. Research gaps and motivation

As illustrated in the preceding section, resilience research features fundamental and persisting disagreements in relation to three problems: the meaning, the normative status and the justice shortcomings of resilience. Despite these disagreements, however, many important and ongoing societal efforts already make an intensive use of resilience thinking and resilience-based approaches. This situation raises an urgency to inform resilience research and practice with novel insights about the appropriate use of resilience and detailed proposals that respond to the main concerns stated by resilience critics, especially to those relative to justice.

At present, however, resilience research features decisive literature gaps that limit the prospects for this needed work. Some of these gaps are briefly summarized below.

Justice

In the case of justice, first, the diverse opinions about resilience may stem from different views of resilience and its practical implications, but they may also be due to a plurality of conceptions of justice informing these judgments. Yet, in resilience research there is little work on how justice demands may differ or interrelate, and this deficit limits the capacity for assessing the merits and shortcomings of resilience approaches from a justice standpoint. In addition, despite the noted advances around distributive justice in resilience approaches to disaster management (Doorn: 2017; Doorn et al.: 2018), and some early work on distributive and procedural justice around resilience and climate adaptation (Paavola and Adger: 2002, 2006), only a handful of justice principles have been proposed for governing resilience initiatives, and there is virtually no debate about these principles or how to operationalize them.

Normativity

In turn, one problem with most claims about the normativity of resilience is that they hinge on a rather intuitive account of normativity. For example, Kolers (2016) claims that resilience has non-evaluative normative content but says little about how this non-evaluative content is normative, or why that matters. Similarly, Brand and Jax (2017) classify ten resilience concepts as more or less normative but no explicit criterion is offered for their classification, which clearly undermines their subsequent arguments. The Alliance's orthodox narrative on resilience also relies on an implicit and inadequate criterion of normativity. For example, if Stalin's regime is described as resilient (cf. 1.1.2), then resilience is certainly ambivalent, but does this feature make it a descriptive term? If that were the case, then the fact that there are good killers would be a reason to classify "good" as a descriptive term, too. Yet this conclusion is quite implausible, since the term "good" is broadly regarded as a paradigmatically normative one (Tappolet: 2014). These problems therefore suggest that debates about the normativity of resilience must mobilize additional theoretical background about what normativity is, how terms or concepts can be normative and what this entails, at least in the case of resilience.

Meaning

Finally, there is a need for more normative discussion about the meaning of resilience, or, to put it in other words, more discussion about which normative reasons must underpin the interpretation of this term. As was noted, the Alliance's orthodox narrative is commonly asserted as the original or the theoretically correct one (Derissen et al.: 2011; Anderies et al.: 2013; Elmqvist et al.: 2019), which suggests that other interpretations are simply spurious and that the reasons for using this view are merely technical. Yet, as was shown, Brand and Jax (2007) make clear that the reasons to prefer the Alliance's orthodox narrative about resilience to other perspectives are also normative. In particular, according to them, the problem with alternative views is that they are normative and vague, and that this vagueness degrades the scientific value of this concept. At the same time, the flexibility and vagueness of resilience have also been regarded as a potential asset of this notion. For example, as was noted, Meerow et al. (2019) argue that this feature offers room for negotiating aspects of the meaning of resilience in urban planning, and that this could contribute to making resilience building more procedurally just. Similarly, Doorn et al. (2018) propose redefining resilience to be inclusive of goals of distributive justice, thus suggesting both that the interpretive flexibility of resilience allows for this but that this flexibility must be managed through the lens of precise justice criteria. These insights therefore raise

the need for a systematic and explicitly normative approach to the interpretation of resilience, in close dialogue with questions about normativity and justice in resilience building.

In response to these research gaps, this thesis uses a variety of philosophical ideas and methods for clarifying what resilience means, how it can be used in societal contexts, and how such use could be just. As the reader may anticipate, the arguments and proposals contained herein are, in the whole, animated by a critical but constructive approach to resilience, in keeping with recent philosophical contributions to this field. One reason that motivates this constructive attitude was mentioned above: given that the societal uses of resilience are already significant, there is a need to ensure that they are also just. On the other hand, taking a critical stance is key for understanding both the value and the potential limitations of resilience and its societal applications. Thus, while the present thesis dismisses many of the most skeptical views on resilience, it also takes these critiques seriously, and in fact it builds heavily on some of this critical work. At the same time, this cross-disciplinary engagement between resilience research and philosophy is not intended as a one-way street. Quite to the contrary, some of the problems discussed here, and particularly those relative to the normativity of resilience, require a critical revision of dominant philosophical perspectives.

Now, based on the problems and literature gaps detected above, the next section turns to offering a succinct formulation of the main questions that have guided this research.

1.3. Research questions and research approach

As was shown, the ongoing debates about the meaning, normative status and justice implications of resilience involve persisting stalemates and research gaps that undermine the credibility and legitimacy of resilience-based societal efforts. The present thesis responds to this challenge by developing philosophical insights and proposals oriented to making the societal use of resilience more intelligible and just. Thus, the thesis is animated by the following research question:

> RQ: How can we understand resilience so that the use of resilience-based approaches in societal contexts is both intelligible and just?

As the preceding question makes clear, the outputs of this thesis are of two kinds: theoretical insights about how to understand resilience and its normative status, and

practical proposals about how to use resilience in practice while taking into consideration demands of justice. Two terms that need clarification in this regard are *intelligible* and *just*. These terms convey the critical but constructive angle proposed in relation to the three mentioned debates. Specifically, the term *just* expresses that securing or expanding justice in resilience building is the main aim of the thesis, and so, that our work in relation to the meaning and normativity of resilience is partly shaped by justice considerations. On the other hand, the demand of intelligibility expresses that our proposals about resilience must be coherent with common conceptions and uses of resilience in societal domains (even if these are somewhat challenged for the purpose of expanding justice in resilience building).

This research challenge is addressed in five steps. We start by examining the theoretical assumptions and the normative orientations of some of the most relevant interpretations of resilience, aiming to find a perspective on resilience that is both tenable and usable in societal domains. This goal is expressed in the following question:

> RQ #1: Which theoretical assumptions and normative orientations are embedded in the main resilience concepts and which concept is preferable in terms of these features?

This question jointly addresses the problems of the meaning and normativity of resilience through a direct scrutiny of extant perspectives in the relevant debates. In the next step we zoom into the normativity debate. Here, as noted, one important source of confusion is the rather implicit understanding of what *normativity* is that has governed the debate thus far. Given that metaethics is the area of philosophy that takes normativity as its subject matter, this discipline seems ideally situated for producing the sort of theoretical background that is required for enriching this debate. The second research question therefore turns to metaethics in order to develop a more elaborate account of the various ways in diverse conceptualizations of resilience are normative:

> RQ #2: Which normative aspects enter in the conceptualization of resilience and how?

The results obtained thus far contain perspectives about how resilience should be understood and used as a term. In particular, they clarify why and in what sense resilience is a conceivable goal, and they illustrate some relevant implications of such

usage. Next, building on these insights, the thesis turns to considering if resilience can also be a *just* goal and what it would take for resilience approaches to be used (more) justly.

I decided to focus this enquiry on climate resilience efforts, that is, on the use of resilience approaches in actions and policies for adapting to climate change. One reason for this choice is that some of the most important and far-reaching resilience-building efforts take place in this context, and so, the lessons obtained here might be valuable in themselves as well as for other applications of resilience thinking.

As was suggested, the literature on justice in resilience building features some gaps in relation to how to understand justice and which justice principles are more suitable and why. These gaps suggest that debates on justice in resilience building should be informed with more detailed perspectives and insights from political philosophy and applied justice theory. The third and fourth research questions address this need:

RQ #3: Which justice demands matter in climate adaptation, and how responsive are resilience-based approaches to them?

RQ #4: Is the capability approach an adequate perspective for addressing the justice shortcomings of resilience strategies for climate adaptation?

The third research question deals with how to understand justice in the climate adaptation context. It builds on the assumption that justice demands and claims come in various forms and that they matter for different reasons. In resilience research, this fact is recognized but also poorly discussed, resulting in an insufficient understanding of the ways in which climate resilience initiatives can be (un)just or could be made more just. The response to this question adds to this understanding by advancing a model of six forms of justice and then using it for detecting the justice deficits that climate resilience strategies are likely to have, considering their normative content.

Given the justice deficits that climate resilience strategies plausibly or typically have, the fourth question addresses the challenge of developing an appropriate justice response to these deficits. Specifically, this question raises the need to assess the strengths and weaknesses of the capability approach, which various authors have recommended as a suitable basis for justice work in the climate resilience context and related domains (Schlosberg: 2012; Bulkeley: 2014; Doorn: 2017; Doorn et al.: 2018).

The last step applies the insights obtained heretofore to reflecting on the potential of resilience for guiding policy, public debate and moral reflection in another area where the use of resilience approaches and resilience-based tropes has also been intensive and controversial: the recent Covid-19 pandemic.

RQ #5: How do we assess the use of resilience in public discourse and policies during the Covid-19 pandemic?

Having advanced the research questions and the general approach taken for addressing each of them, the next section now turns to outline, in more detail, the content of the main thesis chapters.

1.4. Outline of the chapters

As noted, the main thesis chapters are five papers that were independently published. The two first chapters (chapters 2-3, RQ #1-2) examine the normative status of resilience from different and complementary angles. The next two chapters then turn to examining the problem of justice in climate resilience initiatives and policy (chapters 4-5, RQ #3-4). In turn, the problem of the meaning of resilience is approached as a cross-cutting issue: that is, while no single chapter addresses it as its main topic, the problem is considered in different chapters with a cumulative intent, and by stressing its links with the normativity and justice problems. As regards the last chapter (chapter 6, RQ #5), it uses the findings of the thesis for reflecting on a topic of much actuality, such as the moral significance of resilience tropes throughout the recent Covid-19 pandemic.

Chapter 2, *Making sense of resilience*, examines current perspectives on the meaning and normativity of resilience, using this analysis for developing an account of resilience whose usage in societal contexts is intelligible, or "makes sense". While resilience is a major concept in development, climate adaptation and related domains, as was repeatedly noted, many doubts remain about how to interpret this term, its relationship with closely overlapping terms, or its normativity. In this regard, one major view is the Resilience Alliance's "orthodox narrative" about resilience. Advocates of this perspective argue that, originally, resilience was a descriptive concept denoting some adaptive property of ecosystems, and one that was sharply distinct from sustainability. They also argue that subsequent applications to social contexts distorted the meaning and purpose of resilience by framing it as a transformative and normative quality. In direct polemic with this orthodox narrative, this chapter advances an alternative philosophical account of resilience based on the scrutiny of C.S. Holling's original work. Here, it is shown that resilience had a central role among Holling's projects for reforming environmental science and management, and that Holling framed resilience as an ecosystem's capacity of absorbing change and

exploiting it to adapt or evolve, but also as the social ability of maintaining and opportunistically exploiting that natural capacity. Resilience therefore appears as a transformative social-ecological property that is normative in three ways: as an intrinsic ecological value, as a virtue of organizations or management styles, and as a virtuous understanding of human-nature relations. The chapter concludes that this interpretation accounts for the practical relevance of resilience and clarifies the relations between resilience and related terms, thus constituting a firm ground for further normative work on resilience.

Chapter 3, *Resilience as a normative term revisited*, builds on the previous chapter and on metaethical work on thick concepts to offer a detailed account of the normative aspects involved in conceptualizing resilience. The chapter begins by illustrating the most common and important understandings on resilience and, by reference to this review, it explains the rationale of the main perspectives that resilience scholars have advanced on the normative status of resilience. Then the chapter revisits these positions by mobilizing work from metaethics. In particular, it critically discusses the main arguments about the normativity of resilience by drawing insights from recent metaethical debates about thick concepts: concepts that blend descriptive and normative aspects and that, for this reason, challenge the traditional distinction between the descriptive and the normative. Building on this line of work, the chapter then argues that resilience always has evaluative aspects and other normative aspects that we call normalizing, though its exact normative profile varies with diverse conceptualizations of the term. One conclusion that the chapter draws from these findings is that, given that resilience invariably has normative content, more research is needed on how to appropriately handle this content.

Chapter 4, *Embedding justice considerations in climate resilience*, contributes to a fuller understanding of the justice challenges faced by resilience-based projects for climate adaptation. At present, the model commonly used for guiding normative reflection in this domain is the tripartite model of justice, whereby justice is seen as comprising distributive, procedural and recognitional aspects. After discussing some conceptual problems and practical shortcomings of this model, an alternative model is proposed. This model features six forms of justice: distributive, procedural, intergenerational, restorative and retributive justice, and justice in system outcomes. With respect to the trivalent model, this six-dimensional model is found to offer a more detailed and comprehensive account of the justice concerns and demands that matter in the

adaptation-resilience nexus, the reasons that motivate them and their different practical orientation. The chapter then applies this model to assessing the strengths and weaknesses of climate resilience approaches and efforts from a justice standpoint. An important finding of this assessment is that the main justice challenges for climate resilience have to do with distributive, procedural, restorative and retributive justice.

Chapter 5, *Capabilities as a justice basis of climate resilience strategies,* assesses the suitability of capability-based justice principles in relation to climate resilience initiatives and policy, also reflecting on some challenges underlying the operationalization of these principles. The chapter builds on the widely recognized struggle for including distributive justice resilience-building plans and policies, and on the fact that, at present, there is an insufficient debate about concrete justice theories and their suitability for the climate resilience context. The chapter proposes to address this difficulty by assessing the capability approach (CA) as a basis of justice in adaptation-resilience. Given the CA's emphasis on the final value and mutually irreducible character of the concrete beings and doings of individuals, one important finding of this chapter is that the CA is generally adequate for addressing salient aspects of adaptation, such as the multi-faceted and locally specific nature of climate vulnerability. Further, the chapter presents an application of the CA, the 6 Functionings – 2 Thresholds framework (6F2T), that shows particular promise for linking distributive justice considerations with climate risks and resilience building. Yet, there are also limitations and dilemmas involved in applying the CA. These problems advise against treating the CA as a one-size-fits-all solution to the ills of resilience building, also raising a need for joining efforts with potentially complementary perspectives, especially in relation to environmental justice and restorative justice and reparations.

Chapter 6, *Rhetorics of resilience and extended crises: reasoning in the moral situation of our post-pandemic world*. This chapter looks closely at the use of resilience as a value in pandemic discourses, and particularly at how it reflects the moral complexity of the situation the pandemic presents, an extended crisis where shocks and stressors interact and have an uncertain end. The chapter first shows that resilience thinking has much to offer by way of highlighting morally relevant aspects of the pandemic, and even as a guidance to moral reasoning in this area. Yet, it also unpacks normative implications of the usage of resilience in the pandemic that are potentially problematic. In particular, it is remarked that resilience tropes often neglect the tradeoffs that may arise between self-

regarding and other-regarding concerns, and that they may be used for blaming individuals for their lack of resilience, even in the absence of external support. The chapter then explains that these tradeoffs and shortcomings could to some extent be avoided, or at least limited, by carrying out a more explicit public discussion on certain normative aspects of resilience. In this regard, first, it is key to ask "resilience to what, of what and for whom?" Another key area of discussion relates to deciding which critical properties (of something) should be maintained and which should be transformed or replaced in order to attain or improve resilience. Finally, there is a need to keep in mind the multi-scalar moral landscape of the pandemic situation, and to examine when and how resilience at lower spatio-temporal scales (e.g. short-term personal resilience) may contribute to or be undermined by resilience at higher scales (e.g. sustainability, demands about the resilience of healthcare systems and so forth). In short, the chapter finds that resilience can be a suitable value for shaping approaches to policy and behavior, but that such usage requires more explicit public discussion about its normative impact and implications than is commonly the case.

1.5. Preview of chapters and contributions

This thesis is, as explained above, composed of five papers. Below we list the titles of these papers and their current status, mentioning where they have been published when this is pertinent, what their main academic contributions are, and how the paper co-authors contributed to the writing and review process for each paper.

Chapter number and title	Status	Journal/ Publication	Audience (primary/ secondary)	Academic contributions	Authors' contributions
1 Making sense of resilience	Published	*Sustainability* (special issue: *Ethics of Climate Adaptation*) doi: 10.3390/su1315853	Resilience scholars. Sustainability scientists, philosophers	Normativity of resilience. Interpreting resilience	Jose C. Cañizares (JC): Conceptualization, Investigation, Methodology, Visualization, Writing-Original draft preparation. Samantha Copeland (SC): Writing-Reviewing and Editing. Neelke Doorn (ND): Supervision.
2 Resilience as a normative term revisited	Under review		Resilience scholars. Metaethicists	Normativity of resilience. Interpreting resilience. Novel insights about thick concepts	JC: Conceptualization, Investigation, Methodology, Writing-Original draft preparation. SC: Writing-Reviewing and Editing. Henrik Thorén: Conceptualization, Investigation. ND: Supervision.
3 Embedding justice considerations in climate resilience	Published	*Ethics, Policy & Environment* doi: 10.1080/21550085.2023.2197824	Applied justice scholars. Resilience scholars	Justice in resilience building. Design of justice frameworks	JC: Conceptualization, Investigation, Methodology, Visualization, Writing-Original draft preparation. SC: Writing-Reviewing and Editing. ND: Supervision.
4 Capabilities as a justice basis of climate resilience strategies	Under review		Resilience scholars. Capability scholars	Justice in resilience building. Design of capability-based justice frameworks	JC: Conceptualization, Investigation, Methodology, Writing-Original draft preparation. SC: Writing-Reviewing and Editing. ND: Supervision.
5 Rhetorics of resilience and extended crises	Published	*Values for a post-pandemic future*. Springer *Philosophy of Engineering and Technology* series. doi: 10.1007/978-3-031-08424-9_13	Applied ethics scholars. Resilience scholars	Interpreting resilience. Normativity of resilience. Justice in resilience building	SC: Conceptualization, Investigation, Methodology, Writing-Original draft preparation, Supervision. JC: Investigation, Writing-Original draft preparation, Writing-Reviewing and Editing.
6 Rhetorics of resilience and extended crises	Published	*Values for a post-pandemic future*. Springer *Philosophy of Engineering and Technology* series. doi: 10.1007/978-3-031-08424-9_13	Applied ethics scholars. Resilience scholars	Interpreting resilience. Normativity of resilience. Justice in resilience building	SC: Conceptualization, Investigation, Methodology, Writing-Original draft preparation, Supervision. JC: Investigation, Writing-Original draft preparation, Writing-Reviewing and Editing.

2. Making sense of resilience[2]

2.1. Introduction

Today, resilience is the cornerstone of important initiatives addressing risks like climate change, most prominently in cities (Meerow et al.: 2016; Rockefeller and Arup: 2016) and developing countries (Brown: 2012). Many influential frameworks and policy documents frame resilience as a positive response to shocks and stresses and a legitimate goal for urban transformation, which overlaps closely with sustainability (UN-Habitat: 2017). Recently, however, authors from the Resilience Alliance disputed this vision on the grounds that resilience is a descriptive term from complex systems theory, while sustainability, instead, is a moral term (Elmqvist et al.: 2019).

This thesis is surprising. If resilience was non-normative, why should anyone care about building or maintaining it? Further, if resilience and sustainability are not synonyms, how do they relate? These puzzles add to long-standing debates on the elusiveness of resilience (Strunz: 2012), its dubious moral implications (Pelling: 2010; Béné et al.: 2012; Olsson et al.: 2015; Walker and Cooper: 2011) and its unclear relations with competing concepts (Leach: 2008; Redman: 2014; Anderies et al.: 2013).

Here we object to the Resilience Alliance's narrative with a different philosophical account of resilience and its practical significance. We start by discussing some problems around the interpretation of resilience and motivating a close scrutiny of C.S. Holling's original work on the concept (2.2). We then carry out this scrutiny in two sections. First, we examine Holling's critiques of traditional ecological practices and his ideas for reforming them, emphasizing the various roles resilience takes on in these contexts (2.3). Then, based on this analysis, we advance our unified account of resilience in critical dialogue with the "orthodox narrative" of the Alliance (2.4). We argue that resilience always is a normative concept. One can use it as an instrumental value, closely related to various stability concepts; yet, as we show, Holling's resilience is best seen as an intrinsic ecological value and a critical tool and alternative to efficiency, rigidity and instrumentalism in design, management and governance. The conclusion stresses the relevance of our results by mentioning some consequences of interest for scholars and practitioners in resilience and related areas (2.5).

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[2] This chapter was published as an article in 2021 at the journal Sustainability (Cañizares et al.: 2021).

2.2. Framing resilience

The Resilience Alliance is the single most influential research cluster in the field of resilience research, and its contribution to the popularization and institutionalization of resilience cannot be minimized. Nonetheless, we disagree with the philosophical characterization of resilience that the Alliance has promoted of late. In this chapter, we develop an alternative account which, in our view, is sounder.

This section discusses some key concepts and ideas about resilience for the purpose of problem framing. We begin by presenting categories and ideas commonly used for interpreting resilience (2.2.1). Then we use these categories for characterizing other concepts that have been compared with resilience (2.2.2). After these preliminary considerations, we produce a succinct description of the Resilience Alliance's "orthodox narrative" on resilience, and explain our approach for contesting it (2.2.3).

2.2.1. Interpreting resilience: problems and perspectives

After being extensively discussed in 1970's psychology and ecology, resilience is now found in many disciplines (Alexander: 2013; Thorén: 2014). Despite an abundance of work on how to interpret this term, many doubts persist. Here we review some.

Scholars often ask, for example, if resilience is an outcome, or instead a process or ability. Here we assume that resilience is both things, since it has ex-ante and ex-post aspects (Strunz: 2012). Definitions commonly portray it as an outcome: a type of response to change. This aspect allows us to identify (un)resilient things, but only after disturbance (ex-post). But resilience also is an ability that enables things to display resilient outcomes. This ability is expressed in terms of resilience determinants that characterize (un)resilient things before disturbance (ex-ante), and that are key for designing or managing resilience.

Given these considerations, we can regard resilience as a polysemic term, i.e., one that designates many distinct concepts (Strunz: 2012). Resilience scholars find that resilience concepts differ ex-ante, ex-post, and in their normativity.

First, resilience concepts vary *ex-ante* by domain, because resilience determinants differ across systems and entities. Psychological resilience, for example, lies in a combination of mental abilities and social protective factors (Rutter: 1985). In contrast, while system views (those more influenced by ecology) usually mention determinants like redundancy or diversity of responses, these determinants can vary much across different domains (Thorén: 2014; Adger: 2000; Norris et al.: 2008; cf. chapter 4).

Second, there are various views on what kind of response resilience is, *ex-post*. As Carpenter and Brock note, "[r]esilience is a loosely organized cluster of concepts each one related to some aspect of the interplay of transformation and persistence" (Carpenter and Brock: 2008, 1). Authors generally distinguish three concepts where change is increasingly more inherent to resilience: resilience as maintenance or recovery (also labelled 'engineering' resilience), as change at the margins (adaptive or 'ecological' resilience), and as transformability ('evolutionary' resilience) (Meerow et al.: 2016; Dovers and Handmer: 1992). Later we return to these ideas and flesh them out further.

Lastly, views of resilience are said to differ in their *normativity* (Brand and Jax: 2007). This is a topic where some philosophical distinctions are convenient. Typically, normativity is defined as a property of claims or of concepts, consisting in their capacity to guide action (Thorén and Olsson: 2017; Wedgwood: 2013). Concepts are normative if they imply evaluations or prescriptions, for instance if they are only definable in terms of paradigmatically normative concepts, such as *must* or *right*. For example, *murder* is normative because murder is a *wrongful* deliberate killing; *elegant* is normative because calling a dress elegant is appraising it as *good in a way* (Kagan: 1998). Here we consider two kinds of normative concepts: values and virtues. Values are things, broadly speaking, that people typically pursue or avoid, while virtues (or their opposites, vices) are traits that are (un)desirable to have, for persons or for societies and organizations. Thus, we can talk e.g., of the virtues (vices) of football clubs, socialism and so on.

Crucially, values and virtues can be intrinsic goals or ends, or instrumental ones (Kagan: 1998; Light: 2002).[3] *Intrinsic* goals or ends are those that can be desired for themselves or as ends strictly speaking, such as e.g., *equality*, *generosity* or *wellbeing*. Instrumental values or virtues, in contrast, do not express ends, but only aspects of means or processes relative to other ends. This distinction between desired ends (intrinsic) and desired aspects of means or processes (instrumental) carries a further implication. Although intrinsic ends can be undesirable for various reasons (for example: economic equality is often said to conflict with freedom, another intrinsic value), instrumental ends are peculiarly ambivalent, since they can only be desired

[3] A word of caution is needed about the term *intrinsic*. Some philosophers use this label to refer to ends or things whose value is self-standing or independent of anything else, including human appreciation (van de Poel: 2021). Yet this use, though popular among the critics of (the consequences of) anthropocentrism in thinking about nature, can be both theoretically overloaded and practically problematic (ibid). Thus, here we will talk of intrinsic values or virtues in a second, weaker sense that is also common among philosophers (Light: 2002).

when they warrant, or enhance, the satisfaction of intrinsic ends, and can be quite undesirable if put to ill-chosen ends (van de Poel: 2021). For example, consider *efficiency*, a quintessential instrumental value. Efficient processes or procedures are those that, compared to their alternatives, obtain more of a desired result with the same means, or similar results with lesser use of those means. Efficiency is then desirable in distributing wealth, since it improves economic equality, but it makes things worse if it serves putatively wrong ends: e.g., efficient killers are worse overall than non-efficient ones.

Polysemy can raise confusion when authors do not clearly specify which concept is at use. With resilience, this is a general concern, since vague or ambiguous uses of the term are common (Brand and Jax: 2007; Strunz: 2012). Terms are used ambiguously if it is unclear what meaning they have or which concept they designate. Vagueness is similar, consisting in an underspecification of concepts (Thorén: 2014). Both features are opposed to precision, and viewed as a potential hindrance to resilience scholarship and practice (Brand and Jax: 2007; Strunz: 2012). As we see next, they also complicate the task of situating resilience vis-a-vis other concepts that relate to it in some way.

2.2.2. Related concepts

The diffusion of resilience has also raised a need to demarcate this term from others that overlap or compete with it. Most relevant for this chapter are: *robustness*, *anti-fragility*, *sustainability*, *lock-in* and *transition*. Next, building on the preceding categories, we explain these terms and establish some bases for comparing them with resilience.

Robustness

Robustness is discussed in fields like statistics, control theory or engineering. It is defined, for example, as "reduced sensitivity of outputs to shocks or variations in input" (Anderies et al.: 2013, 4) or as an "ability of a system to resist change without adapting its initial stable configuration" (Wieland et al.: 2012, 4). There is also work on *dynamic robustness*, the property of absorbing impacts through adaptability or reorganization (Haasnoot et al.: 2013; Walker et al.: 2013). Like resilience, then, robustness describes various kinds of responses to change (and properties that enable them).

With regards to its normativity, robustness seems to characterize things that work well, thus suggesting that it is an intrinsic value–a synonym of infrastructure safety, for instance. Yet, it can also be interpreted as simple resistance to change, and so, as an

instrumental value: convenient when a system embeds desirable values, but problematic in other cases. In the development literature, for instance, the robustness of poverty profiles is a much-studied issue that illustrates this ambivalence of robustness (Ravallion and Bidani: 1994; Tarp et al.: 2002). Vernacular uses of *robust* have a similar normative profile: they can denote a good health (an intrinsic value), but also just a strong physical constitution (an instrumental one).

The exact relations between *resilience* and *robustness* are a matter of concern especially in engineering. Hansson and Helgesson (2003), for example, compare recovery-based resilience with a static view of robustness, arguing that both are stability concepts: resilience being an ability to return quickly to equilibrium, and robustness its limiting case (since robust systems are not displaced from equilibrium, and so their recovery time is zero). Depending on the concepts used in each case, resilience and robustness are also alternatively viewed as complementary (Reggiani et al.: 2015), rival or equivalent goals in infrastructure design and management (Woods: 2015).

Antifragility

Another popular notion describing a system's response to change is that of antifragility. According to Taleb, "[a]ntifragility is beyond resilience or robustness. The resilient resists shocks and stays the same; the antifragile gets better… [Antifragile] things benefit from shocks; they thrive and grow when exposed to volatility, randomness, disorder, and stressors and love adventure, risk, and uncertainty" (Taleb: 2012, 1). Taleb uses a static view of resilience here, which neglects the diversity of resilience concepts: we return to this issue later. Yet, for the moment, note the following contrast between *antifragility* and *dynamic robustness*: although both concepts express persistence through adaptability, antifragile systems are also opportunistic, or they can use change to evolve and improve. This distinction has two consequences. First, antifragility is not a stability concept (Hansson and Helgesson: 2003). Second, unlike robustness concepts, antifragility is an intrinsic value or virtue, rather than an instrumental one. We cannot but want those things that are intrinsically able to get better, and societies or organizations with that ability are, by necessity, virtuous in some way.

Sustainability

Here we cannot do justice to the variety and richness of existing definitions and views about sustainability (Michelsen et al.: 2016). Yet, it seems safe to claim that accounts of sustainability vary in their relative emphases of two aspects that seem equally

inherent to the concept: the social impacts on natural systems and their moral consequences.

On the one hand, for many ecologists and environmental thinkers, sustainability conveys the idea that certain (unsustainable) human activities threaten to create ecological crises like climate change, biodiversity loss or resource depletion. This idea is captured by the famous IPAT equation (Ehrlich and Holdren: 1971), where I stands for ecological Impact, P for Population size, A for Affluence (resource units per person) and T is the average process efficiency of Technology, measured as natural impacts per resource unit. This equation therefore stresses the causes and conditions of sustainability, by framing it as a tendency to keep ecological Impact (I) below an Ecological Carrying Capacity threshold (I<ECC).

On the other hand, sustainability is also used prominently as an adjective in the label "sustainable development", to emphasize the idea that the continuity and wellbeing of society depend on abandoning or transforming unsustainable activities, and maintaining or restoring the natural processes now endangered by them. This aspect is highlighted, for example, by the Brundtland definition (WCED: 1987), which focuses on the moral consequences of (un)sustainability while leaving its causes or conditions implicit.

Resilience and sustainability are compared on many grounds, with varied conclusions (Arrow et al.: 1995; Dovers and Handmer: 1992; Derissen et al.: 2011; Redman: 2014; Benson and Craig: 2017). Building on our schematic discussion, they appear to differ in one subtle respect when both terms are taken to refer to environmental risks. Human societies or activities are sustainable if they do not create environmental risks for themselves, and they are resilient simply if their response to already existing risks has certain qualities. Thus, sustainability concerns the human origins as well as the consequences of environmental risks; but resilience, like robustness or antifragility, refers only to this latter aspect.

While there are manifold accounts of the concept, it seems clear that sustainability is (and is uniformly used as) an intrinsic value, that is, something desirable of human activities, technology, etc. and a virtue of the societies or organizations that promote it.

Lock-in and transition

Lock-ins are social trajectories that promote their own underlying causes while posing barriers for alternative dynamics (Unruh: 2000). For the purposes of our discussion, they can also be seen as institutional, technical and cultural rigidities that typically result from technology diffusion and upscaling (Collingridge: 1980). Transition and

lock-ins relate thus: societies require a rapid transition to sustainability and lock-ins are major obstacles to it. For example: climate change mitigation requires dismantling the fossil fuel industry, which, aside of its standalone impact on many economies, is heavily entrenched with other industries, technical skills, institutional regimes, behaviors, beliefs and values such as freedom of mobility. In other words, our societies are locked-in an unsustainable trajectory, and transition would be the process of loosening ties between various facets of (unsustainable) lock-ins, while fostering opportunities for (sustainable) alternatives (Kemp et al.: 1998).

In the context of sustainability, then, lock-in has a negative connotation, and transition a positive one. Yet, as the above definitions make clear, lock-in expresses an ambivalent process feature: while being locked-in an unsustainable trajectory is worse than simply being unsustainable, being locked-in a sustainable pathway would indeed be much better than being simply sustainable. Something similar applies to transition. Therefore, the normativity of these concepts is strictly instrumental.

While transition and lock-in are not responses to change, they respectively denote system features that enable systems to adapt while impeding structural change (lock-in) and processes of structural change (transition). Therefore, they partly overlap with concepts discussed above, namely with adaptive resilience or dynamic robustness (lock-in) and transformative resilience (transition). These overlaps have motivated much discussion on how to interpret social resilience or the resilience of sociotechnical systems in relation to sustainability transitions (Leach: 2008; Smith and Stirling: 2010).

2.2.3. The 'orthodox narrative' of the Resilience Alliance

Building on earlier work by ecologist C.S. Holling, since the 1990s the Resilience Alliance championed resilience as a more general approach for managing risks in socio-ecological and other complex systems. As we saw, they were hugely successful. Yet, their endeavor was not unopposed. In an influential paper published in *Ecology & Society,* the official Alliance publication and a leading resilience journal, Brand and Jax (2007) complained that the Alliance's broadened use of resilience had contributed to distort the original meaning and function of the term. According to Brand and Jax, resilience originally was a precise and descriptive concept that Holling had used for challenging received views on ecosystem stability and advancing an alternative ecological conception based on complex systems thinking. In contrast, they argued, later uses were useful for articulating public debates and governance strategies on risk, but they were also more vague, normative and incompatible with scientific work (Brand and Jax: 2007).

The Alliance took note of Brand and Jax's arguments, and since then they have been using their considerable academic influence to promote a very similar narrative. We will label Brand and Jax's view the "orthodox narrative", since it does not merely push for a specific content of resilience: it also contains a battery of arguments about how to interpret and use the concept, how not to, and why. In the last decade, for example, various articles written by prominent Alliance authors have specifically engaged Brand and Jax's arguments to advance certain theses about resilience (Anderies et al.: 2013; Folke et al.: 2010; Elmqvist et al.: 2019). Resilience is defined, for example, as a "capacity… to absorb disturbance, reorganize, maintain essentially the same functions and feedbacks over time and continue to develop along a particular trajectory" (Elmqvist et al.: 2019, 3). This is an adaptive resilience concept that explicitly excludes transformation, and that is very similar to the one proposed by Brand and Jax–cf. also Folke et al. (2010). These articles also share that they insist in the purely scientific and non-normative character of resilience.

In addition, Elmqvist, Folke and colleagues have also tried to position this orthodox narrative in discussions about urban resilience (Elmqvist et al.: 2019). Their article is exemplary, because it fundamentally is an objection against the growing use of resilience as a normative term and a surrogate of sustainability in urban contexts. After presenting their account of resilience, the authors argued that resilience is non-normative because it can be desirable, but also undesirable, as occurs e.g., with resilient poverty traps and similar lock-ins (Elmqvist et al.: 2019, 5). In contrast, they portrayed sustainability as a purely moral term that expresses justice in distribution and between generations, which, in their view, can only be good (ibid, 2-4). Similar arguments about the normativity of resilience and its contrast with sustainability can be found, for example, in Anderies et al. (2013), Derissen et al. (2011) and Folke et al. (2010).

This orthodox narrative has a handful of problems, however. First, as Brand and Jax argued, the Alliance itself has often employed different resilience concepts–cf. also Carpenter and Brock (2008) and Folke et al. (2002) , which raises questions over their authority in banishing transformative and strongly normative uses, for example.

Second, and this point applies to Brand and Jax as well, the narrative offers a misleading view of what is normative or not, and why. Scientific and moral discourses need not be sharply disjointed, for instance. As was noted, sustainability has a scientific side besides its moral one, and many other scientific concepts, such as e.g. *wellbeing*, also combine descriptive and normative aspects (Alexandrova: 2018). Then, the fact that some resilient systems or societies are undesirable does not mean that resilience is

non-normative: values can be desirable for themselves even if they only capture some aspects of what is good or valuable.[4] Further, these accounts all portray resilience as a morally ambivalent term and a surrogate of *dynamic robustness* or *lock-in* (Elmqvist et al.: 2019; Brand and Jax: 2007; Anderies et al.: 2013; Folke et al.: 2010). Yet, even if resilience was morally ambivalent, it would not follow that it is non-normative. Rather, this characterization suggests that resilience is an instrumental value or virtue, and so a normative term. These remarks[5] show not only that the orthodox narrative involves a problematic notion of normativity, but also that the normative profile of resilience remains poorly analyzed, and its possible implications hardly recognized.

