

# **The Scientist as (Climate) Activist: Applying the Mertonian Norm of Disinterestedness**

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## **Abstract**

Dissatisfied with the lack of political progress in solving the climate crisis and realizing that their warnings aren't being taken seriously enough, some scientists are engaging in climate activism. This has sparked a debate about whether or not scientists should act as activists. In this thesis, my aim is to bring some order to this debate and, above all, add a new argument to it by applying the Mertonian norm of disinterestedness. To this end, I first propose a definition of activism by scientists. I argue that it is both balanced enough to capture the cases discussed in the debate and also differentiated enough to account for relevant differences between these cases. I then apply Robert Merton's norm of disinterestedness to the question about activism by scientists. This norm roughly states that scientists should not act to pursue certain interests. I reveal some ambiguities in Merton's original formulation of the norm and argue that this opens up a dimension of permissibility. Considering various interpretations of the norm by other authors, I identify three levers that make an interpretation more or less permissive. I argue that if you want to use the norm of disinterestedness to make the case that a particular instance of activism by scientists is or is not permissible, you have to be transparent about which interpretation you adopt. Finally, I point out two problems with less permissive interpretations. I therefore suggest that more permissive interpretations that are less critical of scientists' activism may be preferable.

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## 1 Introduction

Dissatisfied with the lack of political progress in solving the climate crisis and realizing that their warnings are not being taken seriously enough, some scientists are engaging in climate activism (Grossman 2024; Garric 2023; Tormos-Aponte and Frickel 2023). For instance, in 2021, a group of climate scientists<sup>1</sup> chained themselves to the doors of a JPMorgan Chase building to protest the bank's financing of fossil fuel projects. In 2022, a group of scientists from Scientist Rebellion glued scientific papers and themselves to the Ministry of Energy in London, demanding more urgent climate action. Large groups of scientists, such as the Union of Concerned Scientists, have also been active. They have for example organized marches and signed open letters to governments and corporations to urge immediate and significant climate action. Such behaviors have sparked a debate about whether scientists should or should not act as climate activists in their role as scientists.<sup>2</sup>

In this thesis, I would like to bring some order to this debate and, in particular, add a new argument to it.<sup>3</sup> To this end, I will apply the Mertonian norm of disinterestedness. It was originally formulated in 1942 by the sociologist Robert K. Merton as part of his "ethos of science" (1942, 116). This package of norms is on the one hand seen as describing what is common practice in science. But it is also taken as a normative ideal that reflects scientists' beliefs about what they and their peers ought to do (Kitcher 2011).

The norm of disinterestedness roughly states that scientists should not act in order to pursue certain interests. There are various possible interpretations of what exactly these prohibited interests are. This insight is the basis for my first main conclusion. It says that if you want to use the norm of disinterestedness to say something about the activism by scientists, you must be transparent about which specific interpretation of the norm you are employing. More specifically, you should locate your interpretation on a dimension of permissibility.

My second, somewhat weaker conclusion is that there might be good reasons for preferring more permissive interpretations to less permissive ones. To make this case, I point to two problems of less permissive interpretations: the unreasonable demands they place on scientists, and the mismatch with the actual practice of climate science that they present.

In the remainder of this introductory chapter, I will first give an overview over the existing debate. I will outline the wide range of positions and identify three predominant types of argument (Section 1.1). I will then demonstrate the contribution and relevance of this thesis (Section 1.2). Finally, I will outline an overview of the following chapters (Section 1.3).

### 1.1 *The existing debate about climate activism by scientists*

The question about climate activism by scientists is currently being discussed in various formats. The Lund University in Sweden, for example, has organized a debate to discuss the alleged dilemma

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<sup>1</sup> In this thesis, I assume a broad understanding of climate science. Not only meteorologists, biologists and geologists are included, for example, but also climate economists or other social scientists who deal with the social impacts of climate change. Examples of non-climate scientists are art historians, for instance, but also natural scientists who do not study climate change-related topics.

<sup>2</sup> Henceforth, I will refer to this question as 'the question about climate activism by scientists'. So when I talk about 'activism by scientists' in the following, I mean activist behavior that scientists perform *in their role as scientists*. I will discuss what exactly this means in Chapter 2.

<sup>3</sup> I would like to note that it is not my aim to give a once-and-for-all answer to the question about (climate) activism by scientists. Rather, I merely want to suggest one new possible way to look at the issue.

that climate scientists are facing: “[S]hould they let their work speak for itself, or must they take to the barricades?” (Lund University 2023b). The same questions were also discussed in several other debate events such as the Centre for Ecology and Evolution Annual Darwin Debate (Aninta 2023) or in the Community debate in the European Geosciences Union General Assembly 2023 (Max-Planck-Institut für Biochemie 2024). The topic is also addressed in scientific papers of various disciplines. The *Journal of Science Communication*, for example, has issued a series of commentaries titled “The blurred boundaries between science and activism” (Bandelli 2015). Furthermore, a number of studies have empirically analyzed the attitudes of different groups (e.g. citizens or scientists themselves) towards activism by scientists (Cologna et al. 2021; 2022; Dablander et al. 2023; Dablander, Sachisthal, and Haslbeck 2024).

These various contributions come to a wide range of different answers to the question about activism by scientists. They can be seen as lying on a spectrum with two ends, representing the two ‘extreme’, opposing positions. At the first end of the spectrum, even the advocacy of certain climate policies by scientists is considered inadmissible (Lackey 2007; Van der Vossen 2015).<sup>4</sup> On this side, any activist behavior by scientists is seen as highly problematic. At the other end of the spectrum lies the answer that scientists (or at least climate scientists) are not only allowed to commit activist acts, but even have a moral duty or obligation to be activist. Dablander et al. (2023), for example, seem to hold such a view. They try to find out what could be done to encourage climate scientists to be more engaged and activist. Between these two extremes, there are other, more moderate positions. Answers located closer to the first end of the spectrum are, for example, that scientists may advocate certain climate policies but should refrain from any activist actions (Noss 2007; Hixon 2000).<sup>5</sup> Closer to the second end are answers that consider only certain forms of activist behavior to be permissible (or even morally required) while deeming other forms unacceptable (Gregor Hagedorn 2019).

But not only the concrete answers to the question about activism by scientists vary. Also the arguments, whose conclusions they are, differ. To get a better overview of the current debate, it is useful to analyze *what kind of argument* are being employed. So far, the following three different predominant types of argument can be recognized:<sup>6</sup>

- 1) *Consequentialist arguments*: The first type of argument contains those that argue for (or against) activism by scientists on grounds of the *consequences of such activist behavior*. Consequentialist arguments are used to argue in favor of answers lying on different points of the spectrum. Let me give just two examples, one for each end of the spectrum. Jessica Jewell who participated in the debate organized by the Lund University, for example, argues that scientists shouldn’t act as activists as this damages their credibility (Lund University 2023a). Activism by scientists could therefore have the effect that less credence is given to scientific evidence for the progression of climate change. This in turn could mean that, on balance, activism by scientists

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<sup>4</sup> Nelson and Vucetich (2009) give a nice overview of arguments for and against advocacy by climate scientists. They regard advocacy as unavoidable. Scientists should therefore “advocate in a justified and transparent manner” (2009, 1090).

<sup>5</sup> I clarify what I believe is the (blurred) line between advocacy and activism in Chapter 2.

<sup>6</sup> By ‘type of argument’ I mean the type of moral theory on which the arguments are based, not their specific conclusions. So, as the examples show, the type of argument does not necessarily determine where the conclusion is located on the spectrum described above. In other words, depending on the specific premises, arguments belonging to one type can lead to very different answers to the question about activism by scientists.

will delay rather than accelerate the mitigation of climate change. The expected negative consequences thus outweigh the positive ones. Therefore, scientists should refrain from climate activism.<sup>7</sup>

Also David Alcer, another participant in the debate at the University of Lund, puts forward a consequentialist argument (Lund University 2023a). As in Jewell's argument, credibility plays an important role in it. However, Alcer concludes that scientists should engage in activism. He argues that the credibility that scientists enjoy as experts makes their activism particularly effective in accelerating climate action, thus preventing worse consequences of climate change. Consequently, climate activism by scientists has overall positive consequences and is therefore desirable.

- 2) *Role-of-scientists arguments*: A second type of argument derives answers to the question whether or not scientists should act as activists from the *role of scientists*. Oreskes (2020) can be understood as taking this route. She seems to argue for an answer that lies more on the pro-activism side of the spectrum. Especially when their research is taxpayer funded, scientists "have a general obligation to the society they serve" (2020, 41). This includes what Oreskes calls a "sentinel responsibility" (2020, 33) to warn society of threats that ordinary people wouldn't otherwise know about. This responsibility is restricted to domains they are experts in. So in their role as professional experts who have acquired their expertise at taxpayers' expense, climate scientists should proactively warn of the threat of climate change. This can be interpreted as 'engaging in activism'.

Also Rapley and De Meyer (2014) and CG Rapley et al. (2014) can be seen as making a role-of-scientists argument. Following Pielke (2007), they argue that there are five different roles that climate scientists may adopt. Not every scientist should take every role. Instead, the roles should be collectively fulfilled so that the balance of roles performed by the community as a whole "addresses the needs of society" (Chris Rapley and De Meyer 2014, 746). What is important is that the scientists make clear, which role they take in which context. Some scientists should for example be "pure scientists". These focus solely on generating scientific findings and aren't concerned with their use. But there should also be "issue advocate[s] who engage[...] with decision-makers and the public to promote a particular course of action, justified on the basis of their expert knowledge and understanding" (2014, 746). Thus, at least some climate scientists should advocate policies. Moreover, Rapley and De Meyer argue that there should also be "science communicator[s] who engage[...] with society to present the scientific results, to offer expert interpretation and to draw attention to the implications" (2014, 746). CG Rapley et al. (2014, 35) "note that [this role] includes the task of raising the alert if the implications of a piece of research point to a significant societal threat or opportunity". Thus, their answer to the question about activism by scientists seems to lie at least in the middle, if not more on the activism-friendly side of the spectrum. This is because depending on how

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<sup>7</sup> Jewell's argument could be reconstructed both as an act- and a rule-consequentialist argument. Act consequentialism holds that the right action is the one that produces the best overall consequences, regardless of any pre-established rules. In contrast, rule consequentialism argues that the right action is determined by adherence to rules or principles that, when followed, generally lead to the best consequences. Jewell could be understood as arguing that scientists should generally follow the rule of not using their authority to promote change, because this rule has the good consequence of protecting the credibility of scientists.

‘raising alert’ is interpreted, they can be understood as demanding that at least some scientists engage in activism.

Again, role-of-scientists arguments are also used against activism. Jewell, for example, claims that the role of climate scientists is no more and no less than to highlight the trade-offs involved in deciding how to tackle climate change. That is, to present and explain all possible options for climate action and their impacts. Therefore, scientists shouldn’t be activists (Lund University 2023a).

- 3) *Objectivity-of-science arguments*: A third type of argument used in the debate aims to show that activism is or is not compatible with the *objectivity of science*. Such arguments are based on the premise that science must be objective. Objectivity is then for example understood in a traditional way that excludes values. Assuming that activism is necessarily value-laden, activism by scientists can in turn be seen as compromising the objectivity of science and can thus be considered inadmissible (Lacey 2005). But objectivity-of-science arguments are also used to defend activism by scientists. Crasnow and Campus (2006) or Frazer (2023), for example, propose non-traditional accounts of objectivity. According to these, activism is not only compatible with the objectivity of science, but even contributes to it. Thus, they argue that scientists can be activists in some contexts and should even be activists under certain criteria.<sup>8</sup>

## **1.2 Adding a new perspective to the debate – relevance and contribution of thesis**

In the previous section, I have shown that the question about climate activism by scientists is currently much debated. Existing arguments on this question do not, at least to my knowledge, refer to the norm of disinterestedness. Indeed, they do not refer to scientific norms in general. By applying Merton’s norm of disinterestedness, I therefore add a new argument to the debate.<sup>9</sup> More

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<sup>8</sup> Two further things should be noted with regard to this scheme. First, it is only one way of systematizing the various arguments. Other categorizations are certainly possible. For example, the third category could also be seen as a sub-category of the second category. Because one could say that it is part of the role of scientists to ‘conduct objective science’. However, I think that these are two different categories. Arguments of the second type refer to the role of the scientist and the concrete responsibility associated with it. In contrast, arguments of the third type refer to ‘larger’ concepts related to science in general, such as values or objectivity. Second, the different types of argument that I have identified are not strictly separated from each other. Some arguments do not clearly belong to one type, but can be categorized as belonging to another or more than one type. Take for example Rapley and De Meyer’s (2014) argument, which I have categorized as a role-of-scientists argument. It could also be reconstructed as a consequentialist argument by saying that the five different roles should be fulfilled because this would have the good consequence that science then meets the needs of society.

