Values and Objectivity

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Abstract: Objectivity is a contested notion that has many meanings. Over the last half-century, the philosophical discussion of objectivity in science has revolved around criticisms of two influential accounts of objectivity: objectivity as faithfulness to facts, and objectivity as value-freedom. This chapter introduces these two accounts and details a number of arguments that have led to their nearly unanimous rejection. While this rejection has led several philosophers of science to propose abandoning the notion entirely, others still wish to retain it. This chapter examines various attempts to develop viable accounts of objectivity in science, and concludes by mentioning some issues and connections that currently remain unexplored.

1. Introduction

In contemporary societies, objectivity is a contested concept used in many fields. Objectivity is often demanded not only from science but also from the judiciary, from decision-making authorities, and from journalists. This demand is typically both epistemic and moral – Lorraine Daston and Peter Galison (2007, 39) use the apt expression "moralized epistemology" when describing the emergence of objectivity as a central virtue in science in the 19th century. But the demand for objectivity is also often understood as a requirement to disregard human values: according to this view, objective research would be value-free, and objective decision-making would not be influenced by an individual's desires or preferences. The demand for objectivity thus often implies that it is one's moral duty to set aside one's values. Unsurprisingly, this vaguely self-contradictory demand has sparked much suspicion and criticism: according to the critics, it is neither possible nor worth striving for as an ideal.

In this chapter, I primarily focus on how the uneasy relationship between objectivity and values has been addressed in philosophy of science in the recent decades. Objectivity is discussed and the concept is also used in other areas of philosophy, and sometimes these discussions and uses differ from how the notion of objectivity is understood and used in philosophy of science. I will briefly return to some of these differences at the end of the article. As to the question of what exactly we mean by "values", I will leave it to the other authors of this handbook; here it suffices to say that philosophers working on the topic have repeatedly noted that in the literature on values in science the word "value" is used in alarmingly many ways (Solomon 2012; Biddle 2013; Ward 2021; Hilligardt 2022; Elliott forthcoming).

I will begin by introducing two accounts of objectivity that have been central to discussions of objectivity in the philosophy of science in recent decades. I will then move on to the numerous arguments that have led to the nearly unanimous rejection of these two accounts.

2. Objectivity as faithfulness to facts and objectivity as value-freedom

The philosophical discussion of objectivity in science has, over the last half-century, revolved around criticisms of two influential accounts of objectivity: objectivity as faithfulness to facts,[1] and objectivity as value-freedom. Many of these criticisms include the claim that non-epistemic values play important roles in scientific research. While recently the target of the criticisms has mostly been the idea of objectivity as value-freedom, many of the important criticisms challenge both accounts. This is the case particularly in the postcolonial and feminist criticisms that predate the current discussions about values in science. I will now summarise the two criticised accounts, and then outline arguments that have been presented against them which highlight the role of values in science in some way or another.

The first of these two oft-criticised accounts identifies objectivity as faithfulness to facts. Bernard Williams (1985) has named this the "absolute conception": objective knowledge claims present the world as it is, free from distortions caused by human subjectivity. This conception of objectivity thus presupposes that there is a world that is independent of us, and that science, when successful, produces true knowledge about this world. It links objectivity to representation and to truth in the sense of correspondence: an objective representation of the world is true because it corresponds to the way things are.

The idea of objectivity as faithfulness to facts often includes the idea of aperspectivality: objective knowledge about, say, the height of a tree does not depend on the direction from which we see it. In the words of Thomas Nagel (1986), this conception of objectivity presupposes a "view from nowhere". Although few philosophers of science have defended the idea of objectivity as faithfulness to facts (for a recent counterexample, see Hoyningen-Huene 2023), the requirement of perspective-independence has influenced some discussions, for example about whether the human sciences can produce objective knowledge. Since both the existence and the characteristics of the phenomena that human sciences study are dependent on humans, how could human sciences produce knowledge that conforms to the absolute conception of objectivity? (See Montuschi 2003.)