The following sections develop a third objection in detail. According to the interpretation proposed by Brand and Jax (2007), and later sanctioned by the Alliance as what we have called the "orthodox narrative", C.S. Holling originally used resilience as a descriptive term that embodied his theoretical insights on ecosystem science. In our view, this is an overly narrow interpretation of Holling, mainly because it ignores the relevance of his contributions to management. This neglect is surprising, since Holling used to think that ecosystem science and management are essentially interwoven, and, indeed, he did not lament this feature *per se*, but only the specific form it took in traditional ecology. We will now show that, when Holling's work is conceived as a comprehensive project for reforming ecosystem science and management, his view on resilience no longer fits into the Alliance's orthodox narrative, and it provides us with important lessons for interpreting and using this term critically.

2.3. Holling's early work on resilience

Commentators normally neglect Holling's work on ecosystem management and focus on his critique of classical ecosystem science (Elmqvist et al.: 2019; Brand and Jax: 2007; Odenbaugh: 2011). Here we approach Holling's work from opposite assumptions. Firstly, we examine the relevance of Holling's critique of environmental management in relation with his theoretical critique of ecosystem science (2.3.1). Then we present his proposals for reforming ecosystem science and environmental

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[4] Consider the case of sustainability. Cuba is a top country in human development rates vs. ecological footprint, and so it gets as close to sustainability as a country can get (Cabello Eras et al.: 2012; Niccolucci et al.: 2012). Yet, Cuba is still an unjust country, at least because many Cubans cannot run for political office. Therefore, sustainable societies need not be good in all respects; yet, this fact does not make *sustainability* any less valuable or desirable.

[5] Cf. chapter 3 for a more elaborate discussion of these points.

assessment and management, explaining how Holling redefines resilience in each of these areas (2.3.2).

2.3.1. The critique of traditional ecological practices

We begin by analyzing Holling's critique of ecosystem science and environmental management. We will show that Holling's points on ecosystem science are partly contingent on his critique of the "pathologies" of two management styles that dominated natural resource management in the 1970s: efficiency-based exploitation and typical conservationist strategies (Holling: 1978, 1987; Holling and Meffe: 1996). Thus, while Holling certainly rejected some assumptions of classical ecology for theoretical reasons, he also rejected those assumptions as practically dangerous, namely for underpinning management directions he considered pathological.

Holling's primary target was efficiency-based management, a management style driven by the idea that "big-is-necessary" (Holling: 1978, 31-33), that is, by social and economic demands of maximizing exploitation. Holling characterized this management style as one that prioritizes the ongoing extraction of a 'Maximum Sustainable Yield' (MSY) of a desired resource and treats other ecological or social concerns "as constraints" or even as disturbances (Holling: 1978, 3 and 56). For example: if one's goal is to extract an MSY of timber, then, pests or forests fires are disturbances with respect to it. The usual policy then is to remove these disturbances as efficiently as possible (e.g., with pest eradication or forest fire suppression programs).

According to Holling, classical ecosystem science was informed by an "engineering" view of ecosystems that favored this management perspective (Holling: 1973, 1-2 and 21). This engineering view influenced ecosystem science in two related ways: its stability assumptions and a strongly quantitative character. Ecosystems were viewed as devices "designed by the engineer to perform specific tasks under a rather narrow range of predictable external conditions" (ibid, 1). They were thought to have just one equilibrium, which often was chosen pragmatically and defined in narrow quantitative terms: as a fixed set of quantities (e.g., population sizes, flow volumes…) that expressed, or related directly to, desired yields (MSY) of economically valuable resources. All significant change in these variables was believed to occur near the equilibrium (ibid).

For Holling, these assumptions were in part pragmatically motivated, since they made ecosystem dynamics analytically tractable (i.e., quasi-linear), thus enabling the short-term success of efficiency-based management in reducing or eliminating disturbances. Yet he argued that, in the long run, this approach increased the

probability of new, unforeseeable threats with much worse outcomes (Holling: 1973, 14ss.). For example: as forest suppression becomes efficient, it raises the volume of fuel available, eventually leading to massive, uncontrollable fires (Holling and Meffe: 1996). Holling thus argued that efficiency-based management suffers from the syndrome of "living dangerously" (Holling: 1987, 7).

Holling paid much attention to some specific "pathologies of management" (Holling and Meffe: 1996) that often compound to make ecosystems and society more vulnerable in this sense. His more detailed discussions on the pathologies of management (ibid; Holling: 1978, 1987) do not label the pathologies described. In what follows, to ease discussion, we refer to Holling's pathologies with three labels that are the technical terms normally used to refer to the processes analyzed by Holling. These are: *rebound effects, lock-ins and instrumentalism*. Now we will examine these pathologies, since they are key for understanding Holling's project for reforming ecology and the role of resilience in it.

Rebound effects

Rebound effects are positive feedbacks that arise when supply crises (e.g., in extraction) are addressed with efficiency measures. When such measures increase outputs or yields while lowering exploitation or production costs, they lead to demand growth and new supply crises, which motivate further efficiency measures (Beniger: 1986). Rebound effects have local and short-term benefits, but their undesirable impact on e.g., energy crisis or resource depletion is increasingly recognized (Plepys: 2002; Hymel et al.: 2015; Paul et al.: 2019), and Holling was one of its early critics. He explained how, after removing threats to the extraction of some resource, MSY-levels can be maintained or even increased, thus posing incentives for intensifying and upscaling commercial activities in the area (Holling: 1987). Some troubling consequences then follow. First, rebound effects simplify ecosystems and subject them to an ongoing stress, which makes them vulnerable e.g., by making critical thresholds easier to breach. Second, they promote economic globalization and centralized political control, which deteriorate information feedbacks and reduce the local sensitivity and ability to respond to changes quickly (Holling: 1978; Holling and Meffe: 1996). Third, their initial advantages make managers more confident and myopic, thus contributing to lock-in (cf. below).

Lock-ins

We already explained what lock-ins are. Holling argued that lock-ins arise in efficiency-based management because, as companies and management agencies

succeed, they get bureaucratized, specialized and dependent on ways of seeing and doing (Holling: 1987). For Holling, lock-ins raise several problems. One is that they foreclose alternative management options, often irreversibly. Another is that organizations become focused on short-term results, and so more rigid and less able of handling ecological crises. Further, he noted that lock-ins make management unresponsive to both its natural and its social context: in fact, he linked them with a technocratic drift that isolates experts from affected customers and the public (ibid; Holling and Meffe: 1996). Holling added that, when ecological crises appear, this feature often contributes to a loss of public trust and a growing social unrest.

Instrumentalism

Holling also lamented that, as efficiency-based management gets locked-in, efficiency becomes the only goal, replacing any other environmental, social or economic goal that might have previously guided managers. This pathology expresses what philosophers call instrumentalism or instrumental rationality: a style of reasoning and decision-making that neglects intrinsic values to prioritize instrumental ones (Schecter: 2010).[6] Holling was well aware of the double-edged character of efficiency, which is often, too, the point of critics of instrumentalism: when efficiency dominates decision-making, there is no room for other important or intrinsic values, or they are lost from sight.

Holling's critique of conservationism is more schematic. He described conservationism as guided by a "small-is-beautiful" worldview that stresses natural limits and strives for ecological "purity and constancy" (Holling: 1978, 9). Holling linked this attitude to a view of Nature as "Ephemeral" or "Mischievous" (ibid, 31) which, notably in developed countries, "reacts against past emphasis on growth and social and economic issues" with unconditional protection policies (ibid, 6). His concern was that, in practice, this policy also aimed at stabilizing ecosystems, which, for him, was not ecologically sound (ibid, 34-35). He also rejected the "popular rhetoric of ecology that everything is intimately connected to everything else", which leads technicians "to measure everything, hence producing the indigestible tomes typical of many environmental impact statements" and motivating "arbitrary, inflexible, and unfocused" policies (ibid, 6). For such reasons, he thought that conservationism could be even more rigid and bureaucratic than efficiency strategies,

[6] Some philosophers also conceptualize instrumental rationality more broadly, in ways that recall Holling's concerns as well, but that could distract us from the main discussion.

and indeed more likely to aggravate lock-ins and to raise "gridlocks" for economic and conservation efforts (Holling and Meffe: 1996, 332).

So, to summarize, Holling was quite unsatisfied with the ecosystem management styles of his time and their common theoretical basis. These concerns were to some extent epitomized by resilience, which was then commonly defined as the "speed of return of variables towards their equilibrium following a perturbation" (Pimm: 1984), that is, as a sort of efficient recovery. For Holling, this concept of "engineering resilience" (Holling: 1996) implied a belief on a "Benign Nature" that was "infinitely forgiving", because "if a disturbance is removed, the system will ultimately return to its original condition" (Holling: 1973, 30). It also implied that ecosystem responses to efficiency measures were themselves smooth, efficient and easily quantifiable. In short, engineering resilience illustrated the stability basis of ecosystem science, while also acting as a goal that could complement efficiency-based management or the misguided conservationist efforts.

2.3.2. The reform of ecological practices

Now we turn to discussing Holling's ideas for reforming ecosystem science and environmental assessment and management. Table 2.1 offers a non-exhaustive list of proposals in each of these domains (resilience is not included, but its important role among these ideas is described below as well). Let us consider these proposals in turn.

Table 2.1. Holling's proposals for reforming ecological practices.

Ideas for ecosystem science	Guidelines for environmental assessment and management
	I. Punctuated uncertainty
	II. The rule of hand
1. Lumpy, hierarchical ecosystem structure	III. Integrate values
2. Extended keystone hypothesis	IV. Flexibility and anti-irreversibility
3. Multi-stability	V. Opportunistic, experimental approach
4. Punctuated equilibrium dynamics	VI. Safety margins, avoid subsidies
5. Irreversibility	VII. Design with nature
6. Novelty emerges far from equilibrium	VIII. Tightening feedbacks
	IX. Regional scale
	X. Decentralized and participatory

Resilience and ecosystem science

Starting with his insights on ecosystem science (Table 2.1-left), Holling thought that many ecosystems had features, related to their complexity, which called into question the assumptions of stability and quantification that characterized traditional ecology.

The first two points concern ecosystem structure (1-2). Holling challenged the idea, common among ecologists, that "everything is connected to everything else" (Holling: 1978, 27). He instead described ecosystem structure as a 'lumpy' and nested hierarchy where species develop selective relations, forming dense clusters that are tightly coupled within and loosely coupled without (ibid). His extended keystone hypothesis then says that "a small set of plant, animal, and abiotic processes structure ecosystems across scales in time and space" (Holling: 1992, 2) and that the interplay between certain slow and fast variables is particularly critical for this structure. Slow variables (which change over long time periods) control stability landscapes and determine which regime shifts can occur in response to fast changes. In turn, fast variables can precipitate changes in the set of key slow variables (Holling: 1986, 1992). Examples are given below.

The other four points (3-6) concern ecosystem dynamics. Holling thought that ecosystems often have multiple equilibria, each with qualitatively distinct dynamics (Holling: 1973). He advocated a punctuated equilibrium model of change, where dynamics near equilibria are quasi-linear and predictable, and dynamics in equilibrium boundaries and far from equilibria are non-linear and highly uncertain (Holling: 1986, 1987). He seems to have distinguished between two kinds of regime shifts. Those triggered by human activity are often abrupt, unexpected, irreversible and damaging for ecosystems, more or less as illustrated by the pathologies of management (Holling: 1978). In contrast, natural regime shifts usually respond to natural cycles of variation that are desirable. One reason for this appraisal is that, for Holling, natural variation is often key for ecosystem persistence–cf. below. In addition, ecosystem collapses release nutrients and niches, and Holling argued that their instability conditions are often opportunistically exploited by novel life forms and processes that can turn out to be beneficial to humans (Holling: 1978, 1996; Holling and Meffe: 1996).

These ideas are further illustrated with his account of "ecological resilience":

> R1: "measure of the persistence of systems and of their ability to absorb change and disturbance and still maintain the same relationships between populations or state variables" (Holling: 1973, 21).

This definition specifies the outcome (or ex-post aspect) of resilience: in contrast to 'engineering resilience', a recovery concept, Holling claims that ecological resilience results in the simple persistence of key populations or species (Holling: 1973, 17)–that is why the definition abstracts from return time and, generally, from recovery. Now

resilience is, too, a more complex, global, and qualitative property: it does not refer to a stable state defined by quantitative values (e.g., MSY), but to the avoidance of structural shifts between multiple stable states, or to keeping change within bounds.

As determinants of resilience (ex-ante aspect), Holling mentions properties like spatio-temporal variability and species richness, especially as related to functional redundancy and diversity of responses–cf. also Elmqvist et al.: 2003; Walker and Salt: 2006; Simonsen et al.: 2015. The reason, according to him, is that these properties provide ecosystems with adaptive capacities that are key for persistence and resilience. Note that this means, however, that resilience does not only result in persistence, but also in adaptations, or the ability to adapt. Therefore, if one considers Holling's insights about the determinants of resilience, his 1973 definition (R1) must be modified to preserve the consistency of Holling's view. For example (changes in italics):

> R1': Measure of the persistence of systems and of their ability to absorb change and disturbance and still maintain *similar relationships* between populations or state variables, *as attained through adaptability*.

In other words: although Holling defines resilience as a rather "conservative" concept, very similar to robustness, when we consider his account of determinants, he really is proposing a more dynamic resilience concept. This account is found, for instance, in three case studies from his 1973 seminal paper, which we revisit next because they clarify much about the precise relations between resilience and his other scientific ideas.

One is about rich freshwater systems in the Great Lakes (Holling: 1973, 6ss.). Holling explains how, when affected by sustained stress (e.g., through fishing pressure, phosphate loading…), these systems lose resilience slowly until they jump to a degraded state with much less fish stock. Holling takes the example to show that (human-driven) stresses are more dangerous than shocks, since they reduce the amount of disturbance that can flip a system into a degraded state. He adds that such degraded states are hardly reversible and may suffer from hysteresis: even if stressors are greatly reduced or even removed, populations are unlikely to return to their original levels.

Another study is about spruce-budworm outbreaks in boreal forests (Holling: 1973, 15 ss). Holling shows that budworms outbreaks are episodic but frantic (a fast variable), that their predatory activity is mediated by foliage density (medium-scale variable) and that it is crucial for the alternation of spruce, balsam and fir in the forest (slow variable). The example thus offers a very different account of ecological change, where cross-

scale relations and temporal variability enable natural forest renewal and increase resilience.

Finally, a third case shows how the spatial diversity or modularity of Vancouver Island creates opportunities for replacement between caterpillar populations in case of disasters and bottlenecks (Holling: 1973, 17 ss.). He stresses how the adaptability of caterpillars developed in part because of these spatial characteristics. The case shows, then, how important biodiversity and spatial diversity are in providing ecosystems with novel and flexible mechanisms that underpin ecosystem renewal and persistence.

In his more theoretical work, then, Holling refers to resilience exclusively as an ecosystem property that captures behaviors neglected in "engineering resilience". As we are about to show, however, he spoke of resilience quite differently in the context of his discussions on environmental management.

Resilience and environmental assessment and management

Most of Holling's proposals for reforming environmental assessment and management are found in his monograph *Adaptive Environmental Assessment and Management* (Holling: 1978), where Holling presents his method for overcoming the pathologies of management. Table 2.1 (right) lists ten guidelines and policies he advanced in ecosystem assessment (I-II) and management (III-X) for this purpose.

The assessment prescriptions (I-II) are epistemological and methodological lessons implied in Holling's theoretical insights. Holling disputed the undue ambitions of predictability, a concern we label with the term 'punctuated uncertainty'. The label is ours, but it captures Holling's insight that scientists can predict dynamics and outcomes near equilibria, but not far-from-equilibria, where dynamics are uncertain and scientists need a more qualitative approach to assess them. Holling also complained of data excess and overquantification, which, in his view, hindered anticipation and responsiveness in management (Holling: 1978, 6). He addressed this problem with the "rule of hand" (ibid): a method that focusses on a set of three to five critical variables at three different spatio-temporal scales, to capture qualitative features of ecosystem complexity, regime shifts and related uncertainties (following his insights on the extended keystone hypothesis, slow and fast variables, and resilience).

Holling added some general guidelines and specific policies that address the pathologies of management directly (III-X). He said, for instance, that managers can counter instrumentalism by integrating ecological, economic and social values at the very beginning of interventions (Holling: 1978, 2), and that they can avoid lock-ins and irreversible shifts by remaining flexible and keeping options open (Holling: 1973,

21). He further proposed an opportunistic and experimental approach that avoids "managing too much" (Holling and Meffe: 1996) and sees crises as sources of learning and opportunity, since endogenizing crises is precisely what creates responsiveness, adaptability and the ability to benefit from uncertain situations. This latter point relates to Holling's belief that nature itself is opportunistic in unstable situations (Table 2.1-6) (Holling: 1978, 205-213).

He also advanced a few specific economic measures, mostly aimed at preventing rebound effects. One was to keep extraction and wastes well below the desired MSY by introducing safety margins to exploitation (Ludwig et al.: 1997). Relatedly, Holling advised against subsidizing and overcapitalizing on extractive activities to prevent rebound effects (Holling: 1978; Holling and Meffe: 1996; c.f. section 2.3.1). He also claimed that designing with nature is environmentally and economically sound, particularly for saving management costs. For example, he argued that we can turn insect pests to our economic advantage by using them as "forest manager at places and times where it is not economically feasible for man to do so" (Holling: 1978, 34).

His ideas on the appropriate social embedding of management focus more on avoiding lock-ins and instrumentalism. He recommends *tightening feedbacks* -although this precise term was coined in later resilience research–cf. Walker and Salt (2006, 139). Tightening feedbacks essentially means localizing knowledge and management to limit the tendency of large-scale projects toward reduced responsiveness. Holling also proposed regions, instead of localities, as the focal management scale, arguing that they are the "obvious" scale where economic and ecological concerns can be monitored and balanced (Holling: 1978, 4 ss.). And he advocated a decentralized, participatory and interactive management, involving multi-stakeholder meetings and regular workshops to ensure value inclusiveness (Holling: 1978, 13 ss.).

Resilience was undoubtedly a key concept among Holling's ideas for reforming ecological assessment and management: the problem is to determine its precise role. The evidence suggests three possibilities: resilience as an ecological goal for his adaptive assessment and management method; as a general normative vision of the appropriate relationship between humans and nature; and as a label for adaptive management itself.

First, Holling used resilience as an ecological goal. Note that, while the proposals included in Table 2.1 reconcile well Holling's theoretical ideas and his critique of management, they do not include a precise ecological goal. Contrary to efficiency-based and conservationist policy, which are based on one dominant goal (e.g., stability, efficiency, limiting social impacts on nature…), Holling appealed to participatory

schemes for integrating various economic goals from business, social demands from local citizens, and ecological goals from activists and scientists. Holling's ecological goal was presumably that of "building, maintaining and if possible improving resilience", as implied, for instance, by his claim that, to avoid the pathologies of efficiency-based management, management must be "based on resilience" instead (Holling: 1973).

Holling also refers to resilience as a more general vision of virtuous human relationships with nature. Recall that, for Holling, the pathologies of management ultimately resulted from adopting flawed worldviews on nature and human-nature relations. Efficiency-based managers think that Nature is "infinitely forgiving" and that "big-is-necessary", two ideas that, taken together, justify the goal of maintaining or upscaling some socially stipulated MSY. Conservationists, in turn, think that Nature is "mischievous" and that "small-is-beautiful", and so that human impacts must be strictly limited to keep nature pristine. Holling said that a view of "Resilient Nature" includes the advantages and avoids the problems of these views by demanding an "enhancement of natural systems rather than simply… their protection" (Holling: 1978, 33). In this context, he defines resilience as an opportunistic and transformative property:

R2: "[ability] to absorb and utilize (or even benefit from) change" (Holling: 1978, 11)

Finally, Holling uses *resilience* to refer to adaptive management, for example, when he talks about "resilient policies" or "resilient or adaptive policy design criteria" (Holling: 1978, 2-9). Here, resilience is not a property of ecosystems or a vision of human-nature relations, but a property of virtuous management or organizations, consisting in their:

R3: ability to build or maintain resilience in a target ecosystem.

This concept builds on a metonymy that is fairly common in management and related fields, whereby a cause (for short: organizations, or organizational styles) is attributed a quality that primarily pertains to the effects or ends produced by that cause. Planning or control methods are also called efficient or robust, for instance, when they produce efficient or robust results, respectively. In this way, Taylorism is an efficient method of organizing assembly lines because it prioritizes efficiency and usually leads to efficient production, e.g., more output in less time, at less cost, and/or with lesser use of production factors. In the present case, resilience is used interchangeably with

adaptive management, which means that this concept covers or implies the whole set of assessment and policy prescriptions of this method.

2.4. Discussion

Now we turn to examining how these results challenge the Alliance's orthodox narrative on resilience, and which alternative account emerges in its place. Table 2.2 collects the uses of resilience identified heretofore, employing categories and concepts introduced in section 2.2 for indicating their main sources of variance. The table shows that Holling's uses are all sharply distinct from Pimm's concept ("engineering resilience"), but also that they are hard to reconcile with one another, at least at first glance. As can be seen, too, this task is further complicated by the fact that R1′ seems ambiguous between two possible interpretations (the 'OR' highlighted in bold). Building on these preliminary insights, we next raise three problems with the orthodox narrative on resilience, and then articulate our solution to those problems.

First, recall that, in the orthodox narrative, resilience originally was a descriptive term. Now our objection against this perspective can be further illustrated, since all concepts listed here admit of descriptive and normative use. Pimm's and R1′ are ecosystems properties that can also be used as values for guiding ecological design or management –efficiency-based or adaptive, respectively. (In terms of the distinctions made in section 2.1.1, Pimm's concept clearly is an instrumental value; R1', in turn, is an instrumental or an intrinsic value, depending on how this concept is interpreted.) R2, for its part, is a virtuous ideology or view about human-nature relations, and R3 is a virtue that organizations would want to have, and thus, a goal for organizational design.

Table 2.2. Typology of uses of resilience in Holling's early work.

Source	Content	Applies to	Concept type (ex-post)	Surrogate concept	Normat-ivity
Pimm: 1984	"Speed of return of variables towards their equilibrium following a perturbation"	(Stable) Ecosystems	Recovery	Efficient recovery (stability)	Instrum-ental value
R1′ (in text) Holling: 1973	Measure of the persistence of systems and of their ability to absorb change and disturbance and still maintain *similar* relationships between populations or state variables, *as attained through adaptability*	Ecosystems	Adaptive **OR** Transformative	Dynamic robustness **OR** Antifragility	Instrum-ental **OR** Intrinsic value
R2 (in text) Holling: 1978	"[Ability] to absorb and utilize (or even benefit from) change"	View of human-nature relations	Transformative	Antifragility	Intrinsic virtue
R3 (in text) Holling: 1978	Ability to build or maintain resilience in a target system	Organizations	Transformative	Antifragility	Intrinsic virtue

A second point is about the kind of system that resilience applies to. R1′, an ecosystem property, is the dominant notion in Holling's more theoretical discussions. Yet, in his work on management, Holling frames resilience as a social property, i.e. a property of "views" or ideologies (R2), or of management and organizations (R3). This point suggests two logically possible interpretive strategies. One is to reconcile these two aspects of Holling's work by framing resilience as a natural and social property. Another is to focus on one of these two aspects, as Brand and Jax do, for example, when they characterize Holling's resilience as a concept of ecosystem science (cf. above). The problem with this approach is that it implies that Holling's work on management is irrelevant and that R2-3 are spurious.

The third point is similar, but now in relation to the ex-post aspect of resilience. The orthodox narrative views resilience as a quality that allows systems to maintain functions (and, in some accounts, also their structure) through minor changes (cf. section 2.2.3). This is an adaptive concept, close to dynamic robustness. While Holling's R1′has often been interpreted along these lines (Brand and Jax: 2007), note that this interpretation is inconsistent with R2-3, which are two explicitly transformative notions. In other words: the orthodox narrative implies that Holling used resilience incoherently.

While these difficulties are quite definitive for the Alliance's orthodox narrative, now we are in a position to present an alternative account. Our assumption is that Holling's early work involved proposals for reforming ecosystem science as well as

environmental management, and that a redefined view of resilience was crucial in both of these reforms. In consequence, we argue that these two aspects of Holling's work should be reconciled through a unified account of resilience. We further contend that this can be done by interpreting R1′as a transformative notion. Let us see how.

To start with, various reasons support this interpretation of R1′. One is its consistency with Holling's early theoretical work. His 1973 case studies (cf. 2.3.1), for example, present resilience as a property of specific kinds of ecosystems: diverse ecosystems that display far-from-equilibrium behavior. In various places, Holling attributes such systems a remarkable ability for generating opportunities for insiders and newcomers, as well as for evolving and reorganizing (Table 2.1-6) (Holling: 1986). Those insights then favor an opportunistic and transformative interpretation of resilience, as almost a surrogate of antifragility. That is, they favor an interpretation of R1' that is consistent with R2 and R3.

Furthermore, this is the only interpretation of resilience that renders Holling's work on management intelligible. As was shown above, Holling conceived of resilience as an ecological goal for fighting the pathologies of management. In a dynamic-robustness interpretation, however, R1′means something similar to lock-in, and it can be an instrumental or an intrinsic value, depending on the perception (cf. section 2.2.2). Antifragility, instead, is an intrinsic value that implies a potential to escape lock-ins and to use change to one's benefit. Clearly, this latter view of resilience is more conceptually fit for fighting the pathologies of lock-ins and instrumentalism.

Now consider the concept that emerges. From an ex-post perspective, R1′and R2-3 are now aligned in that they present resilience as a transformative notion: the ability to persist, adapt, but also utilize change to reorganize, transform or improve. Resilience is also a strongly and explicitly normative notion, which guides action in three areas simultaneously. First, as an intrinsic ecological goal for designing and reforming ecosystems (R1′). Second, as a goal for designing and reforming management styles and organizations (R3). Finally, these two ideas imply a third one, whereby resilience is an appropriate view of the relations that humans should have with nature (R2).

One important consequence is that, thus viewed, resilience is not a mere property of ecosystems, but a property of socio-natural ensembles. Such result cannot be surprising, considering that Holling's early work on resilience later underpinned the stream of social-ecological research that became the central business of the Resilience Alliance. This idea is manifest in the fact that the determinants of resilience are natural

or ecological (i.e., the ecosystem features mentioned in Table 2.1-left) as well as social (i.e., the guidelines of adaptive management listed in Table 2.1-right).

Table 2.3 summarizes these points, including a proposed redefinition of resilience that aspires to integrate the main aspects of R1′, R2 and R3.

Table 2.3. Unified account of Holling's early resilience.

Resilience definition	**Ex-post aspect**	**Ex-ante aspect**	
		Ecological determinants	**Social determinants**
Ability of management and societies to maintain and utilize the capacity of ecosystems to absorb change and still maintain similar functions, and to exploit instability for adapting or evolving	• Persistence • Adaptability • Opportunism (ability to evolve and improve through instability)	• Temporal variability • Spatial diversity (mosaics) • Functional redundancy • Diversity of responses	• Punctuated uncertainty (assessment) • The rule of hand (assessment) • Integrates values • Flexible organization, avoids irreversibility • Opportunistic, experimental approach • Safety margins, avoid subsidies • Designs with nature • Tightens feedbacks (localizes power/knowledge) • Regional scale of management • Decentralized and participatory

As a final comment, these results also cast doubt on Brand and Jax's (2007) claim that it was the recent social work on resilience what undermined the precise and scientific character of this term. In his early work, Holling used resilience as a rich and multi-disciplinary concept that, besides its technical content, had three normative functions: as an intrinsic ecological value, as a virtue of organizations or management styles, and as a virtuous understanding of human-nature relations. However, his characterization was not only inherently complex, but also, quite often, vague or ambiguous. Thus, the persistent difficulties around the interpretation and use of resilience are not the sole responsibility of social scholars or resilience practitioners: many of them can be traced back to Holling's original work on the concept. The good news is that our proposed account of Holling's resilience eliminates most of these difficulties.

2.5. Conclusions

Our proposed account of resilience has several advantages. Here we mention some by way of reflecting over the chapter results.

First, this account stresses the relevance of Holling's original work for much current resilience research and practice. Discounting possible posterior revisions of

this concept by Holling himself or by his colleagues at the Resilience Alliance, we have shown that Holling first conceived of resilience as an approach for transforming and opportunistically improving ecosystems and the social organizations that design or control them. This is basically how resilience is understood today in many fields and practices, notably in the context of adaptation. The *100 Resilient Cities* program, for example, uses resilience as a notion for transforming cities, their infrastructure and their governance systems, as well as for thinking differently about the urban-governance nexus in a context of ecological disruption (Rockefeller and Arup: 2016). It has been similarly noted that resilience approaches to adaptation inherently concern reforms in hard infrastructure, or community resources, as well as in soft infrastructure or policy frameworks (Norris et al.: 2008). In addition, the *Intergovernmental Panel on Climate Change* advocates a transformative view of adaptation, whereby adaptation should be opportunistic and convergent with climate mitigation goals (Allen et al.: 2012). These ideas all resonate with our interpretation of Holling's resilience, which partly explains the success of resilience in adaptation and related fields.

This chapter has also helped repositioning resilience vis-à-vis some competing and closely overlapping concepts. Despite the clear links between resilience and various robustness and stability concepts, we find resilience more closely related to *antifragility*, a concept that allows opportunistic transformation in the face of change. Holling's resilience differs from antifragility, however, on one subtle respect: its explicit dual character. Resilience is a social transformative property, but one that decisively rests on taking actions for preserving or improving a similar capacity of ecosystems.

This dual character of resilience sheds new light particularly on the relations between resilience and sustainability. Unlike other conceptualizations of resilience, Holling's resilience addresses the double dimension of sustainability (cf. section 2.2), since it is a goal for securing ecological features that are viewed as preconditions for attaining certain socially valuable goals. In fact, many of Holling's proposals make sense within the context of a progressive approach to sustainable development. Today, Holling would rightly dispute the efficiency basis and the technological and technocratic orientation of ecological modernization discourses (cf. Asafu-Adjaye et al.: 2015; Harrabin: 2021). But he was also possibly right in dismissing certain ecological obsession with limits, both on scientific grounds (consider his rejection of MSY, or more generally of the idea of a fixed carrying capacity) (Holling: 1973; Gunderson and Holling: 2002) and because of the negativity and paralysis such discourses may induce on social action (Holling: 1978; Holling and Meffe: 1996). As Holling himself insisted (Holling: 1978, 2001) , these features of resilience bring it close

to the idea of sustainable transition, at least closer than is usually recognized (Leach: 2008) and insofar as we are talking of social-ecological resilience specifically. There are, however, two crucial points to be made here. One is that resilience is being applied today in many ways that no longer retain this link with ecological conservation and sustainability (Smith and Stirling: 2010). Another is that the normative basis of resilience is much less explicit and convincing than that of sustainability. That takes us to our last point.

Further, this chapter has drawn attention to morally relevant aspects of resilience that are neglected in what we called the Alliance's orthodox narrative on resilience. Looking at resilience as a descriptive term is a mistake that can raise several further confusions, such as that there are no normative decisions to be made in resilience practice. Not only is this idea misguided: it can moreover carry a profound danger of depoliticization, which has been rightly criticized by resilience scholars (Olsson et al.: 2015; Walker and Cooper: 2011; Joseph: 2013; Grove: 2018; Geels: 2010). Trying to avoid this problem, in this chapter we stressed the normative aspects of Holling's critiques and proposals. We have shown that Holling's ideas parallel normative arguments that, in the 1970s and later, have been popular in various domains, especially as they converge around the rejection of efficiency and stability as suitable values for planning and design (van de Poel: 2021; Hall: 2010), or around concerns for overquantification, optimization and utilitarianism (here viewed as the short-run maximization of welfare) in risk management and related areas (Hansson et al.: 2003; Renn and Klinke: 2004, 2014; OECD: 2003). In addition, we selected a battery of explicit and concrete "resilience-based" measures that can be of much utility in prompting further debate over the normative concerns that resilience approaches do or do not capture, at least currently. For example, social and social-ecological resilience inevitably advance some notion of justice between generations, or intergenerational justice. Likewise, procedural justice is partly attended through social determinants of resilience such as "integrating values" or promoting "participatory management". In contrast, resilience seems to care little about distributive justice, that is, about addressing present inequalities or disadvantages. This point resonates with the popular concern that resilience is not a pro-poor concept (Béné et al.: 2012), which casts doubts on the potential of resilience as a sustainable development or a climate adaptation narrative. In addition, Holling's approach has other problematic aspects, such as the potentially unfair and unjust consequences of applying an "experimental" attitude to social contexts (van de Poel: 2013). These and other morally sensitive issues

around resilience deserve more attention than they have received to date (Doorn: 2017; Copeland et al.: 2020).

We conclude with three caveats about the limitations of this study and the needs for further research. First, we have proposed a philosophical characterization of resilience that attends to the following aspects of this concept: what is resilience as a response to disturbance (ex-post aspect); what are its determinants (ex-ante aspect); how resilience stands in comparison with closely related concepts; and how to characterize its normative profile. Our account therefore impinges on points that are key to address in framing resilience for resilience-based interventions, but it also leaves out many critical decisions that belong to later stages of these interventions; examples abound. One is how to choose indicators of resilience and what are the problems involved, for instance, in normalization, aggregation or in comparing the resilience of complex systems that differ in many dimensions, such as cities (Copeland et al.: 2020). Also in need of further research is the question of how our characterization of resilience could inform the development and prioritization of concrete resilience-based strategies and policy, be it at a corporate, city or country level (Lundberg and Johansson: 2015).

Second, we want to stress that this chapter did not intend to offer a definitive and universal account of resilience, but only a minimal account that aptly addresses certain misunderstandings. While we defined resilience as an opportunistic transformation of some complex system and of the organizations that manage it, for example (cf. Table 2.3), our definition leaves unspecified the goals of transformation or the desired circumstances and means for opportunism. This result may disappoint those scholars and practitioners who strive for a resilience blueprint that is applicable across all systems and circumstances. But it also means, for example, that crucial decisions about resilience planning and management, even at the level of framing resilience, can still be made through participatory schemes. This demand is common in resilience research (Meerow et al.: 2019) and in fact, as we saw, can also be attributed to Holling himself.

Third and finally, our account builds directly on Holling's early ecological and social-ecological research to propose an alternative to what we called the Resilience Alliance's "orthodox narrative". Holling's and the Alliance's work on resilience is influential and relevant enough to warrant the applicability of our conclusions to many other streams of resilience research. Yet, one must be careful at generalizing to areas such as safety engineering, where resilience has made much fortune (Woods: 2015; Hollnagel: 2018). In our view, Holling's resilience is an ability that societies have for

opportunistically exploiting the capacity of ecosystems for evolving and transforming themselves. In contrast, engineering systems like infrastructures lack a capacity for self-organization and evolution, and indeed these systems are often described in terms of their inertia, obduracy and lock-ins (Collingridge: 1980; Beniger: 1986; Unruh: 2000). This means that, in engineering fields, a socio-technical approach is indispensable for underpinning the flexible and transformative behavior that seems inherent to resilience, and, still, we may not be talking of resilience as the same kind of property in both contexts. This key difference has been noted by transition scholars (Smith and Stirling: 2010) and it demands further research on how to exploit resilience thinking coming from ecology.

3. Resilience as a normative term revisited[7]

3.1. Introduction

Resilience, an ability or capacity to respond to shock or stress effectively, has a long history of use in many scientific domains (Thorén: 2014). However, the work of ecologist C.S. Holling in the 1970s, and especially since the 1990s in the Resilience Alliance, was key in accelerating and diversifying the use of this term (ibid). Today, resilience is used in many social and technical fields, from risk management to urban planning and engineering design, also inspiring policies and programs in development, security, climate adaptation and elsewhere (Doorn: 2017). Being originally a scientific concept, the proliferation of practical uses of resilience has motivated much discussion about the normative status of this term (Brand and Jax: 2007; Walker and Cooper: 2011; Joseph: 2013; Kolers: 2016; Meerow et al.: 2016; Thorén and Olsson: 2017).