<sup>9</sup> An interesting feature of the Mertonian-norms approach is also that it cannot be clearly assigned to one of the three predominant types of argument that I have identified.

- 1) First, one could argue that it is a consequentialist argument – or, more precisely, a rule-consequentialist argument. This is because Merton’s norms are instrumental norms. That is, they are judged by their consequences. More specifically, as I have pointed out above, they are regarded as promoting the successfulness of science. (However, one could counter that the norms approach does not fit perfectly into this category. One reason for this is that Merton’s norms, unlike the rules of rule consequentialism, are not binary. Either one follows the rule and the action is morally good and required, or the action violates the rule and is morally reprehensible.)
- 2) Second, you could view it as a role-of-scientists argument by arguing that it is part of the scientists’ role to follow the Mertonian norms of science.
- 3) Third, you could also argue that Merton’s norms ensure not (only) the success of science, but more specifically its objectivity (or define success of science as objectivity of science). In this way, you could regard the norms-

specifically, I will examine whether activism by scientists is compatible with this norm. So I ‘zoom out’ of the concrete debate about *climate* activism by scientists (and to be more precise, especially by *climate* scientists) and formulate my research question in a more general way. My findings are then more easily and directly transferable to forms of activism other than climate activism. Nonetheless, I will use the topical case of climate activism as a concrete example to think through and answer my more general research question.

However, this thesis not only contributes to the debate by providing a new argument, but also by offering a balanced and differentiated definition of activism by scientists. This definition is valuable beyond this thesis in analyzing existing arguments and developing new ones.<sup>10</sup>

Moreover, the application of Merton’s norm of disinterestedness follows a recent trend in the literature. In the last years, there has been a growing interest (among scholars from multiple disciplines) not only in norms<sup>11</sup> in general (Chung and Rimal 2016), but also among philosophers of science in the norms of science. What’s more, there’s a trend to take up the Mertonian norms of science again. In recent publications, these norms have been both theoretically applied to various issues and empirically studied (see e.g. Bright and Heesen [2023] for a theoretical application and Kellogg [2006] or Macfarlane and Cheng [2008] for empirical studies). This thesis complements this literature with a new application of the Mertonian norms. Furthermore, it brings together results of several recently published papers on this topic.

But does it even make sense to apply Merton’s norms to current issues like activism by scientists? In line with Bright and Heesen (2023), let me argue that it does: The question of whether scientists should be activists or not is a normative question. Thus, an answer to it must also be normative. But in order to put forward a normative argument that leads to such an answer, one needs at least one normative premise. Luckily, the Mertonian norms aren’t merely descriptive norms. They are also seen as a source of normative guidance (Kitcher 1992). That is, they do not only describe what is common practice in the scientific community.<sup>12</sup> They also serve as a normative ideal that reflects scientists’ beliefs about what they and their peers ought to do.<sup>13</sup> Their normative character arises from the fact that they can be seen as ensuring, or at least promoting, the successfulness of science (Kitcher 1992, 100). Therefore, the Mertonian norms can be used as the normative premise needed for a normative argument.<sup>14</sup>

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approach as an objectivity argument. (Strictly speaking, however, it would then also be a consequentialist argument: the *consequence* of adhering to the norms is the desirable objectivity).

4) Finally, one could also argue that it doesn’t belong to any of the three types, but to a completely different category. Ultimately, however, it is not so important whether or how the approach fits into the scheme. The three categories are merely a useful tool for approaching the somewhat messy debate.

<sup>10</sup> In Chapter 2, it will become clear why such a definition is needed.

<sup>11</sup> A widely accepted definition of (social) norms in the literature is, for example, Bicchieri’s in her book ‘The grammar of society’ (2005). I will not discuss it here because the definition of scientific norms I am concerned with will become clear in Chapter 3. However, Bicchieri’s definition seems to be able to capture Merton’s norms as well.

<sup>12</sup> As Bright and Heesen (2023) point out, a number of empirical studies show that scientists still largely adhere to the Mertonian norms.

<sup>13</sup> Imagine the Mertonian norms had no normative character, but that scientists would follow them anyway. They might do so, for example, simply because they have an affinity for norms. You could still investigate whether or to what extent a particular behavior, e.g. activism, is compatible with the norms. But in this case, you would then not be able to derive a normative claim saying that scientists should or should not engage in this behavior.

<sup>14</sup> One reader expressed the concern that Merton’s norms might not be applicable to the activism by scientists because they only refer to how scientists ‘do science’, not to how they act ‘off the job’. But activism is not part of ‘doing science’

That these norms may be good tools to approach normative questions similar to the one about activism by scientists is also shown by Bright and Heesen (2023).<sup>15</sup> They use the normative character of Merton's norm of communism to examine how to evaluate industry research. More specifically, they argue that this norm serves as a demarcation criterion to distinguish scientific from non-scientific inquiry.<sup>16</sup>

In addition, this thesis has a certain relevance for science policy debates. Many organizations, institutions and professional associations have developed codes of conduct to ensure ethical and responsible research practices. There are supranational codes such as "The European Code of Conduct for Research Integrity" (ALLEA 2017) or national ones such as the "Netherlands Code of Conduct for Research Integrity" (VSNU 2018).<sup>17</sup> In Chapter 3, it will become clear that the "research integrity" that these codes are intended to guarantee is not equivalent to the "moral integrity" that scientists possess according to Merton, when they have disinterested motives (1942, 124). Nevertheless, such principles should reflect to some extent what scientists do and what they believe they ought to do. Hence, these codes should ideally also be informed by discussions such as the one in this thesis.

Finally, one may ask why I select the norm of disinterestedness, rather than applying one of the other three Mertonian norms or, say, the combination of all four. This choice will become clearer in Chapter 3.3. There, I show that of these four norms, the norm of disinterestedness in particular is a good starting point for addressing the question about activism by scientists. For now, it suffices to say that this norm is a good candidate because it relates to many concepts used in various existing arguments in the debate.<sup>18</sup>

### **1.3 Structure of thesis**

The thesis is structured as follows: In the second chapter, I propose a definition of activism by scientists that I will use in answering my research question. On the one hand, this definition is balanced enough to capture the general understanding of climate activism by scientists assumed in the current debate. On the other hand, it includes a taxonomy of activist behavior by scientists. This makes it possible to distinguish between different cases of activism by scientists. The three dimensions along which activist actions by scientists should be differentiated are summarized in a table at the end of Chapter 2.

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and may not even impact scientific work. However, I believe that this is not a problem. As we will see in Sections 3.1 and 3.2, the Mertonian norms concern not only how scientists do scientific work, but more generally how they operate in the scientific realm. As mentioned above and further elaborated in Chapter 2, the activism by scientists considered in this thesis is practiced by scientists in their role as scientists and thus lies within the scientific realm. Merton's norms are therefore applicable to activism by scientists.

<sup>15</sup> Also Bray and von Storch (2017, 15) assert that while Merton's norms aren't uncontested, "[t]hey offer a means to assess change and the normative shape of a scientific discipline under changing demands and conditions".

<sup>16</sup> Bright and Heesen (2023) also point out that Merton's norms are attractive because they are well studied.

<sup>17</sup> The latter includes, for example, general principles such as "Honesty" or "Independence" (2018, 13-14). It also specifies concrete standards for various phases of research such as "Design", "Reporting results" and "Communication" (16-18). Sanctions can be imposed by the institution's board in the event of "misconduct in research" (e.g. restriction of a person's authority, e.g. to supervise degrees) (24).

<sup>18</sup> Moreover, I am not suggesting that the other three norms, or any combination of them, could not be used at all to make an argument about activism by scientists. Also, there may well be norms other than the Mertonian norms that apply to science as a whole and can be fruitfully used to discuss this issue. But the norm of disinterestedness is enough to play through the question and learn interesting things in the process. For this reason, I keep things simple and limit my attention to it.

In the third chapter, I first outline Merton's approach to the sociology of science and his scientific ethos (Section 3.1). I then point out some general features of the four norms that constitute this ethos (communism, universalism, organized skepticism, and disinterestedness) (Section 3.2). I use these features to explain the content of the four norms in Section 3.3. I focus on the norm of disinterestedness as it is the one I apply to the question about activism by scientists. I show that Merton offers two incongruent readings of as-if-disinterested behavior, which is why his formulation of the norm is ambiguous. At the end of Chapter 3, I show that further interpretative work is therefore necessary before the norm of disinterestedness can be applied to the question about activism by scientists.

In the fourth chapter, I first identify the following three 'levers' which I believe influence the permissibility of an interpretation: 1) whether the interpretation is an individual or an institutional interpretation; 2) how the prohibited/allowed interests are defined; and 3) what the assumed objectives of (climate) science are (Section 4.1). I consider several existing interpretations of the norm by other authors to show how these levers operate. In the second part of Section 4, I present two problems I see with less permissive interpretations: that they place unreasonable demands on scientists (Section 4.2.1) and that they are inconsistent with the actual practice of climate science (Section 4.2.2).

In the fifth chapter, I summarize my findings and conclude.

## 2 (Climate) activism by scientists: Need for a balanced and differentiated definition

The aim in this chapter is to define what exactly I mean by ‘activism by scientists’ in my research question. The needed definition should fulfill two desiderata:

Firstly, it *should capture the general understanding of climate activism by scientists* that is assumed in the current debate. In other words, it shouldn’t be too narrow but also not too broad. That is, it should include the variety of cases being debated as activism by scientists but exclude cases that aren’t mentioned in the debate because they aren’t considered activism by scientists. This ensures that the results regarding the more general research question are then also applicable to the current debate. From this first desideratum follows that the search for an appropriate definition should begin with the analysis of currently debated cases. But as we will see in a moment, these cases vary. Indeed, some of their differences are sometimes used to argue that a particular case of activism by scientists is more or less problematic than another. The relevant differences between activist acts by scientists seem to lie on the following three dimensions:

- D1) Was the act performed by a single scientist, a group of scientists, or on behalf of an entire association of scientists?
- D2) How directly or indirectly activist is the act (i.e., is it more restrained or disruptive)?
- D3) How is content of the activism linked to the research of the scientist(s) performing the activism (i.e., is there a link or is the activism only mediated by them being a scientist)?

So the first dimension of relevant differences concerns who the author of the act is, while the second relates to what the act looks like. The third dimension, on the other hand, is about the connection between the act and its author.

If these differences play a role in existing arguments in the current debate, then they might also play a role in the approach via the norm of disinterestedness. Therefore, it seems reasonable not to lump all types of activist behavior by scientists together. This leads to the second desideratum for the needed definition: it *should contain a suitable differentiation* so that the various forms of activism by scientists can be considered separately.

I therefore propose the following definition:<sup>19</sup>

Activism by scientists as understood in this thesis occurs when

- **scientists** (D1: a) alone, b) as a group, or c) in the name of an association of scientists)
- **perform an act which is not part of producing scientific findings** (D2: that is a) more directly, or b) more indirectly activist)
- **in their role as scientists** (D3: a) the activism is related to their research, or b) unrelated to their research, but still mediated by their being a scientist)
- **in order to campaign for some political or social aim.**

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<sup>19</sup> To be sure, there are already numerous definitions of activism in the literature. Few, however, refer to activism *by scientists*. Even authors who write about activism by scientists usually do not explicitly define what exactly they mean by it. Exceptions are, for instance, Frazer (2023), Mandavilli (2024), or Parsons (2016). But even their definitions do not systematically distinguish between different types of activism by scientists. Frazer’s definition, for example, seems balanced enough to fulfill the first desideratum. However, it lacks any differentiation and also contains the phrase “give up their neutrality” (2023, 1259). This is problematic as some would argue that scientists have no neutrality to begin with (see e.g. Longino [1990] or Harding [1986]). In contrast, Parsons’ definition seems too broad, as it already counts “awareness-raising” (and thus arguably also regular science communication) as activism by scientists (2016, 2).

I will argue in a moment that this definition fulfills the two desiderata. First, I will explain the three dimensions of difference using concrete examples and also outline how these differences may matter in various existing arguments.