The other influential but contested account of objectivity claims that objective research is value-free. One of the influential early articulations of this understanding of objectivity is Max Weber's (1904) idea that although values are bound to guide the choice of the questions asked by the social sciences, the research itself must be value-free. In its current form, however, the value-free ideal is relatively recent. Douglas (2009, ch. 3) argues that it

[1] I follow Julian Reiss and Jan Sprenger (2020) in using this name for this account of objectivity.

only emerged in the cold war period, and that its function was to argue that science is essentially apolitical. One of its clearest advocates in that period, Isaac Levi, argued that scientists commit themselves to scientific "canons of inference" or "epistemic values", and given a scientist's commitment to these, "he need make no further value judgments in order to decide which hypotheses to accept and which to reject" (Levi 1960, 356).

This widely recognised and widely questioned formulation of the value-free ideal demands that non-epistemic values must not influence the key internal stages of objective research: the collection of evidence and the acceptance or rejection of theories or hypotheses. There are two reasons for this adjustment. Firstly, it would be absurd to demand that values should not influence the choice of research topics and questions or the use of the results. Secondly, following Thomas Kuhn (1977), philosophers generally accept the claim that there are also epistemic values. For example, the fruitfulness, predictive power, accuracy, simplicity, and internal coherence of a theory are values, and scientists often have to choose which ones of them to maximise: an accurate theory is not necessarily a simple one. No proponent of the value-free ideal has ever claimed that this would threaten the objectivity of science. Therefore, the fairest way to express the idea that objective research is value-free is to say that according to it, only epistemic values are allowed to influence the internal stages of a research process. Non-epistemic values – such as moral, social or political values – may only influence the selection of research topics, the formulation of research questions, and the use of the results. (Douglas 2009; Brown 2024.)

To understand how these two accounts are connected it is useful to look briefly into the (surprisingly brief) history of the modern notion of objectivity. As Lorraine Daston and Peter Galison (2007) have shown, it is post-Kantian. Although the words "objectivity" and "objective" had been in use for centuries, they were not common and had very different meanings from those familiar to us today: in scholastic usage, "objective" referred to "things as they are presented to consciousness" (Daston & Galison 2007, 29). Objectivity emerged as a virtue in science only in the 19th century. This happened because the understanding of human agency, or the self, had changed: people were no longer seen as passive recipients of impressions but as active agents when observing the world. Daston and Galison (2007, 34) describe how this post-Kantian idea raised a concern: the wilful, active, subjective self of the scientist might "prettify, idealize, and, in the worst case, regularize observations to fit theoretical expectations". In science, it was centrally the distortion of representations that was feared. This gives us the first of the two accounts summarised above, objectivity as faithfulness to facts: an objective representation is not distorted by human subjectivity. The second account focuses on the objectivity of research processes rather than on the objectivity of representations, and identifies values as the source of the threatening distortions.

3. The intertwined criticisms

These two accounts of objectivity – the idea of objectivity as faithfulness to facts and the idea of objectivity as value-freedom – have been criticised both together and separately. Not all of these criticisms are related to values. For instance, ideas about the empirical underdetermination of scientific theories and the theory-ladenness of observations, and the recognition of scientific terms having clear meanings only within some theoretical framework, have led to the unpopularity of those accounts of objectivity that imply there to be aperspectival knowledge. These arguments do not address questions about values in science. However, the idea of aperspectivality can be connected to the idea of value-freedom: if having a perspective is understood as having a value-laden perspective, then criticisms of one of the influential accounts can also be understood as criticisms of the other. As it remains somewhat unclear what it means to be "aperspectival", and as we do not even have enough clarity about what we mean by "values", it is sometimes difficult to determine whether some criticism of the idea of objectivity as faithfulness to facts should be read as a criticism of idea of objectivity as value-freedom, even if it does not explicitly address questions about the appropriate role of values in science. In this section, however, I focus on criticisms that target one or both of the influential accounts and directly address issues related to values. I will start by introducing an argument which postcolonial and feminist critics have formulated in numerous versions, and then continue to the arguments against the two accounts presented in philosophy of science.