This paper revisits and advances the debate about the normativity of resilience by informing it with metaethical work on thick concepts: concepts combining descriptive content (content that describes realities or features) and normative content (content that gives reasons for acting) (Williams: 1986; Finlay: 2019). We will argue that most resilience concepts are thick concepts with two kinds of normative aspects: *evaluative* and *normalizing*. Concepts have evaluative content when they give reasons for modifying something's valence—where valence is what makes something good, bad, better or worse. For example, to say that Susan is altruistic is to say that she is good (or at least better than non-altruistic people) because she cares for others more than for herself. Within this characterization, most resilience concepts are evaluative because saying that x is resilient implies that x is, in some way, better than its non-resilient counterparts. In turn, concepts have normalizing content when they normalize (or restrict ascriptions of membership to) a category in accordance with tacit or explicit values, rather than just in terms of common or typical features possessed by the things to which the concept applies. An example will clarify. Generally, the category 'man' is used simply for describing people with certain specifiable physical traits, such that having these traits makes someone automatically a man. In contrast, the statement "Hillary Clinton is the only man in the Obama administration" (Leslie:

[7] This chapter is a version of an article that is currently under review.

2015), restricts ascriptions of manhood to people who 'have what it takes' for occupying a position in US administration—where this 'what it takes' is the normalizing content of man. This 'what it takes', which redefines 'man' as a normative concept, is what we understand as normalizing content (of 'man', in this case).

Working with this characterization of evaluative and normalizing concepts, we will show that most resilience concepts are evaluative because saying that x is resilient implies that x is, in some way, better than its non-resilient counterparts. We will also show that the term resilience can involve normalizing aspects in two ways: first, in determining the precise kind of response to disturbance that resilience is, and then, whenever operationalizing resilience, via decisions about what things can count as resilient and which disturbances matter.

These results cast doubt on the idea that resilience is ever just a descriptive (or non-normative) concept. We thus begin by briefly reviewing perspectives about the normativity of resilience from the literature, illustrating the need to inform these perspectives with metaethical work on normativity (3.2). Next, we examine recent metaethical work on thick concepts, highlighting insights that undermine the main arguments about the non-normative status of resilience, while also clarifying the various ways in which concepts can be normative (3.3). The insights thereby obtained ground our assessment of the normative aspects of various interpretations and uses of resilience (3.4). Finally, we reflect on our results, recommending a shift of analysis from the question "is resilience normative?" to the question "how can the normative aspects of resilience be appropriately handled?" (3.5).

3.2. Resilience and its normativity

This section frames the challenge. We start by presenting four important resilience concepts (3.2.1) and connecting them with the main positions about the normativity of resilience (3.2.2). Then we explain why we think metaethical work on thick concepts can help advance the debate (3.2.3).

3.2.1. Four 'resilient' responses to disturbance

One persisting problem in relation to resilience is the manifold interpretations of this term. In particular, although resilience is generally understood as an effective response to disturbance, accounts differ as to precisely which kind of response to disturbance resilience is. Here we introduce four concepts that represent alternative framings of this aspect of resilience, exemplifying them with uses from ecology—though, as noted

below, these concepts are also influential in other domains.[8]

We want to put forward a word of caution about these four concepts. Our typology follows similar typologies developed in the literature, especially Delettre's (2021). However, in such a short space it is impossible to take stock of the diversity and wealth of perspectives on resilience, and thus we urge the reader to understand our four concepts as fluid and non-exhaustive categories. That is, we recognize that a concrete use of resilience may oscillate ambiguously between two or more categories, and further, that some uses of resilience may not be well captured by any of these categories.

Despite these caveats, it is at least possible to claim that most resilience scholars are familiar with Holling's (1996) distinction between ENGINEERING RESILIENCE and ECOLOGICAL RESILIENCE. ENGINEERING RESILIENCE is a system's capacity to recover efficiently or to return quickly to a reference state after disturbance (Pimm: 1984). ECOLOGICAL RESILIENCE is more difficult to conceptualize. Originally, Holling (1973) defined it as an absorptive capacity enabling systems to persist or to maintain critical structures or properties through disturbance. On the other hand, later in the same article and elsewhere, Holling argued that resilience is dependent on an ecosystem's adaptive capacity—that is, on ecosystem features like temporal variability, biodiversity, spatial mosaics and other features that enable ecosystems to persist in the long term while evolving (ibid; Cañizares et al.: 2021; cf. chapter 2). The idea that ECOLOGICAL RESILIENCE is both an absorptive capacity operating *through disturbance* (or a capacity to persist) and an adaptive capacity operating *after disturbance* (or a capacity to change) is still more explicit in other influential accounts of this concept—cf. Walker et al. (2004).

This interplay between persistence and change (or adaptiveness), which seems at the root of ECOLOGICAL RESILIENCE (Carpenter and Brock: 2008), has proved confusing over time, raising a multitude of interpretations that insist more either on the stability aspect of resilience or on its dynamic or "transformative" aspect. For example: according to Meerow et al. (2016), resilient systems are those able to persist in the long term through fundamental transformations that improve their adaptive capacity. This definition thus raises the obvious question of exactly what persists through change in things that are resilient in this sense. Nonetheless, similar questions

[8] Before starting, one note for clarity. In what follows, we use italics to refer to terms (e.g. *resilience*), and caps to refer to specific conceptualizations of a term (e.g. ECOLOGICAL RESILIENCE). We will not use any of these notations when we are referring to the real-world things or properties denoted by a term or concept (e.g. resilience is an ability to respond to disturbance).

are raised in relation to more orthodox accounts of ECOLOGICAL RESILIENCE (Cumming and Collier: 2005, Delettre: 2021; Cañizares et al.: 2021), and, in practice, it is difficult to distinguish ECOLOGICAL RESILIENCE from more transformative accounts, since variations here are a matter of degree, relative to the exact interpretation of 'adaptive capacity'.

Yet, we want to argue that at least two "transformative" views of resilience deserve separate attention in that they do not describe the post-disturbance aspect of resilience as an adaptive capacity, but rather as something different. First, resilience has been associated with an ecosystem's ability to regenerate into a similar ecosystem after being destroyed or impaired (Holling: 1986; Folke et al.: 2004). This conception differs from ECOLOGICAL RESILIENCE in that the mentioned regenerative capacity elicits discontinuity, rather than continuity, from pre-disturbance to post-disturbance conditions (Delettre: 2021). Another alternative framing of this post-disturbance aspect of resilience comes from Holling's classic monograph on adaptive management, which defines resilience as an ability "to absorb and to *utilize change or to benefit from it*" (Holling: 1978, italics are ours). We label these two concepts as REGENERATIVE and OPPORTUNISTIC RESILIENCE, respectively.

If we turn now to social applications of resilience, we see that resilience is often presented as a mixture of two or more of these concepts. The Intergovernmental Panel on Climate Change (IPCC) has shifted between various combinations of these concepts, for example (Doorn: 2017). Also, in disaster relief studies, resilience is typically identified with an approach to "Building Back Better" (BBB) (UNISDR: 2017), that is, with a blend of REGENERATIVE and OPPORTUNISTIC RESILIENCE. Thus, while we assume that the four concepts presented above do not exhaust the gamut of views on resilience (as a response or set of responses to disturbance), they do capture many prominent perspectives in this variety, both in and beyond ecology.

Table 3.1. Important resilience concepts and their distinctive features

Label	Definition (source)	Non-definitional Aspects (sources)	Relation with disturbance (Through/ After)
ENGINE-ERING RESILIENCE	"Speed of return of variables towards their equilibrium following a perturbation" (Pimm: 1984)	Ecosystem has 1 narrowly defined equilibrium (Delettre: 2021)	A: (efficient) recovery capacity
ECOLOG-ICAL RESILIENCE	"ability [of systems] to absorb change and disturbance [and] maintain the same relationships between… state variables" (Holling: 1973, 14)	• (Eco)system has > 1 equilibrium (and 'equilibrium' is defined more broadly). • Determinants of resilience: biodiversity, temporal variability, spatial mosaics (Holling: 1973; Delettre: 2021)	T: absorptive capacity A: adaptive capacity
REGENE--RATIVE RESILIENCE	Ability to absorb disturbance and reorganize into a similar system after destruction (Holling: 1986)	Determinants of resilience: biodiversity in retention mechanisms (Holling: 1986), "biological legacies", diversity of mobile link species (Folke et al.: 2004; Delettre: 2021)	T: absorptive capacity A: regenerative capacity
OPPORTUN-ISTIC RESILIENCE	"[Ability] to absorb and utilize (or even benefit from) change." (Holling: 1978)	Conceived as "view" of nature that should guide ecosystem management (Holling: 1978; Cañizares et al.: 2021)	T: absorptive capacity A: uses change to improve

Table 3.1 synthesizes these ideas by assigning the four concepts a paradigmatic definition from ecology and other non-definitional features that help in distinguishing them, such as the lower-level mechanisms or determinants that underpin each of these concepts. Lastly, the right column identifies each concept with a capacity or capacities to respond to disturbance, be it through disturbance (T) or after disturbance (A).

3.2.2. The normativity of resilience

Moving on to the normativity of resilience debate, we follow Meerow et al. (2016) in identifying three main positions in the literature: that the term *resilience* is normative in a positive sense, that it is normative in a negative sense and that it is non-normative or descriptive.

One popular belief, first, is that resilience is a positive quality (Meerow et al.: 2016). This belief is closely associated to REGENERATIVE and, especially, to OPPORTUNISTIC RESILIENCE (Brand and Jax: 2007). It dominates in social and institutional domains (ibid; Elmqvist et al.: 2019), where resilience is often linked with explicitly positive features or results, such as reducing disaster vulnerability (Norris et al.: 2008, Wamsler et al.: 2013), contributing to sustainability (Leichenko: 2011) or being positively correlated with trust or justice (Kolers: 2016). Similarly, during the Covid-19 pandemic, many discourses stated that attaining or improving resilience was a goal of

economies, pandemic management strategies and so forth (Copeland and Cañizares: 2022; cf. chapter 6), again implying that resilience is desirable.

In contrast, many social science scholars argue that resilience has negative implications that render it unsuitable for guiding social action (Olsson et al.: 2015). For example, ENGINEERING and ECOLOGICAL RESILIENCE are criticized for being too focused on equilibria—on restoring or maintaining equilibria, respectively—, and thus for being conservative ideas that might only benefit the status quo (Pelling: 2010). Specifically, ECOLOGICAL RESILIENCE is also charged with lending ideological support to undesirable policies and forms of governance (Walker and Cooper: 2011; Joseph: 2013; Olsson et al.: 2015), due to the alleged ties between resilience thinking (i.e. the line of resilience research directly influenced by C.S. Holling) and functionalism (Geels: 2010) or neoliberalism (Walker and Cooper: 2011; Zebrowski: 2013).

A third view is that resilience is a descriptive concept. With minor variations, account of this view stay close to Holling's original concept of ECOLOGICAL RESILIENCE (cf. Table 3.1). The common thread in their arguments is that resilience must be descriptive because it refers to an ambivalent or neutral quality (Holling and Walker: 2003; Derissen et al.: 2011; Anderies et al.: 2013; Elmqvist et al.: 2019). This ambivalence argument has been illustrated with some recurrent ideas. One is that ECOLOGICAL RESILIENCE is applicable to desirable things (e.g. productive ecosystems) as well as to undesirable ones (e.g. Stalin's regime or collapsed fish stocks) (Holling and Walker: 2003). Another is that, when applied to specific systems, resilience can lead to both positive and negative outcomes: urban resilience, for example, helps cities to absorb environmental shocks (good), but it can compromise sustainability as well (bad) (Elmqvist et al.: 2019). Many advocates of this position also resort to a sharp contrast between sustainability and resilience to make their point: while sustainability is viewed as desirable both for present and for future societies, resilience is framed as a potentially undesirable quality, which must be strengthened in desirable systems but reduced in undesirable ones (Anderies et al.: 2013; Derissen et al.: 2011; Elmqvist et al.: 2019). Thus, unlike resilience, these arguments suggest, sustainability cannot be bad: "we seldom hear of sustainable dictatorships, but there are resilient dictatorships." (Anderies et al.: 2013, 5). The take-home lesson is that, whereas sustainability is a normative or moral term, resilience just is a descriptive scientific term (Derissen et al.: 2011).

3.2.3. Advancing the debate

Given the diverse positions around the normativity of resilience, one natural question to ask is if such positions discuss a mere philosophical point about language or whether something more is at stake. There are indeed indications that questions about the normativity of resilience have practical relevance. For example, Brand and Jax (2007) argue that descriptive resilience concepts (i.e. in their view, ECOLOGICAL RESILIENCE) have scientific value but that their practical value is more limited, whereas normative resilience concepts, in turn, have little scientific value, but also a greater capacity to direct interdisciplinary work related to solving pressing societal challenges.

While such potential implications of the normativity of resilience debate deserve more attention than they have received to date, here we cannot engage with this issue in depth for reasons of time and space. In what follows, instead, we focus on characterizing the normative status of resilience, gesturing at some implications of our analyses in the conclusion.

In order to do this, we turn to metaethics. After all, normativity is the subject matter of metaethics and some arguments in the normativity of resilience debate indeed demand theoretical clarification of the precise sort that metaethics is equipped to offer. Let us start with the idea that concepts are either descriptive or normative. This assumption grounds views of resilience as a descriptive term or concept, as we showed above, and it has historically had some appeal in philosophy (Williams: 1986; Putnam: 2002). Yet, the descriptive/normative dichotomy has come into question of late, notably through metaethical work on thick concepts: concepts that allegedly blend descriptive and normative aspects. In our case, resilience does certainly seem to describe something, namely, how some entity or system responds to disturbance. Asking if resilience is a thick term or concept, then, entails asking if it additionally provides guidance for action, and which sort of guidance that is.

In resilience research, only one article that we know of so far examines the possibility that resilience can be a thick concept (Thorén and Olsson: 2017). Yet, we argue that recent work on thick concepts can help to clarify many arguments and perspectives about the normativity of resilience. For example, as our succinct review shows, most accounts in this debate coincide in assuming that resilience has a valence: that is, that resilience gives us information on whether something is (more or less) desirable or undesirable. They differ, of course, on judging this valence as positive (i.e. resilience is positive/desirable), negative (i.e. resilience is negative/undesirable), or ambiguous (i.e. resilience is ambivalent). So, one could argue that the criterion of normativity governing the debate is this one: normative concepts are those with an

unambiguous valence (positive or negative) and non-normative or descriptive ones are those which are value neutral or have an ambiguous valence (i.e. a valence that changes depending on circumstance). Is this the only possible criterion of normativity? Probably not. As Thorén and Olsson (2017) note, this criterion is used for asking, specifically, if resilience is normative in an evaluative sense. On the other hand, many metaethicists distinguish at least between evaluative concepts, which give reasons for acting by carrying a positive or negative valence, and deontic concepts, which give reasons for acting more directly and without attaching a valence (Tappolet: 2013). So, it is at least possible that resilience is normative in a non-evaluative sense. In fact, Kolers (2016) suggests this possibility, although he does not flesh it out in detail. In the following section, we draw from the metaethics literature on thick concepts to substantiate or to critically appraise these remarks and possibilities.

3.3. Thick concepts in metaethics

This section explores what thick concepts are and their relevance for the debate. We start by briefly introducing thick concepts and their main varieties (3.3.1). Then we defend three propositions about thick concepts that challenge key assumptions made in the normativity of resilience debate: that thick evaluative concepts generally have an ambiguous valence, that some thick evaluative concepts are radically ambivalent, and that some thick concepts have non-evaluative normative content (3.3.2).

3.3.1. Thick concepts

Thick concepts are concepts that straddle the common distinction between the descriptive and the normative. Paradigmatic descriptive concepts are concepts like TREE, RED or ELECTRON, which give us information about the world, but not about how to act. In turn, paradigmatic or 'thin' normative concepts guide action while having a limited or nil descriptive content (Williams: 1986). Thin normative concepts are usually classified in two families: deontic concepts (RIGHT/WRONG, OUGHT, PERMITTED/FORBIDDEN), which express prescriptions ("you should X", "X is wrong"), and evaluative concepts (GOOD/BAD, (UN)DESIRABLE), which praise or criticize ("F is good/undesirable"). These concepts differ mainly in that the former guide action more restrictively than the latter (Tappolet: 2013, 2014).

While virtually nobody doubts that such 'thin' concepts are normative, there is much debate about the status of so-called 'thick concepts.' Minimally, the category of thick concepts is said to comprise a few ethical concepts that "evaluate actions and

persons" (Väyrynen: 2016), such as e.g. virtues and vices (COURAGEOUS, SELFISH) and some descriptors of actions relative to virtue or value (LEGENDARY, LEWD). More often, however, thick concepts are understood simply as concepts that blend descriptive and normative aspects. Within this conception, thick concepts appear as a large, diverse and loosely unified category (Kirchin: 2013; Roberts: 2013), which includes slurs and epithets (REDNECK, MORON, HERO), actions and states with moral or legal value (RAPE, WELLBEING, FREEDOM, MURDER), so-called affective concepts (PRAISEWORTHY, ADMIRABLE), etc.

In what follows, we will work with this broader view on thick concepts: that is, we assume that thick concepts are concepts blending descriptive and normative aspects. We are aware that this position may not reflect the views of some metaethicists. Nonetheless, here we cannot do justice to the complexity of the literature on thick concepts; our purpose is just to show that some relatively non-controversial ideas about thick concepts have a direct relevance for our debate. To this we now turn.

3.3.2. Aspects of thick concepts relevant for the normativity of resilience debate

In metaethics, debates about thick concepts have raised several points that can help us advance the normativity of resilience debate. We condense those lessons into three key points:

Thick evaluative concepts generally have an ambiguous valence

We saw in section 3.2 that most arguments about resilience use a valence-based criterion of normativity, such that a concept is normative only if it attaches an unambiguous valence (either positive or negative) to what it describes. First note that this criterion entails that thick concepts can only be evaluative. While we will show this assumption to be dubious, even if one accepts it, the connection between the ambiguity of a concept's valence and the question of whether that concept is normative or not is also problematic.

We take this to be the main lesson of a recent empirical study on thick concepts made by Willemsen and Reuter (2021). This study compares how people ascribe virtues with how they ascribe vices. The authors report that participants in their study tended to avoid vice-talk but also that, once they ascribed a vice to someone, their judgement was usually stable. In contrast, participants were much more liberal in ascribing virtues, but also in withdrawing such ascriptions when they learned new facts about the behavior of the relevant person. The main conclusion of this study therefore

is that, while the valence of vice concepts is stable, the valence of virtue concepts is ambiguous. However, it seems unwarranted to say that vices are normative and virtues are not normative for this reason. In other words: the 'unambiguous valence criterion' does not really capture how these concepts work and are used.

An alternative account of thick evaluative concepts, which we believe to be more accurate, is that these concepts often contain two forms of evaluation.[9] First, these concepts imply some valence: if I say "F is sustainable", for instance, I seem to praise F. This is what we will call *general evaluation*. Besides such general evaluation, however, and more crucially, these concepts make *specific evaluations*: that is, they give value-based reasons in favor or against something, where such reasons can be just as well defeated or outweighed by others. For example, one common interpretation of SUSTAINABILITY is that this state or feature is good insofar as it expresses a drive for justice in the allocation of goods within and across generations (specific evaluation), which is something generally desirable (general evaluation).[10] Still, sustainability conflicts with values like consumer sovereignty and freedom of enterprise (Common and Perrings: 1992), and some studies situate a dictatorship like Cuba as one of the most sustainable countries in the world (Cabello et al.: 2012; Niccolucci et al.: 2012). Does this mean that SUSTAINABILITY is non-normative? No: what it means is that the things or properties denoted by thick evaluative concepts can be undesirable in some ways, and yet desirable overall—or the other way round.

Another example comes from Jørgen Randers, one of the authors of *Limits to Growth*. While Randers accepts the common understanding of DEMOCRACY as a system that enshrines principles of justice (specific evaluation) that we have reason to

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[9] Metaethicists use diverse terminologies to refer to these two evaluative aspects (or aspects of evaluation) contained in thick evaluative concepts. Elstein and Hurka (2009) speak of general and embedded evaluations. Väyrynen (2016) speaks of thin or general evaluation vs. more specific and irreducibly thick evaluation. Here we will talk of general and specific evaluation, two labels that are also used by Cannon (2020), for example. It is worth noting that some thick evaluative concepts do not contain specific evaluations, but only general evaluations: the clearest examples are slurs and pejoratives (Elstein and Hurka: 2009). However, this possibility does not affect our argument, in part because resilience is, clearly, not a slur.

[10] At least, this is how advocates of the descriptiveness of resilience tend to view sustainability (cf. section 3.2.2; Anderies et al.: 2013; Derissen et al.: 2011; Elmqvist et al.: 2019). Yet, sustainability can be understood differently, including as something bad: for example, *The Handmaid's Tale* tells us a terrible story about how sustainability could be bad. The opinion of the authors of the present article in this regard is irrelevant for the argument (though, for the record, we agree on characterizing sustainability as generally positive, but, as the reader may suppose, not on viewing resilience as non-normative).

value (general evaluation), he has also argued that democracy puts sustainability at risk and that we should throw it out for this reason (Randers: 2012). In principle, it may sound paradoxical to appraise something positively in general, but negatively when other circumstances are considered. Yet, we think that this is pretty much the essence of evaluation. In other words: what these examples show is that thick evaluative concepts do not simply attach a binary valence (good/bad) to what they describe: rather, they have a dual function, namely, to give reasons that matter in decision making (i.e. specific evaluation), as well as a provisional valence (i.e. general evaluation). Our examples also show that general evaluations are often more ambiguous and subject to change than specific evaluations, since they depend on how the relevant reasons are weighed in relation to one's value hierarchies and priorities, the presence of alternative options, the circumstances, etc.

Later we will see how these insights apply in practice to the case of resilience. For now, suffice it to note that thick evaluative concepts can be ambivalent in the sense of having an ambiguous valence, which means that even if resilience is not always entirely positive or negative, it does not thereby follow that it must be descriptive.

Some thick evaluative concepts are "radically ambivalent"

While the argument outlined above serves well against most versions of the view that resilience is descriptive, other proponents of this view have a slightly different idea in mind when they characterize ECOLOGICAL RESILIENCE as ambivalent. In particular, it has often been argued that ECOLOGICAL RESILIENCE has no valence of its own, i.e. that the desirability of something's being (ecologically) resilient only hinges on whether that something is itself good or bad (Brand and Jax: 2007; Elmqvist et al.: 2019; cf. above).

Even if resilience was ambivalent in this sense, however, it would not follow that it is non-normative. Consider the distinction between intrinsic and instrumental values. To continue with the examples used above, concepts like DEMOCRACY or SUSTAINABILITY can be safely assumed to carry a positive valence, even if this valence is provisional, non-binary and subject to the aforementioned decisions about value hierarchies, priorities and conflicts. However, there are other concepts, known as instrumental values, which contribute very differently to evaluation. A case in point is EFFICIENCY. One remarkable feature of efficiency is that it makes good things better, and bad things worse: while efficient justice movements are more desirable than inefficient ones, for instance, efficient torture machines are less desirable than inefficient ones. Thus, EFFICIENCY is radically ambivalent in that it lacks a valence *per*

se; rather, its valence is subordinate to something else's valence. Yet, EFFICIENCY has a definite role in general evaluation: namely, to add to, or to further subtract from, the valence of other (intrinsic) values. Thus, if resilience was ambivalent in the sense of lacking 'its own' valence, it still would not follow that it must be non-normative; resilience might rather be instrumentally evaluative.

Another difficulty is that, while the instrumental/intrinsic distinction is compelling in relation to paradigmatic examples like HEALTH and EFFICIENCY, the line is not always that sharp. That is, for some concepts, it can be debated whether they contribute to evaluation directly and intrinsically, or rather, indirectly and instrumentally. Consider the case of SMARTNESS. From one perspective, this quality is valuable in itself, including because most people would choose to be smarter rather than not if they had the chance. At the same time, one can think of smartness as a virtue that is worth having or pursuing in companion of other virtues (like e.g. generosity) but that can also make bad or dangerous people worse or more dangerous than they are. Accordingly, smartness is often framed as an intrinsic virtue (Sosa: 1991), but many authors consider it a merely instrumental one (Battaly: 2015). Thus, this possibility is also worth considering in relation to resilience. In fact, as is shown in the next section, the evaluative character of at least some resilience concepts is open to interpretation in this way.

Some thick concepts have non-evaluative normative content

In addition, thick concepts can be non-evaluative. In other words: there are problems with the assumption that thick concepts can only be evaluative, which is also common in our debate (cf. above and section 3.2). To start with, concepts such as RAPE, MURDER or TORTURE could be deontic, since they describe actions we typically regard not just as very bad, but actually to be avoided always and regardless of any consideration (Tappolet: 2014; Roberts: 2011; Kyle: 2013).

Here, however, we will focus on some expressions that are normative but that do not fit neatly into either the deontic or the evaluative category. These are the so-called "dual character concepts" (Knobe et al.: 2013; Reuter: 2019) or "generics" (Leslie: 2015): categories such as *neighbor*, *artist*, *man*, *ageing* or *scientist*. One feature of these terms is that they can be conceptualized both descriptively and normatively. For instance, we could describe scientists simply as people who do research and publish it in scientific journals. However, we often also describe them as people who care about expanding the knowledge base of mankind or about improving our picture of the world. In the latter case, SCIENTIST becomes a normative and a more restrictive

category: we get to expect certain things about scientists, and, if someone does not fulfil these expectations, we may not call this person a scientist, or we may say things like "that is not a *true* scientist", or "that is not *really* a scientist" (Reuter: 2019).

What is the normative feature of such expressions? They are clearly not deontic, even though one can draw prescriptive implications from them (e.g. if we wish to be true artists, then we should behave thus-and-thus). Further, as Väyrynen (2016) argues, these concepts differ in important ways from other thick evaluative concepts and they might, in fact, be normative in a different way (ibid). We find this remark accurate. If we get to know that Susan is brave, a patriot and someone who would sacrifice herself for a fellow soldier, we would likely agree with the statement "Susan is a *true soldier*" regardless of whether we agree or disagree that the values associated with soldiership make someone a better person—see Knobe et al.'s (2013) empirical study on this point. So, the normative aspects of "true soldier" do not give reasons counting in favor or against soldiership; such expressions are normative in a non-evaluative way.

In our view, we can understand the normativity of these expressions by turning to the idea of the "normativity of the normal", first developed by philosopher of medicine Canguilhem (1989), and then popularized by Foucault (1977) through his work on *dispositifs* of normalization. The idea here is that we must distinguish between two kinds of ascriptions of normality: (statistical) judgments of typicality, and ascriptions that classify behaviors or states as compliant with certain standards, values or rules (norms) that such behaviors or states are supposed to comply with. The latter use of *normal* is normative, and it is worth noting that other adjectives (e.g. DEVIANT, TRUE, REAL, GENUINE, or NATURAL) can be and are often used very similarly (Eldridge: 1986; Jones and Higgs: 2010). In fact, one indication that this form of normativity is characteristic of dual character concepts is that these concepts are often complemented by NORMAL and similar adjectives, as exemplified by expressions such as, precisely, "true soldier". Similar examples are: "normal neighbors," "genuine artists" (Reuter: 2019), "true man" (Leslie: 2015) or "natural ageing" (Jones and Higgs: 2010).

In what follows, we label such normative aspects 'normalizing' to reflect how they guide action. Specifically, what normalizing aspects do is to normalize a category in accordance to some stipulated or implicit norms, thus restricting membership to the category to those who/that comply (or not) with those norms. We want to stress that scientific concepts can come to embed normalizing aspects. For example, Möller (2012) argues that, in operationalizing RISK in a specific context, some risks must be excluded as irrelevant in order to facilitate the effectiveness of risk management efforts:

in designing roads, for instance, risk managers typically ignore risks related to suicide. What this judgment of relevance, as Möller calls it, shares with dual character and normality concepts is that it stipulates how specific risks must be to count as RISK (in a technical, operational sense): namely, they must not be created voluntarily by road users, but rather emerge from, e.g. features of the road or its management.

3.4. Normative aspects of resilience

Now we turn to assessing the normativity of resilience by drawing from the preceding insights. Specifically, below we show how most interpretations of this term have several overlapping normative aspects. First, we examine the normalizing aspects of resilience (3.4.1). Then we characterize its evaluative aspects (3.4.2).

3.4.1. Normalizing aspects

Resilience has normalizing aspects on two different levels: when conceptualizing resilience as one or another response to disturbance, and when operationalizing the chosen concept.

First, the resilience concepts reviewed in Table 3.1 are normalizing because they evoke different ideas of normality and of what to expect or do when normality is disrupted. This connection between resilience and normality concepts is somewhat apparent in the case of ENGINEERING RESILIENCE, which is oftentimes referred to as an ability to return to normality (White and O'Hare: 2014; Davoudi: 2014) or to normal functioning (Hollnagel and Sundstrom: 2017). Furthermore, DISTURBANCE is typically defined along similar lines, that is, as an event or process that disrupts a normal state or pattern (White and Pickett: 1985) or constitutes a "departure from some norm or standard".[11] Thus, all resilience concepts can, at least in principle, be interpreted as abilities to bring about some normal state (post-disturbance) after another normal state (pre-disturbance) was disrupted.

In fact, Holling's discussions about ENGINEERING RESILIENCE and ECOLOGICAL RESILIENCE (Holling: 1973, 1978, 1996) suggest that these two concepts work like normalizing concepts that normalize the category of (ecosystem) functioning in different ways. According to Holling, ENGINEERING RESILIENCE assumes that ecosystems only have one equilibrium, which is a complex balance between many ecosystem variables, but which is also knowable, hard to disrupt and easy to restore

[11] https://www.merriam-webster.com/dictionary/disturbance

(Holling: 1973, 1978). Holling adds that ECOLOGICAL RESILIENCE, in contrast, assumes ecosystems to have several equilibria, all of which are unpredictable, dynamic, and definable in terms of the qualitative states of a few key variables. Furthermore, Holling also argued that ENGINEERING RESILIENCE is guided by values of predictability and control and by a concern with the short-term stability and sustained productivity of ecosystems (Holling: 1973), whereas ECOLOGICAL RESILIENCE ignores such demands and, instead, crucially problematizes long-term ecosystem persistence (ibid). In these texts, Holling also explained how such alternative normalizations of ecosystem functioning tend to result in diverging management orientations as a result of what is considered relevant or not for ecosystem functioning in each case.[12] In short: these concepts are normalizing because they express two different ideas of what *normal functioning* is, both of which are value-laden.

A similar reasoning can be applied to REGENERATIVE RESILIENCE and OPPORTUNISTIC RESILIENCE. As we saw in section 3.2, things that are resilient in these senses resemble "ecologically-resilient" things in that, through disturbance, they can maintain certain properties or standards that define normal functioning. Thus, from this perspective, these two concepts imply the same notion of normality involved in ECOLOGICAL RESILIENCE. On the other hand, as was also noted, these concepts denote different after-disturbance responses. REGENERATIVE RESILIENCE is something's capacity to 'recreate' a similar, though not identical, configuration after being impaired or destroyed by disturbance (Delettre: 2021). Thus, in this concept, the post-disturbance state involves a second, and different, notion of normality (ibid). The case of OPPORTUNISTIC RESILIENCE, i.e. an ability to utilize change or disturbance for becoming better, is more complicated. From the standpoint of normalization, this concept implies, at first glance, that the standards defining something's post-disturbance state partly depend on how that something interacts with some disturbance. On the other hand, at least in the definition included in Table 3.1, we know little about what such standards consist in, aside of the fact that they are supposed to be "better" than pre-disturbance standards. In our view, then, the post-disturbance aspect of this concept is just a piece of "thin" evaluative content (cf. section

[12] In particular, Holling (1973) explains that an engineering resilience approach traditionally focuses on avoiding any change (in any ecosystem variable) that departs too much from normal functioning. Ecological resilience approaches, in turn, involve a more ambiguous attitude toward change: the changes that affect the few variables that are critical for resilience are regarded as very important, but other changes are excluded from consideration or regarded as irrelevant for ecosystem functioning (ibid; Holling: 1978).

3.3.1), that is, a content that gives evaluative information while not describing much—about norms of functioning, or otherwise.

In addition, resilience can come to have normalizing aspects through "judgments of relevance" such as those we examined in relation to RISK. In particular, to operationalize *resilience*, we must specify *what* is supposed to be resilient, and *to what* type of disturbance (Carpenter et al.: 2001; Meerow et al.: 2016). Now, these decisions inevitably contain values that restrict what counts as resilient behavior or response, thus providing resilience with a normalizing content and function. In ecology, for example, Brand and Jax (2007, esp. 7-8) report many value-laden decisions in characterizing ecosystems and regimes, such as e.g. choosing the critical properties that define an ecosystem's identity, delimiting system boundaries and the appropriate scale of analysis, etc. In social applications of resilience, the value-laden character of such decisions is even more obvious. For example, we can define community identity in terms of the people that compose the community or we can include culture and place as part of community identity (Adger et al.: 2011). Regardless of the evaluative consequences that this decision may have,[13] what matters here is to observe that such conceptualizations imply different values (Dobson: 2002), which restrict when and how something can be considered a (resilient) community. Something similar applies to the process of selecting the disturbances of concern, partly because this choice is, to some extent, inseparable from the process of characterizing the identity of that whose resilience is in question.[14]

3.4.2. Evaluative aspects

Besides the normalizing aspects mentioned above, the resilience concepts described in Table 3.1 can convey different forms of evaluation. As we already saw, the most clear-cut case is OPPORTUNISTIC RESILIENCE, which explicitly involves a piece of thin evaluative content, such as "benefit" or "better" (cf. Table 3.1). So, this concept is representative of the ample class of accounts of resilience that are intrinsically evaluative (and positive) simply because they define resilience explicitly in these terms; see Brand and Jax (2007) for more examples.

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13 See Thorén and Olsson (2017) for some interesting discussion of this specific point.

14 The reason is that, when we choose an entity of concern (whose resilience we want to assess), we already pre-select some disturbances that count as relevant. For example: neighborhoods and forests are typically not affected by the same things.

In turn, ENGINEERING RESILIENCE is an instrumentally evaluative concept, since its desirability both depends on, and reinforces, the desirability of something that has this property. In other words: ENGINEERING RESILIENCE makes good things better, and bad things worse. For example: if we assume that democracies are desirable and dictatorships undesirable, then, "engineering-resilient" democracies are better than non-resilient democracies because they recover better from shocks; in contrast, "engineering-resilient" dictatorships are worse than non-resilient ones for the same reason. Further support for this conclusion comes from the fact that ENGINEERING RESILIENCE has been linked on various grounds with a paradigmatic instrumental value like EFFICIENCY (Holling: 1973, 1996), and even defined as an efficient recovery from disturbance or as an approach to maximizing efficiency in handling disturbance (ibid; Hollnagel: 2014; Wang: 2015; Table 3.1).

What about ECOLOGICAL RESILIENCE? This is the most interesting case. First, we can rule out the possibility that this concept is descriptive, because something that is good and ecologically resilient is something that is able to remain good despite disturbance and to adapt to the post-disturbance situation. Thus, being resilient makes good things better. Indeed, the descriptiveness of ECOLOGICAL RESILIENCE has often been argued for on the grounds that this property makes good things better (and so, must be increased in desirable systems) and bad things worse (and so, must be reduced in undesirable systems) (cf. section 3.2.2), therefore implying that ECOLOGICAL RESILIENCE is, *at least*, an instrumentally evaluative concept.

We emphasize the "at least" because this concept is often treated as an intrinsically evaluative concept. In fact, below we argue that such interpretation of ECOLOGICAL RESILIENCE is more convincing, empirically speaking, than its interpretation as an ambivalent (and so, instrumentally evaluative) concept.