Let's start with the case of David Alcer. The Swedish physicist stormed the stage last year during a performance at a music competition and held up a banner saying "Återställ våtmarker" (Restore wetlands). Where is this case located on the three dimensions of difference? Let's start with the second dimension. Following Rawls definition, Alcer's act counts as civil disobedience. Rawls defines civil disobedience as "public, nonviolent, conscientious yet political act *contrary to law* usually done with the aim of bringing about a change in the law or policies of the government" (1999, 320, own emphasis). I would argue that such acts of civil disobedience are very directly activist because they can be seen as rather disruptive.<sup>20</sup> We will see less disruptive examples in a moment. For now, let me already indicate how the 'disruptiveness' of activist acts by scientists can matter in consequentialist arguments. On the one hand, more disruptive acts may be considered more problematic than less disruptive ones. This is because you may argue that they jeopardize scientists' credibility more because they're more conspicuous. On the other hand, one may argue that disruptive acts are more desirable because they're more effective in stimulating climate action.

Where is Alcer's case located on the first dimension? Alcer acted alone, as an individual scientist, not as part of a group or on behalf of an association. Consider another case that looks very similar: Climate scientists Rose Abramoff and Peter Kalmus jumped on stage at the American Geophysical Union's annual conference that same year and held up a banner calling on scientists to protest. In terms of the second dimension, there seems to be no difference between these two cases. Both are very similar cases of civil disobedience and can therefore be considered quite disruptive. Furthermore, it could be said that Abramoff and Kalmus, like Alcer, also acted 'almost as individuals'. After all, they were only a group of two. However, their banner made them recognizable as representatives of the association *Scientist Rebellion*.<sup>21</sup> Therefore, the two cases differ with regard to the first dimension.

In order to better understand how differences in the first dimension may feature in arguments, let us consider other examples of civil disobedience performed in the name of associations. Together with its sister organization *Extinction Rebellion*, *Scientist Rebellion* in the Netherlands for example blocked the access roads to Europe's largest refinery to protest against the further exploitation of fossil fuel deposits in the North Sea (Gayle 2024). Members of the same group blocked the entrance to the Federal Ministry of Transport in Germany and smeared it with paint to urge the government to implement transport policy measures that protect the climate (Heflik 2022). Using a consequentialist argument, one could argue that the credibility loss entailed by acts performed by individual scientists is negligible. Alcer's behavior could thus be seen as unproblematic. In contrast, if many scientists act together, this jeopardizes the credibility more. Hence, such acts should be refrained from. However, one could also argue that acts performed by individual scientists – in contrast to groups or associations – are ineffective in stimulating climate action. Thus, the former are undesirable while the latter are desirable. But differences in the first dimension can also feature in role-of-scientists arguments. With regard to actions of individual scientists, it could be argued in some cases that the person is acting *as a citizen* and not in their role as a scientist. The action therefore does not conflict with their role as a scientist and is thus

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<sup>20</sup> Grossman (2024) points out that acts of civil obedience are rare among scientists. However, they occupy a relatively prominent place in the debate.

<sup>21</sup> *Scientist Rebellion*, next to *Scientists 4 Future*, is one of the big environmental associations of scientists.

unproblematic. However, when scientists act collectively as a group or even on behalf of an entire association, it seems clear that they are acting in their role as scientists. Therefore, such actions are problematic. Similarly, using an objectivity-of-science argument, one can argue that an individual scientist alone cannot jeopardize the objectivity of science as a whole. Therefore, such individual behavior is unproblematic.

Let us now return to the second dimension and look at actions that differ from the civil disobedience discussed so far. More and more scientists are engaging in forms of legal protest. As the name suggests, unlike civil disobedience, this protest operates within the boundaries of the law. It includes, for example, “making speeches, signing petitions, organizing for a cause, donating money, taking part in authorized demonstrations, and boycotting” (Delmas and Brownlee 2023, "Legal Protest"). Scientists for example (collectively) take part in demonstrations or sign open letters and declarations.<sup>22</sup> Such actions could be considered less disruptive than civil disobedience, because they are legal. But demonstrations are still very conspicuous and directly activist – even if road blockades etc. have led to a greater outcry. Arguably, open letters and declarations are less disruptive than demonstrations (and therefore also than acts of civil disobedience). As indicated above, one can use a consequentialist argument and argue that signing open letters is less problematic than more disruptive actions because it damages scientists’ credibility less. Or one could say that such less disruptive actions are less desirable because they are less effective in promoting change. Using a role-of-scientists argument, one could argue, for example, that signing an open letter is less problematic than more disruptive acts because it is closer to scientists’ role.

Let us now turn to the third dimension. If scientists perform activism in their role as scientists, this activism can either be a) related to their research, or b) unrelated to their research, but still mediated by their being a scientist. In the first case, this link between the content of the activism and the content of the scientists’ research can be either specific or more general. For instance, scientists can link their activist message very directly to their own specific scientific work and expertise. An example would be a scientist who has just published a paper on the benefits of renewable energy compared to fossil fuels and is now using her findings (e.g. on a banner) to protest against fossil fuels. But the content of the scientists’ activism can also be related to their research in a more general way. Recall the physicist David Alcer. He researches new types of solar cells, but campaigns for the restoration of wetlands. As a climate scientist, Alcer deals with topics related to the content of his climate activism. In addition, his research was at least part of his motivation to get involved in climate activism (Alcer 2024). Yet, his activist message is not identical to his specific research.

But scientists’ activism can also be completely unrelated to the content of their research but still be mediated by their being scientists. So here too, the scientists are protesting in their role as scientists. An example would be a non-climate scientist (e.g. an art historian) who is a member of Scientist Rebellion and joins the climate protests organized by this association.<sup>23</sup>

Oreskes’ role-of-scientists argument shows how differences in this third dimension may matter for the evaluation of particular cases. She argues that scientists have a sentinel responsibility only with regard to topics they’re experts in. Similarly, using a consequentialist argument, one could argue that scientists who study issues related to the content of some type of activism are in a unique position to engage in that particular type of activism. Other types of scientists cannot directly use

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<sup>22</sup> For concrete examples, see e.g. (Gaul 2019), (Hagedorn 2019), (Ripple et al. 2020), or (Gayle 2023).

<sup>23</sup> In order to be recognizable as scientists, the members of Scientist Rebellion often wear white lab coats during their protests – even if they do not normally do so at their workplace.

their scientific credentials in this way to effectively add weight to their cause. Art historians, for example, cannot tape their work to a ministry to protest for climate action. Since this type of activism holds great potential for change but is not accessible to most people in the general population (or even to scientists in other disciplines), scientists working on related issues should engage in it.<sup>24</sup>

Let me now argue that my definition fulfills the two desiderata outlined in the beginning of this section. As for the second desideratum, the matter is rather straightforward: the definition is differentiated enough because it contains the three dimensions of the relevant differences between activist action by scientists.

But what about the first desideratum? Let me start by arguing that the definition is broad enough. This is firstly because, as we have seen above, it can capture the wide variety of cases of climate activism by scientists discussed in the current debate.

However, it is also broad enough in another sense. The phrase “in order to campaign for *some* political or social aim” allows for different goals of activism. Therefore, the definition does not only refer to *climate* activism by scientists. It can also include as a goal of activism, for example, the creation of a fairer environment for disadvantaged groups in science (e.g. women or people of color) or the demand for nuclear disarmament.<sup>25</sup>

Nevertheless, the definition is also narrow enough. By containing the phrase “perform an act which is *not part of producing scientific findings*”, it already excludes many behaviors that are not mentioned in the current debate because they aren’t considered activism. Choosing a scientific method or theory that points to an injustice, or working on a topic that explores an injustice, for example, wouldn’t count as activism. For such behavior is part of producing scientific findings. To be sure, some would say that any value judgment made by a scientist already makes her an activist

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<sup>24</sup> The specific and the more general link between scientists’ research and their activism could also be viewed as two separate categories. I haven’t found any arguments in the literature that explicitly make this distinction. But one could, for example, adopt a narrower version of Oreskes’ argument and argue that scientists are only experts in the particular topic they are working on. Similarly, one could adopt a narrower version of the consequentialist argument above that invokes the unique position. In this way, one could for example argue that only scientists doing research specifically on wetlands are entitled (or obliged) to engage in activism for wetland restoration.

Certainly, scientists who publish on wetlands know more about wetlands than scientists who publish on solar cells. However, I would argue that all different types of climate scientists should have a better general understanding of climate change and its impacts than most non-scientists and non-climate scientists. So they are (to a greater or lesser extent) still experts on climate change-related issues. That is why I would not further refine the third dimension. For I do not see that this brings any significant advantages. On the contrary, it raises the tricky question of exactly how specific or general the scientists’ knowledge and content of the activism needs to be to fall into the respective categories.

<sup>25</sup> Likewise, the three dimensions of difference aren’t specific to climate activism by scientists. Consider a more recent example, where thousands of scientists walked off the job in 2020 to protest anti-Black racism in science. This is a case of a large group of scientists (D1b) carrying out a rather disruptive action (D2a). It is not possible to clearly determine where this case is located on the third dimension, as it is a heterogeneous group. In the same context, the *Particles for Justice*, an association of particle physicists and cosmologists, launched a petition (Subbaraman 2020). This action can be categorized as less disruptive (D2b) and is carried out by an association of scientists (D1c) who study topics unrelated to the issues they are protesting for (D3b). Another prominent example is Albert Einstein and his political activism. Among many other activities, Einstein wrote letters and made public statements in support of the civil rights movement. I would categorize these actions as D1a, D2b, and D3b. (For other examples of famous individual activist scientists, see (Simms 2022).) My definition therefore seems to be applicable to examples of activism other than climate activism. While it is certainly possible that there are cases that it cannot capture, it seems to be a promising starting point.

(Leonhard 2022). But such a definition would be too broad for my purposes, as such behavior is not subject of the debate I am interested in.

The phrase “in order to *campaign* for some political or social aim” makes the definition narrow enough in a second sense. This is because it excludes important parts of the scientific practice that are not part of producing scientific findings, but nevertheless are not generally regarded as activism. This applies, for example, to science communication or teaching. Science communication includes, for example, the publication of papers in scientific journals and their dissemination, e.g. in the form of summaries of their results in newspapers. The mere publication of a work that points out some negative effects of climate change is not considered activism under my definition. This is because the author is not campaigning for the political goal of climate protection. Likewise, teaching students about the negative effects of climate change does not count as activism.<sup>26</sup>

Finally, the definition is narrow enough in a third sense by including the phrase “in their role as scientists”. This excludes the activism of people who happen to be scientists, but whose activism has nothing to do with their research and is not even mediated by their being a scientist.<sup>27</sup> An example would be someone who works as a scientist and goes to a climate demonstration with her family at the weekend.<sup>28</sup> This person is certainly doing this in order to campaign for a social or political goal. But she is doing so in her role as a citizen. This kind of activism could just as easily

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<sup>26</sup> Admittedly, the line between campaigning and communication or teaching is somewhat blurred. Let us consider some borderline cases where it is unclear which category they fall into. As noted by a reader, in terms of science communication one might argue that scientific publications such as the Intergovernmental Panel on Climate Change (IPCC) reports are activist. This is because these reports seem to clearly state that climate action is needed. However, the authors state on the IPCC’s website that their goal is to provide a neutral summary of the current state of research and present options, not to promote a social goal. Therefore, I would not classify the reports as activism.

A trickier example was pointed out by another reader. It involves a scientist who discovers that chocolate is unhealthy and shares this finding on her university’s blog and in interviews. Whether this behavior is activism depends on what exactly she says. If she is merely explaining the reasons why chocolate is unhealthy and suggesting different ways to mitigate its negative effects, I would consider her behavior science communication. But if she directly calls for a policy to make chocolate more expensive, the situation is less clear. In this case, I would still not label her an activist but rather an *advocate*. However, as mentioned in Section 1.1, some argue that both activism and advocacy by scientists are inadmissible. So this step does not necessarily make her behavior unproblematic. But this need not worry us, as this thesis focuses on activism. However, this step raises a further problem: the question of the unclear boundary between activism and advocacy. Even if I cannot completely resolve this here, I would say that the two terms still describe two different methods of promoting change: Activism tends to be more confrontational, while advocacy involves communicating with decision-makers.

Another example of a borderline case is the provision of facts and materials by scientists to climate activists (who then base their activism on them) (Scientists 4 Future International, n.d.). This could be seen as more indirect activism by scientists. However, it could then be further argued that any scientific publication that for example highlights the negative impacts of climate change provides information for climate activists. One possible answer could be that the provision of information must be explicitly targeted at the activists in order to be considered activism.

Finally, a borderline case in teaching could be that a scientist explains the negative effects of climate change to her students in a lecture and in this context encourages them to participate in climate protests.

<sup>27</sup> I exclude such cases, as they are not subject of the current debate. After all, nobody wants to deprive people who work as scientists of their civil right to protest.