Postcolonial and feminist critics have noted that the claimed objectivity of a scientific method, a court ruling, or a journalistic report often systematically privileges the interests of the powerful. As Frantz Fanon (1961/2004, 37) put it, "[f]or the colonized subject, objectivity is always directed against him". Along the same lines, Edward Said (1978, 319) noted that the claimed objectivity of Western historians was sheer political propaganda, "the implication always being that Muslims and Arabs cannot be objective but that Orientalists like Lewis writing about Muslims and Arabs are, by definition, by training, by the mere fact of their Westernness". Some feminists have similarly contested the alleged virtue of objectivity. Catharine A. MacKinnon (1987, 50) summarised the gist of these protests by saying that "[o]bjectivity is the epistemological stance of which objectification is the social process, of which male dominance is the politics, the acted-out social practice".

These complaints have in common the claim that the notion of objectivity serves in reality to bolster the position of those in power, and that this is the actual social function of using the concept. Some of the critics – for instance MacKinnon – argue that this is all there is to objectivity, and that the ideal should be rejected. Others want to demonstrate that what is claimed to be objective is in fact often anything but objective. The argument often targets both the idea of objectivity as faithfulness to facts and the idea of objectivity as value-freedom, since both of these mean that a claim of objectivity is a claim of neutral aperspectivality, which helps to mask the unjust exercise of power. (See Hawkesworth 1994; Toole 2022.)

In feminist philosophy of science, the notion of "the god trick of seeing everything from nowhere" (Haraway 1988, 581) has received extensive criticism. It often incorporates some elements of the complaints sketched above. Elizabeth Lloyd (1995), for instance, has noted that many philosophers have inconsistently blamed feminist philosophy for a lack of objectivity. As she noted, in contemporary secular philosophy the idea of objectivity as aperspectival, impartial knowledge of the "Really Real" has been largely abandoned as untenable. But when criticising feminist philosophy, many philosophers still implicitly appealed to these ideals. In such cases the concept is clearly used as a kind of a rhetorical weapon in the unjustified marginalisation of critical voices.

Standpoint epistemology's emphasis on the epistemic significance of the standpoints of socially marginalised people and groups challenges the ideal of aperspectivality in a particularly clear manner. One of the cornerstones of standpoint theory is the situated knowledge thesis: our position in the world strongly influences what we come to know. Socially marginalised groups may collectively develop knowledge and understandings of, for instance, mechanisms that perpetuate inequality – mechanisms that are practically invisible to those in more privileged positions. Recognising such knowledge and lending support to its development can help researchers identify and understand insufficiently studied questions and phenomena. To succeed in this, it is not enough to admit the potential epistemic value of the perspectives of socially marginalised groups. A feminist standpoint theorist should get involved in the "creation of groups' consciousness" (Harding 2004, 32) by participating in the development of such perspectives into epistemically valuable standpoints. The aim is to amend a situation where academic research is systematically skewed towards questions that seem important from the perspective of those in power. Knowledge claimed to be aperspectival is once again likely to be produced from a position of power, and thus likely to bolster existing inequalities. (Wylie 2003; Rolin 2009; Intemann 2010; Crasnow 2013.)

As noted, in the recent decades discussions about objectivity in philosophy of science have mostly revolved around several criticisms of the idea of objectivity as value-freedom. It has been criticized for being conceptually unclear, impossible to follow, and flawed as an ideal: scientists must allow non-epistemic values to influence all stages of their work.

Firstly, the idea of objectivity as value-freedom presupposes a clear distinction between epistemic and non-epistemic values. When Kuhn (1977) introduced the concept of epistemic values, he noted that scientists often have to choose which epistemic values to prioritize in their work. Helen Longino (1996; see also Rooney 1992) has pointed out that this choice is not necessarily made on epistemic grounds. For example, a preference for simplicity may stem from a researcher's inclination towards theories that present the world as less complex, and this preference might be influenced by the researcher's political values. If so, should we take simplicity to be an epistemic or a political value?