This can be seen by turning to prominent accounts of resilience determinants: that is, of the lower-level qualities or features that resilience consists in. In ecology, for example, many authors coincide in presenting an ecosystem's adaptive capacity as a function of biodiversity: in particular, of the diversity of functional groups and of the diversity of responses within functional groups (Holling: 1973; Elmqvist et al.: 2003; Folke et al.: 2004). These aspects of biodiversity are plausibly desirable: something we want ecosystems to have.[15] For example, Folke et al. (2004, 573) make this point when

[15] This does not mean that BIODIVERSITY in all its forms is an intrinsic value or a generally desirable feature. BIODIVERSITY admits of a descriptive interpretation (Brand and Jax: 2007), and more biodiversity can be bad in occasions: e.g. when several foreign species invade a territory with a relatively simple flora and fauna.

they note that "biodiversity provides insurance, flexibility, and risk spreading across scales in dynamic landscapes and seascapes." This claim must be interpreted, we think, along the following lines: (1) biodiversity provides resilience; (2) biodiversity is desirable; (3) resilience is desirable, in itself and because it requires ecosystems to have biodiversity. In turn, social and socio-ecological applications of ECOLOGICAL RESILIENCE include other determinants that are even more explicitly desirable, like e.g. FLEXIBILITY, RESOURCEFULNESS (Norris et al.: 2008), PUBLIC TRUST (Adger and Hodbod: 2014) or INCLUSIVENESS (Simonsen et al.: 2015).

In contrast, the empirical basis of an ambivalent ECOLOGICAL RESILIENCE is unclear. *Prima facie*, this property cannot consist in features like response and functional diversity, resourcefulness and so forth. For example: ecosystem resilience cannot require biodiversity and yet be a feature, as some suggest, of deserts or collapsed fish stocks. Similarly, social resilience cannot require flexibility, diversity, inclusiveness, etc. and be a feature of brittle and highly centralized systems like Stalin's regime (cf. section 3.2.2; Holling and Walker: 2002). In fact, describing e.g. Stalin's regime as resistant or recalcitrant seems more appropriate than describing it as resilient. An additional problem here is that those who insist on the ambivalence of ECOLOGICAL RESILIENCE do not tell us what it would take for something to have an undesired or ambivalent resilience: they just tell us that resilience is a property of complex systems that reinforces a given state or pathway (Holling and Walker: 2003: Derissen et al.: 2011; Anderies et al.: 2013; Elmqvist et al.: 2019). As a result, it is hard to know what an ambivalent or potentially undesirable resilience comes down to or what it consists in, which means that the empirical relevance of such accounts is limited (Thorén: 2014; Thorén and Persson: 2015), at least when it comes to judging whether, and precisely how, something's resilience can indeed make that thing worse.

So, summing up, while ECOLOGICAL RESILIENCE is sometimes characterized as an ambivalent property, it is unclear what this property would describe. At the same time, just as often or even more often, this concept is framed as a desirable property, or at least as one that requires having desirable qualities. It is also worth noting that this ambiguity about the ambivalence or the overall desirability of ECOLOGICAL RESILIENCE overlaps, to some extent, with the noted ambiguity about the extent to which this property is conservative or transformative (cf. section 3.2.1). Given these considerations, in our view, the safest conclusion is that ECOLOGICAL RESILIENCE can alternatively convey instrumental or intrinsic evaluations, more or less like SMART (cf. section. 3.3.2). Indeed, one factor supporting this interpretation is that many social

determinants of ECOLOGICAL RESILIENCE are best viewed as smart-like virtues: think of FLEXIBILITY and RESOURCEFULNESS, for instance (Norris et al.: 2008).

Finally, similar considerations apply to REGENERATIVE RESILIENCE. In ecology, the regenerative capacity of ecosystems has been linked to the presence of retention mechanisms capturing and reusing nutrients liberated after destruction (Holling: 1986), of "biological legacies" like large trees and seed banks (Folke et al.: 2004) and of "mobile link species" connecting habitats and affording materials that assist the renewal of damaged local ecosystems (ibid). These features are plausibly desirable for ecosystems. Further, if we consider what it means for people or societies to be able to rebuild what was damaged or impaired, even in a different form, this is also an ability of which every society would wish to have more rather than less. In other words: ECOLOGICAL RESILIENCE and REGENERATIVE RESILIENCE are, at least, instrumentally evaluative concepts, but they can also, and no less plausibly, convey intrinsic evaluations.

3.5. Conclusion

In this article we have drawn from metaethical work on thick concepts to reassess the debate about the normativity of resilience. Let us briefly summarize our results and extract a few of their consequences.

First, our arguments suggest that the view that *resilience* is a descriptive term is no longer tenable. From an evaluative perspective, *resilience* is at least an instrumental value: i.e. a property such that having it makes good things more desirable, and bad things more undesirable. This judgment applies to ENGINEERING RESILIENCE and, perhaps, to some interpretations of ECOLOGICAL RESILIENCE, namely those that present it as a conservative and very abstract property of complex systems. Yet, we have shown that ECOLOGICAL RESILIENCE can be, and often is, interpreted as a more transformative property or quality that is desirable in itself or because its attainment requires having other qualities that are themselves desirable. This conclusion is still more obvious for other conceptualizations, such as REGENERATIVE RESILIENCE and, especially, OPPORTUNISTIC RESILIENCE and its variants. On the other hand, most interpretations of resilience and their operationalizations contain normalizing aspects, which guide action not by recommending things or advising us against them, but rather, by directing our attention and expectations to certain things and not others.

Taken together, these results show that it is incorrect to say that *resilience* is descriptive because it describes an ambivalent property (i.e. one with an ambiguous

valence). Resilience is a thick concept even when it describes an ambivalent property, and even if we ignore the extent to which it is positive or negative: in these cases, it is at least a concept that reinforces the normative judgments and value commitments made in the process of applying resilience to something—e.g. to communities, political systems, ecosystems or to particular configurations of ecosystems or ecosystem regimes. In addition, we think that this conclusion is relatively insensitive to the issue of whether resilience is applied in the natural sciences or in social domains, as was illustrated with examples throughout the text. This insight therefore undermines the influential opinion that ecological uses of resilience are more descriptive, whereas social and institutional applications are more normative (Brand and Jax: 2007).

Second, our arguments contribute to clarifying why some view resilience as positive and others as negative. Of course, advocates of these views often conceptualize resilience differently, as we saw in section 3.2. More important, however, is the fact that resilience is, in part, a thick evaluative concept, and that these concepts allow for that kind of disagreement (Roberts: 2013; Willemsen and Reuter: 2021). In particular, as we explained, thick evaluative concepts only give partial reasons in favor or against something, where these reasons may weigh more or less and be more or less easy to defeat. We do not just appreciate generous people: we also want others to be honest, intelligent, or fun; indeed, these things are more important than generosity for some of us. Perhaps resilience stands in a similar relation with justice, respect for minorities and other legitimate demands, as resilience critics argue (Béné: 2012; Doorn: 2017; Meerow et al.: 2019; Copeland et al.: 2020). Though this is not problematic in principle, it might be so if resilience was presented as a panacea for social ills, as is sometimes the case among those who treat resilience as a positive feature.

One further insight emerging from this paper is that the similarities between the notions of *risk* and *resilience* should lead us to reconsider the normativity of resilience issue as a practical problem, rather than as a merely theoretical one. In the last decades, resilience became a prominent approach for addressing ecological and societal risks of various kinds, and, unsurprisingly, we found that risk and resilience are remarkably similar in terms of their normative aspects. For example, we typically consider risks to be undesirable, and so we want to limit their occurrence, restrain or mitigate their impacts or avoid these impacts altogether. That is also why *resilience* is often viewed as a positive term, since it stands for an ability to handle risks or to respond effectively to them (Renn and Klinke: 2014). At the same time, as we have also seen, both notions have normalizing aspects that can have important moral or political implications. In risk research, one increasingly popular idea is that extensive

and public ethical discussion is needed not just for making risk management more just, but actually for facilitating it and making it more effective (Murphy and Gardoni: 2008; Renn et al.: 2011; van Est et al.: 2012; Möller: 2012). In our view, resilience research should undergo an ethical and constructive turn parallel to the one that has been proposed and is, to some extent, taking place in risk research (Mikes: 2019). That is, we argue that there is a need for making explicit and managing responsibly the normative aspects that resilience has or can have. In fact, from this perspective, the view that *resilience* is descriptive or non-normative is troubling because it suggests that such work is unnecessary or undesirable. This orientation may contribute to concealing important ethical dimensions of resilience and even to producing undesired outcomes in resilience practice.

The problem of whether *resilience* is a normative term thus dissolves into the question of "how can the normative aspects of *resilience* be appropriately handled?," an explicitly normative question that points to two directions for further research. One is the question of how to balance the scientific and technical value of resilience with other societal demands, in case that such balance is not to be taken for granted, as some voices suggest (Brand and Jax: 2007). Another is the question that concerns most resilience critics, namely: what values should guide or complement resilience practice, given that resilience is only partly desirable, or desirable only in some regards? The present article focused on enriching the debate about the normativity of resilience and on improving on existing perspectives on this debate, leaving such issues aside. However, our work here can also be seen as a point of departure for further questions about the value of resilience for science and society, which, as is argued elsewhere, require input from other philosophical disciplines, such as philosophy of science, ethics and justice theory (Thorén: 2014; Thorén and Olsson: 2017; cf. chapter 4).

4. Embedding justice considerations in climate resilience[16]

4.1. Introduction

While resilience now is the 'philosophy' that informs most climate adaptation efforts, climate resilience approaches[17] have also been much criticized for their justice shortcomings (Joseph: 2013; Walker and Cooper: 2011; Olsson et al.: 2015; Shi et al.: 2016; Meerow et al.: 2019; Fitzgibbons and Mitchell: 2019). At present, many justice frameworks for climate resilience consider justice as tripartite (distributive, procedural and recognitional). Yet, extant accounts of these three aspects of justice feature significant overlaps and ambiguities, and they ignore other aspects of justice that are important for resilience building. This lack of clarity about which justice issues matter, and why they matter, undermines the ability of the tripartite model to offer normative guidance in climate resilience initiatives.

In this chapter we argue against the tripartite view of justice and defend an alternative model of justice that, in our view, is more apt for guiding discussions and policy in this domain. Our model features six kinds of demands, or what we call forms of justice: distributive, procedural, intergenerational, restorative and retributive justice, and justice in system outcomes. This model has two main advantages over its rival. On the one hand, it offers a detailed account of justice concerns and demands in relation to climate resilience, which covers some demands that the tripartite model conceptualizes poorly or ignores, and clarifies how these demands differ or are connected. On the other hand, the model is responsive to pervasive and specific justice shortcomings of climate resilience approaches and, to some extent, it can inform the choice of concrete justice theories with which such shortcomings could be best addressed.

We proceed as follows. First, to prompt discussion, we review features of resilience approaches to adaptation and some criticisms directed against them (4.2). Then we explain the tripartite model of justice (4.3) and highlight some conceptual problems and research gaps in representative accounts of that model, which have to do mainly

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16 This chapter was published online in 2023 by the journal Ethics, Policy & Environment (Cañizares et al.: 2023).

17 In what follows, we use the label climate resilience to refer to the application of resilience to climate change adaptation.

with lack of clarity and with the exclusion of certain justice demands (4.4). Next we present our six-dimensional model, explaining how it overcomes some of the limitations of the tripartite model and why it is a better basis for guiding justice work in the climate resilience domain (4.5). The last two sections showcase the responsiveness of the model to the specific justice challenges raised by climate resilience efforts. First, we apply the model to detecting potential alignments and misalignments between climate resilience and justice (4.6). We conclude by using this diagnosis for recommending Táíwò's constructive theory of reparations as a suitable basis for assigning duties and rights and shaping responsibility arrangements in climate resilience efforts (4.7).

4.2. Justice issues in climate resilience

Critical studies on resilience illustrate that justice insights are pertinent at least in four junctures of resilience practice: defining resilience (4.2.1), selecting its determinants (4.2.2), targeting and priority setting (4.2.3), and governance (4.2.4).

4.2.1. Defining resilience

In general, resilience is considered an ability to respond well to stresses or shocks. However, definitions of resilience count by the hundreds (Doorn: 2017; Meerow and Stults: 2016), and they have motivated criticism on various grounds. Table 4.1, below, picks a sample of ten influential definitions. By analyzing this table, we will show that resilience concepts differ at least in two aspects, and explain the significance of these differences from a justice standpoint.

First, definitions vary in the kind of entity that resilience applies to. Concepts of resilience as a system property (definitions 3-5, 7-9), often traced to the work of ecologist C.S. Holling (1973, 1978), are widely critiqued for ignoring individuals and social justice (Pelling: 2010). Others, following work on psychological resilience, treat resilience as a property of individuals or communities (defs. 2, 6). Such psychological views are contested for having inspired policy where resilience is framed as a matter of local or individual responsibility, and so as a justification for inaction at other governance levels (Joseph: 2013). Finally, there are hybrid views, such as that espoused by the *100 Resilient Cities* program (def. 10). Hybrid views have also been criticized, however, for depoliticizing resilience building by presenting it as a politically neutral project where everyone wins (Shi et al.: 2016).

Table 4.1. Resilience definitions.

#	Definition	Source *(Author/s)*	Resilience of (unit)	Outcomes			
				Efficient recovery	**Funct-ional persist-ence**	**Adap-tation**	**Other**
1	'Speed of return of variables towards their equilibrium following a perturbation'	Ecology *(Pimm: 1984)*	System or Individuals	X			
2	Capacity to sustain competence and develop normally under stress and to recover from trauma	Psychology *(Thorén: 2014)*	Individuals		X		
3	'Ability to absorb change and disturbance and still maintain the same relationships between populations or state variables'	Ecology *(Holling: 1973)*	System		X	X	
4	'Ability... to absorb disturbances while retaining the same basic structure and ways of functioning... and to adapt naturally to stress and change'	Climate stud. *(IPCC 2007: 37)*	System (social or ecological)		X	X	
5	'Capacity... to absorb disturbance, reorganize, maintain essentially the same functions and... continue to develop along a particular trajectory.'	Sustainability stud. *(Elmqvist et al.: 2019)*	System (social or ecological)		X	X	
6	'Ability to show a positive trajectory of functioning and adaptation after... disturbance'	Risk stud. *(Norris et al.: 2008)*	System and Individuals (community)		X	X	
7	'Ability... to anticipate, reduce, accommodate, or recover from the effects of [disturbance] in a timely and efficient manner'	Climate stud. *(IPCC 2014: 1108)*	System (social or ecological)	X	X		
8	'[Ability] to absorb and utilize (or even benefit from) change.'	Sustainability stud. *(Holling: 1978)*	System (social or ecological)		X		Benefit from change
9	'Ability to maintain or rapidly return to desired functions in the face of a disturbance, to adapt to change, and to quickly transform systems that limit current or future adaptive capacity'	Urban stud. *(Meerow et al.: 2016, 45)*	System (city)	X	X	X	Transfo-rmation (long term resilience)
10	'Capacity... to adapt, survive, and grow in the face of stress and shocks, and even transform when [required].'	Resilience practice *(Rockefeller and Arup: 2016)*	System and Individuals (city)		X	X	Grow Transform

Definitions also vary in how they characterize resilient outcomes, and so, in the goals of resilience building. While many authors identify resilience with quick or efficient 'recovery' towards pre-disaster ways of functioning (defs. 1, 7, 9), this view is also often critiqued for its pro-status quo, conservative overtones. Holling (1973) famously proposed a more dynamic concept, 'ecological resilience' (def. 3). Ecologically-resilient systems, in essence, are those that avoid a dramatic loss of functioning during disasters, while successfully adapting to new situations and ways of functioning in their aftermath (or, in other words: systems that recover, but not by returning to the pre-disaster state, and not necessarily quickly or efficiently). Holling's ecological resilience was hugely influential (defs. 4-6), but is also criticized as conservative: successful adaptations 'maintain essentially the same functions' (def. 5) through new means, but need not carry improvements, and might result in long term degradation.[18] For these reasons, resilience practitioners have increasingly embraced a third approach that is often labelled 'transformative' (Meerow et al.: 2016), where resilience results in persistence, adaptation, plus some additional dividend, such as benefiting from change (def. 8), long-term persistence (def. 9), or economic growth (def. 10).[19] Yet, some complain about vagueness in the normative aspects of these views (Strunz: 2012; Elmqvist et al.: 2019).

[18] This point may not fully reflect Holling's own views. Holling (1996) criticized 'recovery' resilience because it committed ecological resource managers to stability and a drive towards maximizing yields. He also said that, despite its usual short-term success, this approach makes ecosystems and societies vulnerable in the long run. Thus, resilience *sensu* Holling can be said to include long-term persistence, especially when one considers definitions such as (def. 8) (cf. chapter 2; Cañizares et al.: 2021).

[19] This analysis illustrates the interpretive flexibility of resilience with respect to which outcomes are considered resilient (i.e. recovery, persistence and adaptation, persistence plus adaptation plus some extra dividend...). It also highlights a possible point of confusion. The term *adaptation* used in this analysis comes from ecological work on resilience and it represents adaptation as a naturalistic property; that is, it refers to the changes that allow systems to withstand disturbance and to resume normal functioning after disturbance. This view of adaptation must not be confused with the common usage of the term in the context of climate change, for example by the IPCC, as "the process [whereby humans adjust] to actual or expected climate and its effects [, seeking] to moderate or avoid harm or. exploit beneficial opportunities" (IPCC: 2014). In the remainder of the chapter, by "adaptation", we will be referring to this social adaptation to climate change. We also want to observe that, for reasons of time and space, we will not problematize the notion of climate adaptation or scrutinize the wealth of views on it—for some useful distinctions here, see Norris et al. (2008).

4.2.2. Determinants of resilience

While most definitions specify the outcomes of resilience, few detail the mechanisms that enable those outcomes (Strunz: 2012). Yet, choosing such *determinants* of resilience is a basic need for resilience building, which most resilience theorists and practitioners address at some point (Pickett et al.: 2004; Wardekker: 2010; Tanner et al.: 2009; Ahern: 2012; Brunetta et al.: 2019; Cañizares et al.: 2021). As we show next, this choice is also significant for justice.

Table 4.2. Determinants of resilience

Quality relative to	**Sources**		
	Stockholm Resilience Centre (Simonsen et al.: 2015)	*100 Resilient Cities* program (Rockefeller and Arup: 2016)	Norris: 2008
Focal system	Maintain diversity and redundancy Manage connectivity Manage slow variables and feedbacks	Robust Redundant Integrated systems	Robustness Redundancy Rapidity of mobilization
Governance system	Foster complex adaptive systems thinking Encourage learning Broaden participation Promote polycentric governance	Flexibility Resourceful Reflective Inclusive Integrated inform.	Flexibility Learning Participation Resourcefulness

Table 4.2 compares influential accounts from three representative fields of resilience practice: socio-ecological systems (SES) research, urban resilience and community resilience. As can be seen, these lists of resilience determinants are quite similar. For example, for all three, resilience resides both in qualities of a focal system (respectively ecosystems, urban systems and community assets) and in qualities of the human organizations that manage or control that focal system. Also, qualities like diversity, redundancy or flexible governance feature in most accounts, and they are uniformly viewed as positive or desirable.[20]

Yet, there are also notable divergences between these accounts, some of which are problematic. For example, compare the SES account with the urban resilience account. While socio-ecological resilience and sustainability are not synonymous (Redman: 2014), the former is at least often regarded as a condition for the latter (Arrow et al.: 1995). In contrast, urban resilience focuses much on the resilience of

[20] The language used by Simonsen et al. (2015) is very clear on this point. The idea that we should *maintain* diversity entails that diversity is desirable, for example. For other qualities, they use verbs with similar connotations (e.g. *encourage*, *broaden*, *promote*). Rockefeller Foundation and Arup (2016) and Norris et al. (2008) do not use these verbs, but they also portray those qualities as positive.

infrastructures, with troubling ecological implications. According to Elmqvist et al. (2019), for instance, building redundant infrastructures may make adaptation safer, but it also undermines sustainability. Another problematic difference is that, while the SES account sees *connectivity* or *slow variables* as ambivalent (i.e. not as determinants of resilience, but as crucial factors to manage in building resilience), the other two accounts only list positive qualities, and indeed they appraise connectivity positively.[21] Such shifts and contradictions therefore suggest that some of the original nuance of resilience thinking may have gotten lost in its institutionalization. Again, they also raise the concern that powerful actors may be using resilience as a label that seemingly encompasses everything that seems good or politically acceptable.

4.2.3. Targeting and priority setting

Now we turn to examining some problems involved in specifying the targets and the disturbances of interest for climate adaptation strategies–the oft-mentioned question of 'resilience of *what* to *what*?' (Carpenter et al.: 2001; Meerow et al.: 2016).

Many resilience building initiatives frame resilience as a response to climate disturbances. Nonetheless, scholars distinguish between *general* and *specific* resilience approaches (concerned with broad or narrow sets of disturbances, respectively) and between evolutionary and ecological ones (focused on long-term responses to slow-onset stresses, or shorter-term responses to shocks). According to Meerow et al. (2016), practitioners and policy-makers normally favor general evolutionary approaches, but, in practice, policies and plans are often inconsistent with this vision. Elsewhere, for example, Meerow et al. (2019) note that many resilience plans of U.S. cities in the *100 Resilient Cities* program are explicitly committed to green growth; indeed, as we saw, the program's definition of resilience follows this pattern (Table 4.1-10), despite its potentially negative implications for climate mitigation and sustainability.

As regards the main foci of interventions, at present, these are developing countries (Brown: 2012, 2015) and global cities (Caprotti et al.: 2017). While this focus is justifiable on scientific and practical grounds (Denton et al.: 2014; Revi et al.: 2014),

[21] The SES account concurs with Rockefeller and Arup (2016) in appraising integration positively insofar as it means something like "tight information feedbacks" in organizations (Simonsen et al.: 2015). Yet, for Rockefeller and Arup (2016), integration also refers to the integrated functioning of infrastructure and other systems, at city level and across scales (Table 4.2). This is roughly what SES approaches mean by *connectivity*, which they view as ambivalent since, in highly connected systems, risks propagate more quickly and can cause cascade disasters. Other reference texts on resilience agree with this diagnosis (OECD: 2003).

particularly the current makeup of the urban resilience agenda has raised concerns. For example, a recent study on global adaptation networks finds that low-resource cities face serious difficulties due to lacking national and international regulations for resilience programs (Shi et al.: 2016). Similarly, Fitzgibbons and Mitchell (2019) argue that participation in these networks is typically voluntary and that it carries a host of benefits; but also that it is subject to demanding selection mechanisms which favor cities that already have some resilience. The authors conclude that such networks are unjust, since they exclude vulnerable cities and reinforce the advantages of wealthy ones (ibid).

4.2.4. Governance

Also important are questions about who governs resilience building and how. Here, again, we focus on urban resilience programs.[22] Many of these programs are governed by transnational governance networks formed by public-private and intercity coalitions, where the mayors of global cities and actors like the Rockefeller Foundation have prominent roles[23] (Bulkeley and Betsill: 2013; Shi et al.: 2016). These networks have been praised as opportunities for sharing and integrating lessons for successful adaptation (Wamsler et al.: 2013; UNISDR: 2012; Gordon: 2019) but, as one could expect, they have also been subjected to critique.

Shi et al. (2016), for example, note that resilience programs have thus far had limited success in mainstreaming adaptation in urban governance: oftentimes, only a couple of city departments have active roles in these programs and citizen participation is limited or nil. Another major line of critique finds that global resilience networks further the neoliberal privatizing trend by turning state agencies from direct providers of aid to mere coordinating agents alongside donors and private contractors (Gotham: 2012). State retrenchment is troubling here, critics argue, because the wealthier global cities use resilience plans for gradually disconnecting from regional and national infrastructures and economies, and creating select corridors of elite areas with upgraded and self-managed infrastructures (Hodson and Marvin: 2009; Anguelovski and Shi: 2016). This process is said to further undermine regional and

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22 In the development arena, the key actor is the World Bank with its *Climate Resilient Development program* (CSR) (World Bank: 2008; World Bank et al.: 2008; Brown: 2012, 2015).

23 The Foundation pioneered the application of resilience ideas to urban governance in the aftermath of Katrina, and then launched the *Asian Climate Change Cities Resilience Network* (ACCCRN) in 10 Asian cities (Tyler and Moench: 2012). This vision was then upscaled into the (now defunct) *100 Resilient Cities program* (Spaans and Waterhout: 2016), possibly the most ambitious of its kind.

national infrastructures, thereby imposing more risks on the cities that do not participate in global networks because they lack the needed resources (ibid).

4.3. The tripartite model of justice

Despite the abundance of critical work on climate resilience, only a small subset of this work offers discussions on what counts as (in)justice in resilience projects and programs, or how these could be made more just. To date, most scholars follow Paavola and Adger (2002) in recognizing that justice in adaptation would require just adaptation outcomes (*distributive justice*) and just or fair adaptation processes and decisions (*procedural justice*). Recently, however, Schlosberg's (2012) tripartite model of justice, which also features *recognitional justice,* has gained ground (Coggins et al.: 2021). Next, we review how these three concepts are understood within representative frameworks in the field, focusing on those points that are of more direct interest to this chapter.

The most substantive discussion on *distributive justice* comes from Paavola and Adger (2002), for whom distributive justice concerns "how the beneficial and adverse effects [of climate change and adaptation to it] are distributed across groups of people" (ibid, 5). These authors distinguish four possible foundations of distributive justice: theories are monistic or pluralistic, depending on whether they emphasize one supreme principle or good, or more; and they are consequentialist, if they focus on outcomes, or deontological, if they view justice as a "matter of following just principles or rules" (ibid, 7). The authors do not dedicate much attention to deontological theories, however. They mention rights-based theories as examples, but dismiss them as too rigid (i.e. international negotiations often require compromises) and hard to operationalize (e.g. rights to the absence of danger are hard to define due to problems in deciding what counts as *danger*). Among consequentialist theories, they mention utilitarianism as a monistic form of consequentialism, noting the utilitarian singular aim of maximizing social welfare. After mentioning the relevance of these ideas for the economic efficiency of adaptation initiatives, however, the authors state their preference for pluralistic consequentialist theories, because in adaptation, they argue, we must consider "[o]ther important concerns such as security, avoidance of danger, and the survival of non-human species" (ibid, 5). They add that, ultimately, distributive justice seeks to alleviate the situation of those most vulnerable to climate change, and that an ideal principle for allocating assistance on these grounds is Rawls'

maximin rule -consisting in maximizing the situation of those worst-off or most vulnerable (Paavola and Adger: 2006, 605).

Besides Rawls' theory of justice, Sen's capability approach is another theory that is mentioned in many other frameworks (Bulkeley et al.: 2014; Coggins et al.: 2021). Hughes (2013) discusses these two theories in some detail, presenting them as paradigms of two distinct approaches to distributive justice: those oriented to ends and those oriented to means. In terms of this distinction, which comes from Sen (1992), the capability approach is ends-oriented because it aims directly at improving the individuals' capabilities to achieve the functionings they value; and Rawls' theory is means-oriented because its goal is rather instrumental to those ends (namely, to design institutions that can allocate certain primary goods fairly). Hughes (2013) concludes that both approaches offer valuable insights, which can be reconciled by taking income and assets as indicators of vulnerability and distributive justice. Recent work indicates a preference for the capability approach as a suitable theory for underpinning adaptation policies (Schlosberg: 2012; Kronlid: 2014; Brackel: 2021).

Procedural justice, in turn, is understood as a concern with the legitimacy (Paavola and Adger: 2002) or the fairness (Hughes: 2013) of adaptation processes and decisions. According to Paavola and Adger (2002), procedural justice is crucial in adaptation strategies, where, in contrast to mitigation, efforts are very locally-specific, and so, involving citizens is essential for their success. Most authors indeed present procedural justice as a matter of enhancing the political agency of citizens by including them in adaptation strategies, although there are competing ideas of what *inclusion* should mean in this regard. For example, for Hughes (2013), citizens should be allowed to elect representatives. Shi et al. (2016) complain that citizen involvement is often limited to trivial tasks, such as monitoring or fact-finding, and they demand a more active role of citizens in steering adaptation trajectories, especially in planning decisions about targeting and priority-setting. Meerow et al. (2019) are most ambitious in calling for equitable participation in various areas of resilience building, including the problem of negotiating or defining resilience.

As noted, many recent frameworks also consider *recognitional justice* (Schlosberg: 2012; Hughes: 2013; Bulkeley et al.: 2014; Meerow et al.: 2019). This move is often justified in relation to certain asymmetries between climate mitigation and adaptation[24] (especially as regards the local nature of adaptation) and to the fact that

[24] Adaptation involves different actors than mitigation (e.g. non-state actors like communities and public-private coalitions) and a more uncertain and complex geography of vulnerability and responsibility (Bulkeley et al.: 2014, 2). Paavola and Adger (2002) discuss other asymmetries.

many procedural and distributive injustices result from cultural discrimination and other structural injustices, which commonly affect minority groups in any given location (Bulkeley et al.: 2014). Thus, for example, recognition has been defined as a form of justice that involves acknowledging historical and structural forms of oppression or respecting cultural differences (Meerow et al.: 2019). Others frame recognition as a need for engaging minorities in interventions, or as the need to include culturally-specific values or knowledge within initiatives (Hughes: 2013). In this way, proponents of recognitional justice claim that, by adequately recognizing communities, we can leverage their role in adaptation, and especially the role of vulnerable communities (Schlosberg: 2012).

Further, proponents of recognitional justice place much emphasis on how injustices can reinforce one another, resulting in "mechanisms of injustice" that prevent successful adaptation. For example, Hughes (2013) defines *thick injustice* as a phenomenon whereby (distributively unjust) past development decisions and resource allocations result in contemporary (distributive) injustices. She also mentions the *political economy of poverty*, where a poor representation and access to decision making (procedural injustice) reinforces exclusion and disadvantage (procedural and distributive injustice). Finally, she describes *technocracy* as a form of governance based on information and knowledge tools that, despite their supposed neutrality, misrecognize cultural diversity. See Bulkeley et al. (2014) and Meerow et al. (2019) for similar considerations.

4.4. Needs for justice in climate resilience

While the frameworks reviewed above have managed to initiate debates on justice in adaptation, we think that more groundwork on justice is needed. Particularly, we argue that distributive justice has to be more carefully conceptualized (4.1), that ideas of procedural justice should be broadened (4.2), that recognition is not an independent form of justice (4.3), and that, partly due to its faulty conceptual basis, the tripartite model of justice risks ignoring or misconceptualizing important justice issues (4.4).

4.4.1. Distributive justice

One problem of the frameworks reviewed is that they do not account for the variety of available approaches to distributive justice, partly because they do not clearly distinguish between two key decisions involved in operationalizing distributive justice. First, one needs to decide what counts as good or bad outcomes of actions and

decisions: what Sen (1991) calls the informational basis of evaluative judgments–or the *evaluative basis*. Second, one must choose a *distributive rule*: that is, a desirable pattern of distributions. Note that these two decisions are, or at least can be, made independently. For example, while the capability approach uses capabilities and functionings as its evaluative basis, the approach is compatible with many possible distributive rules (Robeyns: 2017). This example illustrates that a failure to distinguish between these two decisions may hinder or simplify the debate on what approach to distributive justice is more suitable.[25]

Further, available frameworks offer little guidance on these two issues. In relation to distributive rules, Paavola and Adger propose a maximin rule, but they are an exception:[26] other articles advocating a focus on the most vulnerable (Hughes: 2013; Byskov et al.: 2021) remain vague about distributive rules, and Meerow et al. (2019) talk about ensuring "distributive equity", but do not specify what *equity* means. Discussions on the evaluative basis of distributive justice are also scarce. For example, Hughes (2013) considers the strengths of Rawls' and Sen's theories but does not review some familiar objections to them, and her idea of combining the insights of these theories within a singular 'income and assets' approach is at least controversial, since Rawls' and Sen's theories are more often viewed as rivals than as complementary (Sen: 1987; Schlosberg: 2012; Robeyns: 2017). This example illustrates a more general problem in the field, namely, limited recognition of the fact that any justice theory will highlight some issues to the detriment of others (cf. chapter 5).

Paavola and Adger's characterization of utilitarianism as a distributive theory is similarly problematic. At first glance, utilitarianism might seem a theory of distributive justice because it tells us what is good (utility) and how to distribute it (i.e. so that average utility is maximized). Yet, utilitarians are not concerned with how utility is "*distributed across different people*" (Paavola and Adger: 2002; italics are ours): any distribution is considered optimal if it maximizes average utility, even if many people are seriously harmed (Hansson: 2003). Thus, while utilitarian ideas may be legitimate and useful in adaptation, they are not aligned with goals of distributive justice. Likewise, goals like security or the survival of non-human species, which Paavola and

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25 Paavola and Adger's definition (2002: 1; cf. above) implicitly refers to these two decisions ("beneficial and adverse effects" is the evaluative basis; "how [these effects are] distributed across groups of people" concerns the distributive rule). The authors also make the pertinent remark that there are many justice theories and many principles or rules. Yet, strikingly, the subsequent discussion is about the differences between "consequentialist rules" and "deontological rules". This terminology is misguiding, since it suggests that the two aspects of distributive justice are in fact one.

26 Climate mitigation justice features more detailed proposals, however (Okereke: 2010).

Adger consider as goals of distributive justice, do not express how impacts or outcomes affect different people, or at least not primarily and straightforwardly. So, they are not distributive goals according to the authors' own definition. These examples again demonstrate a need for conceptualizing distributive justice more carefully.

4.4.2. Procedural justice

In our view, ideas of procedural justice should be broadened in three ways. First, most authors in the field refer to the *political* conditions of agency, or to ensuring that certain rights inform adaptation initiatives[27]. While these demands are undoubtedly relevant, they ignore the *epistemic* conditions of agency, that is, those related to knowledge, skills and their exercise. These conditions are also important because their absence or deficit can undermine the ability of individuals to rationally consent, dissent or otherwise further their interests within adaptation efforts. Thus, besides broadening participation, adaptation strategies should try to guarantee "epistemic justice" (Byskov: 2021). In practice, this would mean avoiding views of resilience (or principles for setting priorities, etc.) that are vague, obscure or disrespectful of cognitive and cultural diversity.[28]

Second, most frameworks regard procedural issues as matters of balancing power and of questions over "who does what?", and yet, ultimately, their demands focus only on (including) the excluded or the powerless. In our view, procedural justice should also cover questions about the adequate roles and responsibilities of the powerful in adaptation action, not least because demands of assigning special responsibilities to the powerful (e.g. obligations to inform in a timely and accurate manner) seem complementary to demands of inclusion (e.g. rights to information, etc.).

Third, procedural demands are, at present, typically limited to planning and governance decisions, whereas they should cover all important decisions at stake. Even Meerow et al. (2019), who add a demand for "negotiating resilience", still leave out resilience determinants as an area for public choice. This is problematic, since these decisions are justice-sensitive (cf. 4.2.2) and eschewing public scrutiny here may add

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27 Procedural justice is often (and correctly) associated with democratic processes, and thought to be absent in discriminatory, market or elite-driven forms of planning and governance. Civil rights such as the rights to consent and dissent, the right to elect representatives or to participate in democratic processes, etc. figure in most accounts of fairness and procedural justice, and can be viewed as principles that enable political agency.

28 This is a generalized version of Rawls' (1993) famous idea that a society cannot be fair (or procedurally just) if its principles of justice are not knowable for everyone.

fuel to the fire of "resilience as a depoliticizing concept", for instance by creating the impression that, once the goals or targets of resilience are decided, how to achieve them (its determinants) becomes a job of resilience experts. Existing frameworks also ignore the possibility of designing justice frameworks with procedural methods, for example, in decisions like selecting the more adequate evaluative basis or distributive rule.[29]

4.4.3. Recognition

Despite these objections, we believe that distributive and procedural justice are aptly regarded as distinct forms of justice. Here is why. In the frameworks examined, procedural justice is framed as a form of justice that deals with fairness in adaptation decisions. In turn, distributive justice is portrayed as a concern with the differential effects of these decisions on people. In our view, then, these two ideas are more or less well defined, relevant for the domain and also independent from one another.