<sup>28</sup> It could even be a climate scientist.

be practiced by any other person in the population. Moreover, she cannot get into trouble for this behavior in her work as a scientist.<sup>29</sup>

So it seems that the above definition is also balanced enough to fulfill the first desideratum. Therefore, I suggest that if you want to decide whether a particular case of behavior is activism by scientists, you first take this definition and check whether its four elements in bold are all present. If so, then the behavior is activism by scientists. In this case, you can then use the three dimensions of relevant differences to determine exactly what type of activism by scientists you are dealing with.

For a better overview, these dimensions can be illustrated in the table below using the examples from climate activism discussed above:

<b>Dimension 1:</b> author of act	<b>Dimension 2:</b> nature of act	<b>Dimension 3:</b> link between content of act and scientists' research
a) <b>Individual scientist:</b> e.g. David Alcer	a) <b>More direct/disruptive:</b> e.g. civil disobedience such as blocking roads or legal protest such as demonstrations	a) <b>Act related to scientists' research:</b> e.g. fossil fuel researcher taping their paper to ministry to protest against fossil fuels or climate scientist demonstrating for climate action
b) <b>Group of scientists</b>	b) <b>More indirect:</b> e.g. legal protest such as writing and signing open letters	b) <b>Act unrelated, but mediated by their being a scientist:</b> e.g. non-climate scientist joining Scientist Rebellion demonstration in white lab coat
c) <b>Association of scientists:</b> e.g. Scientist Rebellion		

Table 1: Three dimensions of relevant differences in climate activist acts by scientists.

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<sup>29</sup> Here, too, the boundary we are dealing with is not entirely sharp. As noted by one reader, for some actions it is unclear whether scientists are performing them in their role as scientists or in their role as citizens. One example for such borderline cases are activist actions carried out by well-known scientists. It is questionable whether a famous scientist can, for example, attend a demonstration or post activist stuff only in her role as a citizen as she will always be perceived as a scientist. I do not yet have a satisfactory solution for such cases and can therefore only emphasize at this point that in many other cases the matter seems clear.

### 3 Merton's formulation of the norm of disinterestedness

In this chapter, I present Robert Merton's original formulation of the norm of disinterestedness. I show that this formulation contains a certain ambiguity that makes its application to the question about activism by scientists problematic. But first, let me briefly outline Merton's approach to the sociology of science and his scientific ethos.

#### 3.1 Merton's sociology of science

Merton is often viewed as the founding father of the sociology of science (Storer 1973; Sztompka 1996). Sztompka defines this subdiscipline of sociology as “a *systematic* research program involving the *empirical study of science as a social institution*” (1996, 16, own emphasis). This definition contains three features that characterize Merton's approach to the sociology of science: First, the sociology of science is *empirical*. It concerns the analysis of the social structures and processes that shape scientific activity and knowledge production in scientific communities in the real world. Second, this empirical work is done in a *systematic* way. This means that there's always a sociological *theory* behind the empirical research.<sup>30</sup> Third, the sociology of science is based on a certain image of science. According to Merton, “science is a deceptively inclusive word which refers to a variety of distinct though interrelated items” (1942, 116). That is, when speaking of ‘science’, one can mean a number of different things.

On the one hand, one can refer to the totality of existing scientific knowledge itself. Merton points out that the aim of science is to expand scientific knowledge, or in his words “certified knowledge” (1942, 117). Knowledge is “certified” when it has been obtained using certain methods. Methods can produce “certified knowledge” if and only if they comply with certain technical norms. Merton identifies two such technical norms: adequate and reliable empirical evidence and logical consistency. The former ensures that the statements obtained are true. The latter ensures that they are “systematic and valid” (1942, 118). That means, for example, that they do not contradict each other. The “empirically confirmed and logically consistent statements of regularities” obtained by methods that conform to technical norms “are, in effect, predictions” (1942, 268). But instead of referring to the totality of these confirmed predictions, when speaking of ‘science’ one can also refer directly to the technical methods by which they are obtained. Thirdly, one can refer to the cultural values and customs that guide the activities labeled as scientific. And finally, one can refer to a combination of these three aspects.

The sociologist of science is concerned with the third meaning, the cultural values and customs guiding scientific activity.<sup>31</sup> In the sociology of science, science is therefore understood as *a social institution*. Like other social institutions, science is seen as being shaped by certain ‘rules of the game’ that determine the behavior of its members. Merton emphasizes that the social institution of science is part of a larger social structure into which “it is not always integrated” (1942, 118). That means that the ‘rules of the game’ of science can clash with those of other social institutions such as the state.

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<sup>30</sup> That there is an interdependence between theoretical and empirical research is one of Merton's convictions with regard to sociology in general. Sztompka (1996, 11) points out that “at a time when much of the advancement in sociology seemed to depend on development of new observational and analytic techniques, Merton maintained that theory has an important role in sociology”. In fact, Merton believed that theory without empirical research is “empty”. But at the same time he asserted that empirical research needs theory because otherwise it is “blind” (1996, 11).

<sup>31</sup> The other two aspects of science can be addressed, but they are not the main interest of the sociologist of science.

To summarize, the sociologist of science uses sociological theory and empirical research to understand the social dynamics within scientific communities. She is not, or at least not directly, concerned with the substantive findings or the methods of science, but with “the mores with which they are hedged about” (Merton, 1942, 116). According to Merton, the norm of disinterestedness is one component in the set of mores or norms<sup>32</sup> that govern scientists’ behavior. In the next section, I will explain how Merton conceives of the character and the content of this set of norms.

### 3.2 Merton’s scientific ethos – seven characteristics

Merton (1942, 116) calls the bundle of norms that determine scientists’ behavior – or in his own words, “that affectively toned complex of values and norms which is held to be binding on the man of science” – the “ethos of science”. In his view, this ethos consists of four sets of norms. The Mertonian norms are: Communism, Universalism, Disinterestedness, and Organized Skepticism.<sup>33</sup> Before introducing them, I will highlight some of their general features.

- 1) First, the Mertonian norms can take *different forms*. They can be expressed “in the form of prescriptions, proscriptions and permissions” (Merton 1942, 116).
- 2) Second, they have an instrumental character. As already mentioned, Merton’s norms are generally regarded not only as descriptive but also as normative. They are not only seen as describing what is common practice in the scientific community. They are also considered a normative ideal, reflecting scientists’ beliefs about what they and their peers ought to do. As Kitcher (1992) points out, this normative character stems from the fact that the Mertonian norms are commonly seen as guaranteeing or at least promoting the successfulness of science. Adherence to these norms is seen as contributing to the achievement of the objective of science – i.e., the extension of certified knowledge.<sup>34</sup> In fact, Merton points out that together with the two technical norms described above, the norms of science “implement[...] the final objective” of science (1942, 118). From Kitcher’s statement about their contribution to the success of science, one can infer not only that they have a normative character, but also that the latter is of instrumental nature. Scientists ought to adhere to the norms not because they are considered valuable in and of themselves, but because they are considered “procedurally efficient” (1942, 118).<sup>35</sup> Given this instrumental character, one should consider the objective of science in order to understand what the norms of science are.

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<sup>32</sup> Merton seems to use several terms almost interchangeable: “cultural values and customs” (1942, 267), “mores” (268) “institutional imperatives” (268), “moral norms” (268), “rules of the game” (281), “institutional” or “scientific norms” and “norms of science” (281). In the following, I use ‘Mertonian norms’, ‘Merton’s norms’ or simply ‘norms’ to refer to the four sets of norms contained in Merton’s scientific ethos. Note that these norms are distinct from the two *technical* norms described in the last section (adequate and reliable empirical evidence and logical consistency).

<sup>33</sup> They’re usually combined under the acronym ‘CUDOS’.

<sup>34</sup> Merton’s norms are conducive to the extension of certified knowledge, i.e., to the epistemic success of science. But they aren’t epistemic norms. As Bright and Heesen (2023, 5) point out, they are non-epistemic, because they do not “guarantee the achievement of knowledge, or true belief, or the avoidance of error (in other words, [they] do not *directly exemplify* one or more epistemic virtues)”. Thus, one could understand Merton as saying that the two technical norms and the CUDOS norms are necessary and mutually sufficient conditions for the epistemic success of science.

<sup>35</sup> However, Merton seems to believe that the norms are both instrumentally and intrinsically good. He states that “[t]he mores of science possess a methodological rationale but they are also binding, not only because they are

- 3) Third, the Mertonian norms are *informal*. The scientific ethos is not codified. Instead, Merton claims that it “can be inferred from the moral consensus of scientists as expressed in use and wont, in countless writings on the scientific spirit and in moral indignation directed toward contraventions of the ethos” (1942, 117). Therefore, to understand what the norms of science are, one should consider scientists’ behavior and their expressed opinion about their colleagues’ behavior (i.e., their criticism or praise).
- 4) Fourth, Merton stresses that his norms “are legitimized in terms of *institutional values*” (1942, 116). They are “*institutional imperatives*”, rather than individual norms (268). This central feature concerns the norms’ implementation, not their content (Djorup and Kappel 2013). According to Merton, the norms are largely followed by scientists not so much because of their personal beliefs and motives. At least, these personal motives are not what he is primarily interested in. Rather than by the behavior of individual scientists, the norms are enforced by certain institutional practices. Thus, Merton himself is less concerned with whether or not individual scientists comply with the norms (– though he’s not entirely ignorant about this). His focus is on examining mechanisms that implement the norm on a higher, institutional level. Djorup and Kappel (2013) point out with regard to the norm of disinterestedness that many later Mertonians do not adopt this institutional focus.<sup>36</sup>
- 5) Fifth, the norms are “transmitted by precept and example and *reinforced by sanctions*” (Merton 1942, 116, own emphasis). However, Merton suggests that these sanctions are informal. This is also implied by the norms’ third feature, their informal character.
- 6) Sixth, scientists have to some extent *internalized* the norms as part of their scientific training. In Merton’s words, the norms of science “fashion[...] their *scientific conscience* (1996, 267). The extent to which scientists have internalized the norms and act according to them varies.
- 7) Lastly, the Mertonian norms are *not binary*. That is, they can be followed to a lesser or greater degree.

I will now present the content of the four norms that make up Merton’s scientific ethos. In doing so, I will orientate myself on these characteristics and show how they are expressed in the individual norms. Since my research question refers specifically to the norm of disinterestedness, I will concentrate on this norm.

### **3.3 Merton’s scientific ethos – four norms**

#### **3.3.1 Communism**

The norm of communism prescribes that the “substantive findings of science are a product of social collaboration and are assigned to the community” (Merton 1942, 121). This means that

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procedurally efficient, but because they are believed right and good. They are moral as well as technical prescriptions” (1942, 268). But that need not concern us any further, as I only want to emphasize that they *also* have an instrumental character.

<sup>36</sup> They themselves focus on the individual level of analyzing the norm of disinterestedness. Using psychological terms, they examine the behavior and character of individual scientists and thereby examine their compliance with the norm.

individual scientists do not exclusively possess their scientific findings. Consequently, they have no “special rights of use and disposition” over them. Instead, they must make their work available to others for free (Bright and Heesen 2023). The only property right that scientists have in their discoveries is the right to claim recognition and esteem for these discoveries. Merton (1942) explains that the institutional mechanism enforcing communism is the scientists’ incentive for recognition and their resulting competition for it. If they do not publish their work, they cannot be honored for it.

In what way is the norm of communism instrumentally valuable? If scientists always share their work openly with others, it can be scrutinized, evaluated, and used as a basis for further research at any time and by anyone. Thus, communism helps to expand the boundaries of certified knowledge. Furthermore, scientists are not formally prohibited from concealing their results. However, informal sanctions for such behavior can be observed within the scientific community. Merton (1942) refers to the case of the physicist Cavendish. He kept his important discoveries secret and was heavily criticized for this behavior. According to Merton, condemnations like this one show that scientists have internalized the norm of communism. Lastly, scientists can be more or less communist. This is emphasized, for example, by Bright and Heesen (2023) who use the norm of communism as a demarcation criterion between commercial and academic research.

### 3.3.2 *Universalism*

The second component of Merton’s scientific ethos is the norm of universalism. It requires scientists to evaluate ideas independently of their opinion of the person presenting them. Scientists’ personal and social attributes (e.g. race, nationality, religion, class or personal qualities) mustn’t matter for the acceptance or rejection of their scientific claims. Instead, scientific claims must be “subjected to *preestablished impersonal criteria*: consonant with observation and with previously confirmed knowledge” (Merton 1942, 118). The institutional mechanism enforcing universalism is the fact “that scientifically verified formulations refer to objective sequences and correlations” (118). This is because the generality of scientific claims impedes endeavors to impose particularistic criteria of validity. For example, “[t]he chauvinist may expunge the names of alien scientists from historical textbooks but their formulations remain indispensable to science and technology” (Merton 1942, 118).