Longino (1990; 2001) also argues that the aim of value-freedom is unachievable. Science simply cannot be value-free in the way the ideal suggests. Longino bases her argument on a

Kuhnian argument for underdetermination and on the observation that scientific research always rests on a large number of background assumptions. Evidence becomes evidence only in the context of some theoretical and conceptual framework: only when interpreted through such a framework it is possible to claim that some data is evidence of something. And such frameworks always include background assumptions. Longino argues that these background assumptions cannot be chosen in an entirely value-free manner, as there are typically several possible and justifiable alternative frameworks available. One must choose between them, and since there is no unambiguous epistemic selection criterion, there is no way to prevent the influence of social, moral, or political values on these choices. We cannot guarantee the value-freedom of the background assumptions.

The idea of objectivity as value-freedom has also been rejected as harmful. One of the reasons for this is that in many fields of research there is a need for inherently value-laden concepts: it is not possible to study poverty, oppression, health, or well-being without using such concepts (e.g. Dupré 2007). Demanding that researchers stop using them, or claiming that a field that cannot do without such concepts cannot be objective, is untenable. The epistemic, practical, and societal value of the social and medical sciences, especially, depends on their ability to produce knowledge claims that include both empirical and moral elements (Alexandrova 2017).

Of the many objections to the demand for value-freedom, the one that has probably generated the largest amount of literature is known as the argument from inductive risk. It claims that the demand for value-freedom is irresponsible. Inductive risk is the risk of making an error in accepting or rejecting a hypothesis. It is a risk that a scientist always takes when deciding to make the inductive leap from evidence to the acceptance or rejection of a hypothesis: is there enough evidence? Scientists also have to choose between different risks: is it better to use a method that avoids false negative results but yields false positives, or one that avoids false positives but produces false negatives? Throughout the research process, scientists must repeatedly assess what kind of inductive risks they are willing to take and justified in taking. As many philosophers of science have pointed out, non-epistemic values must influence such decisions. This is because the predictable future use of the results matters when evaluating what risks of error are acceptable (Rudner 1953; Hempel 1965; Douglas 2000, 2009). To cite Philip Kitcher's (2024) recent formulation of this idea, a scientist is always an ethical agent. We forbid procedures and alter study designs in science because of reasons related to research ethics, and we must similarly also make ethical judgements when evaluating what kinds of epistemic risks we can take.

It seems that if objectivity means aperspectival faithfulness to facts or value-freedom, the ideal of objectivity must be abandoned. But if this solution does not sound appealing, there are luckily many alternative accounts of objectivity to choose from.

4. Multiple meanings, rejections and defences

The rejection of the two influential accounts of objectivity has led many philosophers of science to examine more closely what objectivity means in different contexts. This has led to a proliferation of recognised meanings which, firstly, do not reduce to either of the criticised meanings, and, secondly, do not seem to reduce to each other either. And as Lloyd (1995) has noted, we use these different meanings when ascribing objectivity to various different things, such as individuals, processes, results, or even scientific communities. When someone or something is said to be objective, this may mean, for example, that it is non-personal or impartial, or that it is produced following standardized processes, or that it has been confirmed several times using different methods, or that there is intersubjective consensus about it. (Megill 1994; Lloyd 1995; Janack 2002; Douglas 2004.)

Does objectivity then mean different things in different situations? Heather Douglas (2004) argues that it does: the concept is irreducibly complex. Nancy Cartwright, Jeremy Hardie, Eleonora Montuschi, Matthew Soleiman, and Ann C. Thresher (2023) have recently defended a similar view. They argue that objectivity is a *Ballung* concept: abstract, imprecise, and highly dependent on context. Against such views I have argued that at least some conceptual unity can be salvaged by focusing on the function of the different meanings: at least in scientific contexts, when we say that X is objective, we argue that it is safe to rely on X, because important epistemic risks arising from our imperfections as epistemic agents have been effectively mitigated. The different meanings name different risks of this type, or describe risk mitigation strategies (Koskinen 2020; 2021). Nevertheless, the proliferation of meanings have led some philosophers of science to doubt the usefulness of the notion, echoing the arguments of earlier postcolonial and feminist thinkers who deflated the notion of any meaning other than its use in the oppression of marginalised groups.