The case with recognition is different, however. For instance, insofar as recognition is meant to entail respect for the geographic and cultural differences across groups of people (Schlosberg: 2012), many distributive theories already include it.[30] Other recognitional demands express a call for including minorities, or culturally-specific knowledge and values, within initiatives (Hughes: 2013). Yet these points express procedural demands about the conditions of political and epistemic agency, respectively. Finally, recognition is also said to require an acknowledgment that present injustices often result from structural and historical forms of oppression (Schlosberg: 2012; Hughes: 2013; Bulkeley et al.: 2014; Meerow et al.: 2019). While this concern for past oppression, or past harms, seems *prima facie* distinct from procedural and distributive ideas, below we will see that it is more often (and better) captured with the idea of *restorative justice*.

We remain agnostic about the general value of recognition as a justice perspective. However, the above remarks show that its conceptualization in climate resilience research shifts between various ambiguous meanings, which moreover are

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29 Elsewhere we explore some opportunities and obstacles in relation to this problem (cf. chapter 5).

30 For Rawls (1999), the social bases of self-respect are one of the primary goods that all members of a society should be entitled to. The potential of the capability approach in accounting for socio-cultural diversity is also well-known (Nussbaum: 2000; Sen: 2003; Nussbaum and Sen: 2010; Robeyns: 2017).

encompassed by other concepts of justice. Thus, in our view, there is little to gain by informing adaptation efforts with this idea.

4.4.4. Conceptual problems with the dual and tripartite models of justice

Notwithstanding the obvious urgency in finding a justice theory that is fit for guiding decisions in adaptation initiatives and policy, here we argue that a preliminary reflection on the varieties of justice is even more pressing. As we saw, the various justice theories tend to focus more on some issues and less on others. This means that, before finding an appropriate justice response to the challenges of adaptation, we should make sure that the right questions are being asked.

We fear that the dual and tripartite models of justice are not adequate for guiding this reflection. One reason is that many justice issues relevant to adaptation are not covered by these models. Many adaptation scholars identify sustainability as a goal, for instance, but few mention intergenerational justice, the idea that usually captures the implications of (un)sustainability for justice. Also, despite the wealth of work on reparations and restorative injustice, we find these issues are typically dissolved into recognitional justice, if they are mentioned at all. Recall, too, the ideas that Paavola and Adger mention as distributive goals: average utility, security and protection of non-human species. While most authors ignore such goals, they may be just as crucial as Paavola and Adger think. Yet, if –as we argued- they are not distributive goals, then what are they? These remarks suggest that some justice concerns are at present neglected or at least misconceptualized in this field.

Relatedly, more work is needed on what makes justice concerns singular and worth addressing. Above, we dismissed recognitional perspectives because they lack something that distributive and procedural justice have: precise definitions, relevance to our field and conceptual independence. Note that, while these qualities seem necessary features of a form of justice, they are obviously not sufficient. For example, the albedo effect, a measure of the ability of surfaces to reflect sunlight (Stephens et al.: 2015), is relevant to justice in adaptation, conceptually independent from distributive justice, and precisely definable; still, treating it as a form of justice would be preposterous. So, if we agree on the idea that justice encompasses a variety of concerns and demands, more groundwork is needed on how to distinguish those concerns and demands.

In short, one important step in embedding justice considerations in climate resilience consists in elucidating which justice issues matter in the application of

resilience to adaptation efforts, and why they matter. The dual and tripartite models of justice are the tools commonly used for guiding normative reflection in this regard, but, as we have shown, their usefulness is limited.

4.5. An alternative model of justice

This section proposes an alternative model of justice. First we introduce the six forms of justice of the model (4.5.1), and then we discuss some of the general features and advantages of the model (4.5.2).

4.5.1. Six forms of justice

Besides distributive and procedural justice, the following four forms of justice can be shown to have potential relevance for climate resilience: intergenerational justice, justice in system outcomes, restorative justice and retributive justice.

Although we already said much about distributive and procedural justice, we want to delimit these concepts further in relation to the appropriate societal level for their use. In climate mitigation, distributive and procedural justice have been mostly directed toward finding an appropriate balance between nation states regarding their needs and responsibilities, respectively (Bulkeley et al.: 2014). In adaptation, justice between nations is not irrelevant, but it may mask critical differences at lower scales, given that climate impacts and adaptation efforts are highly localized (Füssel: 2010; IPCC: 2014; Revi et al.: 2014). Consequently, adaptation scholars usually frame distributive and procedural justice as pertaining primarily to individuals or communities (ibid; Paavola and Adger: 2002, 2006), and we align with this approach.

Now consider two concepts that, in our view, must be distinguished from distributive justice: intergenerational justice and justice in system outcomes. *Intergenerational justice* considers what a generation owes to future generations. Many authors consider it the province of distributive justice, where we would also have intra-generational issues, relative to what is owed to living people (Klinsky and Dowlatabadi: 2009). Instead, we propose distributive justice should be limited to intragenerational issues, and intergenerational justice seen as a different form of justice. One reason motivating this distinction is that in distributive justice we deal with the short-term effects and risks of actions and decisions; in contrast, intergenerational justice is more appropriately framed as uncertainty about long-term effects (both in terms of what these effects will be, and in terms of how we value them). Another reason is that intergenerational justice deals with duties towards abstract groups of people

(generations),[31] rather than towards concrete individuals and communities, as distributive justice does.

In turn, *justice in system outcomes* emphasizes a need for efficacy in realizing (socially) desirable outcomes and avoiding undesirable ones. This idea complements distributive and intergenerational justice by recognizing that we have reasons to care for near-term outcomes (not intergenerational) that do not directly affect concrete people (not distributive). For example, as noted, although utilitarianism does not cover the goals of distributive justice, even its more narrowly welfarist interpretations have some economic and moral significance. In addition, utilitarianism can also be framed more broadly as the idea that actions are just if they maximize happiness, including the happiness of non-human sentient beings (Singer: 1975). Thus, utilitarianism can capture demands of animal welfare, which are difficult to conceptualize from a distributive standpoint (Paavola and Adger: 2002; cf. above) and which are, due to this difficulty, often ignored (Klinsky and Dowlatabadi: 2009). Goals like the conservation of national heritage and sacred places (Adger et al.: 2011) and demands about the effectiveness of adaptation efforts (Posner and Weisbach: 2010) are in a similar situation: while their value is widely recognized, these goals are not straightforwardly distributive or intergenerational. One way of taking these goals into consideration while avoiding the noted dilemmas is by framing them as just system outcomes.

Also popular in climate and environmental justice, though not in adaptation, are two forms of justice aimed at correcting harms or wrongdoing: restorative and retributive justice. *Restorative justice*[32] addresses past harms from the standpoint of victims. It dwells on the idea that people have a right not to be harmed and, so, that victims are owed reparation. There are many theories of reparations (Táíwò: 2022): for example, harm-based theories demand economic compensations determined by the extent of the harm; repair-based theories seek to repair the relations between offendants and victims through statements of apology or acknowledgement, reconciliation efforts, etc.; and constructive views focus on the effects that enduring

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31 For example, the Brundtland definition speaks about not "compromising the ability of future generations to meet their own needs" (WCED: 1987). Also, debates on discounting, the substitutability of goods, etc. are, in theory, about persons (i.e. personal preferences) (Klinsky and Dowlatabadi: 2009), but, in effect, about general economic trends. Similarly, in adaptation and resilience research, intergenerational concerns often refer to the long-term impacts of climate change (and adaptation to it) on cultures or ways of life (Adger et al.: 2005; Byskov et al.: 2021).

32 Restorative justice overlaps with *transitional justice*, a term used in the context of wars, civil strife, genocide and human rights abuses (Doak and O'Mahony: 2012). Here we assume that the latter notion is encompassed by the former.

forms of oppression have on the descendants of victims, thus framing reparations in relation to present injustices and needs. As can be seen, restorative justice encompasses many of the demands considered by proponents of recognitional justice, and even some in addition to those.

Finally, *retributive justice* addresses harms and wrongdoing from the standpoint of offendants, by demanding that anyone responsible for some wrongdoing is sanctioned or punished (Okereke: 2010). This notion is conceptually linked with restorative and procedural justice. If the wrongdoing considered inflicts a harm on some victim(s), restorative and retributive justice are two sides of one coin, since duties of reparation are assigned to offendant(s) on retributive grounds. Retributive justice is complementary to procedural justice as well: in particular, the idea of fair process seems to imply that assigning a responsibility or duty entails an obligation to meet it, such that failure to do so counts as wrongdoing and deserves retribution, even if it does not directly result in personal harms. This understanding of retributive justice, associated with demands of accountability, liability, etc., is the basis of all legal systems (Perry: 2005).

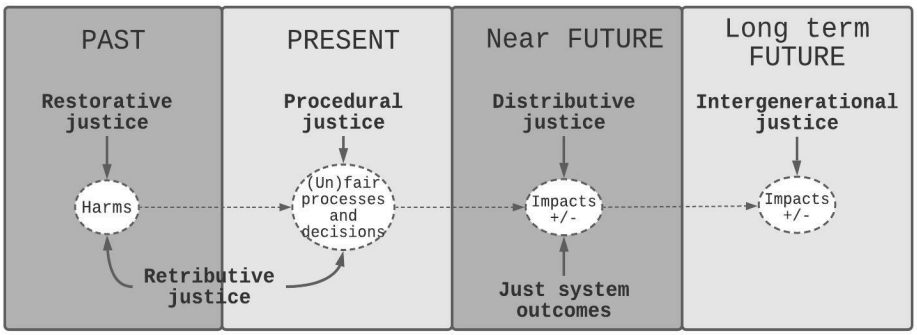
4.5.2. Clearing the ground for justice work in climate resilience

We now consider how this model improves on extant alternatives. To ease discussion, we refer the readers to Table 4.3, which synthesizes the main features of the six forms of justice; and to Figure 4.1, which visualizes their relations.

Table 4.3. Forms of justice, bases of justice and justice criteria (key concepts in bold)

Forms of justice	**Bases of justice**			**Justice criteria for process/decision X**
	Temporal focus	**Normative level**	**Central normative concern**	
System outcomes	Future (near)	System	Value (V) (+/-)	**V** realized/avoided
Distributive	Future (near)	Individual-community (IC)	Distribution of Impacts (I) (+/-)	**I** satisfies (**distributive rule**)
Inter-generational	Future (distant)	?	V, Future Options (FO)	X secures **acceptable** leve of **V**, keeps **FO open**
Procedural	Present	IC	Agency of IC (A), Responsibilities (Rs)	**A** is respected/enhanced, **Rs** are **fairly** balanced
Restorative	Past	IC	Victims of Wrongdoing (VW)	**VW** is/are given adequate **reparation**
Retributive	Past-Present	IC	Offendants -agents of wrongdoing (O)	**O** is/are adequately **sanctioned**

Figure 4.1. Forms of justice: empirical dependencies (dotted arrows) and conceptual dependencies (solid arrows)



Consider first the justice criteria in Table 4.3. These criteria are statements expressing how a process or decision of interest (X) can be (un)just in the six senses examined. As can be seen, the criteria are relatively precise and clearly independent from one another, which was something we missed on the tripartite model. This mutual independence is partly explained by the fact that our forms of justice vary in at least one of the aspects that we call *bases of justice*: that is, they differ either on their *central normative concerns* (e.g. in relation to wrongdoing, retributive justice deals with offendants and restorative justice with victims), their *temporal focus* (e.g. procedural vs. distributive justice), or the *normative level* where they operate (e.g. distributive vs. intergenerational). Moreover, given that the meaning of the six forms of justice is, in essence, determined by their different bases of justice, these bases are a satisfactory answer to the question of what it takes to be a form of justice, which is poorly addressed by other models.

In addition, our model is more multifaceted than its alternatives: for example, it picks up normative concerns as varied as responsibility or agency (procedural justice), concerns for the vulnerability of present and future persons and for other societal values (distributive, intergenerational and system outcomes, respectively), and demands about correcting wrongdoing (restorative, retributive). This feature has some advantages. On the one hand, taken together, the forms of justice are representative of key traditions of normative thought. Consequentialism seems linked with future-looking forms of justice (distributive, intergenerational, system outcomes). Then, deontology and rights perspectives focus on actions rather than on their outcomes,

respectively from the standpoint of agents and victims.[33] Accordingly, deontological thinking fits with retributive justice (which deals with the duties of offendants), the language of rights dominates in reparations, and procedural justice combines both perspectives in covering responsibility issues and demands of minimal agency.[34]

On the other hand, the model adds value to debates in adaptation research by capturing important notions of justice that are ignored or oddly characterized in this domain. For example, we showed how Paavola and Adger (2002) had to resort to distributive justice to represent animal welfare, whereas the notion of just system outcomes offers a more adequate lens for it. Also, Meerow et al. (2019) discuss racial or gender injustice as part of recognitional justice, whereas they are better viewed as complex forms of injustice with procedural, distributive and restorative ramifications. How such justice concerns are precisely embedded in the climate resilience context will ultimately depend on the theories of justice we choose for addressing those issues. Still, at least *prima facie*, the model expands the basis of stakeholders and of normative reasons that matter and should be considered in climate resilience initiatives. For example, the need to care about animal welfare, biodiversity or cultural heritage would probably get us to "sit at the table" some collectives that would otherwise be commonly excluded from, or overlooked in, adaptation planning. Similarly, the need to care for issues of epistemic justice posits definite grounds for negotiating the interpretation and use of policy tools and evidence pertaining to adaptation, including the design of resilience approaches themselves. The model also opens up the range of measures that might be required for addressing restorative justice in any specific context: from the mere verbal recognition of historical discrimination, for example, to the need for compensating discriminated collectives and/or their descendents or for leveraging their role in adaptation initiatives.

Further, our model also clarifies the conceptual and empirical relations between the six forms of justice, as is illustrated in Figure 4.1. Some conceptual dependencies

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[33] Paavola and Adger (2002) consider rights perspectives as examples of deontology. In our view, despite their many similarities, none of these perspectives are species of the other. Deontology asks what actions constitute duties for someone; rights perspectives are concerned with what is owed to someone. That is, deontology is concerned with agents and rights perspectives with patients, so to speak.

[34] Nonetheless, caution is advised with this terminology, since consequentialist theories may be partly based on rights and duties (Pettit: 1988) and the converse also holds (Scanlon: 1977): for example, Rawls' theory combines all these perspectives. Thus, we prefer to view these concepts as ideal types of normative thinking rather than as kinds of theories, as Paavola and Adger (2002) suggest. This is another reason why Paavola and Adger's (2002) terminology is inadequate, in our view (cf. note 25).

were noted above: for example, the complementarities between restorative and retributive justice, on the one hand, and between procedural and retributive justice, on the other. By empirical relations we refer to what Hughes (2013) calls mechanisms of injustice: the idea that the multiple facets of (in)justice may reinforce one another over time. For example: if unaddressed, past harms can undermine agency and even result in the exclusion of people from decision-making processes (procedural injustice). In turn, unfair processes tend to misrepresent vulnerabilities and needs (distributive), often with long-term repercussions (intergenerational) (ibid; Paavola and Adger: 2002, 2006).

Thus, in summary, we believe that our model is more comprehensive and better grounded than its alternatives in climate resilience research. Next, in dialogue with the insights from resilience research reviewed in section 4.2, we show how the model is also particularly suited for informing justice work in this domain.

4.6. Opportunities and challenges for justice work in climate resilience

Looking back at section 4.2, now we can see that resilience approaches include some goals that our model recognizes as demands of justice. For example, all system views of resilience can now be conceived as notions of just system outcomes, since they frame resilience as a desirable social response of systems to disturbance (although competing definitions vary in exactly what they deem desirable). Resilience building is also partly aligned with procedural justice, since many determinants (cf. Table 4.2) are goals relative to the political conditions of agency (e.g. *inclusion*, *participation*, maybe also *decentralization*) or to the epistemic conditions of agency (e.g. *promote learning*, *foster complex adaptive systems thinking*). In addition, building resilience is more or less closely linked to intergenerational justice: many transformative views include sustainability or long-term persistence as dividends of resilience (Table 4.1- def. 9), and determinants like *flexibility* stress the need to avoid irreversible decisions and outcomes.

These alignments are significant because building resilience requires seeing to it that the above mentioned demands are met. Thus, resilience practitioners will generally try to accomplish these demands, even if they do not recognize them as demands of justice. While this cannot be a full guarantee that the demands will be

fulfilled,[35] therefore, it is at least a partial one. Indeed, one could argue that these alignments between justice and resilience approaches are opportunities for advancing justice through adaptation.

In contrast, other demands recognized in our model are either ignored by, or difficult to include in, resilience practice. We consider three problems as especially critical: distributive justice, responsibility arrangements and correcting past injustices.

For instance, many critiques discussed in section 4.2 relate to distributive injustices in climate resilience. While some of them can be interpreted as implementation deficits (e.g. the inequities in selection mechanisms for resilience programs), the place of distributive justice in resilience is generally awkward. For example, given that concepts of system resilience ignore individual outcomes, they clearly neglect distributive justice. In turn, notions of individual or community resilience are not without problems. Consider Norris et al.'s (2008) influential account, which identifies community resilience with a high prevalence of well-being in communities after disaster. While this criterion of resilience has distributive significance,[36] note that it is compatible with a high degree of suffering among vulnerable community members; in fact, it tolerates massive losses of well-being in disasters, as long as enough people remain well-off. This conclusion is troubling, since many climate disasters will hit the most vulnerable first and any loss of their well-being could be dramatic. To some extent, transformative views of community resilience can accommodate such objections, because they consider disasters as opportunities for improving –and so, for example, as opportunities for communities to become more distributively just. Yet, even these approaches lack tools for specifying what vulnerability or well-being are, or which distributive rule to adopt. Such tools rather come from justice theory, and their operationalization in resilience practice is still in its infancy (Doorn: 2017; cf. section 4.1).

There is also much need for debate on responsibility arrangements, both in relation to whom should take which roles in resilience efforts (procedural justice), and

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[35] We saw, for instance, that some orientations in urban resilience conflict with sustainability and that participation is limited in resilience projects (cf. 4.2.3). Also, in our model, the vagueness of resilience concepts (cf. 4.2.1) can be interpreted as conducive to epistemic injustice (cf. 4.4.2). Nonetheless, some of these problems might be not exclusive of resilience approaches (e.g. deficits in participation are common in planning and related areas) and others could be addressed within resilience practice (e.g. definitions of specific resilience will be less vague than definitions of general resilience, for example).

[36] The authors do not discuss distributive justice explicitly, but well-being indeed is a plausible evaluative basis of distributive justice.

to the liabilities that apply to unjust or maladaptive decisions (retributive justice). In the absence of regulations or of much theoretical work on the topic (Doorn and Copeland: forthcoming; Doorn et al.: 2021), two responsibility regimes have emerged as dominant: the technocratic, which views resilience as an apolitical issue or a matter for resilience engineers (Bahadur and Tanner: 2014), and another based on improvisation and bottom-up action (Joseph: 2013). Both types of regime build on features of resilience theory[37] and our model shows why each is problematic: while technocracy hinders participation, bottom-up regimes efface questions of political and legal liability. Moreover, bottom-up regimes may facilitate responsibilizing citizens for their maladaptation or lack of resilience, and thus hinder the adoption of measures seeking to improve their situation. Thus, a mechanism of injustice is at work here, whereby procedural and retributive injustices are likely to result in distributive ones.

Resilience approaches also disregard past harms and injustices (restorative and retributive justice). In part, this is due to their outcome-oriented character: resilience focuses on how to respond to risks, not on avoiding risks or on addressing the differential vulnerability of populations to them–yet, it is these problems which are often inseparable from past injustices.[38] Another reason may be that system perspectives ignore individual harms and wrongdoing, not just because they focus on system outcomes, but also because, within a system perspective, undesirable outcomes are more likely to be interpreted as consequences of system dynamics. The neglect of these issues is especially worrying because justice frameworks in the adaptation domain also step over them, typically on the grounds that they are politically controversial and that including them in international climate negotiations can render negotiations ineffective (Paavola and Adger: 2002; Jagers and Duus-Otterström: 2008). While these arguments may be valid for the international arena, recall that many resilience projects are local or regional efforts embedded in transnational networks (cf. section 4.2.4). Thus, we suggest that restorative and retributive demands could be valuable at least for informing urban planning, resilience frameworks and other areas of resilience practice.

Here we have showed that our model can help with identifying which assumptions in resilience practice are justice-sensitive (in a positive or negative sense) and, in

[37] The technocratic tendency seems unavoidable because resilience practice mobilizes a heavy scientific basis for informing technically complex decisions. The bottom-up regime finds a rationale on determinants like decentralization or self-organization (Walker and Cooper: 2011).

[38] As Füssel (2010) argues, the geography of climate vulnerability reflects a "double inequity": while the non-beneficiaries of GHG emissions (low-emitters) are also most vulnerable to climate impacts, the beneficiaries (high-emitters) are generally less vulnerable.

relation to this, which justice issues are more challenging in resilience building. Now we turn to considering how these lessons can inform future work on justice in this domain.

4.7. Constructing climate resilience and justice

Designing justice frameworks for climate resilience involves answering two questions. One is: what theories and principles are most suitable for this domain? Another is: what kinds of justice issues matter in this domain, and why? While the second question is more fundamental, we found that the common response to it, namely the tripartite model of justice, is flawed for various reasons. Thus, we defended an alternative model, featuring six forms of justice that represent distinct concerns, temporal orientations and societal levels of consideration. Any model of this sort is probably debatable. Yet, we believe that ours improves on its alternatives because it both broadens and clarifies the landscape of normative reasons that matter and should be weighed in resilience building. This feature helped us to show, for instance, that some goals of resilience and justice are aligned, thus challenging the popular idea that resilience approaches are either unjust (Pelling: 2010) or unrelated to justice (Derissen et al.: 2011), and highlighting opportunities for collaboration between resilience practice, policy-making and justice theory, especially around procedural and intergenerational justice. Our model also does a better job than the tripartite model at identifying and linking demands that resilience practitioners are ill-equipped to handle.

Now turning to the first question, which we have largely set aside in this chapter. Our model does not tell us which theories of justice we should prefer: indeed, it is deliberately underspecified to recognize the fact that there are many possible theories.[39] But it is at least a partial guide for making this choice. In particular, considering the four demands identified as critical in climate resilience (distributive, procedural, restorative and retributive), it seems that we should choose justice theories that are capable of addressing those demands.

[39] This underspecified character of the model is visible its justice criteria (Table 4.3). To be able to inform assessments or policy, these criteria should be more precise: choosing concrete theories of justice would in fact involve specifying the key terms in these criteria (in bold). For example: different theories of distributive justice will choose different distributive rules and conceptualize impacts differently.

While we are not aware of any theory that covers all these four forms of justice, a recent proposal coming from Táíwò (2022) comes close.[40] Táíwò thinks that reparations for colonialism and slavery should respond to the challenges faced now by the descendants of those who suffered those injustices, including the challenges that relate to climate vulnerability. The peculiarity of his constructive view on reparations therefore is that it focuses on reparations but also attends to retributive and distributive demands. In particular, Táíwò proposes the following division of labor between historical and distributive considerations. Historical considerations (about slavery and colonialism) would determine who receives reparations, namely the descendants of the oppressed (restorative justice), and who bears their burden, namely the descendants of offendants (retributive justice). In turn, distributive justice would determine the content of reparations, according to the challenges faced by the targets of reparations. Given that some of these challenges are climate-related,[41] Táíwò's theory advances a strong case for binding reparations to questions of adaptation finance and targeting. More specifically, it suggests that high (GHG) emitters should finance the adaptation actions of low-emitters, both because the former had greater responsibility in human-induced climate change, and thus in the reduced climate resilience of the latter (Füssel: 2010); and because colonization and slavery were, in many ways, what generally made this double inequality possible (Táíwò: 2022). We agree very much with this perspective: responsibilities for mitigation are often assigned on a retributive basis (Dooley: 2021) and we see no reason why such concerns should not inform adaptation as well.

Yet, even if Táíwò's approach were to be followed, justice frameworks operating in this domain still face a double challenge, because Táíwò leaves open the question of which distributive theory is preferable, and he more or less puts procedural justice aside. Below, in chapter 5, we partly address this impending challenge by critically assessing the capability approach and concluding that some applications of it indeed offer promise. Nonetheless, as we have argued here, it is probably impossible to find a theory that covers all demands of justice, and we need to ensure that our justice

[40] Theories of justice can cover various aspects of justice at once. For example, Rawls' theory (1999) attends to distributive and procedural issues, but also includes intergenerational demands; Nozick's theory of entitlements ignores distributive issues to emphasize procedural and restorative ones (Nozick: 1973); etc. To some extent, this feature of theories is to be expected because the six forms of justice are related in various ways: in practice, it is difficult to address reparations but not retributions, for example.

[41] Táíwò documents the high correlation between colonized countries and mortality due to pollution (2022: 164) and climate vulnerability (ibid: 171), respectively.

approaches at least consider those that are more important in a given context. Our model is a step towards identifying which aspects of justice matter most in the climate resilience domain, why, and what kinds of justice theories might offer suitable responses to them. We therefore hope that this model and the insights developed throughout the chapter will inform further debates in this domain and beyond.

5. Capabilities as a justice basis of climate resilience strategies[42]

5.1. Introduction

While resilience is today a major label for framing climate adaptation efforts, there is a growing concern with the justice shortcomings of these approaches (Walker et al.: 2011; Joseph: 2013; Olsson et al.: 2015; Shi et al.: 2016; Meerow et al.: 2019; Fitzgibbons and Mitchell: 2019). At present, most authors working on justice in relation to climate resilience agree that, in order to be just, climate resilience efforts should at least lead to just outcomes, which should be justly achieved (Paavola and Adger: 2006; Hughes: 2013; Coggins et al.: 2021). In other words, most authors stress the need to ensure that climate resilience strategies and programs meet appropriate goals of distributive justice and procedural justice.

In this chapter we make some observations about what procedural justice requires or how it can be attained, but our focus will generally be with distributive justice and the challenges it involves in relation to climate resilience. Distributive justice is a sensitive topic, since there are many competing theories of distributive justice, which recommend very different things. The capability approach (CA from now onwards), associated with the work of Amartya Sen and Martha Nussbaum, is one specific theory that has been considered and praised by many authors working in the climate resilience-justice nexus (Schlosberg: 2012; Hughes: 2013; Bulkeley et al.: 2014; Doorn: 2017; Coggins et al.: 2021). Yet, such accounts have not systematically assessed the merits and deficits of the CA for addressing the justice challenges involved in climate resilience, which clearly undermines their ability to guide justice-based decisions and policy (cf. chapter 4). Here we address this gap by appraising the advantages of a specific application of the CA in this area and by considering some limitations of it and of the CA more generally.

The chapter is structured thus. First, we review the state of the art in current accounts of distributive justice in relation to climate resilience, and then motivate the need to conduct a detailed assessment of the CA (5.2). Next, after introducing the main features of the CA (5.3), we consider some of its advantages for guiding justice work in climate resilience, as well as some relevant objections to it (5.4). Building on preceding

[42] This chapter is a version of an article that is currently under review.

analyses, the fifth section proposes a CA-based framework that we find particularly promising for guiding justice work in the climate resilience-justice nexus (5.5). Then we summarize our results and reflect on their consequences (5.6).

5.2. Distributive justice in climate resilience

As was noted above, most articles discussing justice in the context of climate resilience focus on distributive and procedural justice (Paavola and Adger: 2002, 2006; Hughes: 2013). Distributive justice cares about just outcomes: namely, about ensuring that the positive and negative impacts of adaptation and resilience building actions and decisions are distributed appropriately between different people and communities. In turn, procedural justice refers to whether such decisions, measures, etc. take place justly or fairly–where this demand of fairness is usually related to ensuring that citizens are included or have a say in relevant adaptation and resilience-building decisions (Meerow et al.: 2019). Increasingly, this literature is also stressing the need to recognize or redress the causes of systemic injustice against certain populations or minorities (Malloy and Ashcraft: 2020), a demand which some authors frame as one of recognitional justice (Schlosberg: 2012; Meerow et al.: 2019) and that we have related to reparations and retributive justice (cf. chapter 4). A large part of the justice work in climate resilience to date has thus consisted in identifying the different justice demands that arise in climate resilience efforts and explaining why they matter in this context.

While distributive justice has historically had much importance in climate negotiations and climate justice work more generally (Paavola and Adger: 2002; Bulkeley et al.: 2014), in the climate resilience-justice nexus there is still too little debate about which principles or theories of distributive justice are more suitable and why. Below we review the main insights that scholars working in the climate resilience-justice nexus have produced about two decisive aspects that a theory of distributive justice must contain: the distributive rule (what a theory regards as an appropriate pattern of distributions) and what Sen (1991) calls the "informational basis" of evaluative judgments (what is considered a positive or a negative impact and why). Then, based on this brief review, we mention a few gaps and needs for further research in the climate resilience-justice nexus.

With regard to distributive rules, the possibilities are varied (Okereke: 2010). Nonetheless, in the climate resilience-justice nexus, scholars more or less broadly concur around two ideas: that climate resilience strategies should address the most vulnerable first, and that they should protect people from particularly intolerable

outcomes (Pelling: 2010; Paavola and Adger: 2006). Typically, philosophers treat these two proposals as two different distributive rules. The idea that we should assist the most vulnerable first is a priority rule. To say that certain outcomes are intolerable, in turn, amounts to saying that people are entitled a minimum level of good things and a maximum level of bad things: this is what philosophers call a sufficiency rule.

To apply these rules in practice, of course, we need a theory that informs us about the second aspect of distributive justice: what counts as good or bad things (or as positive or negative impacts). In the case of the sufficiency rule, obviously, we need to know what is good or bad for people before determining the minimum and maximum levels of such things. But we also need to know this for informing our vulnerability assessments and our decisions about how disadvantages can be ranked and how to prioritize efforts.

Scholars working in the climate resilience-justice nexus have, thus far, offered a wealth of arguments suggesting that certain theories of distributive justice may be more suitable than others for addressing the specific challenges involved in climate resilience. For example, Paavola and Adger (2002) argue that theories based on rights (which ought to not be violated) may be too rigid for grappling with the uncertainty that comes with climate risks and with the compromises that typically have to be made in the climate arena. Also, others argue that monistic theories (i.e. where income, or happiness, etc. are used as a sole principle for ranking value and disadvantages) cannot adequately capture the multifaceted nature of climate vulnerability[43] (Moser and Satterthwaite: 2010; Füssel: 2010) and especially the more intangible climate risks, such as those related to loss of place or of community identity (Paavola and Adger: 2006; Adger et al.: 2011). Bulkeley et al. (2014) have also complained about theories where nation states are viewed as the sole arbiters of justice, noting that such approaches risk misrepresenting the local or international challenges for climate justice, which, they argue, demand a more multi-scalar approach to justice than is commonly the case. It has also been argued that some theories should be dismissed for being misaligned with sustainability goals (Gough: 2015).

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[43] Generally, climate vulnerability is characterized as a combination of geographical factors (low water supply, low-lying riverside or coastal areas, areas with records of climate extremes) and social ones (resource dependency, socio-economic and institutional adaptive capacity) (Moser and Satterthwaite: 2010; Füssel: 2010; Hughes: 2013). Within this perspective, the people and communities who are thought to be most vulnerable to climate change are those living in locations such as informal settlements, small island developing states (SIDS), least developed countries (LDCs) (Füssel: 2010) and coastal urban areas, especially those with a recent track of rapid growth (Hughes: 2013).

However, somewhat strikingly, contributions have not gone much further than this. Many assessments of distributive justice in climate resilience strategies do not even propose a specific theory as a basis for their judgments. For example: in a recent evaluation of resilience building plans in US cities, Meerow et al. (2019) call for more distributive 'equity', but then they say little about what 'equity' means. Other assessments are more explicit about how they measure justice, but not about the reasons for choosing a particular approach over others. In a recent evaluation of justice shortcomings in the *100 Resilient Cities* program, for example, Fitzgibbons and Mitchell (2019) claim that the selection mechanisms of this (now defunct) program were unjust because they effectively tended to aggravate the inequities between cities. The reason is that, in practice, these selection mechanisms favored the selection of cities with a medium to very high HDI (the "Human Development Index") while excluding low-HDI cities. In grounding their claims on a widely respected indicator of wellbeing and justice such as the HDI, these authors engage with the question of who is better-off and worst-off, which is an important input to distributive considerations. One problem here, however, is that using the HDI gives us only an implicit response as to what counts as a positive or negative impact of climate change and climate resilience strategies. Moreover, the HDI only measures life expectancy, education and per capita income, and one could argue that this is an insufficient account of the relevant impacts to consider in this regard (cf. section 5.5).

Among the more specific proposals for embedding distributive considerations in climate resilience, two theories that are consistently mentioned are Rawls' "primary goods approach" and Sen's capability approach (CA). These theories share that they are both pluralistic: that is, they assume that advantage and disadvantage have several dimensions, which may be mutually irreducible: in particular, for Rawls, advantage and disadvantage depend on the shares of certain "primary goods"; whereas, for Sen, they are relative to the shares of certain abilities to do and to be things that people have reason to value. In particular, of these two approaches, the CA has been gathering more support of late in relation to climate resilience (Schlosberg: 2012; Bulkeley et al.: 2014; Kronlid: 2014; Doorn: 2017; Holland: 2017; Coggins et al.: 2021; Shepherd and Dissart: 2022).

This growing appeal of the CA constitutes the background and motivation of the rest of this chapter, since we believe that the CA indeed offers promise for advancing work on justice in the adaptation-resilience domain, but also that it deserves a more systematic scrutiny than it has received thus far. For example, despite the prominence of Rawls' theory and the CA, these theories by no means exhaust the options at hand:

below we mention others, though only in relation with the CA. Moreover, there is need to clarify whether these approaches are best seen as complementary (Hughes: 2013) or as rivals (Doorn: 2017). Further, while our engagement with Rawls' theory will be limited, below we discuss some Rawlsian-inspired critiques of the CA that are currently ignored in the climate resilience-justice nexus.

This comment takes us to our last point. The climate resilience-justice literature features many pertinent arguments about the strengths of the CA: below we refer to some. Yet, the weaknesses of the CA are generally omitted, thus carrying the risk of giving an incorrect idea about the precise way in which the CA can be useful for the climate resilience arena. Part of our aim in this chapter consists, then, in clarifying where the CA is a strong justice basis for this domain, but also, where it fails or requires a complement, and why. But before assessing the CA, let us explain what it is about.

5.3. The capability approach

Conceived by Amartya Sen (1987) and later enriched by many authors, notably by Martha Nussbaum (2000), the CA is today an influential perspective in various areas of normative work, particularly as a theory of justice (in political philosophy) and as a dominant theory and metric of well-being or welfare (in development contexts). In this section we discuss the general character and significance of the CA.[44]

The CA proposes that capabilities or functionings should have a prominent role in the informational basis for our judgments and measures about distributive justice. Functionings are the concrete activities or doings (e.g. biking) and social roles or beings (e.g. being a scientist) that constitute people's well-being and life satisfaction, and capabilities are the real opportunities that people have to pursue the functionings they value. Thus, capabilities can be viewed as potential functionings or as positive freedoms to do and to be what one values (Robeyns: 2017).

Much of the enthusiasm for the CA (in the climate resilience context and elsewhere) has built on the idea that this approach considers aspects or dimensions of injustice that other prominent justice theories leave unattended (Murphy and Gardoni: 2008; Arneson: 2010; Schlosberg: 2012). As we saw, most scholars in the

[44] For more detailed analyses of the capability approach and of relevant debates in this literature, see Robeyns (2017), which offers an exhaustive but nonetheless very readable introduction to this topic.

climate resilience-justice nexus only consider two theories: the CA and Rawls'.[45] However, prominent capability theorists (capabilitarians, from now on) have often presented the CA as a superior alternative to at least five other perspectives on justice: utilitarianism, preference satisfaction theories, income approaches, resource-based theories (including Rawls's theory), and need theories. Next, we overview some of the critiques that capabilitarians have directed against these approaches in order to clarify what the CA defends and how it differs from alternative perspectives on justice.