In what way is universalism conducive to the success of science? If scientific careers are restricted for reasons other than lack of competence, scientific careers aren’t open to all talents. This would cost science bright minds. Similarly, if the claims of certain scientists are disregarded or rejected because of their characteristics, even though they fulfil the two technical norms (and are therefore certified, i.e. true, systematic and valid predictions), this negatively affects the extension of certified knowledge. Moreover, the norm of universalism isn’t codified.<sup>37</sup> However, informal sanctions for biased behavior can be observed within the scientific community. Merton (1942) refers to the case of the “Manifest der 93”. This manifesto, which was signed by ninety-three German scientists, was primarily aimed at the still neutral countries during the First World War. It countered the accusations made against Germany by its opponents. Other scientists

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<sup>37</sup> It could be argued that certain aspects of this norm are indeed codified. For instance, in its “Guiding Policies and Principles”, the Stanford University (2022) explicitly prohibits discrimination against members of marginalized groups such as people of color or women when accepting applicants for positions. But the Mertonian norm of universalism as such is still informal, as the part about accepting and rejecting scientific claims e.g. is not codified.

strongly criticized it as being based on a nationalist bias. According to Merton (1942), this shows that universalism is embedded in the scientific conscience of many scientists. As Andersen (2001) demonstrates, the bias against scientists can be stronger or weaker. That is, universalism is not binary.

### 3.3.3 *Organized Skepticism*

The norm of organized skepticism requires that scientists systematically scrutinize claims and stay open to their potential future falsification. Scientists should not regard any scientific finding as given and incontestable but always remain skeptical of both their own and their colleagues' results. Furthermore, they should be particularly careful when presenting preliminary conclusions. They should judge claims only after they have checked them against recognized empirical and logical criteria. In doing so, they must "consider all new evidence, hypotheses, theories, and innovations, even those that challenge or contradict their own work" (Anderson et al. 2010, 7). Organized skepticism thus ensures that scientific statements are certified. Thereby, it promotes the epistemic success of science.<sup>38</sup> Merton (1942) believes that the norm of organized skepticism shows itself in the conflicts with other institutions in which it regularly embroils science. This conflict arises because other institutions (e.g. religion) sometimes have different attitudes towards the same data and feel that by questioning everything, science threatens their power.

### 3.3.4 *Disinterestedness*

I will now elaborate what the norm of disinterestedness says according to Merton.<sup>39</sup> I will proceed as follows: As an entry point, I first consider the common meanings of the term 'disinterested'. Building on this, I trace Merton's original formulation of the norm, using again the general characteristics outlined above. I will argue for the following three claims:

- I) The norm of disinterestedness in particular is a good starting point for addressing the question about activism by scientists.
- II) Merton's picture of the norm of disinterestedness contains a certain ambiguity as to how permissive it is.
- III) Because of this ambiguity, the norm cannot be applied to the question about activism by scientists without further interpretative work.

To better understand what Merton's norm says, let us consider what the term 'disinterested' means in everyday language. First, to be disinterested can mean to be uninterested or indifferent, in the sense that a schoolchild might be disinterested in a particular subject. But this is certainly not the

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<sup>38</sup> Merton says nothing explicitly about the mechanism that enforces organized skepticism. But it seems plausible that the practice of peer review contributes to its enforcement. Scientists know that their results will be scrutinized by their peers. They probably want to avoid having their results refuted by others, as this would entail informal sanctions in the form of psychological costs such as shame. Therefore, they have an incentive to adhere to the norm.

<sup>39</sup> This section is really about presenting Merton's own understanding of this norm. Therefore, I concentrate on his own words and almost completely dispense with secondary literature. This is because other authors who address the norm of disinterestedness usually already fill in the gaps in Merton's formulation with their own interpretations, as I will show in Chapter 4.

meaning Merton has in mind. Of course, scientists shouldn't find the topics they study uninteresting.

However, 'disinterested' can also mean not being influenced by considerations of personal advantage. This can be understood in a weaker and a stronger sense. In the weaker sense, it means being impartial, unbiased or neutral. In this way, a mediator who helps resolve a conflict is disinterested. In the stronger sense, it means being selfless or altruistic. Someone who is disinterested in this stronger sense puts others' interests before their own, like letting a friend have the last piece of cake despite wanting it themselves. The disinterested mediator, however, doesn't need to be selfless; they simply need to be impartial towards the conflicting parties.

Merton emphasizes that "[d]isinterestedness is *not to be equated with altruism* nor interested action with egoism" (1942, 124, own emphasis). So it seems that we can rule out another of the common meanings: Disinterestedness as altruism or selflessness. Does it follow that Merton adopts the last remaining common meaning, as being impartial, unbiased or neutral? His reasoning for excluding disinterestedness as altruism implies that this would be a hasty conclusion. Merton argues that disinterestedness shouldn't be equated with altruism because this would "confuse institutional and motivational level of analysis" (1942, 124). What does he mean by this? Recall that disinterestedness, like the other Mertonian norms, is an institutional and not an individual norm. Thus, disinterestedness in Merton's sense is not a lower-level property of individual scientists. It has nothing to do (or at least not directly) with the motives of individual scientists. Instead, it is the higher-level property of the whole social structure to which scientists belong, i.e., the social institution of science.

But all everyday meanings of 'disinterested' refer to the motives of individuals and thus lie at the motivational level of analysis. It follows that Merton's norm of disinterestedness cannot be understood by simply adopting one of these meanings.

Let us therefore examine what exactly the higher-level property of disinterestedness looks like. Merton claims that science must exhibit "a distinctive pattern of institutional control of a wide range of motives which characterizes the behavior of scientists" (1996, 274) for the norm of disinterestedness to be satisfied. Thus, the institution of science is disinterested if and only if the motives of scientists are controlled in a certain way. This does not necessarily mean that certain non-disinterested (i.e., interested) motives are eliminated entirely, so that only disinterested motives remain.<sup>40</sup> 'Controlled' rather means that the interested motives are rendered 'ineffective'. That is, they no longer express themselves in interested behavior.

Recall that Merton is less concerned with whether or not individual scientists adhere to his norms. He is also less concerned with whether scientists actually have disinterested motives or not. The norm of disinterestedness merely requires that the structure of the institution of science is such that scientists act *as if* they had disinterested motives.<sup>41</sup> So while disinterestedness is a higher-

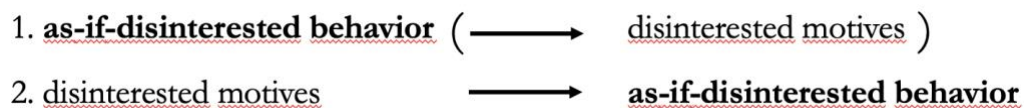
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<sup>40</sup> Merton cites „[a] passion for knowledge, idle curiosity, [and an] altruistic concern with the benefit of humanity" (1942, 124) as examples of disinterested motives of scientists.

<sup>41</sup> This can be illustrated using an analogous example, the assumption of utility maximization in economic theory. In markets, the participants are normally understood as utility maximizers. But they are only seen as acting *as if* they were maximizing their utility. Whether they actually do so is secondary. There may be other reasons why their behavior looks like they are maximizing their utility (e.g. sanction mechanisms). The important thing is only that there are some mechanisms at work that make them behave as if they are maximizing their utility. This is the same thing Merton is saying: it is secondary whether individual scientists are actually disinterested. What matters is that there are mechanisms that ensure that they act as if they were disinterested.

level property, it manifests itself at the lower, individual level – in the form of the behavior of individual scientists. But what does this ‘as-if-disinterested behavior’ of individual scientists look like?

Here, Merton’s account is somewhat ambiguous. This is because Merton seems to give two different and incongruent characterizations of as-if-disinterested behavior. These are the results of two possible routes that Merton offers to figure out his understanding of as-if-disinterested behavior. They can be represented like this:



Theoretically, it should be possible to take both routes, as they should lead to the same result. But as I will show now, the two routes are not congruent. Furthermore, the two different characterizations of as-if-disinterested behavior that they produce lead to different interpretations of the norm of disinterestedness. Therefore, Merton’s account is ambiguous.

Let me start by explaining the first, direct route. Here, one simply examines what Merton explicitly calls as-if-disinterested behavior. According to Merton, the norm of disinterestedness manifests itself in the “virtual absence of fraud in the annals of science which appears exceptional when compared with the record of other spheres of activity” (1942, 124). Further, interested behavior in Merton’s sense means something like practicing science in a way as to pursue one’s “personal interests” (124). However, Merton seems to have a relatively narrow conception of what counts as personal interests here. The only critical personal interest he mentions is “self-aggrandizement” – i.e., showcasing oneself in the competition for recognition/priority in the scientific community. Accordingly, a scientist only behaves in an interested manner if she uses “illicit means” in order to beat her colleagues in this competition (124). Such impermissible means include “spurious claims”, “[c]ultism, informal cliques, prolific but trivial publications” (i.e., publishing something false or insufficiently tested only to publish something) and other “techniques that can be used for self-aggrandizement”, which he doesn’t further specify (125). Scientists thus behave as if they were disinterested as soon as they refrain from fraud and do not “abuse [their] expert authority” “for interested purposes” (125). ‘Interested purposes’ here only refers to the interest in beating other scientists in the competition for priority and recognition.<sup>42</sup> Since the only prohibited behavior seems to be fraud for self-aggrandizement, the interpretation of the norm of disinterestedness that can be derived from this result seems rather permissive.

However, to identify the as-if-disinterested behavior of scientists required by Merton’s norm, one can also take a second, more indirect route. One can start from Merton’s description of disinterested motives – according to which scientists should behave as if they had them – and

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It follows that the norm of disinterestedness can theoretically be fulfilled even if no individual scientist has disinterested motives. In fact, Merton (1942, 124) sees no evidence that scientists in general actually possess disinterested motives as part of their “personal qualities”. To be sure, it is possible and even likely that at least some scientists have disinterested motives – either as part of their personal characteristics or because they have internalized the norm of disinterestedness over time. But this is not what Merton’s norm captures. Such motivational talk, using psychological terms to describe scientists’ motives, is not at the right level of analysis.

<sup>42</sup> Yet, it is not entirely clear whether fraud for self-aggrandizement is in fact the only manifestation of as-if-disinterested behavior. Merton might as well mention it as only one example. After a thorough reading of his essay, however, the former seems more plausible to me.

derive the behavior they would express themselves in. What characterization of as-if-disinterested behavior does this route lead Merton to? He seems to define having disinterested motives as possessing some kind of general “moral integrity” (1942, 124). Merton does not specify what exactly this moral integrity looks like with regard to scientists. Instead, he gives some examples of disinterested motives in which this integrity would manifest itself: „[a] passion for knowledge, idle curiosity, *altruistic* concern with the benefit of humanity” (1942, 124, own emphasis).<sup>43</sup>

But what behavior can be derived from these motives? They certainly do not express themselves in fraud for self-aggrandizement. Also on this second route, such behavior is therefore not as-if-disinterested, and consequently violates the norm. Thus, not committing fraud for self-aggrandizement is a necessary condition for compliance with the norm of disinterestedness.

In contrast to the first route, however, it does not appear to be a sufficient condition on the second route. Imagine, for example, a lazy scientist who is so lazy that they only study the simplest, most trivial things. They do not commit fraud for self-aggrandizement because they do not want to achieve anything in the competition for recognition and priority. However, their behavior does not seem to match the disinterested motives mentioned by Merton. They certainly do not behave as if they had a “passion for knowledge” or an “idle curiosity”. Or imagine an evil scientist working tirelessly to develop deadly pathogens that cause widespread disease and suffering, with the goal of wiping out entire populations. This scientist is not committing fraud for her self-aggrandizement either. She doesn’t care how she fares in the competition for recognition or priority. But again, it seems clear that she is not acting as if she possessed the disinterested motives mentioned by Merton. She is not researching out of idle curiosity (after all, she wants to destroy populations), and she certainly has no altruistic concern for humanity.