Ian Hacking (2015) and Matthew J. Brown (2019) have explicitly suggested that we should drop the notion. Hacking (2015) claimed it to be an "elevator word". Other such words include "real," "true," and "factual" – they are used to elevate the discussion to a higher level, distancing from the actual matter at hand. Instead of simply stating that the cat is on the mat, we say it is true that the cat is on the mat (Hacking 1999). According to Hacking, when we say that a statement is objective, we are primarily expressing our own attitudes towards it: we are attempting to elevate it, perhaps above criticism. Hacking sought to avoid using such words and considered the use of, and discussion about, the notion of objectivity in philosophy of science to be unnecessary. Brown (2019) has arrived at a similar conclusion because he finds the notion to be difficult or impossible to separate from the demand for value-freedom, which he rejects by invoking the argument from inductive risk. All other proposed accounts of objectivity (including the ones discussed in the next section) are in his view unsatisfactory. They do not seem to capture what we mean by "objectivity" in science, nor are they interconnected: the concept brings together a large number of disparate virtues to be cultivated and vices to be avoided in scientific theories, methods, communities, and results. If objectivity means value-freedom, it is a harmful idea, and if it means

everything else that it has been claimed to mean, it is inconsistent and lacks substance. Either way, it would be best to abandon the notion altogether.

It is interesting to note that similar proposals have been widely rejected in feminist philosophy. Although MacKinnon (1987) argued that when translated into practice, objectivity simply means objectification, dehumanization, and oppression, many feminist philosophers of science have challenged this view. Mary Hawkesworth (1994) has argued that the necessary connection between objectivity and objectification on which MacKinnon's argument rests is untenable. While we have good reasons to question the ways in which human subjects, for instance, have often been treated in science in the name of objectivity, striving for objectivity does not inevitably lead to objectification. Following similar lines, Sally Haslanger (2012) questions MacKinnon's conclusions by distinguishing between "assumed objectivity" and "genuine objectivity". Many feminist philosophers today agree with Sandra Harding (2015) that the notion is simply too powerful to be discarded. It is better to demonstrate how it is often misused and how feminist and postcolonial research can increase the objectivity of science. This has led to the development of accounts of objectivity that embrace the unavoidability and importance of values in science.

5. Value-laden objectivity

Feminist philosophers of science have developed several accounts of objectivity which often focus on different things to which we ascribe objectivity, and are compatible with each other. These accounts share the premise that science is inevitably value-laden and that values can have a legitimate positive role in research (see Scheman 2001; Crasnow 2013; Wylie 2015). Before concluding this article, I will outline two particularly influential ones: Longino's account of the objectivity of research communities and Harding's distinction between weak and strong objectivity.

Longino's (1990; 2001) account of the role of values in objective research is mostly instrumental, but nevertheless essential. As noted, she argues that the value-freedom of background assumptions in science cannot be guaranteed, and that it is therefore not possible for an individual researcher to ensure that value-laden assumptions do not bias their research in epistemically harmful ways. However, researchers do not work alone; science is a fundamentally social activity, and objectivity, according to Longino, is primarily a property of scientific communities. According to her, the best way to counter the potential distorting effects of value-laden background assumptions in science is to promote effective critical discussions and debates within scientific communities. An objective community is diverse: its members do not agree on value questions. This ensures, as well as possible, that even if an individual might be blind to the distorting effects of their value-laden background assumptions, someone else in the community is likely to notice them. Cultivating diverse values in scientific communities also effectively mitigates against the risk of collective biases that could go unnoticed in a homogeneous research community, and possibly lead entire fields of research astray. In other words, even openly value-laden perspectives can be

epistemically useful in science if they enrich critical discussions within scientific communities.