Utilitarianism is the basis of classic welfarism and it generally implies a commitment to increasing the average or the general wellbeing of a population. Most capabilitarians dismiss this orientation simply as one that neglects distributive justice, since it disregards individuals and conceals many forms of inequality (Robeyns: 2017). This kind of critique of utilitarianism is common in political philosophy (Hansson: 2003) and is also echoed in the climate resilience-justice literature (Paavola and Adger: 2002, 2006; Cañizares et al.: 2023).

Preference satisfaction theories, in turn, are those for which justice and wellbeing lie in the satisfaction of individual preferences (typically, as revealed by market choices). While these theories do take into consideration individuals in a way utilitarianism does not, capabilitarians typically reject them on the grounds that they are insensitive to the problem of adaptive preferences, that is, the process by which people learn to adjust to, or to tolerate, certain situations that are in general intolerable. As Sen himself put it:

> A poor, undernourished person, brought up in penury, may have learned to come to terms with a half-empty stomach, seizing joy in small comforts and desiring 'no more than what seems "realistic" (Sen: 1987: 20)

In other words: the CA diverges from preference satisfaction theories of wellbeing in recognizing that social constraints often result in a loss of autonomy and freedom of choice, which may be rendered invisible if preferences are uncritically taken at face value.

Most capabilitarians also reject income-based theories of wellbeing for being monistic, that is, for being concerned with only one basis of evaluation. Capabilitarians are committed to a multidimensional account of wellbeing, or, in other words, they consider that many capabilities and functionings may not be straightforwardly reducible to one another or to a common metric. For example, they believe that, if

[45] Hughes' taxonomy (2013) is more detailed, but it also leaves out need theories and wellbeing theories (cf. discussion below).

someone chooses to be a scientist and to bike, there is no amount of good science work and related satisfactions that could replace that person's inability to bike; rather, that person's wellbeing may depend on realizing both functionings (Sen: 1987; Robeyns: 2017). From this perspective, then, income-based theories and other monistic approaches misrepresent both the plural character of wellbeing and the diverse views on wellbeing and justice that people and societies may have (Wolff and de-Shalit: 2007). In the climate resilience-justice literature, we find similar critical points about the insufficiency of income approaches for capturing what wellbeing and justice are about (Paavola and Adger: 2002).

The way in which the CA differs from resourcist theories of distributive justice is subtler. There are various resourcist proposals in the adaptation arena, such as the five capitals approach (Norris et al.: 2008) and the sustainable livelihoods approach (Moser & Satterthwaite: 2010). Here we discuss Rawls' theory, a paradigmatic resourcist theory whose relations with the CA have been abundantly explored. Rawls (1999) argued that advantage and disadvantage depend on the shares of certain multi-purpose resources of which anyone reasonable is supposed to want more rather than less, such as income, freedom and the social bases of self-respect. He calls these resources "primary goods". Although Rawls tries to reconcile demands of liberty and equality, liberty has ultimate priority in his theory.

Here lies one major difference with the CA. Sen (2009 , p. 59) has criticized Rawls for being too radical in his prioritization of liberty, noting that liberty must be weighed alongside other concerns, such as having a long and healthy life, an adequate education, etc. Another difference, which applies more broadly to all resourcist theories, is captured by the distinction between means and ends: for example, Sen does admit that certain resources are important means for achieving some ends; but he insists that functionings and capabilities are still more important from a justice standpoint, because they are the final ends to which resources are put to use. Another way to understand the capabilitarian critique of resourcist theories is through the concept of conversion factors. Conversion factors are the interpersonal variations that exist in converting resources to capabilities: e.g. in the natural or the built environment, personal and social factors, etc. (Robeyns: 2017, 46). Capabilitarians have often pointed out that, by neglecting conversion factors, resourcist approaches are blinded to, for example, the double injustice that affects disabled people: not only are disabled people unable to convert some fixed set of resources into the same capabilities that non-disabled people can, they also use up part of their resources in special care, for instance (Sen: 2001, esp. 70-71; Arneson: 2010). The thrust of this

critique therefore is that, by caring only about resource access, as resourcist theories tend to do, we neglect some important obstacles that individuals may face in using such resources.

Sen in particular also had reservations against need theories. In his view, such theories tend to view humans as passive and needy, instead of stressing their freedom–wherein lies the peculiar significance of capabilities, versus functionings (Sen: 1984, 513ss.). Other prominent capabilitarians are less dismissive of need theories and more open to examine their complementarity and potential convergences with the CA, however (Robeyns: 2017). In fact, there are some parallels between capabilities and needs, such as, for example, that both approaches are oriented to outcomes or ends. Thus, although here we won't discuss need theories in depth, it is worth noting that these approaches could be complementary with, or broadly aligned to, what the CA says or recommends about justice.[46]

Summing up, then, Sen–and many after him–criticized that wellbeing and justice are measurable with a single index (e.g. income) or that they can be understood as a matter of which resources people have (as in resourcist theories), or of the satisfaction people get from their use (as in preference satisfaction theories). In contrast, within the CA, what matters is what people are actually able to be and to do with certain

[46] For example, Doyal and Gough's (1991) influential need theory identifies two basic needs: a need for physical health and a need for autonomy of agency. Thus, although agency seems to be treated in more detail by capabilitarians (Alkire: 2005), who also insist more on safeguarding negative freedoms (ibid) and promoting political rights (Sen: 1994), Sen's critique of need theory as promoting a view of humans as "passive" beings may not be completely fair, or, at least, it may not apply to all need theories. Indeed, the similarities between Doyal and Gough's theory and various capability-based theories are broad. For example, Doyal and Gough specify their two basic needs into eleven intermediate needs, most of which either coincide or overlap substantially with Nussbaum's capability list (Gough: 2014). Further, Doyal and Gough also try to account for demands of procedural justice. In particular, they argue that their eleven intermediate needs are universal, but that the ways in which these needs are satisfied vary across cultures and time. For specifying these needs and their satisfiers, therefore, they propose a dual strategy combining expert knowledge and "the experiential knowledge of those whose basic needs… are under consideration" (Gough: 2015, 1201). For more detailed analyses about the parallels and differences between need theories and the CA, see a.o. Alkire (2005), Gough (2014) and Robeyns (2017).

resources: that is, their functionings and their capabilities to achieve those functionings (Sen: 1993).[47]

At the same time, the CA can be interpreted and applied in many ways. For example, as Robeyns (2017) documents, many capabilitarians have developed theories or frameworks including other goals and values besides capabilities or functionings (even if they prioritize the latter). Also, some capability theories focus on capabilities and others on functionings: indeed, this is a basic choice to be made for any CA-based framework (ibid; cf. section 5.5). The CA is also compatible with many distributive rules (ibid). Another persisting source of debate among capabilitarians relates to the issue of which capabilities (or functionings) are most basic or important, and how to select them or weigh them in respect to one another. Here, for example, some authors think that capabilities should be selected through democratic processes, in order to account for demands of procedural justice—Sen himself favored this orientation. Others, however, prefer to work with so-called objective capability lists. A prominent example of this so-called non-procedural method of capability selection is Nussbaum's ten item capability list (cf. Box 5.1), which was developed through normative argumentation and building on cross-cultural empirical and theoretical work from a range of scientific disciplines.

What these examples show is that there are many decisions involved in specifying or applying the CA. As we illustrate and discuss in section 5.5, such flexibility is, indeed, one of the most interesting features of this perspective on justice. Before coming to that discussion, however, let us first consider some general benefits and potential problems that the CA may have in being applied to climate resilience.

[47] Thus, it is not correct to claim, as Hughes (2013) does, that asset-based justice frameworks for adaptation, like Moser and Satterthwaite's (2010), capture well the core tenets and concerns of capability approaches. This remark clearly reveals some confusion about the exact significance and implications of the CA, since, as we just saw, this approach has always stood as a direct rival of resource- (or asset-) based theories of justice.

Box 5.1. Nussbaum's list of ten capabilities (adapted from Holland: 2008). Wolff and De-Shalit's (2007) "six core functionings" are highlighted (cf. section 5.5)

1. ***Life***. Being able to live to the end of a human life of normal length, not dying prematurely, or before one's life is so reduced as to be not worth living.

2. ***Bodily health***. Being able to have good health, including reproductive health; to be adequately nourished; to have adequate shelter.

3. ***Bodily integrity***. Being able to move freely from place to place; having one's bodily boundaries treated as sovereign […].

4. ***Senses, imagination, and thought.*** Being able to use the senses, to imagine, think, and reason [in] a way informed and cultivated by an adequate education [and] protected by guarantees of freedom of expression […]

5. *Emotions.* Being able to have attachments to things and people outside ourselves […]. Not having one's emotional development blighted by overwhelming fear and anxiety or by traumatic events of abuse or neglect. […]

6. *Practical reason.* Being able to form a conception of the good and to engage in critical reflection about the planning of one's life. (This entails protection for the liberty of conscience.)

7. ***Affiliation***. (A) Being able to live with and toward others, to recognize and show concern for other human beings, to engage in various forms of social interaction […] (Protecting this capability means […] protecting the freedom of assembly and political speech.) (B) Having the social bases of self-respect and nonhumiliation […]. This entails, at a minimum, protections against discrimination on the basis of race, sex, sexual orientation, religion, caste, ethnicity, or national origin.

8. *Other species.* Being able to live with concern for and in relation to animals, plants, and the world of nature.

9. *Play.* Being able to laugh, to play, to enjoy recreational activities.

10. ***Control over one's environment.*** Political: being able to participate effectively in political choices that govern one's life; having the right of political participation, protections of free speech and association. Material: being able to hold property [and] to seek employment on an equal basis with others; having the freedom from unwarranted search and seizure.

5.4. Evaluating the CA

This section discusses some potential benefits and problems of the CA. As is argued below, the CA indeed appears to be a more suitable justice basis for climate resilience than alternative approaches to justice. But this perspective is not without its own problems. After examining a few prominent objections against the CA, we argue that none of them is definitive, but also that these objections raise two challenges when developing a CA-based justice framework. First, we must be clear about what the framework covers, and what it does not. Second, we must remain open to the

possibility of complementing the CA with other normative perspectives that may contribute to addressing some of the important issues that the CA neglects.

Let us start by highlighting some strengths of the CA. One of these is that the CA already stands as a dominant justice approach in domains that are closely related to climate resilience. For example, the CA is widely used in the development arena, where it has been quite influential both on institutionalizing the HDI and on improving the use of this index.[48] In addition, there are also advanced discussions on how to use the CA for integrating ethical concerns in risk management (Murphy and Gardoni: 2008; Doorn: 2017). At present, many climate resilience interventions and policies involve considerations of risk management and most of them take place in development contexts, which means that many practitioners and policy-makers working in climate resilience are already familiar with the CA. Plausibly, this fact may contribute positively to the effectiveness of capability-based justice proposals in climate resilience efforts.

Another advantage of the CA lies in its alignments with the ideas that many adaptation scholars have on justice. For example, the CA captures the interdependency between structural constraints, system performance and unjust individual outcomes, which is an oft-noted feature of climatic impacts. Specifically, the idea that conversion factors can constrain or enable wellbeing improves upon resourcist theories, including Rawls' (Kelly: 2010). Another area of convergence relates to the widespread concerns with those accounts of resilience that focus on the short-term, such as those that frame resilience as an ability to return to or maintain an equilibrium after disturbance (Pelling: 2010). Short-term adjustments are considered problematic by adaptation scholars because they are often made at the expense of future options, thus becoming maladaptive in the long-run. Moreover, adaptation scholars often stress that successful adaptation will generally require deep social transformations, especially in power relations, and that such equilibrium-based views on resilience are too conservative and pro-status quo (ibid). In our view, many capabilitarians would agree with such ideas, even if they expressed them differently. For example, Sen's concerns with adaptive preferences (cf. above) echo the skepticism towards short-term adjustments. Further, even though the CA can be used for narrow

[48] Sen himself contributed to developing and institutionalizing the HDI, and many capabilitarians after him have been active participants in debates about the limitations of the HDI and the need to expand (Murphy and Gardoni: 2008) or even abandon this index. According to Comim (2017), in fact, the manifold dimensions of well-being cannot be aggregated consistently, at least within a CA framework. Comim thus recommends a more complex valuational exercise using independent indexes for each capability (or functioning) we are interested in.

purposes, capabilitarians have often advocated comprehensive social transformations (Robeyns: 2017).

Now consider some critiques of the CA. As we argue below, none of the critiques described here poses a definitive reason to dismiss the CA. On the other hand, as we also show, these critiques contain important lessons for applying the CA and for informing discussions on justice in climate resilience more generally.

We will first consider a critique that, in our view, is rather misguided. This is that the CA is too liberal and, for this reason, blind to the structural causes of injustice that derive from liberal institutions (Koggel: 2013). We think that this problem is more apparent than real. For example, Martha Nussbaum's capability theory places much emphasis on justice at the micro level, and, as she puts it, the CA "rejects the familiar liberal distinction between the public and the private spheres, regarding the family as a social and political institution that forms part of the basic structure of society." (Nussbaum: 2006, 212). Similarly, while Sen's emphasis on capabilities as freedoms is certainly liberal, one can alternatively emphasize functionings, which involves taking a different perspective on justice (cf. section 5.5). On the other hand, even Sen himself criticized Rawls' prioritization of liberty as too rigid, noting that liberties should not be put "on an absolute pedestal" (Sen: 2009, 59), but instead be weighed alongside other concerns. More generally, Robeyns (2017) has shown that the CA is compatible with many political orientations: in fact, in an amusing turn of events, other authors have criticized the CA as illiberal (Meshelski: 2019).

More interesting are those critiques of the CA that refer to limitations of this perspective. Here, for example, we find Schlosberg's (2012) insight that the CA is too individualistic and that this is problematic in the climate resilience domain, where many injustices affect communities rather than merely individuals. Schlosberg proposes to overcome this problem by focusing on community capabilities, rather than on individual capabilities, within climate resilience efforts. Holland (2008) has similarly argued that the CA is too anthropocentric for dealing appropriately with the climate crisis and other ecological crises, and that these concerns would weigh more in the CA if the environment was conceptualized as a "meta-capability" whose attainment is necessary for any other. A more radical critique comes from Pogge (2010), who complains that the CA disregards the different causes of injustice (i.e. of capability impairment), whereas a theory of justice should have something to say about that. Pogge's point is that the CA does not care about whether capabilities (functionings) are impaired due to a lack of natural talent or due to institutional (or someone's) wrongdoing, for instance; its focus lies exclusively with addressing the

impairment. However, in his view, this difference matters a great deal, since, when an institution causes some injustice, it is directly responsible for correcting it. Pogge concludes that Rawlsian approaches are more adequate than the CA in that they capture these differences, and consequently they can tell us not only who should be the beneficiary of distributive efforts, but also who should carry the burden of these efforts.

Thus, summing up, these critiques find that certain limitations in the CA (its excessive individualism, its anthropocentrism and its neglect of the sources of injustice, respectively) are reasons to revise its basic assumptions or to abandon the approach altogether. Below we assess these critiques and elaborate a joint response to them. In a nutshell, we think that these critical remarks about the limitations of the CA are more or less correct but that they do not constitute fundamental objections against the CA.

Consider, first, the charge of individualism. The CA is certainly individualistic in that it focuses on individual wellbeing (Robeyns: 2017). However, this does not mean that the CA ignores non-individual values: for example, Sen stresses the social value of capabilities (Sen: 1997) and the need to align capability-based goals with sustainability (Sen: 2013). Further, the individualism of the CA is not particularly problematic. For example, possessive individualism (i.e. the idea that all that matters is individuals and their property, their commodities and, at most, their livelihoods) is a rather objectionable individualistic stance. Income-based approaches and some resourcist approaches (not Rawls') are individualistic in this sense; but the CA is clearly not. In fact, many capability applications do cover the socio-cultural dimensions of wellbeing, as exemplified by the functioning of affiliation that Nussbaum includes in her capability list (cf. Box 5.1). So, while the CA is admittedly individualistic, we doubt that this constitutes a reason to dismiss it or to revise its basic orientation.

The charge of anthropocentrism is also true. In general, the CA treats the environment as a conversion factor, that is, as a more or less important instrument for wellbeing, but an instrument in the end. Nussbaum's list does include a capability, called "Other species", which emphasizes the value of building positive relations with non-human beings (cf. Box 5.1). However, this capability remains a human capability: the list does not recognize the intrinsic value of animals or the integrity of ecosystems, for instance. So, as Robeyns (2017) remarks, the CA seems unavoidably anthropocentric. The question that remains open, of course, is how problematic this is and whether this limitation requires revising or abandoning the CA. Below we argue that it does not.

Finally, Pogge's point about what the CA covers and what it does not is also correct. As Sen himself recognized:

> A person's capability may be reduced in exactly the same way in two cases: (1) […] by someone violating her freedom […], and (2) through some internal debilitation that she suffers. Even though the two cases are not distinguishable in the capability space, an adequate theory of justice cannot really ignore the differences between the two cases. In this sense, the capability perspective, central as it is for a theory of justice, cannot be entirely adequate for it. (Sen: 1992, 87).

Against Pogge, however, we think that this limitation should not lead us to dismiss the CA. Our response can be illustrated with recent debates on reparations, where Táíwò (2022) has argued that his constructive view on reparations is perfectly compatible with "snapshot" views of distributive justice–views that, like the CA, care only about the final picture or the pattern of outcomes or impacts, but not about who or what produced this pattern. To this effect, Táíwò argues, what we need is a division of labor between historical considerations and the relevant "snapshot" distributive theory, such that the historical considerations establish the "who" of distributive justice (who pays and why, who receives), while the distributive justice theory uses its forward-looking considerations to determine the content and purpose of distributive efforts.

This proposal yields an important lesson. This is that, although the CA is a very flexible approach (cf. above and section 5.5), capabilitarians should not "overplay their hand" (Robeyns: 2017, 11). What we mean is that, if the CA is anthropocentric and individualistic, perhaps the adequate response to this limitation is not to broaden the CA so as to encompass environmental and collective values. Nor are such limitations a reason to dismiss the approach, since every justice approach has its strengths and weaknesses and, as we saw, the CA has several strengths compared to other approaches. In our view, Táíwò's proposed normative pluralism offers a more productive strategy for handling the limitations of the CA. That is, one can argue that a focus on individual capabilities or functionings is needed in the climate resilience-justice nexus, but also that demands made on this basis should be negotiated with others, such as environmental values, demands of racial justice or considerations relative to institutional wrongdoing. Indeed, such pluralistic approach has benefits of its own, like promoting intellectual openness, interdisciplinarity and multi-actor coordination (Robeyns: 2017).

In the final section we return to this issue. Now we shift discussion towards another crucial aspect of the CA that has gone somewhat overlooked in the climate resilience literature, namely, its flexibility. As was mentioned above, even though the CA has

some intrinsic limitations, there are also many alternative ways of specifying it. In the next two sections, we illustrate this feature and its consequences by advancing and justifying a CA-based framework that we consider particularly promising for climate resilience and, then, reflecting on some problems involved in specifying the CA.

5.5. Applying the CA: the 6 Functionings − 2 Thresholds framework (6F2T)

Here we present a CA-based framework that, in our view, is particularly suitable for climate resilience. What we argue below is that, in the context of climate resilience efforts, discussions–and eventually proposals–of distributive justice should focus on securing and, when possible, improving the performance of individuals with regard to six core functionings. At the same time, we propose that many distributive decisions should be left open for public discussion. Next, we explain what our framework consists in and why we think it is particularly suitable for climate resilience.

First, as noted in section 5.3, one important decision in applying the CA relates to whether one focuses on capabilities or on functionings. One key difference here is that capabilities and functionings are evaluated differently. Consider the case of Susan and the functioning (capability) of being well-nourished. Susan's functioning of being well-nourished can be evaluated directly: to this effect, as Sen himself explained,

> [w]e must look, for example, at her nutrition level, and not just, as Rawlsians do, at her food supply, or, as welfarists do, at the utility she gets out of eating food (Sen: 1993, 43).

In contrast, from a capability perspective, our concern lies with Susan's freedom to well-nourished, should she choose to do so. It could well happen that Susan does not get well-nourished simply because she decided to fast. Someone who fasts has the real option to be well-nourished (and hence the capability); she just chooses not to be well-nourished (Sen: 1992, 52). This case shows that capabilities can only be evaluated indirectly because they are counterfactual. For example, if Susan has adequate nutrition levels, then we know that she has both the functioning and the capability of being well-nourished. However, in "fasting" cases, we can only know that the capability is effectively there by examining the presence or absence of factors that typically promote or inhibit the exercise of the capability. In the case of being well-nourished, these factors could be having access to food, having bodily autonomy, not being held against one's will, but also belonging to a culture where fasting is not valued, etc.

This example is enlightening, amongst other things because it suggests that, in climate resilience efforts, there are reasons to focus on certain functionings rather than on their corresponding capabilities. One such reason is normative: being well-nourished (for example) is so essential that we should not conform ourselves merely with enabling the freedom to be well-nourished. Rather, we should see to it that people actually have adequate nutrition levels (Arneson: 2010; Gough: 2015). Another reason is that the capability perspective may be unnecessarily complicated. Consider again the fasting case. If our justice framework portrayed Susan as a vulnerable person because she fasts regularly (and so she is not well nourished), someone might object that the framework is paternalistic: after all, it is Susan who decided to put herself at risk. While taking a capability perspective avoids this objection, this perspective requires that our framework is able to discriminate between the cases when Susan decides to fast and those when she has no food availability or the physical ability to eat. In our view, such informational requirements might be demanding, but the benefits they yield are rather meager. If we want to care about Susan's nourishment, it seems more practical to just look at her food availability or, as we propose, at her nutrition levels. Thus, in short, we propose that, with regard to beings and doings like nourishment, we should ignore the 'fasting cases', that is, those where someone has a capability but not the corresponding functioning.

Which are those beings and doings that we can call *essential*, precisely? Here we follow Wolff and de-Shalit (2007; esp. 106 ss.), who propose that the functionings deserving more attention are six "core functionings" from Nussbaum's ten-item list, namely: *life*; *health*; *bodily integrity*; *affiliation*; *sense*, *imagination and thought*; and *control over the environment* (highlighted in Box 5.1). There are several reasons supporting this choice. First, as Wolff and de-Shalit show, these six functionings are often clustered: that is, whereas a diminished performance in each is highly correlated with problems in the others, improving just one often leads to improving the rest as well. This insight suggests that focusing efforts on these functionings can enhance the effectiveness and impact of distributive efforts in climate resilience. Further, as Wolff and de-Shalit also demonstrate, people do often prioritize these functionings to others.[49]

Importantly, too, this account offers a rich and multidimensional account of wellbeing. The functionings of *life*, *health* and *sense, imagination and thought* together capture essential aspects of wellbeing such as life expectancy, nutrition and education,

[49] The authors show this point by interviewing social workers, healthcare professionals and policy officers from UK and Israel, using the public reflective equilibrium method (Wolff and de-Shalit: 2007, 53ss.).

which are more or less covered by the HDI. Other functionings in this list capture, too, aspects of wellbeing that the HDI ignores but that have much normative significance. For example, the functionings of *affiliation* and *control over the environment* can be interpreted so as to convey demands about the integrity and economic autonomy of communities, or about preserving the links between communities and place. These demands respond—at least partly—to the noted concerns about the CA being individualistic (Schlosberg: 2012; cf. section 5.4), as well as to demands for considering culture and place as part of community identity, coming from adaptation research (Adger et al.: 2011). In addition, one could argue that, by securing an adequate performance in functionings such as *sense, imagination and thought* and *control over the environment* (which includes the political environment, cf. Box 5.1), we go some way toward securing people's intellectual and political freedom to pursue what they value in the climate resilience context. In other words: securing these two functionings will warrant that people have the capability to do and to be other things they value which are not included in our proposed list of six core functionings. This is extremely important because, as we have seen, part of the normative force of the CA comes with Sen's emphasis on capabilities as positive freedoms (Robeyns: 2017), and focusing on functionings, as we did, is a move that to some extent diminishes the normative force of our framework vis-à-vis a full-fledged capability perspective.

A third aspect of our proposal relates to the distributive rule. As noted above, the CA is compatible with many distributive rules. On the other hand, many capabilitarians favor a *sufficiency* rule, demanding that a minimum level of capabilities/functionings is guaranteed to everyone (Robeyns: 2017). While this approach is already in line with some proposals made in adaptation research (cf. section 5.2), here we follow an interesting application of the CA coming from risk research that we consider more adequate. This proposal consists in using two complementary sufficiency rules: an acceptability threshold and a tolerability threshold (Murphy and Gardoni: 2008).[50] The *acceptability threshold* is a maximum level of risk (to each core functioning) that applies in the absence of disasters and/or when recovery measures have proved effective. This threshold is set to guarantee that anyone's risk to exercising the six core functionings properly is, in normal situations, not very high, both with respect to the severity and to the likelihood of the risk faced

[50] Shepherd and Dissart (2022) have recently proposed a capability application to vulnerability assessment and climate resilience action that is very similar to ours with respect to the kinds of thresholds that should ideally regulate the distribution of impacts and dividends of resilience efforts.

by that person (ibid). The rationale of the second rule is that climate change will inevitably disrupt some institutions and infrastructures, thereby challenging the ability of many people to exercise their core functionings (ibid). Thus, according to Murphy and Gardoni (2008), for emergencies and recovery processes, it makes sense to allow functionings to fall below their acceptability threshold, provided that this fall is temporary and reversible. A *tolerability threshold* then marks the absolute limit of this fall for each functioning. This threshold can be a bit higher than the acceptability threshold, but it should never be breached, even during disasters.

This proposal is relevant for climate resilience in a number of ways. First of all, it captures the fact that, in general, a loss of climate resilience will undermine societal functioning, and that this, in turn, will negatively affect individual functionings, especially those of the most vulnerable—e.g. by damaging their social or their environmental conversion factors. Secondly, it proposes to establish a clear link between justice work and risk management practice in the context of climate resilience, in particular by recommending that assessments of individual vulnerability track the changing circumstances of the risk management cycle. This proposal is important given the dominance that risk management practice already has in climate resilience efforts, as well as for delineating responsibilities about who should care about justice in this context. Further, Murphy and Gardoni's two-thresholds rule captures relevant demands made in resilience research in relation to justice. In particular, the tolerability threshold accounts for the conservative aspect of resilience, that is, the idea that climate-resilient societies, when facing disasters or disturbances, should be at least able to maintain (or to quickly restore) some bottom level of performance. Moreover, this threshold crucially tells us what to aim for when things go wrong and our primary goal (acceptability) cannot be attained, which goes some way towards addressing the common concern that resilience strategies often lean on citizen improvisation and justify the inaction of public bodies (Joseph: 2013). On the other hand, the acceptability threshold accounts for the widespread demand about taking up a transformative stance on resilience in social contexts (Bahadur and Tanner: 2014), and it clarifies how transformation and distributive efforts could be linked. In particular, if resilient systems are indeed able to use change or disturbance to become better (Holling: 1978), we propose that such improvements should reflect at the level of individual functionings.

Combining these insights, we get what we label the 6F2T framework (6 Functionings–2 Thresholds). We want to stress that what the 6F2T framework leaves unsaid is just as crucial as what is "written in black and white" in it. As others have

noted, one important question to be addressed in applying the CA is to what extent the measures proposed respect procedural justice (Robeyns: 2005, 2017). In this regard, the 6F2T framework leaves many important decisions reasonably open for public decision making or participation. These "blank spaces" in the 6F2T are extremely important to guarantee that the framework can be used in a procedurally just manner, which is a feature that can make the 6F2T not just more legitimate, but also, potentially more effective (Paavola and Adger: 2002, 2006). For example, the 6F2T stresses the need to focus on six core functionings. Yet, this should not be taken to imply a demand against an additional focus on other functionings, or even against taking up a capability perspective in relation to certain beings and doings: for example, perhaps the capability of 'playing' (cf. Box 5.1) is one activity where such focus seems preferable, provided that there was an explicit public interest in caring about playing– which we think there should be, especially with respect to children. In this regard, the 6F2T just intends to be a point of departure for public discussion, which can be expanded in several ways. In fact, since all the six core functionings are quite abstract or high-level, they can be viewed more as "areas of concern" rather than as actual features or behaviors of concrete persons. Thus, any operational application of the CA should specify these functionings in detail (Anand et al.: 2009), and such specification process can be designed for including procedural demands of various sorts. Similar considerations apply to the choice of indicators for evaluating those functionings or to the process of specifying the two thresholds, much as Nussbaum advocates in relation to her capability list (Murphy and Gardoni: 2008). Our approach is also agnostic about many other sensitive decisions that merit some public input, such as: deciding the weight of each functioning relative to others, deciding which timeframes and considerations should drive the shift from a tolerability to an acceptability threshold and vice versa, etc.

Therefore, we believe that the 6F2T framework poses a firm basis for advancing distributive justice in climate resilience. Nonetheless, there remains a need to assess the suitability of this proposal more in detail. In fact, in summarizing our results in the next section, we consider some concerns that this framework may also raise.

5.6. Concluding remarks

While climate adaptation and resilience scholars are struggling to include distributive concerns in climate resilience plans and policies, this challenge is at present undercut by an insufficient debate about concrete justice theories and how to apply them in

practice. This gap is particularly pressing in relation to the CA, which has received many positive appraisals as a suitable approach to justice in this context, but few detailed assessments about its specific potential and limitations.

Much work remains to be done with regard to securing an appropriate embedding of distributive justice considerations in climate resilience efforts. Nonetheless, despite the narrow focus of this chapter, our arguments delivered some interesting contributions to this aim. In this section we summarize the results and contributions of the chapter and reflect a bit on some consequences of our proposals.

First, this chapter has contributed to clarifying and evaluating the differences between the CA and other approaches to justice. In this regard, we found that the CA has several strengths with respect to its alternatives. One is that, compared with monistic theories of justice, such as those based on income or preferences, the CA has features that make it more suitable as a justice basis for climate resilience, such as its multi-dimensional account of vulnerability and well-being. To be true, this is not a feature that only the CA has: there are other pluralistic theories of justice, such as Rawls', other resourcist theories, and need theories. However, the CA differs from resourcist approaches in that, besides focusing on the provision of resources or rights of access to them, it also asks how such resources contribute to people's wellbeing in practice. This feature, which is at present unrecognized in the climate resilience-justice literature, makes the CA more suitable than resourcist approaches when it comes to designing effective justice-oriented interventions or assessing their effectiveness, both because it leads the CA to focus more directly on what matters to individual wellbeing, and because, compared to rival approaches, it makes the CA more sensitive to the different challenges that individual wellbeing may be presented with. On the other hand, more detailed analyses are needed about the prospects of resourcist approaches for guiding justice work in climate resilience, and this lesson is still more applicable to the case of need theories, whose differences with the CA can be subtle.

Another contribution of the chapter is that it highlights both the flexibility and the limitations of the CA, two crucial aspects of this perspective on justice which are, at present, somewhat overlooked in extant accounts of the CA in the climate resilience-justice nexus. With regard to its limitations, we argued that these are to some extent unavoidable because the CA, as any other approach to justice, focuses on certain demands and ignores or pays less attention to others. In particular, we found that the CA is somewhat agnostic about values that do not primarily relate to the wellbeing of individual persons, including here, for example, many environmental values, community values, national values and so on. We also examined some arguments

about how to deal with this problem, arguing that the limitations of the CA do not justify its dismissal or the revision of its basic assumptions. The reason for not dismissing the CA is simply that it has more strengths than weaknesses. In turn, the reason for not revising its basic assumptions is that, instead of forcing the approach to give response to every conceivable concern or injustice, we think that it is more advisable to recognize its limitations and to pursue the development of hybrid justice frameworks where the CA is complemented with perspectives that do attend to the issues that the CA ignores or misrepresents. For example, one theory that seems to represent some such opportunity is Táíwo's constructive theory of reparations, which was mentioned above (cf. also chapter 4). Nonetheless, this problem remains a challenge for further research.

As per the flexibility of this approach, we illustrated this feature by proposing a capabilities-based framework, the 6F2T framework. The 6F2T proposes to focus justice measures in climate resilience on securing or improving (depending on the circumstance) six core functionings, where the focus on functionings rather than on capabilities responds both to the importance of the six core functionings mentioned for individual wellbeing, and to reasons related to the effectiveness and efficiency of justice-oriented efforts. Nonetheless, as was noted above, our solution comes at a cost, namely, that the 6F2T is in part vulnerable to normative criticism on the grounds that it does not take freedom seriously—not as seriously as a capability perspective could, anyway. Similarly, while the 6F2T takes into considerations some demands of procedural justice, the six core functionings proposed, for example, were selected largely on a non-procedural basis: that is, on the basis of various studies and arguments about the superior importance of these functionings to others. This aspect of our proposal might raise concerns about paternalism and legitimacy. In particular, one could argue that, given that functionings are basic areas of concern (i.e. about what to consider or not in relation to wellbeing) in a capabilities-based justice framework, the relevant public should have more to say in formulating or selecting which functionings they care about (Robeyns: 2005). Thus, although we have tried to show that the 6F2T framework is particularly suitable for guiding justice work in climate resilience, as well as quite flexible in various aspects, one could argue that alternative specifications of the CA might have advantages over our own, even if they have their own problems.

Thus, to conclude, the CA has received many positive appraisals for its potential contribution to the adaptation-resilience nexus (Schlosberg: 2012; Kronlid: 2014; Bulkeley et al.: 2014; Doorn: 2017), and our arguments in this chapter broadly support this judgment. Yet, extant proposals in this regard neglect both the limitations of the

CA, its flexibility, and the double-edged character of this flexibility. Our arguments in this chapter support the idea that we must move beyond the one-sided enthusiasm for this approach and towards seeking bridges with perspectives that complement it where it seems limited. They also show that not all applications of the CA are equally useful, and moreover, that there are unavoidable dilemmas involved in applying this approach. These results, in our view, represent reasons for caution and a strong warning against treating the CA—or any other justice approach—as a win-win and all-purpose solution to the justice shortcomings in climate resilience efforts.

6. Rhetorics of resilience and extended crises: reasoning in the moral situation of our post-pandemic world[51]

6.1. Introduction

The normative discourses that have arisen around the Covid-19 global pandemic illustrate essential changes in our moral landscape. We argue in this chapter that these changes raise important moral challenges, but that some of these challenges can be at least partly addressed by critically assessing the role of resilience in pandemic discourse.

Since the 1970s in ecology (Holling: 1973), and increasingly in many other scientific disciplines and practical contexts (Brown: 2012; Doorn: 2017; Meerow and Stults: 2016), resilience has been proposed as a principle and approach for managing complex systems in a context of uncertainty. In many of these accounts, resilience is viewed as a descriptive concept that denotes some kind of response of complex systems to shocks and stresses (Brand and Jax: 2007; Elmqvist et al.: 2019). However, tropes about resilience also became rather omnipresent during the pandemic, highlighting its complex, unexpected and unpredictable character, and communicating advice and instruction over what we can and should do in such an unusual situation. Because resilience has become an important concept for practical and moral reasoning in and about the pandemic, we look closely at the pitfalls and potential benefits of these normative uses of resilience in pandemic discourse.

We begin by addressing both the situation and the nature of the moral complexity elicited by the pandemic (6.2). Next, we introduce relevant conceptual aspects of resilience (6.3) and illustrate some key and recurrent resilience tropes in the rhetoric around Covid-19 (6.4). After taking up normativity theory to highlight and critically assess some problematic normative aspects of these tropes (6.5), we suggest ways to overcome or at least address the conflicts and problems these tropes seem to raise (6.6).

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[51] This chapter was published in 2022 as a chapter of the book *Values for a post-pandemic future* (Springer) (Copeland and Cañizares: 2022).