Thus, one seems to be able to refrain from fraud for self-aggrandizement and yet not act as if one had disinterested motives. So there are two different readings of Merton which, importantly, are in tension with each other:<sup>44</sup> The interpretation of the norm that can be derived from the result of the second route is less permissive than the one that can be derived from the first. For it prohibits not only fraud for self-aggrandizement, but e.g. also outright laziness or wickedness.<sup>45</sup>

By exposing this ambiguity, I have argued for the second claim I wanted to make in this section, namely that Merton’s formulation of the norm of disinterestedness offers some room for interpretation. More specifically, by offering two different characterizations of as-if-disinterested behavior, Merton spans a dimension of permissibility of the norm. This means that, relying only on Merton’s words, it is not entirely clear how permissive the norm of disinterestedness is. That is,

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<sup>43</sup> I would like to note two things. Firstly, the last example is strongly reminiscent of the above-mentioned everyday meaning of ‘disinterested’ as selfless or altruistic. Secondly, this “moral integrity” seems more demanding than the “research integrity” contained in many codes of conduct of research institutions mentioned in Section 1.2.

<sup>44</sup> One could argue that there is only one possible route by emphasizing Merton’s focus on behavior. If (disinterested) motives are secondary, one shouldn’t start with Merton’s characterization of them to derive as-if-disinterested behavior. This would invalidate the second route, leaving only one characterization of as-if-disinterested behavior and one interpretation of the norm. But Merton only says that motives are secondary, not irrelevant. In fact, they cannot be irrelevant if scientists should behave as if they had these motives. To say that scientists should behave ‘as-if-disinterested’ but then completely ignore disinterested motives, seems a little odd.

<sup>45</sup> One can also show that Merton’s description of disinterested motives is incongruent with his description of as-if-disinterested behavior by conducting a ‘test’: If one deduces from his description of as-if-disinterested behavior what disinterested motives would fit it, and compares those to the ones Merton mentions, they should be congruent. However, one can hardly derive as much from refraining from fraud for self-aggrandizement as, for example, an “altruistic concern with the benefit of humanity”.

what kinds of behavior it permits and what kinds it prohibits. I will return to this dimension of permissibility in the next chapter where I discuss how existing interpretations by other authors can be located on it.

Before defending the other two claims, let me explain how Merton envisions the mechanism that implements disinterestedness at the institutional level. This mechanism ensures that scientists behave as if disinterested by creating instrumental incentives – whether material or psychological, formal or informal. In Merton’s words, it ensures that “it is to the interest of scientists to conform on pain of sanctions and, insofar as the norm has been internalized, on pain of psychological conflict” (1942, 124). Merton states that “[t]he translation of the norm of disinterestedness into practice is effectively supported by the ultimate accountability of scientists to their compeer” (125). Thus, disinterestedness is enforced by the institutional practice of peer review.<sup>46</sup> This is because this practice serves to monitor and debunk false claims made by scientists. As a result, false claims become “negligible and ineffective” (125) means for achieving self-aggrandizement to be more successful in the competition for recognition. This happens through several channels. Firstly, false claims are (with a certain probability) uncovered. The scientists know this. Therefore, they’re less likely to resort to this unauthorized and, above all, less effective means. Moreover, it is unpleasant for scientists vis-à-vis their colleagues if their claims are proven false. These psychological costs (which come ‘from the outside’, so to speak) are the second reason why the incentive to commit fraud is lower. Thirdly, it may be that the scientists have already internalized the norm. In this case, they also incur psychological costs ‘from the inside’. These are due to remorse and are independent of the fear of being exposed.

Let me now argue for Claim III, that further interpretative work is necessary before Merton’s norm can be applied to the question about activism by scientists. It seems obvious that it is problematic to use a norm to decide whether a certain behavior is permitted if it’s unclear how permissible the norm is. Nevertheless, let me show how exactly this problem looks in relation to the question about activism by scientists.

First, it seems that disinterestedness in Merton’s formulation can be used as an argument *against activism*. For example, one could argue that activist messages are so oversimplified that they count as “false claims” – which are prohibited by the norm of disinterestedness. Activism would therefore be considered interested behavior and should be refrained from. Furthermore, it could be argued that activism is problematic because it circumvents the practice of peer review. Therefore, it undermines the mechanism that ensures disinterestedness at the institutional level. But one could also use Merton’s formulation of disinterestedness to argue *in favor of activism*. For example, one could argue that scientists do not use activism for their self-aggrandizement.<sup>47</sup> If this is seen as the only interested behavior (i.e., if one takes the first route for characterizing as-if-disinterested behavior), activism does not violate the norm. Similarly, one could argue that activism is not fraud and therefore does not count as interested behavior. Or one could argue that the “altruistic concern with the benefit of humanity” (Merton 1942, 124) obliges scientists to warn about climate change and therefore engage in activism. Furthermore, it could be argued that the

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<sup>46</sup> Again, Merton’s formulation leaves open whether there are other possible mechanisms next to this practice that (can) implement disinterestedness.

<sup>47</sup> Certainly, activism increases the publicity of scientists – especially when carried out by individual scientists in the form of civil disobedience, for example. But it probably does not lead to the kind of *recognition* or *priority* Merton is talking about. Abramoff and Kalmus, for example, were expelled from the conference where they jumped on stage, and Abramoff was even fired (Pattee 2023; Valero 2023).

activism of individual scientists is unproblematic because it does not override the institutional control mechanism. Therefore, it doesn't make the institution of science less disinterested.

So it seems that Merton's formulation of the norm of disinterestedness can be used both against and in favor of activism by scientists. Therefore, further interpretative work is needed before it can be applied to questions such as the one about activism by scientists. As we will see in the next chapter, several authors have already undertaken such work.

Before closing this chapter, I will address Claim I and explain why I have chosen the norm of disinterestedness from Merton's four norms. The reason is that numerous terms used in the current debate have something to do with this norm. Recall, for example, Oreskes' role-of-scientists argument, which I took to be more in favor of activism by scientists. She argues that the role of climate scientists involves a *moral obligation* to warn the public about climate change. This sounds quite similar to the "altruistic concern with the benefit of humanity" (1942, 124) that Merton cites as an example of a disinterested motive. Or consider Jewell's (rule) consequentialist arguments against activism. Jewell argues that scientists should not jeopardize their credibility and thus their authority. This, too, is reminiscent of Merton's notion of disinterestedness which forbids scientists from "abus[ing] [their] expert authority" "for interested purposes" (1942, 125). Finally, consider objectivity-of-science arguments that may criticize activism as inadmissibly value-laden. Douglas points out that "[o]f the four norms, the one that comes closest to a value-free ideal is disinterestedness" (2009, 46).<sup>48</sup> Thus, it seems like the norm of disinterestedness lends itself to my aim of adding a new argument to the current debate about climate activism by scientists.<sup>49</sup>

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<sup>48</sup> However, as mentioned above, Douglas (2009) also emphasizes that Merton does not equate disinterest with value-freedom. Instead, Merton believed that scientists should take responsibility for the social impact of their work. This at odds with what Douglas calls the "modern value-free ideal". For an explanation of this ideal, see Chapter 3 of her book.

<sup>49</sup> Furthermore, the other three norms seem less suitable: While one might argue that activism involves sharing findings, this 'activist kind of sharing findings' isn't what the norm of communism addresses. The debate about activism by scientists also doesn't significantly relate to the norm of organized skepticism, as it doesn't involve the systematic scrutiny of scientific results or openness to falsification. Finally, it has nothing to do with whether scientists evaluate ideas independently of their opinion of the person presenting them.

## 4 Existing interpretations of the norm of disinterestedness

In the previous chapter, I have presented Merton's formulation of the norm of disinterestedness. I have argued that it contains a certain ambiguity that opens up a dimension of permissibility. Depending on the starting point, two different and incongruent characterizations of as-if-disinterested behavior can be derived. This results in different interpretations of the norm of disinterestedness in terms of how permissive it is. I have shown that further interpretative work is therefore required before the norm can be applied to concrete problems such as the question about activism by scientists.

Various authors have already done such work, so that different interpretations of the norm of disinterestedness can be found in the literature. Some authors not only use the room for interpretation left open by Merton, but also deliberately deviate from unambiguous parts of his formulation (Djørup and Kappel 2013). In this chapter, I will first show how existing interpretations can be located on the dimension of permissibility. Then, I will point out two problems of less permissive interpretations.

### 4.1 Three levers of permissibility

We have seen that there is a more and a less permissive reading of Merton's original formulation of the norm of disinterestedness. Interpretations of the norm by other authors, too, differ in their permissiveness. In general, an interpretation is less permissive when it prohibits more kinds of behavior, and more permissive when it prohibits less (allows more) kinds of behavior. It therefore seems plausible that less permissive interpretations are more critical of activism by scientists. That is, that they allow less or no forms of it. In contrast, more permissive interpretations presumably allow for more forms of activist behavior by scientists. In the following, I would like to show that this hypothesis is correct. To do so, I will locate a selection of existing interpretations on the dimension of permissibility spanned by the ambiguity in Merton's formulation. There are various 'levers' that make an interpretation more or less permissive. In other words, an interpretation can be more or less permissive for different reasons. The following three levers can be identified:

- 1) Is the interpretation an *individual* or an *institutional interpretation*?
- 2) What is the *definition of the interests prohibited or allowed* by the norm?
- 3) What is the *assumed objective of science*?

Using the example of various forms of climate activism by scientists, I will now explain how these levers influence the permissibility of an interpretation.

#### 4.1.1 Individual versus institutional interpretations

This first lever relates to the first dimension of difference between activist acts by scientists identified in Chapter 2.<sup>50</sup> By means of (Merton 1942) and (Kellogg 2006) as examples of individual interpretations, and (Djørup and Kappel 2013) and (Kim and Kim 2018) as examples of institutional interpretations, I will now explain how.

We have seen that Merton himself regards disinterestedness as an institutional norm. This means that the norm is not enforced by the behavior of individual scientists, but by certain

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<sup>50</sup> Recall that this dimension concerns whether the act was performed by a single scientist, a group of scientists, or on behalf of an entire association of scientists.

institutional practices. His focus is therefore less on whether individual scientists comply with the norm. Instead, the higher-level mechanisms that implement the norm are more important. But as Djørup and Kappel (2013) point out, many later Mertonians abandon this institutional focus and instead understand disinterestedness as an individual norm. Therefore, they are especially interested in the compliance of individual scientists and in their psychological states (one example is Storer's [1966] interpretation). Also Djørup and Kappel (2013) themselves focus on the individual level. They do so because they want to analyze different interpretations of the *content* of the norm of disinterestedness, which they believe have been proposed primarily at the individual level.

Let us now compare which answers to the question about activism by scientists result from the application of Merton's (1942) institutional interpretation and Djørup and Kappel's (2013) individual interpretation. Merton's interpretation was already explained in Section 3.3.4. Another institutional interpretation similar to Merton's is Kellogg's (2006). Kellogg points out that Merton doesn't demand that scientists "possess no internal motivation" and claims that "[s]cientists are surely guided in their work by passions and commitments" (2006, 4). In line with Merton, Kellogg refers to the practices of peer review and testing by the scientific community which ensure that scientists' own interests are subordinated to "the wider protocols of the institution" (2006, 4-5).

In contrast, Djørup and Kappel believe that "the disinterested scientist is someone who may have all sorts of different interests vested in the scientific work that he is doing, but who nevertheless refrains from letting these interests diminish the reliability of his scientific practice" (2013, 157). The individual scientists may therefore only have motives that do not compromise the reliability of the research process.<sup>51</sup> Consequently, a scientist violates the norm of disinterestedness if her interests in social rewards or political agendas or the like compromise the reliability of her work. Another example of an individual interpretation that is very similar to Djørup and Kappel's is that of Kim and Kim (2018). Also Kim and Kim focus on the adherence of individual scientists to the norm. They state that "[d]isinterestedness relates to the *motives* guiding the behavior of scientists. In this norm, scientific research is conducted for *passion for knowledge* or to the *benefit to humanity rather than for personal gains*" (2018, 4, own emphasis). In their empirical study, they capture disinterestedness "by three survey questions asking about the *reliability* of peer review, safeguards of scientific verification standards and non-scholarly influence on research topic choice" (2018, 8, own emphasis).

I argue that individual interpretations such as Djørup and Kappel's are, all other things being equal, less permissive than institutional interpretations such as Merton's. This is because they also respond to the behavior of individual scientists – i.e., to actions which I have categorized as D1a in Chapter 2. For example, they also capture the civil disobedience performed by David Alcer. Depending on how exactly the individual interpretation is fleshed out, Alcer's behavior may then either violate the norm or not. In contrast, institutional interpretations are 'blind' to actions carried out by individual scientists.<sup>52</sup> In other words, activist actions by individual scientists like Alcer do not 'activate', so to speak, institutional interpretations of disinterestedness. The reason for this is that such actions are unlikely to disrupt the higher-level mechanism(s) for implementing

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<sup>51</sup> A high reliability of the research process means that there's a high probability that the communicated scientific result is correct.

<sup>52</sup> The situation is different if a large number of individual scientists act independently as activists (i.e. not as a group or in the name of an association) and engage for example in civil disobedience. In this case, the higher-level mechanism that guarantees the disinterestedness of the social institution of science could also be jeopardized by D1a actions. However, it is rather unlikely that so many individual actions take place completely independently of each other.

disinterestedness. They do not make the institution of science as a whole less disinterested. Therefore, such individual actions cannot really be problematic with regard to institutional interpretations of the norm of disinterestedness. Only activist acts performed by larger groups or associations of scientists can be problematic. For only they can disrupt the functioning of these higher-level mechanisms.

Take the example of a large association of scientists (e.g. Scientist Rebellion) campaigning for climate action. Imagine they organize a march or sign an open letter to government institutions to urge them to divest from fossil fuel companies. If such a large association actively promotes renewable energy, for example, this could interfere with the proper functioning of the peer review mechanism that enforces disinterestedness in related fields. This is because if many scientists rally behind this conviction, it could lead to the peer review process becoming more biased. Research that supports the activists' cause might then be favored, while studies that highlight the challenges or limitations of renewable technologies might be viewed overly critically.

Thus, institutional interpretations only respond to acts that fall into Group D1c, or perhaps also to actions of larger groups of scientists that fall into group D1b. Individual interpretations, on the other hand, react to actions that fall into all three groups of the first dimension. This applies not only to activist actions by scientists, but also to other actions that one might want to investigate. Therefore, individual interpretations of the norm of disinterestedness are, *ceteris paribus*, less permissive than institutional ones.<sup>53</sup>

#### 4.1.2 *Different definitions of the prohibited and allowed interests*

The second lever does not relate directly to one of the three dimensions of difference between activist actions by scientists, as does the first lever. Rather, it seems to concern the activism by scientists in general. This lever seems to affect all different forms of activist behavior by scientists equally – regardless of where they lie on the dimensions of difference. I will now explain how different definitions of the prohibited and allowed interests make an interpretation more or less permissive.

First, however, recall that Merton is not entirely clear about what the as-if-disinterested behavior that is required by the norm of disinterestedness is. In Section 3.3.4, I have shown that Merton gives two different characterizations of this behavior. According to the first one, as-if-disinterested behavior means refraining from fraud for self-aggrandizement. Prohibited motives or interests under this characterization include, for example, such a strong desire for recognition in the competition among scientists that fraudulent means are used to achieve this. I have argued that this first characterization of as-if-disinterested behavior leads to a rather permissive interpretation of the norm of disinterestedness.

According to the second characterization found in Merton's (1942, 124) essay, as-if-disinterested behavior means behaving as if one had motives such as an "idle curiosity" or an "altruistic concern with the benefit of humanity". So the motives or interests that are prohibited under this characterization include, first, pursuing science not merely out of curiosity, but with a practical purpose in mind. The evil scientist from Section 3.3.4 who develops pathogens to wipe out humanity, for example, would have problematic interests under this characterization. This is because she is pursuing science for a specific goal, not only to satisfy her curiosity. Furthermore,

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<sup>53</sup> I emphasize again that they are only less permissive if *all other things are equal*. A particular individual interpretation may well be more permissive than a particular institutional interpretation – if other levers pull in that direction.

also her interest in the extinction of humanity would be problematic. For it is certainly not an altruistic motive. I have argued that this second characterization leads to a less permissive interpretation of the norm of disinterestedness. Thus, already the example of Merton's own interpretation shows that the assumed definition of prohibited and allowed interests strongly influences how permissive an interpretation is.

What kind of interests do other interpretations prohibit and allow? Consider first Macfarlane and Cheng's (2008) interpretation. They state that “[d]isinterestedness [is] defined in terms of *personal detachment* from truth claims” (2008, 67, own emphasis). For them, being disinterested goes almost in the direction of being ‘uninterested or indifferent’ – the first everyday sense of ‘disinterested’ identified in Section 3.3.4. Indeed, they state that “[d]isinterestedness [...] carries with it the expectation that scientists should have *no emotional or financial attachments to their work*” (2008, 69, own emphasis). They also describe disinterestedness as “ethical neutrality” and as the “total dedication to pursue the objective truth rather than being distracted, as Weber saw it, by politics” (69). Further, they state that “[d]isinterestedness is about [...] being swayed only by the evidence rather than campaigning for a particular point of view or outcome” (74).

A very similar interpretation is Bray and von Storch's (2017). They write that “[d]isinterestedness implies that scientists should have *no emotional or financial attachment to their work*, be *personally detached from truth claims*, accept conclusions shaped only by evidence, and scientists should *not campaign for a particular point of view or outcome*. [...] According to (Ziman 1996, 68), ‘What it means is that they [scientists] in presenting their work publicly they must repress their natural enthusiasm for their own ideas, and adopt a *neutral, impersonal stance*’” (2017, 9-10, own emphases).

Also Macfarlane (2023) adopts a similar interpretation. He defines disinterestedness as the “[p]ursuit of the truth *without personal interest*” (2023, 4, own emphasis) and asserts that “[d]isinterestedness requires a self-discipline in *tightly controlling, and putting to one side, emotions* and predispositions in order to ensure that research results are unaffected by personal bias” (8, own emphasis). These interpretations seem to view “[d]isinterestedness as disregard for social consequences” (Djørup and Kappel 2013, 168).<sup>54</sup>

I would consider these interpretations to be quite restrictive (or impermissible). According to them, scientists are apparently prohibited from having any kind of personal interest in their research. It therefore seems that such restrictive interpretations prohibit any kind of activist behavior, including more indirect forms such as those of group D2b. This is because activist behavior certainly does not correspond to a neutral, indifferent and impersonal attitude. Rather, it demonstrates an emotional attachment of scientists to their work – especially with cases falling into group D3a.<sup>55</sup>

In contrast, consider what I regard as more permissive interpretations with regard to the second lever. Anderson et al. state, for example, that the norm of disinterestedness requires that “[s]cientists *are motivated* by the desire for knowledge and discovery, and *not by the possibility of personal gain*” (2010, 7, own emphases), and that “scientists’ work remain uncorrupted by *self-interested motivations*. [The norm] precludes the pursuit of science for the *sake of riches*” (2010, 3, own emphases). In other words, they do not believe that scientists should have no emotional attachment to their work at all. Scientists may indeed have personal interests in their work. These interests only mustn't corrupt their work. This sounds very similar to Djørup and Kappel's (2013) interpretation,

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<sup>54</sup> For Djørup and Kappel, this is one of the most important interpretations of the norm of disinterestedness, which is why they take a critical look at it in their “restorative analysis” of the norm (2013, 153).

<sup>55</sup> I.e., for example, climate activist actions carried out by climate scientists (in their role as scientists).

which I have discussed above as an example of an individual interpretation. Also Djørup and Kappel allow scientists to have motives, but only if these do not compromise the reliability of the research process. That is, these interests mustn't diminish the probability that the scientific result communicated by the scientist is correct. Bright and Heesen (2023) seem to adopt a more permissive definition of the prohibited/allowed interests as well. According to them, the norm merely "requires one to evaluate ideas based on evidential or cognitive considerations, rather than based on one's preferences or interests" (2023, 6).

How do such interpretations, which assume more permissive definitions of the prohibited/allowed interests, evaluate activist behavior by scientists? In contrast to the less permissive interpretations outlined above, they do not seem to classify all forms of activism by scientists as problematic. For it seems that scientists who sign a petition, join a demonstration or even block a road – whether as an individual or as part of a group or association – may still evaluate their ideas on the basis of evidential or cognitive considerations rather than on the basis of their personal preferences or interests. The fact that scientists (in their role as scientists) engage in activism does not necessarily mean that they pursue science for "self-interested motivations", such as "for the sake of riches" (Anderson et al., 2010, 3). In contrast, one could even argue that the activism by scientists demonstrates their "altruistic concern with the benefit of humanity" (Merton 1942, 124) rather than a selfish motivation. After all, activism requires time and effort. At the same time, it is questionable whether scientists receive a high reward for their activism, if any at all.<sup>56</sup>

Thus, interpretations of the norm of disinterestedness that define the prohibited/allowed interests of scientists in a more permissive way permit at least some, if not most, forms of activism by scientists. Other things being equal, they certainly permit more forms than less permissive interpretations which prohibit scientists to have any personal interests in their research.<sup>57</sup>

#### 4.1.3 *Different assumptions about the objective of (climate) science*

In this section, I discuss another potential lever that may influence the permissibility of interpretations of the norm of disinterestedness. However, it will become clear that this lever, if it exists at all, is weaker than the other two.

This third lever is particularly related to the third dimension of the relevant differences between activist actions by scientists. Recall that this dimension refers to the link between the content of the activist act and the research of the scientist performing the act. That is, in our example of climate activism, a distinction is made as to whether the scientist carrying out the activist act is studying climate change-related topics or not.

Using the example of climate activism and climate science, I will now explain how what is seen as the objective of science can influence an interpretation's permissibility. This influence has something to do with the second feature of Merton's norms mentioned in Section 3.2, their instrumental character. Recall that Merton's norms ought to be followed because adherence to them (along with adherence to the two technical norms) "implements the final objective" (Merton 1942, 118) of science. The assumption about 'the final objective of science' will therefore affect what is taken as the norms of science.

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<sup>56</sup> In many cases, they can probably expect negative consequences rather than a reward (see the case of Abramoff and Kalmus mentioned before).

<sup>57</sup> Again, this probably applies also to other than activist behaviors of scientists that one might want to investigate.

But how does this assumption specifically influence the *permissibility* of an interpretation of the norm of disinterestedness? With regard to the other two levers, I have answered this question by looking at existing interpretations and directly comparing how the levers play out in them. But this strategy does not work for the third lever. One reason for this is that the assumption about the objective of science is usually an implicit assumption that underlies an interpretation in the background. Most authors of existing interpretations do not directly state what they take as the objective of science.<sup>58</sup> Secondly, Merton's norms have not really been used in the context of climate science.<sup>59</sup> Especially in our example, it is therefore unclear what this implicit assumption behind existing interpretations is. For this reason, I will not refer to specific existing interpretations in order to explain the third lever. Instead, I will now present two different versions of what might be considered the objectives of climate science. One corresponds to Kuhn's (1997) traditional picture of "normal science" and the other to Funtowicz and Ravetz's (1993) non-traditional picture of "post-normal science".

In Kuhn's (1997) picture, science is all about "solving puzzles – problems assumed to have a well-defined answer" (Douglas 2009, 60). According to Kuhn (1997), scientists are most successful at solving puzzles when science is insulated from the needs and values of society. The role of scientists is limited to conducting research within established paradigms and thereby expanding scientific knowledge. Therefore, I would say that the main objectives of climate science according to this traditional view are: 1) *understanding and explaining climate dynamics* and 2) *predicting climate change*. In addition, 3) *developing strategies to mitigate and adapt to climate change* could be seen as another part of solving puzzles.

However, climate science is increasingly seen as a form of post-normal science (Strand 2017; Saloranta 2001). This type of science deals with complex, high-stakes issues which are characterized by significant uncertainty and contested values and which demand urgent decisions (Funtowicz and Ravetz 1993). This is arguably true of climate science. Moreover, post-normal science involves a wide range of stakeholders beyond the traditional scientific communities. Also in climate science, the input of policy makers, industry leaders, environmental organizations and the general public is regularly taken into account – e.g. in the development of climate policies, see e.g. (Klenert et al. 2018) or (Mattauch and Hepburn 2016). The final characteristic of post-normal science is its transdisciplinary approach. Climate science, too, not only integrates knowledge from various disciplines such as meteorology, biology or economics, but increasingly also local and indigenous knowledge, see e.g. (Nakashima et al. 2012). Therefore, climate scientists can well be seen as working within the framework of post-normal science.

In this framework, the objectives of climate science go beyond the traditional ones mentioned above (Luton 2015). Also the broader engagement with societal issues and thus active participation in political and public discourse as well as proactive communication of results seem to be included. In Funtowicz and Ravetz's (1993) picture, raising public awareness of climate change therefore appears to be part of the objectives of climate science.

Now, assume this wider set of objectives. A more permissive interpretation of the norm of disinterestedness that is less critical of climate activism, at least by *climate* scientists, would fit this better than a less permissive interpretation that prohibits all forms of climate activism by scientists.