6.2. The moral situation presented by the pandemic

The pandemic presents us with a situation that is particularly riddled with moral complexity. For example, David Shaw (2021) characterizes this situation as one where we experience a lack of motivation to comply with imposed restrictions due to the problem of 'moral distance'. Shaw argues that the distance between us limits our ability to perceive or to address our moral duties to each other effectively, because we cannot properly assess the probable consequences of our actions. For example, asymptomatic individuals are unlikely to know they have the virus, and so their most rational and considerate assessments may still be incorrect: they may indirectly infect someone despite their best efforts to take precautions. This line of reasoning also clearly echoes the problem of 'moral luck',[52] wherein the moral evaluation of an action is not determined by intentions or knowable causal relations. For example, I may perform the same actions with the same intentions, such as going out to dinner and following the masking and distancing rules as required, and in one case dine without consequences, but in another case contribute to a cascade of infections that result in someone's death—depending, perhaps, on the weather and the way the wind was blowing that day.

The distance problem and the issue of moral luck both illustrate the moral dilemmas that arise when we weigh our actions and choices against both their current and close and their distant and future implications. When taking a 'multi-scalar' perspective, apparently simple situations become complex and uncertain; when one cannot know for certain the results of one's actions, one cannot easily decide which actions will be the best or the 'right' thing to do. Here we want to argue that our situation as moral agents in the pandemic is still more complex, but also, not hopeless. Shaw proposes a strategy for increasing people's awareness of consequences that are probable even if unpredictable in this situation, but he focuses only on a limited subset of the problems involved in this multi-scalar moral situation, those that relate to our other-regarding decisions and actions. His solution, to provide more awareness of the probable and possible implications of our actions for others, is consequently insufficient to guide moral reasoning in this complex situation. We think that in the case of this pandemic, this picture needs broadening in at least three significant directions in order to enhance our understanding of the moral challenges at hand.

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[52] Please note this is indeed a shallow review of two problems that philosophers have put considerable thought toward, but a deeper analysis is outside the scope of this chapter.

One relates to the nature of the pandemic *crisis*–a term both accurate and telling. The sudden and disruptive pandemic onset could be framed as a shock with which we had to cope. But episodes such as the three-month full lockdown in Spain are more suitably described as imposing an ongoing stress upon individuals, households and local systems. In hindsight, rather than as a single stressor or shock, the pandemic as a whole is best characterized as having involved (and as still involving) bundles of stressors and shocks that compound and interact with each other across space and over time. One can learn from shocks and apply those lessons to similar shocks in the future. As illustrated by adaptive preferences (Elster: 1983; Teschl and Comim: 2005; cf. chapter 5), one can also get used to stressors and learn to live with them. But how does one adapt to, and make decisions about, the radically uncertain (Hansson: 1996; Stirling: 2010)–where not only the likelihood of outcomes, but the possible outcomes themselves, and even the intervening factors in the situation, are unknown? In other words: we must accommodate both the many concrete and more or less tractable moral challenges that the pandemic is forcing upon us, and the general context of extended and evolving crisis that the pandemic itself represents.

A second issue is that our self-regarding decisions and actions (the prudential dimension of ethics) are also critical. Granted, we need to protect the welfare of those we know and even of those who are distant from us, in space or time. But this duty cannot be neatly be separated from the duty to protect our own health by avoiding catching the virus–and then passing it along. Moreover, the pandemic also threw upon us many other economic and social problems with longer term and often less tangible repercussions: we struggle to cope with these problems because they can affect both us and others in a reciprocal fashion. Indeed, through countless media platforms, memes and news, we have been bombarded with all kinds of tips for coping with the pandemic, the policy changes and the problems they entail, including the stresses of self-isolation, job loss and increasing duties at work and home (now overlapping for many of us), and even with the growing anxiety about impending global economic collapse. Thus, another key moral fact about the pandemic is that its repercussions are tangible and intangible, near and remote, and that they affect us and then others–and vice versa. These cross-scalar and iterative effects mean not only that we have both self-regarding and other-regarding duties: in a sense, they mean that the distant other is also us.

Framing the situation in terms of moral distance alone also neglects the transformative potential of the pandemic. As we live through the pandemic, we struggle to cope with the problems we encounter. Yet, as the crisis persists and unfolds

in new directions, we also try to create and seize opportunities to enact change that might enable us to respond better to both it and similar crises in the future. Indeed, we have sometimes been asked to actively embrace the change forced upon the world for its transformative potential. For example, as Arundhati Roy argued early on, "[t]he pandemic is a portal" (Roy: 2020)–an opportunity to embrace radical change for climate mitigation and adaptation, now that the pandemic has demonstrated our capacity for accepting radical change, and because returning to "normal" is implausible at any rate.

Thus, the dilemmas with moral reasoning at various scales come in many forms in this situation. Can we prioritize ourselves against others, and should we? Is this travel policy a matter of health, of economic interest, of national identity, or of trust-building? Should it be different, and why? Can I afford sticking to conventions, to the law and scientific advice, or should I be bolder, and when? These dilemmas cannot be understated; in fact, they extend beyond the moral distance issue highlighted by Shaw. Yet, in the next sections our position will be that lessons from resilience thinking can capture many of these moral dilemmas while also offering a guide for ethical deliberation and thought, in the context of the pandemic and beyond. To this end, we turn now to resilience research to briefly explain what this concept is about and some of the tensions and problems involved in its use.

6.3. The nature of resilience

Having its origins in the mechanical sciences, resilience is now used in multiple ways in many disciplines (Alexander: 2013), and is consequently both a complex and ambiguous concept overall (Brand and Jax: 2007; Strunz: 2012; Woods: 2015). Despite this variety of uses, however, classical accounts of resilience coincide in several ways. First, they generally present resilience as manifesting in conditions where uncertainty reigns: more particularly, as the ability to respond well and survive through unpredictable or unforeseeable shocks or stressors (Holling: 1973, 1978; Norris et al.: 2008). Second, resilience is applied at various scales: in psychology, for example, it is the individual propensity or demonstrated capacity to withstand crises or shocks (Southwick et al.: 2014); in ecology and related sciences, it denotes a similar capability, but of complex ecological systems, from the local (Hughes et al.: 2005) to the global (Rockström et al.: 2009). A third widely noted feature of resilience is the complicated interplay between conservation and change it denotes (Carpenter and Brock: 2008), since resilient individuals or systems are those that 'bounce back' from

a crisis, but also adapt effectively to new circumstances while retaining primary functions. For example, people are resilient insofar as they maintain (primarily physical and psychological) health despite encountering great adversity (Southwick et al.: 2014), and/or if they adapt well to novel and unexpected conditions (Norris et al.: 2008); and ecological and other complex systems are resilient when they "absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks" (Walker et al.: 2004). In general, then, in the context of a shock or stress, resilient systems respond by preserving their identity (or their critical features) while also leaving behind the non-essential, or adapting somehow to the new situation.

Although traditional approaches to resilience are still very influential (Elmqvist et al.: 2019), resilience thinking has undergone an important evolution in the last two decades. One such development concerns a social turn in resilience thinking (Brand and Jax: 2007). At least since the mid-1990s, the ecological perspective on resilience was proclaimed to be applicable to any complex system (Holling: 1996), which soon prompted efforts to understand and address the resilience of socio-ecological systems (Gunderson and Holling: 2002), engineering and socio-technical systems (Hollnagel et al.: 2006; Wardekker et al.: 2010) and other systems of systems, including cities (Meerow et al.: 2016). Today, resilience is widely applied in contexts such as urban planning or development studies, often by combining complex systems insights about natural systems, infrastructure, society and institutions into comprehensive strategies related to the management of risks.

This social turn has also raised the growing need to reconcile the system-of-systems perspective of resilience, coming from ecology, with the inclusion of people in this picture. Consider the example of cities. While cities can be framed as systems-of-systems or networks-of-networks, such perspectives might ignore individuals, and even communities and their identity or culture (Meerow et al.: 2016). Questions such as resilience of what to what, or resilience of whom? (ibid) become, then, quite pressing, especially for specifying the so-called critical features that stand for the "identity" of the system of interest. For example, when Hurricane Katrina devastated the cultural core of New Orleans in 2004, questions were raised about how to build more resilience into the recovering city: was it more important to maintain the structures of the city exactly as they were, preserving neighborhoods that were culturally significant, and to ensure that the people could come back to the neighborhoods they lived in before the disaster? Or is the overall resilience of the city structure more important, so that some

vulnerable neighborhoods might have to be sacrificed to rebuild better elsewhere, preserving the city's population but trading away its historical ties? (Kates et al.: 2006).

Another important development has to do with the kind of disturbance that resilient systems are supposed to be resilient to. Resilience had been initially applied to specific kinds of shocks (sudden and disruptive events) and stresses (long-onset and persistent disturbances upon normal or typical performance). However, following the social turn, resilience began to be interpreted as a more general capacity to withstand various kinds of uncertain stresses and shocks, or combinations of them, at various scales and over an indefinite period–what is known as 'general resilience' (Carpenter et al.: 2012). General resilience has increasingly attracted attention in contexts such as urban adaptation to climate change or risk management (cf. chapter 4), where the concern is not primarily with single stressors or shocks, but rather with bundles of stressors that appear and disappear or become latent, spanning from the individual to (immediately, through spillovers and cascading effects) the global. Consequently, it is nowadays common to find multi-scalar and general approaches to the resilience of, for example, communities, cities or economies (Rockefeller and Arup: 2016).

Increasingly, too, approaches to resilience have become more forward-looking, sometimes captured as 'bouncing forward', or transformative, rather than bouncing back (Bahadur and Tanner: 2014). While classic accounts of resilience had already noted that resilience is not mere resistance (Folke et al.: 2010), recent accounts insist more on the dynamic nature of resilience. It is now accepted that efforts to develop resilience must account for the change that will inevitably occur when responding to a crisis, and moreover, that it is neither possible nor always desirable to return to the previous status quo (Copeland et al.: 2020). The features that caused a collapse in a flood protection system, for instance, cannot simply be repaired since the original system was demonstrably not resilient. Thus, the concept of resilience denotes two complementary but potentially competing challenges in dealing with "disturbances": the need to prevent collapse by preserving critical functions or features, and the need to change, transform or be adaptable in order to allow for more effective responses to future disturbances (Meerow et al.: 2016). Efforts to build resilience can represent conservative measures toward preservation as well as transformative measures to enact necessary changes.

A further important development concerns the normative use of resilience. Prominent accounts of ecological and socio-ecological resilience had tended to portray resilience as a descriptive concept–a property of complex systems in general, which can be good or bad, desirable or not: see, e.g. the above quoted definition by Walker

et al. (2004); also Anderies et al. (2013) and Elmqvist et al. (2019). Recently, however, this perspective has been criticized as incoherent, since, in most if not all its applications, resilience is used as a goal for guiding risk management strategies (cf. chapter 2). This is especially the case in social applications of resilience, which necessarily involve explicitly normative decisions and, moreover, tend to frame resilience as a positive feature or ability (Olsson et al.: 2015; Meerow et al.: 2016; Thorén: 2017).

The next sections return to these topics, especially to questions and concerns about the normativity of resilience. Now we present some tropes of resilience that became quite common during the pandemic. These tropes illustrate the diverse uses to which resilience can be put, as well as some of the tensions that underlie usage of this term.

6.4. Resilience tropes in the pandemic

Since the pandemic was announced in 2020, we have seen several common tropes arise in media discourse and in the rationales for the policy approaches taken by institutions. Resilience has occupied a prominent place within these discourses. As individuals who find our behavior mandated by such policies, we have been called upon to help and to 'build resilience' in at least three different ways. First, on the personal level, we are guided toward resources that will help us resist the virus and cope with the disruptions that policies such as self-isolation bring to our lives. Second, the social resilience of our communities, cultures and countries, is affected by our individual behavior, which is in turn mandated to enable group-level resilience. Third, on a higher level, the resilience of the human species has been part of debates about policy, and even more so the resilience of our institutions and society as a whole are threatened by the pandemic; certain ways of behaving, we are told, will help us return to 'normal' more quickly, where 'normal' might mean the freedom to travel, living our social lives, and even returning to the economic stability that many people had and lost with the pandemic.

Individual or personal resilience has been framed in the pandemic discourse both in terms of biological and psychological well-being. In some cases, it rather straightforwardly refers to physical resilience to the Covid-19 virus and its effects; are individuals healthy and strong enough to suffer from and yet survive both the virus and its knock-on effects? Indeed, some groups are seen as naturally more or less resilient than others to the effects of Covid-19 and the pandemic countermeasures. For example, consider the impact of the pandemic on children who have had to miss

education and important social development time with their peers as a result of school and playground closures for extended periods. The phrase 'kids are resilient'[53] has been used to suggest that children's inherent flexibility and ability to adapt will enable them to cope well enough with the changes to their lives required by pandemic restrictions. This trope is also present in various forms of advice given to employees or citizens by their employers or national institutions to be resilient in the face of the challenges brought by the pandemic and related policies. The Mental Health Commission of Canada Working Minds blog, for instance, reminds workers in its 'Self-care Resilience Guide' that, "this is a good time to remember…that you have resiliency skills and you can cope".[54] Likewise, the Centre for Disease Control in the U.S. offers individuals a number of "tips to build resilience and manage job stress," such as "Remind yourself that everyone is in an unusual situation with limited resources."[55]

Even a fairly straightforward reference to individual bodily health, however, also has a social and cultural context. Some groups have demonstrated greater physical resilience in response to the virus, such as those who already have 'killer T cells' remaining from a previous, less dangerous infection (Joy: 2021). Resilience to the virus, and also resilience to the impact of the pandemic as a whole, however, has more often been the consequence of the socio-economic context than purely biological traits of those groups (Strang et al.: 2020; Qureshi: 2021). Thus, the trope of personal resilience here entails the ability to cope well with the broader effects of the pandemic, such as stress, isolation and its economic impact, social determinants of health that in turn affect biological resilience to disease as well. What generally unites these approaches is that they frame resilience as an available resource that each one of us should be able to draw on.

This reference to the social and cultural context takes us to a second trope, which is rather focused on social resilience, i.e. the resilience of groups or communities. As

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53 For example, as a teacher in the U.S. said in relation to the topic of schools reopening: "It will be a community, and it's not ideal, but to keep people safe, it is what it is… Kids are resilient, and kids are adaptable." Retrieved August: 2021 from https://www.alligator.org/article/2020/07/kids-are-resilient-students-and-teachers-respond-to-acps-reopening-plan

54 Retrieved September: 2021: Staying Resilience During the COVID-19 Pandemic, Working Minds blog: https://theworkingmind.ca/covid19-tim; Webpage for the Working Mind COVID-19 Self-care and Resilience Guide: https://theworkingmind.ca/blog/working-mind-covid-19-self-care-resilience-guide/

55 "Employees: How to cope with job stress and build resilience during the Covid-19 pandemic" Updated Dec.23: 2020, Retrieved August 8: 2021, https://www.cdc.gov/coronavirus/2019-ncov/community/mental-health-non-healthcare.html

members of these communities, we are asked to behave in ways that protect the more vulnerable, for example: public mask-wearing as a community-wide mandate ensures that otherwise vulnerable individuals are better protected when they need to travel. Vaccinating oneself contributes to the overall resilience of the group, as well: in the most recent 'Bloomberg Covid Resilience Ranking', Ireland was granted top spot as 'best place to be during the pandemic' because of its high rates of vaccination and policies promoting more social freedoms to the already immunized. The collective action required for pandemic policies to work thus falls under this resilience trope. For instance, again from the 'tips to build resilience', the CDC in the United States recommends: "Remind yourself that each of us has a crucial role in fighting this pandemic." Consequently, we are asked both to build our individual resilience by using the resources available to us, and also to contribute through our individual behavior to building resilience at the community level.

At a more abstract level and with pronounced future-oriented intent, tropes of resilience also call on us to behave or implement policies in ways that would contribute to the resilience of human society, our institutions, and even of certain global social-economic values. One point of debate about national policies has centered around whether certain approaches in pandemic response were aimed at the goal of so-called 'herd immunity'—while this wasn't a resilience-based trope per se, it does reflect the belief that nations and even the species could be more or less resilient in the future to Covid-19, depending on how we build immunity into the population now. The idea of herd immunity has a straightforward and unproblematic epidemiological rationale insofar as it relates to high vaccination rates–when most of the population is vaccinated, the herd as a whole gets immune. What made it a (problematic) novelty in the context of Covid-19 was that herd immunity approaches were advocated at a time when vaccines against this virus were not yet available. This particular interpretation of 'herd immunity' suggested that it might be necessary to allow for some sacrifice of the vulnerable now, in order to gain resilience to the virus at the population level in the future, and it was strongly opposed on both epidemiological and moral grounds (Napier: 2020). Scott Atlas was heavily criticized, for example, for suggesting, in his role as advisor of the Trump administration, that letting "a lot of people get infected" was an effective strategy for building immunity in the population overall. UK Prime Minister Boris Johnson was similarly lambasted early on in the pandemic by the president of the British Society for Immunology, for proposing herd immunity as a national strategy.

More direct references to resilience are found in countless articles on the resilience of supply chains, healthcare systems, businesses and other institutions that have been disrupted by the pandemic and, apparently, exposed as insufficiently resilient. Since the coronavirus took to the international stage in: 2020, for example, dozens of articles have been published on the topic of resilience of healthcare systems to pandemics (cf. Wang et al.: 2020; Chaturvedi and Siwan: 2020; Sundararaman et al.: 2021; Saulnier et al.: 2021). We also mentioned the Bloomberg Covid Resilience Ranking, a regularly published evaluation of national strategies for dealing with the pandemic, which contains indicators for healthcare quality, vaccination levels in the population, mortality rates and progress in terms of reopening borders to travel and trade, to assess "where the virus is being handled the most effectively with the least social and economic upheaval."[56] National strategies such as recently announced in the UK are also explicitly turning to resilience as a leading value. Common in the rhetoric of this last trope, therefore, is a focus on system or population level resilience, with a future orientation to using the pandemic as a corrective lesson or for preparing better to avoid similar trouble in the future.

We think that a critical view of resilience could have two normative functions in the pandemic and in similar situations: characterizing the salient moral challenges in this context, and offering some moral guidance for addressing them. To show how, we must first unpack and critically discuss the normative character of these tropes.

6.5. The normativity of resilience

As was noted in section 6.2, resilience research features some disputes about whether this term is descriptive or normative. Those who view resilience as a descriptive term often refer to the fact that resilience can denote both positive and negative, moral and immoral, phenomena–there are resilient ecosystems, but also resilient tyrannies (Anderies et al.: 2013). While it is unclear that this argument suffices for situating resilience as descriptive (cf. chapters 2 and 3), the argument is nonetheless irrelevant in the pandemic context–the tropes of resilience reviewed above present it as a positive feature, and so, as an evaluative term. Moreover, these understandings of resilience are also generally used for implicitly or explicitly making prescriptions.

To explain, evaluative terms are those commonly used for ascribing a positive or negative valence or value to what they describe (Tappolet: 2013). For example, when

[56] Retrieved in October: 2021, but the site is still updated regularly: https://www.bloomberg.com/graphics/covid-resilience-ranking/

we say something is beautiful or ugly, we judge it in an aesthetic sense to be good or bad, as having value or not. Virtues and vices are familiar categories of evaluative terms: when we say that someone is generous, we appraise her positively; someone with the vice of meanness is being appraised negatively. Generosity comes from good motives and reasons and leads to good outcomes—without these aspects, giving away one's money would be frivolous, or if it led to a bad end, irresponsible, rather than indicating the virtuous generosity of the one giving it away. It is typical for evaluative terms to be used to give reasons in favor or against something; it is typically the case that if we assess something as good, we have reasons for doing so and would like it to happen or to be that way. Likewise, assessing something as bad goes hand in hand with not wanting that thing. Evaluative language can be used thus to 'straddle the divide' between *is* and *ought* when an evaluation (an 'is') becomes the basis for a prescription (an 'ought').

Note that these normative aspects are not always as transparent as they should be. This is most clearly exemplified by the first two tropes explored above, personal resilience and social resilience. In its more medical or biological interpretation, the trope of personal resilience denotes that someone has returned to full health, or that their body has a capacity for responding effectively to viral invasion. More broadly speaking, however, this trope also refers to the resources available to us to care for our mental health and cope with the stresses of lockdown and other changes. The second trope is, as we saw, slightly different: it refers to our ability to harness our individual resilience and put it in service of our community.

Insofar as these tropes refer primarily to the observable signs of resilience, to a naturally occurring property of individuals or groups, or to how possessing certain features tends to result in a resilient outcome, here we might seem to be dealing with a descriptive category. Yet, note that these resources and our ability to harness them are both viewed as positive, insofar as they allow us (or our relatives and communities) to survive, maintain integrity and thrive. Consequently, these tropes are clearly evaluative. At the same time, they are also often used prescriptively, as when we are asked to draw on these resources in order to fight the pandemic, or when we say that 'kids are resilient' to advance or justify policies, for instance that prevent them from returning to school and playgrounds in favor of allowing other sectors of the economy to open.[57]

In contexts outside the pandemic, this trope of personal resilience has encountered considerable resistance. One common argument against it is that it allows for moral

[57] https://www.macleans.ca/society/health/the-pandemic-is-breaking-parents/

passivity toward the difficulties certain groups endure. For instance, a paper sign quoting Tracy L. Washington, stapled to a lamppost by the Louisiana Justice Institute in New Orleans after Hurricane Katrina, declares: "Don't call me resilient, Because every time you say, 'Oh, they're resilient,' that means you can do something else to me. I am not resilient." This trope is also critically portrayed as an intent to escape collective or institutional responsibility for improving social conditions by shifting the responsibility for ensuring resilience away from governing bodies and onto the shoulders of individuals. Psychologist and resilience researcher Michael Ungar (May: 2019) put it bluntly in a short essay in the Canadian newspaper, the Globe and Mail: "The notion that your resilience is your problem alone is ideology, not science." Making people responsible for their own resilience is misdirected when their lack of resilience results mostly or even in part from social conditions that are best addressed at higher levels. It is also morally problematic when individuals do not really have the capability of being (more) resilient—that is, when the 'ought to be resilient' is not accompanied by the necessary 'is'. Those points of critique apply even more to the second trope, since social resilience is in many ways a matter of multi-level responsibility, from neighborhood to multilateral international governance, rather than just one of personal responsibility. Joseph (2013) has summarized these concerns most sharply by casting resilience as sheer neoliberal jargon.

The normative character of resilience is perhaps more explicit in instances of the third trope, where resilience is viewed as an ideal that the system of interest ought to attain, or progress toward. For instance, a resilient city could be one that is able to maintain what have been deemed its essential features, or one that is capable of improving or growing (progressing) in the face of disturbance. These understandings of urban resilience are quite different, but both are normative. In the former, resilience is about the conservation of something that is assumed to be good. In the latter, it is about transforming in order to improve. Such claims present resilience as a social or political value, that is, a desirable outcome or goal that institutions and systems like cities ought to strive for. Alternatively, resilience is often presented as a virtue: a desirable property of cultures, social organizations or ways of governance. One clear example of this use is the Bloomberg Ranking, whereby countries are deemed better or worse "places to be" during different phases of the pandemic, according to their criteria for handling the virus "most effectively with the least…disruption." Similarly, organizational theorists have written much about what makes for 'resilient leadership' through the pandemic, which illustrates the interpretation of resilience as an ideal or

virtue of good governance, organization or business performance (Giustiniano et al.: 2020).

These straightforward applications of systems views of resilience to social contexts have also been met with substantial criticism elsewhere, in light of their normative implications. In the development and climate adaptation literature, for instance, it has been claimed that the "apolitical systems perspective" conceals the normative character of resilience (Bahadur and Tanner: 2014). This is held to be morally problematic, since it contributes to depoliticizing resilience-based measures and to promoting a technocratic and managerial mindset that elides possible tradeoffs entailed by its application (ibid). Relatedly, some critics note that these perspectives tend to focus on systems properly speaking, such as e.g. in infrastructure or governance systems, while neglecting questions of power, rights of access to goods, and the differential impacts of resilience-based measures and policy (Ziervogel et al.: 2017). That has led some to question and even reject the idea that we should apply resilience to social contexts, since a return to even an undesirable status quo could be thereby sanctioned as a success (Béné et al.: 2012). Scholars in this tradition therefore stress the need to be more explicit about the normative aspects of these system perspectives, especially by engaging with the aforementioned question of resilience for whom: who are the beneficiaries of resilience building, and who will be negatively affected by it.

Recently, considerations of this sort have in fact prompted a wave of ethical and justice work in resilience research (Bulkeley et al.: 2014; Shi et al.: 2016; Fitzgibbons and Mitchell: 2019). In line with this work, we argue that making the normativity of the resilience we value explicit—as a set of evaluations that can lead to conflicting prescriptions for action—allows at least for deliberation about the priorities thereby set. Now we will look at how these uses of resilience can both confuse and have the potential to clarify the moral situation at hand in this pandemic.

6.6. Reasoning about and toward resilience in the pandemic moral situation

The resilience tropes around the pandemic, we suggest in this section, reflect the fact that we must engage multiple 'scales' when reasoning about our behavior. As resilience is applied to individuals, groups and systems, these tropes advise us to consider factors at diverse levels and concerning different temporal ranges when deciding how we should behave. What makes this complexity unusual in extended crises like the pandemic, is that we must not only consider both self-regarding, prudential reasons for our behavior, and other-regarding moral reasons at the same time, because the

relevant factors to consider interact, we are also consistently faced with the dual notions of transformation and preservation. That is, at the same time as we are dealing with current shocks and stressors, we are considering how we ought to improve ourselves and our systems so that this doesn't happen again (or continue to happen) in the future. These different scales of size and temporality make practical and moral reasoning particularly complex in contexts where iterative shocks and stressors are experienced with an uncertain end and where uncertainty about probable outcomes prevails, because in these kinds of situations the transformative potential of the radical change required—at all levels—goes hand in hand with the need to protect oneself and what we value.

To begin at the systems level, the concerns raised in the last section are somewhat condensed in the case of the idea of population resilience garnered via 'herd immunity'. As we noted, this was the idea that the survival of the majority of the population could be ultimately achieved by ensuring general immunity to the virus. Like the trope of personal resilience, this theme engages with the idea of survival as a naturally occurring property or ideal, and consequently seems like a simply descriptive category, but it is not. The survival of the numerical majority of a population is, of course, something that we would commonly evaluate as positive or desirable. In addition, the herd immunity approach implicitly prescribes some actions and inactions that are assumed to bring about immunity, such as increasing vaccination rates (the classical epidemiological approach) or limiting the social and institutional interference in people's normal lives (Sweden's and Boris Johnson's infamous approach). That is, resilience as herd immunity is not a naturally occurring or emergent ideal, but a reflection of the priorities we set and of our efforts toward ensuring them.

The way in which these priorities are set make the goal of herd immunity susceptible to the same objections raised against systems perspectives of resilience. This could be expected, since herd immunity is, in general, a high-level social goal, and does not always correlate with positive individual outcomes. Insofar as herd immunity is framed in relation to rising vaccination rates, the risks imposed on individuals are minimized, so the conflict between system goals and personal and community values is rather explicitly avoided. Yet, such conflicts are quite obvious in the way this goal was (polemically) interpreted in the pandemic onset, which as Atlas so bluntly put it, involved allowing many to be infected so as to build immunity within the population. In that narrative, the survival of the majority comes by explicitly promoting risk-taking social behavior among the population, advising citizens to go about their daily lives. Moreover, as we saw, survival is not a matter of simple bodily

tolerance to the virus, but is, instead, heavily influenced by socio-economic circumstances. Thus, this case is one where questions over the potential tradeoffs between systems and individual perspectives on governance and policy are particularly critical, and yet in the name of resilience they may be elided, resulting in an intolerable neglect of precisely those who are most vulnerable to the virus and the pandemic in general. The solution here is to avoid using resilience as a descriptive term, and to unpack the normative impact it has when we set it as a goal.

At the personal and social levels, there is a range of factors relevant to our moral reasoning about behaviors like self-isolation and its consequences, such as not travelling to see family or moving one's social life online; we ought to consider the impact of those behaviors not only on ourselves and those to whom one usually is morally indebted, but also to the broader public and even the world. As we saw above, resilience is not only a positive characteristic for people to have during the pandemic—individuals are called upon to use the tools at their disposal to be more resilient: it is prescribed as a duty, while also describing a characteristic. Yet, while we may assess individuals as resilient or not, they are not really capable of being more resilient on their own, nor should they thus be fully responsible for that resilience. While each of us is coping with reduced resources and difficulties during the pandemic, these hardships are not evenly distributed nor can they all be coped with well, without sufficient support. Contemporary approaches rather regard personal resilience as a reflection of capabilities and context rather than as an innate resource we can each call up when called upon (Norris et al.: 2008). In this way, personal resilience is bound up with the resilience of social groups and systems level institutions: they interact.

Unpacking the normativity of resilience in rhetorical tropes such as the ones we have examined here is a first step toward understanding the moral complexity of the situation we are in. In the literature, as we say above, it has been suggested that unpacking the content of 'resilience' requires asking further questions, namely, resilience to what, of what, and resilience for whom. Asking these questions allows us to deliberate about the evaluative and prescriptive elements of resilience when it is applied as a trope to guide or advise us on how to conceptualize and to cope with the pandemic. Further, they provide a means to address the complexity of the decisions and choices that need to be made about what actions ought to be taken. We show here how the use of resilience in pandemic rhetoric reveals the different levels on which we must reason about our behavior; as a value or goal, resilience represents the particular moral situation in which we must reason during a pandemic. Consequently, by making its normativity explicit, resilience becomes not only a way to evaluate our

behavior, but a frame within which we can deliberate about what we should preserve, about ourselves and about the systems we can influence, and what we should change.

Consider further our early example, of deciding whether to go out to dinner, which requires assessing more than one risk, including risks that one cannot predict. Individuals evaluate their role as potential viral vectors in the pandemic and their social roles, the roles they play as workers, family members, and citizens. Individuals must consider the changing grounds of policy, science, medicine and resource availability, as well as their own needs and the needs of others who depend upon them. People need to consider factors on 'multiple scales' at the same time, temporally and in terms of systems: we need to consider our future while protecting ourselves in the present; we are both individuals and more or less essential parts of a larger ecological, social, economic and technical system. Depending on which scale we might focus on, different decisions will appear morally correct, and it is not unusual for alternatives to conflict. In all cases, the individual remains uncertain about the actual effects of their actions because Covid-19 transmission and its effects can be unpredictable. While this kind of complexity in moral reasoning is not novel, understanding why and how we value resilience in the context of an extended crisis, we suggest, shows us how complex systems can offer more than one and sometimes conflicting options for right action, as well as how we might go about deciding between them.

This moral complexity is illustrated when different answers to 'resilience to what' are considered, as they lead to differing responses to 'resilience for whom', for instance. To follow such restrictions, resilience to the aggregative effects of self-isolation will be required. This kind of policy, in fact, more or less takes the resilience of individuals to the impact of self-isolation to be a necessary requirement, in order to build a resilient society that also includes vulnerable people (whose risks are in turn intentionally reduced by that policy). This is in sharp contrast to policies like the so-called 'herd immunity' approach described above, which proposes instead to ignore the vulnerable in favor of building (a different kind of) resilience for the majority. Examining these policies by differentiating between the normative implications of 'resilience', used to promote or explain them, does the work of highlighting the alternatives we have for setting priorities, and their implications for the people involved.

Further, it is necessary to answer the questions, resilience to what, of what, and resilience for whom, to deliberate about what elements in the current system—or features of our current selves—we ought to keep and which ones we should change, given the opportunity to improve. By taking up an explicitly evaluative approach, the answers to these questions will help elucidate the nature of the evaluations we are

making and the consequent prescriptions implied. Trade-offs are generally required for resilience, and depending on what they must be resilient to, the what and for whom resilience is a goal will differ. Like the survivors of a pandemic who now have 'herd immunity', the city that is deemed resilient in the aftermath of a crisis reflects choices made before and during that crisis about who and what constitutes that city's identity. In either case, it is possible and essential to deliberate explicitly about the evaluations we are making and their normative weight in terms of the prescriptions they imply.

6.7. Conclusion

Resilience has been applied as a technical concept and a value in the pandemic and elsewhere. Here we have shown that resilience thinking indeed has much to offer by way of highlighting morally relevant aspects of the pandemic and offering some guidance to moral reasoning in this context. However, as we saw, resilience is not without problems. Here we showed that resilience is a normative concept that is applied at various scales to denote conservation as well as transformation. Due to these features, resilience raises various concerns, for example: what are the things or properties to be conserved and which should be transformed? Who are the beneficiaries and the losers of resilience building? Can high-level systems such as nations be resilient if their citizens are not, and conversely, can we afford to neglect the context and support needed to build personal resilience? As we showed in our analysis of resilience tropes, failure to address these questions may mean missing opportunities for transformation, creating or reproducing tradeoffs between individual resilience and resilience at higher levels, and ultimately losing the potential of this concept for guiding critical and sensitive reflection over the great social challenges that lie ahead.

7. Conclusions

In these conclusions I review the main findings of the chapters included in this thesis (7.1). Then I reflect on one important philosophical implication of the thesis (7.2) and discuss a further practical implication of it (7.3).

7.1. Main findings

This thesis began with the following research question*: How can we understand resilience so that the use of resilience-based approaches in societal contexts is both intelligible and just?* The five chapters included in this thesis respond to this question by concentrating on three debates in resilience research: the meaning of resilience, its normative status, and the problem of justice and injustice in resilience-based initiatives and policy for climate adaptation.

Based on these papers, I conclude that resilience should be conceived as a normative notion denoting an effective response to risks, where both the outcomes of this response and the features needed for producing it are desirable in some way. Given the interpretive flexibility of resilience, however, there can be questions about exactly which kind of response to risks resilience is and which demands of justice it covers. This thesis proposes to consider resilience as a collective value (that is, one relative to societal levels other than the individual or the community level) that is closely related to sustainability and that, for this reason, goes some way toward capturing the demands of intergenerational justice. On the other hand, looking at the use of resilience in domains such as climate adaptation, risk management or the political discourses in the Covid-19 pandemic, the thesis also shows that resilience does not sufficiently account for demands of procedural and distributive justice, among others, and it further proposes that the capability approach might be a suitable justice theory for addressing such justice shortcomings.

Now I will examine in more detail how I arrived to these results and how each chapter of the thesis contributed to the global research challenge.

Chapter 2 asked: *Which theoretical assumptions and normative orientations are embedded in the main resilience concepts and which concept is preferable in terms of these features?* After discussing the many diverse interpretations of resilience, I proposed to treat resilience as an explicitly normative concept that is closely related to antifragility: the ability to not just persist in the face of shocks and stresses, but actually to exploit changes for improving. One peculiarity of resilience vis-à-vis antifragility is, however, its dual

character, i.e. the fact that resilience is both an ability of some focal system (ecological, technological, etc.), and a quality of the human organizations that design or manage that focal system. In sum, then, resilience was defined both as a property that allows a system to withstand change and to exploit it, and as the social ability to maintain and utilize that system's property for a societal benefit. The chapter also explained the theoretical and empirical basis of this interpretation and why it improves on alternative accounts. One key argument in this regard was that this interpretation is coherent with Holling's original work on resilience and with much of today's interdisciplinary resilience research and practice.

Chapter 2 offers three main contributions to resilience research. First, it clarifies the relation between the problems of how to interpret resilience and its normativity. Second, it advances an account of resilience that takes a stance in these two debates and that is coherent with prominent uses of resilience. Third, this account is based on a novel reinterpretation of C.S. Holling's original work on resilience which is, in itself, an original addition to the history of resilience thinking.

Chapter 3 addressed the problem of the normativity of resilience in more detail. This chapter asked: *Which normative aspects enter in the conceptualization of resilience and how?* Building on metaethical work on thick concepts (i.e. concepts that blend descriptive and normative aspects), the chapter showed that all relevant interpretations of resilience have two kinds of normative content: evaluative content, whose point is to appraise things as positive or negative in some specific way, and normalizing content, whose point is to normalize certain categories by specifying who or what belongs or does not belong to the category—where such 'membership criteria' are value-based and/or have normative implications. The chapter also explained how these normative aspects vary with the interpretation and use of resilience. One conclusion here was that more explicit normative reflection is needed about which values resilience covers, which not, and how to handle these values—both in resilience research and in resilience practice.