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<sup>58</sup> One exception is of course Merton's own original interpretation. As explained in Chapter 3.2, Merton believes that the objective of science is the extension of certified knowledge.

<sup>59</sup> An exception is (Bray and von Storch 2017). However, they do not explicitly state what they see as the objective of climate science.

The reason is that climate activism by climate scientists is likely to raise public awareness of climate change. It could therefore be seen as contributing to the achievement of the broader set of objectives. Thus, if you believe that the scientific norms are conducive to achieving science's objectives, you might perhaps not want to adopt an interpretation that prohibits climate scientists from engaging in any form of climate activism. By contrast, if one assumes the traditional, narrower set of objectives of normal science, a less permissive interpretation seems no less conducive to its implementation, even if it prohibits scientists from any activism.

Importantly, it is not impossible to assume the wider set of objectives while adopting a restrictive interpretation that prohibits scientists from any activism. For there are certainly other, non-activist ways for climate scientists to raise public awareness of climate change – even if these might be less effective. This is why I regard the third lever as weaker than the other two. Recall the first lever. Thinking of the norm as an individual rather than an institutional norm *will*, ceteris paribus, lead to a less permissive interpretation. The same applies to the second lever: A more restrictive definition of the prohibited/allowed interests *will*, ceteris paribus, lead to a less permissive interpretation. But assuming a wider set of objectives of climate science doesn't necessarily – not even ceteris paribus – lead to a less permissive interpretation. I merely claim that a more permissive interpretation of the norm of disinterestedness might *fit better* with a non-traditional assumption of the objectives of climate science.

This section has shown that there are various reasons why existing interpretations of the norm of disinterestedness are more or less permissive. All other things being equal, an institutional interpretation will be more permissive than an individual one. Moreover, an interpretation that allows for more interests will, ceteris paribus, be more permissive than one that prohibits scientists from having any emotional attachment to their research whatsoever. Lastly, what you take as the objective of climate science might influence how you evaluate climate activism by scientists using the norm of disinterestedness.

#### **4.2 Two Problems of less permissive interpretations**

In the last section I have shown that existing interpretations of Merton's norm of disinterestedness by other authors differ in their permissibility. In fact, they lead to very different answers to the question about activism by scientists. More permissive interpretations of disinterestedness seem to allow at least some forms of activism by scientists (for example acts performed by individual scientists). In contrast, less permissive interpretations seem to prohibit all forms.<sup>60</sup> In this chapter, I will point out two problems with less permissive interpretations that make more permissive interpretations appear more favorable.<sup>61</sup> I will illustrate both problems using some of the existing interpretations mentioned in the last section.

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<sup>60</sup> The fact that different interpretations of the norm exist wouldn't necessarily be problematic if they all lead to a similar answer to the question about activism by scientists. But since this is not the case, one must first choose one interpretation to be able to say something about activism by scientists. Ideally, one should also justify this decision. In providing such a justification, one must be careful not to beg the question. That means, one mustn't already assume the conclusion that activism by scientists (or certain forms of it) are problematic (or unproblematic) and then argue that a certain interpretation is good because it supports this conclusion.

<sup>61</sup> Note that I do not claim that one *must* adopt a more permissive interpretation. I merely argue that one should be aware of these two problems when using a less permissive interpretation to make a case against activism by scientists.

#### 4.2.1 *Unreasonable demands on scientists*

The first problem I see with regard to less permissive interpretations of the norm of disinterestedness is that they place unreasonable demands on scientists. This problem is connected to the second lever that influences the permissibility of an interpretation – the definition of the prohibited/allowed interests. Recall that the existing interpretations I discussed as examples of less permissive interpretations seem to prohibit scientists from having any personal interests in their research whatsoever. In line with Merton, I argue that by doing so they expect too much from individual scientists. Merton points out that “[a]lthough it is customary to think of the scientist as a dispassionate, impersonal individual, it must be remembered that the scientist, in company with all other professional workers, has a large emotional investment in his way of life, defined by the institutional norms which govern his activity” (1996, 281).

Scientists, according to Merton, are “professional workers” (1996, 281). What distinguishes ‘professional’ from ‘non-professional’ workers is, for example, that they typically require specialized education, ought to adhere to ethical standards, bear a certain cultural authority and serve specific societal needs. Examples of professional workers next to scientists are lawyers, accountants, or doctors. To be sure, these professions are of particular significance for society. This is why it is certainly essential that scientists, like lawyers or doctors, adhere to certain ethical standards.<sup>62</sup> However, scientists are also only human after all. Just as it isn’t expected from other working people (professional or unprofessional), it also shouldn’t be expected from scientists to have no personal interests in or no emotional attachment to their work at all.<sup>63</sup> One could even argue that especially in academia, a certain emotional attachment is necessary. After all, in order to make a living as a scientist, you have to be successful in the competition for recognition and priority. As a result of this competition, there is e.g. a constant pressure to publish, secure funding and fulfill teaching obligations. This is very demanding and stressful (as for example studies by Urbina-Garcia [2020], Carson, Bartneck, and Voges [2013], Miller, Taylor, and Bedeian [2011] or Kinman and Jones [2008] show) and can hardly be achieved without emotional attachment. Furthermore, jobs within academia tend to also be less well paid compared to jobs outside of academia which require similar levels of education and expertise (Stevens 2004; Aarnikoivu et al. 2019; Brechelmacher et al. 2015). And it is questionable whether the desire to fare well in the competition for recognition and priority alone can really be enough for anyone to take on the stress and pressure of academia.

So it seems that scientists must have at least some emotional attachment to the topics they study.<sup>64</sup> Therefore, the expectation that they should have no personal interest in their research is unreasonable. Less permissive interpretations such as those discussed above expect too much of individual scientists.

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<sup>62</sup> However, it is certainly not unproblematic when employees (who according to Merton’s characterization would be considered non-professional workers) do not adhere to any ethical standards but behave unethically. Yet, the consequences of a biased lawyer wrongfully suing an innocent person are arguably more severe than those of a driver or bartender cheating their customers.

<sup>63</sup> In some professions (for example in care professions), the opposite seems to be the case. Here, a certain emotional attachment rather seems desirable.

<sup>64</sup> In fact, especially climate scientists are strongly emotionally attached to their work (Dominey-Howes 2015; Willis 2012; Head and Harada 2017; Kearns, n.d.). Thus, under such restrictive interpretations that prohibit scientists from having any emotional attachment, probably no climate scientist (and arguably also no other scientist) would be disinterested. Such versions of the norm would therefore also be descriptively incorrect.

#### 4.2.2 *Incompatibility with the actual practice of climate science*

The second problem I see with regard to less permissive interpretations of the norm of disinterestedness is that they conflict with certain scientific practices. Again, I illustrate this using the example of climate science. I argue that less permissive interpretations are incompatible with what climate scientists really do, what they want to do and what the public and policymakers expect them to do.

Recall the examples of interpretations categorized as less permissive in Section 4.1. Macfarlane and Cheng (2008, 69), for example, view disinterestedness as the “total dedication to pursue the objective truth *rather than being distracted*, as Weber saw it, *by politics*”. According to such an interpretation, then, scientists should not be ‘distracted by politics’ in order to follow the norm of disinterestedness. Or recall that Djørup and Kappel (2013, 168) summarized what I called less permissive interpretations as requiring a “disregard for social consequences”.

Such requirements do not correspond to reality. In the practice of climate scientists, for example, politics and the social consequences of their work play an important role. Take, for example, the IPCC reports, one of the largest and most important collaborations of climate scientists. The reports are the result of the contributions of hundreds of scientists from around the world, including a variety of disciplines related to climate science (e.g. meteorology, oceanography, ecology or economy). They were “created to provide policymakers with regular scientific assessments on climate change, its implications and potential future risks, as well as to put forward adaptation and mitigation options” (IPCC 2024). It may be true, as emphasized on the IPCC’s webpage, that the reports “are neutral, policy-relevant but *not policy-prescriptive*” (2024, own emphasis). But the social consequences of different pathways set out in the reports make for a significant part of the reports (see e.g. Chapter 8 in the 2022 report by Birkmann et al.).

Or take work by climate economists such as (Klenert et al. 2018) or (Sommer, Mattauch, and Pahle 2022). In order to draft policy recommendations that may actually be implemented, they include the political sentiment and the social consequences of various political measures in their analyses from the outset.

Furthermore, studies suggest that it is accepted and even expected (by the public, policy makers and climate scientists themselves) that climate scientists take responsibility for the social consequences of their work (Cologna et al. 2021). This contradicts the expectation that scientists ought to disregard the social consequences of their work.

Thus, such restrictive interpretations of the norm of disinterestedness as the examples discussed do not correspond to the actual practice of climate scientists.

Given the two problems identified above, I therefore suggest that more permissive interpretations of the norm of disinterestedness that allow for at least some forms of activism by scientists may be preferable.<sup>65</sup>

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<sup>65</sup> One could point out that I have merely shown that the interpretations which I have given as examples of less permissive interpretations have these two problems. Perhaps I have only discussed the particularly bad examples of less permissive interpretations and omitted other less permissive interpretations that also prohibit any activism by scientists, but avoid the two problems. Here I can first answer that I haven’t found any such interpretations in the literature. Furthermore, I suspect that the two problems I identified are ‘problems of restrictiveness’. That is, as soon as an interpretation is so restrictive that it prohibits any form of activism by scientists, it will have these problems. However, I cannot completely rule out the possibility that there is an interpretation that is restrictive enough to prohibit any activism by scientists and yet avoids these problems.

## 5 Conclusion

In this thesis I have applied the Mertonian norm of disinterestedness to the question of whether or not scientists should be activists. My motivation for this project was the current debate about climate activist behavior by scientists.

I began by taking a closer look at this debate. I recognized that it encompasses a wide range of positions and identified three predominant types of argument: consequentialist arguments, role-of-scientists arguments and objectivity-of-science arguments. I then developed a definition of activism by scientists to use in my application of the norm of disinterestedness. My proposed definition has the advantage that it captures the understanding of activist behavior of scientists assumed in the debate and also takes into account the three dimensions of relevant differences between different cases of such behavior. These dimensions concern the author of the activist act, the nature of this act, and finally the link between the act and the scientists' research.

In examining Merton's original formulation of the norm of disinterestedness, I found that it contains a certain ambiguity. By offering two characterizations of what it means to behave 'as-if-disinterested', Merton opens up a dimension of permissibility. That is, he leaves room for interpretation as to how permissive his norm is. I showed that, for this reason, further interpretative work is necessary before the norm can be applied to concrete questions such as the one about activism by scientists.

In a next step, I investigated how different existing interpretations can be located on the dimension of permissibility. I identified the following three levers that make an interpretation more or less permissive: whether it is an institutional or an individual norm, which definition of the prohibited and allowed interests it contains, and what objective of science it assumes. I showed that different interpretations yield very different answers to the question about activism by scientists. From this I derived my main conclusion that if you want to use the norm of disinterestedness to say something about concrete issues such as scientists' activism, you need to be explicit about which interpretation you adopt. If you do not place your interpretation on the dimension of permissibility, you cannot make a clear argument about the admissibility or inadmissibility of such activist behavior.

Finally, I discussed two potential problems with less permissive interpretations. They firstly seem to place unreasonable demands on scientists and secondly do not correspond to the actual practice of climate scientists. Therefore, I suggested that more permissive interpretations that allow for at least some forms of activism by scientists might be preferable.

Let me conclude with a few words on why the philosophical considerations in this thesis are also practically relevant. While the climate crisis progresses, the measures recommended by climate scientists to prevent worse are still being postponed. Are scientists allowed to express their displeasure about this in the form of climate activist behavior? So far, no clear answer has emerged from the general debate. And anyway, to find out what they may and may not do, scientists should perhaps take a look at the codes of conduct of many research institutions mentioned in the introduction to this thesis. But even these do not seem to provide a clear answer. In the "Netherlands Code of Conduct for Research Integrity" (VSNU 2018), for example, the point that comes closest to addressing activist behavior by scientists is "3.6 Communication". Standards 54 and 55 of this section state that scientists should "[b]e open and honest about [their] role in the public debate and about the nature and status of [their] participation in it" and also "[b]e open and honest about potential conflicts of interest". Activist behavior does not appear to violate these standards. However, one should not conclude from this that such behavior is therefore permissible.

This is because activism goes beyond mere science communication. Therefore, these codes of conduct should be extended to provide guidance to scientists also on this issue. This is where discussions such as the one in this thesis become practically relevant. For ideally, the standards of such frameworks are informed by the norms of science, reflecting not only the current practice in science, but also scientists' beliefs about how they and their peers should behave.

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