Chapter 3 thus contributes to resilience research with a detailed characterization of the normative aspects of this term. In addition, this account is supported with metaethical work on thick concepts, which is a stream of work that has had very little presence in debates about the normativity of resilience. Chapter 3 is also of interest at least for two areas of philosophy concerned with thick concepts. First, for metaethics, both because it showcases how metaethics can be applied to other domains and because it develops novel perspectives on the normativity of normalizing expressions, which is a topic that metaethicists have only recently begun to discuss in depth.

Second, the chapter contributes to earlier philosophy of science work on resilience (cf. Introduction) and to recent philosophy of science work on thick scientific concepts (van Staveren: 2017; Alexandrova: 2018).

Chapter 4 turned to examine questions about justice, focusing specifically on the climate resilience-justice nexus. Here, the question was: *Which justice demands matter in climate adaptation, and how responsive are resilience-based approaches to them?* This question was addressed by taking issue with the trivalent model of justice, the approach that dominates in the climate resilience-justice nexus, and by proposing and discussing an alternative, six-dimensional, model of justice. The main contribution of this chapter is that it provides a detailed overview of justice concerns in the climate resilience domain and a framework with which to categorize, reflect upon, and work toward addressing these concerns. Using this framework, I show that climate resilience approaches and initiatives do to some extent cover those justice demands and concerns that are relative to preserving basic societal functions and other collective values, both in the short and in the long term. I also show, however, that resilience alone cannot provide a satisfactory response to certain justice concerns and demands. These are concerns about distributive and procedural justice, which are included in the tripartite model, but also concerns about reparations (or restorative justice) and about retributive justice, which are not included in the tripartite model. Besides being relevant to anyone with an interest on the climate resilience-justice nexus, this chapter has value for environmental philosophy and for other areas of applied philosophy and of resilience practice.

Following the work done in chapter 4, chapter 5 asked: *Is the capability approach an adequate perspective for addressing the justice shortcomings of resilience strategies for climate adaptation?* The response to this question was that the capability approach (CA) is indeed quite suitable for addressing many specific demands of distributive and procedural justice that arise in climate resilience initiatives. In particular, I argued that these initiatives could be made more distributively just by warranting that everyone meets two thresholds (*tolerability*, during emergencies, and a more demanding threshold of *acceptability,* in more favorable circumstances) in relation to each of six functionings that are essential for individual wellbeing: *life*; *health*; *bodily integrity*; *affiliation*; *sense, imagination and thought*; and *control over the environment*. I also showed how this application of the CA—which I called the 6 Functionings-2 Thresholds framework (6F2T)—could be further specified and implemented in order to fulfil demands of procedural justice. Some limitations of the 6F2T were recognized as well, though. In this regard, while the CA has been sometimes presented as a cure for all

the ills of climate resilience, this chapter advises a more cautious and constructive orientation towards the CA and it explains why such orientation is needed.

Thus, chapter 5 contributes primarily to the climate resilience-justice literature, first by providing a detailed and critical analysis of the strengths and weaknesses of the CA (and, to some extent, of rival justice theories), and then by highlighting some important decisions and problems that underlie its application. The chapter is also expected to be relevant for capability theorists, insofar as it develops a concrete application of this justice approach and discusses its prospects and limitations in depth.

Chapter 6 applies insights obtained in previous chapters to reflecting on an array of ethical dilemmas raised by the Covid-19 pandemic and by the use of resilience-based rhetorics during the first and following waves of measures in response. It asks: *How do we assess the use of resilience in public discourse and policies during extended crises?* Building on insights gained from the study of resilience tropes in the Covid-19 pandemic, this chapter highlights the fact that resilience can help to inform ethical reflection on moral challenges posed by extended crises, also discussing how it could perform this role. Here, consistently with other results of the thesis, the chapter contends that transformative and explicitly normative uses of resilience are more suitable than others when it comes to guiding this needed reflection. As such, the chapter contributes to recent and ongoing reflections about the moral implications and challenges of the Covid-19 pandemic and of the policies and discourses that became prominent since then. It also has significance for applied ethics and ethics more generally, since it critically analyzes the potential of resilience for informing ethical reflection about exceptional circumstances such as those raised by the pandemic or by climate change.

7.2. Philosophical implications of the thesis

Much of this thesis consists in the application of philosophical insights and perspectives to persisting problems and debates from resilience research. However, as noted above, this thesis has also produced results that may be of relevance for various areas of philosophy. In this section I gesture at one further philosophical implication of this work that could not be discussed at length in the thesis chapters.

This insight refers to the problem of normativity. In my view, considerations developed in this thesis challenge a widespread belief that I will call a *human-exceptionalist* view on normativity. To illustrate it, a recent *Encyclopedia of Ethics* article argues that normativity exists only in "normative thinking", that is, in "[norms about] what people ought to think or do, or have reason to think or do" (Wedgwood: 2013).

In other words: in this definition, normativity is described as a property of expressions (such as concepts or propositions) that people create or use for binding other people (or themselves) to certain actions or thoughts. This view therefore implies that humans are the only source of norms and of normativity.

In light of my findings, this view on normativity no longer seems tenable. To start with, many problems discussed in this thesis challenge the assumption that only human thinking or language can be normative. For example, when one considers in depth the impacts of events and processes such as ecological collapse, climate change, maladaptation or the Covid-19 pandemic, one seems compelled to qualify such impacts as very undesirable. Thus, to say that humans should try to prevent or hamper these events and processes, or minimize them as much as they can, seems a matter of fact, if any moral statement merits such qualification. Another way to put it might be that the concepts we use for describing these realities are normative *because* they refer to normative realities: realities that *are* reasons for acting.

From this perspective, the idea that only human thinking or language is normative appears as excessively non-cognitivist. Roughly, metaethical non-cognitivists think that normativity expresses non-cognitive attitudes like desires, approval and so forth, but that it is unrelated to cognitive attitudes (i.e. beliefs) that can be true or false. In contrast, for realists, certain realities can be, in and of themselves, reasons to act, regardless of how we may appraise them; i.e. regardless of whether we like or dislike the reality in question and of whether we approve or disapprove of acting thus-and-thus in relation to it. Clearly, then, if we understand these positions along the lines described above, this thesis sits uncomfortably with a non-cognitivist metaethics and much more in line with a realist metaethical perspective.

More radically, my engagement with resilience research, climate studies and related domains throughout the thesis suggests that we ought to reject the human-exceptionalist view that normativity is only a human affair. In fact, one reason why normativity does not just exist in the discourses that humans direct toward one another is that nonhuman agents may be normative, in the sense of having a decisive weight in guiding human action.

Climate change is again a case in point. Today we know that the relatively stable climate levels of the Holocene had a major enabling role in historical processes like human population growth, urbanization, technological and economic development and so forth. At the same time, under such stable climate levels, it was rational to believe that the climate–and, perhaps nature in general–is a mere landscape where human action unfolds, but not a factor that fundamentally guides or modifies human

action. In other words: it made sense to think that only humans–more specifically, human discourses and thought–were normative. Yet, these beliefs have been shattered in recent decades, when the entanglement between social and natural processes has become quite obvious. We have realized that we now live in the Anthropocene, with its climate crisis and its many other ecological crises threatening the persistence of many human lifestyles, entire civilizations and other species. These crises have already started to disrupt many societal norms irreversibly, and they may never produce a new normal, that is, a relatively stable context where humans can negotiate and establish perdurable norms that can be appropriately called "human norms".

I take these insights to suggest that notions like *climate change*, *normal climate, resilience* or *sustainability* are normative not just because they refer to (un)desirable realities or realities worth pursuing (avoiding), but also, because they refer to realities that, human or not, set norms for the action and behavior of many beings, including human beings.

7.3. A practical implication of the thesis

To conclude, I now turn to mentioning a practical implication of this thesis, also discussing very briefly how it could be approached in future work. This implication relates to the following question: *why does it matter whether resilience is descriptive or normative?*

In my papers on the normativity of resilience, I did not examine this question for reasons of time and space, but it is an important one and yet one that remains poorly examined to date. Among the few articles addressing this question, Brand and Jax (2007) is perhaps the most influential one. These authors correctly point out that the normativity of resilience is not merely a problem of philosophical interest: what is actually at stake here is the scientific status and utility of this concept in science, policy-making, and the science-policy interface. In particular, these authors connect descriptiveness and scientific progress. They write:

> a descriptive interpretation of resilience can be a clearly specified and delimited stability concept, …a quantitative and measurable concept that can be used for achieving progress in ecological science. (Brand and Jax: 2007, 8).

Normative resilience concepts, they continue, are less useful in this way, because they are vague, not measurable and thus unable to drive progress. Instead, the authors argue, their value springs from their function as 'boundary objects' that can facilitate perhaps fruitful exchanges between different communities, such as scientists from different disciplines, or scientists and policy-makers. Thus, descriptive concepts are

useful for science and relatively useless for practical and political aims, and normative concepts are useless for science but they can be useful for practical and political aims.

As noted above, the position that Brand and Jax take in relation to this problem has been quite influential. Yet, many findings in this thesis demonstrate that this position admits of some critical discussion. To begin with, as I have shown, speaking of "descriptive resilience concepts" it itself problematic, since all resilience concepts are normative in some way or another. But what concerns me here is the fairly traditional perspective about the appropriate role of science in society that Brand and Jax seem to embrace. This perspective can be described as the ideal of a value-free science, which, possibly, originates in the work of XIX century sociologist Max Weber (Sharlin: 1974). Within the value-free perspective, there is a rigid division of responsibilities between policy-makers and scientists, where policy-makers formulate ends on the basis of values, and scientists figure out the means to those ends, which is largely a matter of fact. Thus, the division of responsibilities lies somewhat neatly along two dichotomies: means/ends and fact/value. This perspective further posits two basic standards of good fact production: scientists must develop precise and measurable concepts, and they must steer clear of values. The second principle is especially critical, since its violation undermines the epistemic integrity of science and, at the same time, the democratic legitimacy of policy-makers.

While this perspective was quite influential for much of the past century, it has come under consistent attack in the past several decades, making way for what might be described as a new consensus in philosophy of science. Today, few philosophers ask whether normative concepts can be used in science; values are known to permeate many aspects of the scientific process, including that of conceptual formation (Putnam: 2003; Dupré: 2007; Alexandrova: 2018). The question now is, rather, *which* normative concepts should be used and *how* their use can be appropriate, and many recent proposals in this regard challenge the value-free ideal and other traditional views about science and its social role (Van Staveren: 2017; Alexandrova: 2018). I believe that Brand and Jax's arguments about the appropriate use of resilience could be reappraised in light of these proposals, and also in light of the results obtained in my assessment of the normativity of resilience.

Of course, this thesis has many other practical implications that are worth considering and that, I hope, will someday have an impact on how resilience approaches are designed and applied in the context of societal interventions. Here I am referring especially to my work on which justice demands and issues deserve more attention in this context and how these issues could be conceptualized and responded

to. In this regard, the thesis has focused mainly on fundamental and conceptual problems surrounding resilience and its application, and many challenges remain ahead in relation to how to apply the results obtained in practice. Nonetheless, I believe that the thesis has done much to propose a critical interpretation of resilience and a comprehensive view on justice that, together, set a firm basis on which to ground further work towards constructing resilience whilst advancing the goals of justice.

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Summary

Three decades ago, resilience was used as a theoretical concept predominantly in ecology and psychology, standing for the ability of ecosystems and children to overcome the stresses or challenges that threatened their persistence and their development, respectively. Today, resilience is used in many societal contexts for understanding how things respond to risks and for improving their performance in this regard. Yet, despite the broad appeal of resilience and resilience-based approaches within and outside academia, there are persisting puzzles about how to interpret resilience, its relation to competing concepts and approaches, or its desirability. In general, institutions, frameworks and policy discourses portray resilience as something good; for example, as an ability to transform in order to secure long-term persistence, or as an ability to evolve as a result of a positive interaction with change or a disturbance. On the other hand, many scholars criticize resilience approaches for focusing too much on equilibria or on maintaining the status quo, or for favoring technocratic approaches to management that tend to conceal the needs and vulnerabilities of the poor. Still others represent resilience as a descriptive term that provides no straightforward guidance for action, noting that this term refers to an ambivalent quality that can be good in some circumstances but not in others.

These examples show that the use of resilience is, at present, undercut by important theoretical and practical challenges. First, there is need to reflect on the status and significance of a term that is so widely used in academia and across the science-policy divide, but whose meaning and value are so fiercely disputed. Second, given that resilience is already informing many large-scale and significant societal efforts, we have to ask under which conditions such efforts could be appropriate. In turn, this raises the need for a systematic assessment of resilience approaches, one that is both sensitive to the merits of these approaches and responsive to the concerns of critics.

The present thesis collects five philosophical papers that are animated by the following research question: *how can we understand resilience so that the use of resilience-based approaches in societal contexts is both intelligible and just?* The thesis approaches this question by focusing on three debates that have enjoyed increasing relevance in resilience research in the last few years: debates about the meaning, the normative status, and the justice shortcomings of resilience. More specifically, the five papers contained in this thesis use philosophical ideas and perspectives from ethics, metaethics, and justice

theory to produce novel contributions to these debates, which, together, offer a response to the aforementioned research question.

In a nutshell, my response to the research question is that resilience should be conceived as a normative notion denoting an effective response to risks, where both the outcomes of this response and the features needed for producing it are desirable in some way. Given the interpretive flexibility of resilience, however, there can be questions about which demands of justice resilience covers or is responsive to. Looking at the use of resilience in areas such as climate adaptation, risk management or the political discourses in the Covid-19 pandemic, this thesis shows that resilience goes some way toward capturing the demands of intergenerational justice, but also, that it does not sufficiently account for other important justice demands. The thesis further proposes that the capability approach might be a suitable justice theory with which to address some of the most important justice shortcomings of resilience-based social interventions.

The first step in the thesis is to develop an intelligible interpretation of resilience in critical dialogue with the view that resilience is simply a descriptive term that cannot be cogently used as a goal. Chapter 2 addresses this challenge by utilizing various philosophical resources for reinterpreting C.S. Holling's original work on resilience, focusing on his proposals for reforming traditional ecological practices. The chapter finds that Holling conceived resilience as a goal that could help to avoid or overcome some pathologies of traditional management styles, such as their neglect of social and economic values, their rigidity, and their disregard for long-term persistence. Based on this analysis, the chapter concludes that resilience is tightly linked with sustainability and other intrinsic values, having three distinguishable normative aspects. First, resilience is a value for ecosystems or for other systems being targeted by management or design interventions, since persisting in the long term is itself something valuable. Second, it is a virtue of management or design styles, since having resilience requires having features like flexibility, inclusiveness or the ability to learn from mistakes or from change. Third, resilience is also a virtuous approach to conceptualizing the relationships between humans and the systems they design or manage, since it describes the conditions for the continuity of this relationship. In addition to clarifying current debates about the meaning and normativity of resilience, this position is congruent with important uses of resilience and well-supported by familiar philosophical distinctions.

Chapter 3 reassesses the problem of the normativity of resilience by turning to metaethical debates on thick concepts: concepts with descriptive content that also

provide normative guidance. It asks whether resilience indeed gives reasons for acting, and which reasons. In response, the chapter finds that most resilience concepts are thick concepts with evaluative and normalizing aspects. Concepts are evaluative if they give reasons for modifying something's valence—where valence is what makes something good, bad, better or worse. Most resilience concepts are evaluative because saying that x is resilient implies that x is good compared to its non-resilient counterparts. In turn, concepts are normalizing when they restrict ascriptions of membership to a category in accordance with values. The chapter shows that resilience can involve normalizing aspects in two ways: first, in determining the precise kind of response to disturbance that resilience is, and then, whenever operationalizing resilience, via decisions about what things can count as resilient and which disturbances matter. Thus, chapter 3 discloses the normative aspects of key conceptualizations of resilience, again casting doubt on the idea that resilience is a descriptive term.

Having clarified why and how resilience can be a conceivable goal, and which kind of goal it is, the next chapters turn to considering if resilience can also be a just goal and what it would take for resilience approaches to be (more) just. Chapters 4 and 5 focus this enquiry on climate resilience efforts, that is, on the use of resilience approaches for climate change adaptation. Chapter 6 applies some of the insights gained to the use of resilience tropes and tools for understanding and managing extended crises, such as the recent Covid-19 pandemic.

In particular, chapter 4 asks how we should understand justice in climate adaptation, and how responsive are resilience-based approaches to such justice demands. The chapter begins by taking issue with the tripartite model of justice, whereby justice is seen as comprising distributive, procedural, and recognitional aspects. Then, it proposes an alternative model featuring six kinds of justice demands: distributive, procedural, intergenerational, restorative, and retributive justice, and justice in system outcomes. This model is shown to have several advantages over its rival, one of which is its improved capacity for detecting alignments and misalignments between climate resilience and justice. Chapter 4 showcases this capacity by building on other results of the thesis to explain that climate resilience captures important collective societal goals and demands about intergenerational justice, but also, that it neglects or it addresses poorly some important demands of distributive justice, procedural justice, reparations and retributive justice. The chapter concludes by recommending Táíwò's recent theory of reparations as an opportunity to address reparations and retributive justice in climate resilience. Táíwò's proposal is that we

should link decisions about e.g. prioritization and funding in climate programs to historical injustices: for example, to historical processes of oppression, to unequal practices of ecological exchange or to the unequal histories of greenhouse gas emissions. On the other hand, Táíwò's proposal admits various solutions for the problems of how to arrange power and responsibilities in adaptation decisions (procedural justice) and of how to equitably distribute the outcomes of adaptation, thus raising the challenge of seeking a theory of justice that can suitably address these demands.

Chapter 5 addresses this challenge by assessing the prospects of the capability approach for helping to advance distributive justice and procedural justice in climate resilience. On the one hand, given its emphasis on the final value and mutually irreducible character of the concrete beings and doings of individuals, the chapter finds the capability approach adequate for addressing salient aspects of adaptation, such as the multi-faceted and locally specific nature of climate vulnerability. It also presents a capability-based framework that has particular strengths when it comes to including distributive justice considerations in climate resilience. On the other hand, the chapter argues that many extant arguments in support of using the capability approach in the climate context neglect the limitations of the approach and some dilemmas involved in applying it. The chapter therefore concludes by advising against treating the CA as a one-size-fits-all solution to the ills of climate resilience, and by raising a need for joining efforts with complementary approaches, such as, for instance, Táíwò's perspective.

Chapter 6 applies some of the insights obtained in preceding chapters to a different domain: the case of resilience-based discourses during the Covid-19 pandemic. Since the pandemic was announced in 2020, we have seen several common tropes about resilience arise in media discourse and in the rationales for the policy approaches taken by institutions. In this context, resilience has been used as a tool for understanding the complex and unpredictable character of behaviors and social processes during the pandemic, but also as a device for communicating recommendations and instructions over what we can and should do in such an unusual situation. This chapter examines the suitability of resilience for addressing the moral landscape elicited by the pandemic, taking up normativity theory and critical resilience research to highlight and critically assess some problematic normative aspects of these resilience-based tropes and discourses. The chapter then suggests ways to overcome or at least address the problems these tropes seem to raise.

Samenvatting

Dertig jaar geleden werd veerkracht met name binnen de ecologie en psychologie als theoretisch concept gebruikt voor het vermogen van ecosystemen en kinderen om te herstellen van stress en tegenslagen die respectievelijk hun voortbestaan of hun ontwikkeling bedreigden. Tegenwoordig wordt veerkracht in veel maatschappelijke contexten gebruikt om de reactie op risico's aan te geven en om in dit verband prestaties te verbeteren. Toch blijven er, ondanks de brede aantrekkingskracht van veerkracht en op veerkracht gebaseerde benaderingen zowel binnen als buiten de academische wereld, raadsels bestaan over hoe veerkracht, de relatie met concurrerende ideeën en benaderingen of de wenselijkheid ervan moet worden geïnterpreteerd. Over het algemeen presenteren instellingen, kaders en beleids-discoursen veerkracht als iets goeds; bijvoorbeeld als het vermogen om te veranderen om langdurige persistentie te garanderen, of als het vermogen om te evolueren als gevolg van een positieve verandering of verstoring. Aan de andere kant bekritiseren vele wetenschappers de benaderingen van veerkracht vanwege het feit dat deze teveel focussen op evenwicht of het handhaven van de status quo, of dat zij de voorkeur geven aan technocratische benaderingen van management waarbij de neiging bestaat de behoeften en kwetsbaarheden van de armen te verbergen. Weer anderen zien veerkracht als een beschrijvende term die geen duidelijke leidraad voor actie biedt. Zij stellen dat deze term verwijst naar een ambivalente kwaliteit die in bepaalde omstandigheden goed is, maar in andere juist niet.

Uit deze voorbeelden blijkt dat het gebruik van veerkracht momenteel wordt ondermijnd door belangrijke theoretische en praktische uitdagingen. Ten eerste is er behoefte om stil te staan bij de status en de betekenis van een term die in de academische wereld en in de kloof tussen wetenschap en beleid zo veel wordt gebruikt, maar waarvan de betekenis en waarde zo fel worden betwist. Ten tweede moeten we ons afvragen, gezien het feit dat veerkracht al vele grootschalige en belangrijke maatschappelijke inspanningen ondersteunt, onder welke omstandigheden dergelijke inspanningen geschikt zouden kunnen zijn. Op zijn beurt vergroot dit de behoefte aan een systematische beoordeling van de benaderingen van veerkracht, een die zowel gevoelig is voor de voordelen van deze benaderingen als inspeelt op de zorgen van critici.

Dit proefschrift bevat vijf filosofische artikelen die draaien om de volgende onderzoeksvraag: *hoe kunnen we veerkracht begrijpen zodat het gebruik van op veerkracht gebaseerde*

benaderingen in maatschappelijke contexten zowel begrijpelijk als correct is? Het proefschrift benadert deze vraag door zich te richten op drie discussies die de afgelopen paar jaar steeds meer relevantie hebben gekregen in het onderzoek naar veerkracht: discussies over de betekenis, de normatieve status en de rechtvaardigheidstekorten van veerkracht. Meer specifiek gebruiken de vijf artikelen die in dit proefschrift worden gebruikt filosofische ideeën en perspectieven uit de ethiek, meta-ethiek en de rechtvaardigheidstheorie om nieuwe bijdragen voor deze discussies te produceren die gezamenlijk een antwoord bieden op de bovengenoemde onderzoeksvraag.

Kort samengevat is mijn antwoord op de onderzoeksvraag dat veerkracht moet worden beschouwd als een normatief begrip dat een effectieve reactie op risico's aanduidt, waarbij zowel de resultaten van deze reactie als de eigenschappen die hiervoor nodig zijn op de een of andere manier wenselijk zijn. Gezien de interpretatieve flexibiliteit van veerkracht kunnen er echter vragen zijn over welke eisen van rechtvaardigheid door veerkracht worden gedekt of beantwoord. Kijkend naar het gebruik van veerkracht op gebieden zoals klimaatadaptatie, risico-management of het politieke discours tijdens de coronapandemie laat dit proefschrift zien dat veerkracht een deel van de eisen van rechtvaardigheid tussen generaties vastlegt, maar ook dat het onvoldoende rekening houdt met andere belangrijke eisen op het gebied van rechtvaardigheid. Deze scriptie stelt verder dat de *capability approach* een geschikte rechtvaardigheidstheorie zou kunnen zijn om enkele van de belangrijkste rechtvaardigheidstekortkomingen van op veerkracht gebaseerde sociale interventies te behandelen.

De eerste stap in het proefschrift is het ontwikkelen van een begrijpelijke interpretatie van veerkracht in kritische dialoog met de opvatting dat veerkracht gewoon een descriptieve term is die niet overtuigend als doel kan worden gebruikt. In hoofdstuk 2 wordt deze uitdaging behandeld door gebruik te maken van diverse filosofische bronnen voor het herinterpreteren van C.S. Holling's oorspronkelijke werk over veerkracht, waarbij de nadruk ligt op zijn voorstellen voor het hervormen van traditionele ecologische praktijken. In dit hoofdstuk wordt geconstateerd dat Holling veerkracht opvatte als een doel waarmee bepaalde pathologieën van traditionele managementstijlen konden worden vermeden of overwonnen, zoals hun veronachtzaming van sociale en economische waarden, hun rigiditeit, en het negeren van langdurige volharding. Op basis van deze analyse wordt in dit hoofdstuk geconcludeerd dat veerkracht nauw verbonden is met duurzaamheid en andere intrinsieke waarden waarbij drie normatieve aspecten worden onderscheiden. Ten eerste is veerkracht een waarde voor ecosystemen of voor andere systemen die het

doelwit zijn van management- of ontwerpinterventies, omdat langdurige volharding iets waardevols is. Ten tweede is het een goede eigenschap van management- of ontwerpstijlen, omdat het hebben van veerkracht vereist dat je over eigenschappen zoals flexibiliteit of inclusiviteit beschikt of over het vermogen om te leren van fouten of van verandering. Ten derde is veerkracht tevens een positieve benadering van het conceptualiseren van de relaties tussen mensen en de systemen die zij ontwerpen of beheren, omdat het de voorwaarden voor de continuïteit van deze relatie beschrijft. Naast het verduidelijken van de actuele discussies over de betekenis en normativiteit van veerkracht, is deze positie congruent met belangrijke toepassingen van veerkracht en wordt deze goed ondersteund door bekende filosofische verschillen.

In hoofdstuk 3 wordt het probleem van de normativiteit van veerkracht herzien door zich te richten op meta-ethische discussies over 'dikke' concepten: concepten met beschrijvende inhoud die tevens normatieve richtlijnen bieden. De vraag wordt gesteld of veerkracht inderdaad redenen geeft om te handelen, en welke redenen dit dan zijn. Als reactie hierop wordt in het hoofdstuk vastgesteld dat de meeste veerkrachtconcepten dikke concepten zijn met evaluatieve en normaliserende aspecten. Concepten zijn evaluatief als ze redenen geven voor het wijzigen van de valentie - en valentie is iets dat iets goed, slecht, beter of slechter maakt. De meeste veerkrachtconcepten zijn op een vergelijkbare manier evaluerend: beweren dat x veerkrachtig is, impliceert dat x goed is in vergelijking met zijn niet-veerkrachtige tegenpolen. Op hun beurt normaliseren concepten wanneer zij lidmaatschap van een categorie op grond van waarden beperken. Dit hoofdstuk laat zien dat veerkracht op twee manieren kan bestaan uit/betrekking kan hebben op het normaliseren van aspecten: ten eerste bij het bepalen van de precieze reactie op verstoring dat veerkracht is, en bij het operationaliseren van veerkracht via beslissingen over wat als veerkracht kan gelden en welke verstoringen belangrijk zijn. Hoofdstuk 3 beschrijft dus de normatieve aspecten van belangrijke conceptualisaties van veerkracht, waardoor opnieuw twijfels ontstaan over het idee dat veerkracht een descriptieve term is.

Na helder te hebben gekregen waarom en hoe veerkracht een denkbaar doel kan zijn en wat voor soort doel het is, gaan de volgende hoofdstukken over de overweging of veerkracht tevens een rechtvaardig doel kan zijn en wat er nodig is om veerkrachtbenaderingen rechtvaardig(er) te maken. Hoofdstuk 4 en 5 richten zich op inspanningen op het gebied van klimaatbestendigheid, dat wil zeggen op het gebruik van veerkrachtbenaderingen voor aanpassing aan klimaatverandering. In hoofdstuk 6 wordt een deel van de opgedane inzichten toegepast op het gebruik van

veerkrachttropes en -instrumenten voor het begrijpen en beheersen van langdurige crises, zoals de recente coronapandemie.

Met name in hoofdstuk 4 wordt de vraag gesteld hoe we rechtvaardigheid in klimaatadaptatie dienen te begrijpen en hoe responsief op veerkracht gebaseerde benaderingen van dergelijke rechtvaardigheidseisen zijn. Het hoofdstuk begint met het bekritiseren van het tripartite model van rechtvaardigheid, waar rechtvaardigheid wordt gezien als een samenstelling van distributieve, procedurele en erkennings-aspecten. Vervolgens wordt er een alternatief model voorgesteld met zes soorten rechtvaardigheidseisen: distributieve, procedurele, intergenerationele, restoratieve en retributieve rechtvaardigheid en rechtvaardigheid in systeemresultaten. Dit model blijkt verschillende voordelen te hebben ten opzichte van zijn tegenhanger, zoals het beter onderscheid maken tussen overeenkomsten en afwijkingen tussen klimaatbestendigheid en rechtvaardigheid. In hoofdstuk 4 wordt dit verder uitgediept door in te gaan op andere resultaten van het proefschrift die verduidelijken dat klimaatbestendigheid belangrijke collectieve maatschappelijke doelen en eisen bevat over intergenerationele rechtvaardigheid, maar ook dat enkele belangrijke eisen van distributieve rechtvaardigheid, procedurele rechtvaardigheid, herstel en retributieve rechtvaardigheid worden genegeerd of slechts kort worden aangekaart. Het hoofdstuk sluit af met de aanbeveling van Táíwò's recente theorie over klimaatherstel als een kans om herstel en retributieve rechtvaardigheid in klimaatbestendigheid aan te pakken. Táíwò stelt voor beslissingen over bijvoorbeeld prioritering binnen en financiering van klimaatprogramma's te koppelen aan historisch onrecht, bijvoorbeeld aan historische processen van onderdrukking, aan ongelijke ecologische uitwisseling of aan de ongelijke geschiedenis van broeikasgasemissies. Anderzijds biedt het voorstel van Táíwò diverse oplossingen voor de problemen van de verdeling van macht en verantwoordelijkheden rond adaptatiebeslissingen (procedurele rechtvaardigheid) en voor het probleem van een eerlijke verdeling van de adaptatie-uitkomsten. Dit brengt de uitdaging met zich mee een rechtvaardigheidstheorie te vinden die op deze eisen aansluit.

In hoofdstuk 5 wordt deze uitdaging beschreven en worden de perspectieven van de capaciteitsbenadering beoordeeld om distributieve en procedurele rechtvaardigheid in klimaatbestendigheid te helpen bevorderen. Enerzijds wordt in dit hoofdstuk gesteld dat gezien de nadruk op de uiteindelijke waarde en het wederzijds onherleidbare karakter van de concrete staat van zijn en doen van individuen de capaciteitsbenadering geschikt is om opvallende aspecten van adaptatie te behandelen, zoals de veelzijdige en plaatsgebonden aard van klimaatkwetsbaarheid.

Er wordt tevens een op capaciteiten gebaseerd kader gepresenteerd met bijzonder sterke punten aangaande het opnemen van distributieve rechtvaardigheids-overwegingen in klimaatbestendigheid. Anderzijds wordt in dit hoofdstuk gesteld dat veel bestaande argumenten ter ondersteuning van het gebruik van de capaciteitsbenadering in een klimaatcontext voorbijgaan aan de beperkingen van deze aanpak en de dilemma's die een rol spelen bij de toepassing ervan. Het hoofdstuk sluit daarom af met het advies om de capaciteitsbenadering niet als pasklare oplossing te zien voor de tekortkomingen van klimaatbestendigheid en met het aankaarten van de noodzaak om de krachten te bundelen met complementaire benaderingen, zoals het perspectief van Táíwò.

Hoofdstuk 6 past een deel van de inzichten uit voorgaande hoofdstukken toe op een ander domein: de op veerkracht gebaseerde uiteenzettingen tijdens de coronapandemie. Sinds het begin van de pandemie in 2020 hebben we verschillende gemeenschappelijke tropes over veerkracht zien ontstaan in het mediadiscours en in de beweegredenen voor de beleidsbenaderingen van instellingen. In deze context wordt veerkracht gebruikt als een hulpmiddel om het complexe en onvoorspelbare karakter van gedrag en sociale processen tijdens de pandemie te begrijpen, maar eveneens als hulpmiddel voor het communiceren van aanbevelingen en instructies over wat we kunnen en moeten doen in een dergelijke ongewone situatie. In dit hoofdstuk wordt onderzocht hoe geschikt veerkracht is voor het aanpakken van het morele landschap dat door de pandemie is uitgelokt, waarbij de normativiteitstheorie en kritisch veerkrachtonderzoek worden gebruikt om enkele problematische normatieve aspecten van deze op veerkracht gebaseerde tropes en uiteenzettingen uit te lichten en kritisch te beoordelen. In het hoofdstuk worden vervolgens manieren voorgesteld om de problemen die deze tropes lijken op te roepen te overwinnen of op zijn minst aan te pakken.

About the author

José Carlos Cañizares Gaztelu (1982) was a PhD candidate at the Ethics/Philosophy of Technology section at Delft University of Technology (TU Delft) between 2018 and 2023. From 2019 to 2021, he taught courses in Ethics of Technology and Ethics of Resilience at TU Delft. In 2022, he organized the conference "Justice and Values in the Climate Transition", hosted by the Faculty of Technology, Policy and Management (TPM) and sponsored by the TPM Resilience Lab, the DeSIRE/4TU.RE Resilience Fellows program, and the VIDI project 'Responsibility for resilience in climate adaptation' lead by Neelke Doorn. During his PhD at TU Delft, José Carlos has also given lectures in the Summer School "Planning and Design for the Just City" and in the Autumn School "Planning and Design for the Just Transition", both organized in 2022 by the Faculty of Architecture and the Built Environment of TU Delft. Prior to coming to TU Delft, José Carlos graduated from the Master program in Philosophy of Science, Technology and Society at University of Twente (2017). He also has education in Philosophy (B.A.) and Telecommunications Engineering (B. Tech, M. Tech) at Universidad de Sevilla (Spain) and is a certified Teacher of Philosophy for Spanish secondary schools (M.A.).

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Simon Stevin (1548-1620)

'Wonder en is gheen Wonder'

This series in the philosophy and ethics of technology is named after the Dutch / Flemish natural philosopher, scientist and engineer Simon Stevin. He was an extraordinary versatile person. He published, among other things, on arithmetic, accounting, geometry, mechanics, hydrostatics, astronomy, theory of measurement, civil engineering, the theory of music, and civil citizenship. He wrote the very first treatise on logic in Dutch, which he considered to be a superior language for scientific purposes. The relation between theory and practice is a main topic in his work. In addition to his theoretical publications, he held a large number of patents, and was actively involved as an engineer in the building of windmills, harbours, and fortifications for the Dutch prince Maurits. He is famous for having constructed large sailing carriages.

Little is known about his personal life. He was probably born in 1548 in Bruges (Flanders) and went to Leiden in 1581, where he took up his studies at the university two years later. His work was published between 1581 and 1617. He was an early defender of the Copernican worldview, which did not make him popular in religious circles. He died in 1620, but the exact date and the place of his burial are unknown. Philosophically he was a pragmatic rationalist for whom every phenomenon, however mysterious, ultimately had a scientific explanation. Hence his dictum 'Wonder is no Wonder', which he used on the cover of several of his own books.

Today, resilience is used in many societal contexts for understanding how things respond to risks and for improving their performance in this regard, having also become a prominent approach for adapting to climate change. Yet, despite the broad appeal of resilience and resilience-based approaches within and outside academia, there are persisting puzzles about how to interpret resilience, its relation to competing concepts and approaches, or its desirability. Some proponents of resilience advise caution with the normative use of the term, noting that resilience is a purely descriptive and ambivalent quality, which can be good in some circumstances but not in others. Critics have also noted that resilience approaches can be technocratic and that they tend to conceal the needs and vulnerabilities of the poor.

These examples demonstrate the need for reflecting on the status and significance of a term that is so widely used in academia and across the science-policy divide, but whose meaning and value are so fiercely disputed. Given that resilience is already informing many large-scale and significant societal efforts, they also raise the need to ask under which conditions such efforts could be just.

This work uses philosophical perspectives from ethics, metaethics and justice theory for revisiting recent debates on the meaning and normative status of this concept, with special emphasis on understanding the normative guidance that diverse interpretations of resilience can offer and disclosing the implications that this may have for achieving justice in and through resilience-based interventions.

'Wonder en is gheen wonder'

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