Longino (1990; 2001) has formulated four criteria that are based on these arguments and can be used to assess the objectivity of research communities. They incude i) the existence of venues for effective criticism; ii) the uptake of criticism: "beliefs and theories must change over time in response to the critical discourse taking place" (Longino 2002, 129); iii) publicly recognised, shared standards for evaluation; and iv) the "tempered equality of epistemic authority": "the social position or economic power of an individual or group in a community ought not to determine who or what perspectives are taken seriously in that community" (Longino 2001, 131). While a research community should recognise expertise and can have good reasons for rejecting some forms of criticism, it is nevertheless important that it not only allows dissenting voices, but cultivates them.

Standpoint epistemology allows a more directly positive role for values in science. It emphasizes the potential epistemic value of the knowledge that socially marginalized groups can possess and encourages participation in the development of such knowledge. Researchers should engage in the collective effort that allows the perspectives of members of marginalized groups to evolve into a shared, epistemically useful understanding of phenomena that might otherwise either be studied only from biased perspectives or remain entirely unexplored. Participation in the development of such standpoints contributes to the growth of knowledge and understanding, but it cannot be neutral or impartial; it is necessarily value-laden. (Wylie 2003; Harding 2004; Rolin 2009; Crasnow 2013.)

Harding (1986; 2015) has defended an account of objectivity where claims made within a scientific framework, for instance, can at best be weakly objective; they have been tested in the ways known in that field, and from its perspective. But it is only when a claim has been tested and accepted in many, possibly even all situated standpoints with their own epistemic and value commitments that it can be considered strongly objective. The latter form of objectivity is obviously the more demanding and rigorous one, even though it acknowledges the epistemic value of the knowledge of socially marginalized groups and communities, and gives a positive role for values in knowledge production.

6. Uncharted issues and missing connections

The notion of objectivity is used beyond science, and discussions about objectivity also go on in other areas of philosophy, not merely in philosophy of science. It would be useful to pay more attention to the similarities and dissimilarities between the ways in which the language of objectivity is used in different contexts. In discussions of objectivity in the philosophy of law, for instance, numerous similarities between the meanings of objectivity in science and in law have been identified, but clear differences also exist. On the one hand judges, just like scientists, are trusted to follow procedures that are assumed to promote objectivity by controlling against human biases. On the other hand, questions about

whether law is or can be metaphysically objective, and questions of semantic objectivity, that is, whether statements made in some domain have truth values, are clearly more central in the philosophy of law than in the philosophy of science. (Kramer 2007; Leiter 2012; Villa Rosas & Fabra-Zamora 2022.)

Two missing connections that could be relevant in the discussions of values and objectivity in science relate to ethics and aesthetics. Firstly, ethics in particular has produced a vast amount of (secular) literature, from Moore to Rorty, Parfit, and onwards, on the question whether there are objective moral values, and if so, what these are. In aesthetics there has been a similar if smaller-scale discussion about the objectivity of aesthetic values and value judgements. It is surprising how rarely this body of literature has been referenced in the discussions in philosophy of science about what kinds of values should be accepted in science. And if we take this literature into account when talking about objectivity, it at least becomes difficult to claim (like Brown does) that the notion of objectivity always invokes the idea of value-freedom.

Secondly, the literature on objectivity and values in science has thus far focused on moral, social, and political values, mostly leaving aside other non-epistemic values, particularly aesthetic ones. There is some interesting literature on aesthetic values in science (see McAllister 2002; Ivanova & French 2020), but its connections to the literature discussed in this article (and book) are few and far between. This is unfortunate, since the focus on moral, social, and political values has led to arguments whose relevance is clearest in the kind of fields that inform decision-making and the kind of research where the future use of the results is somewhat predictable. It is difficult to argue that political values would generally play a significant role in mathematical research, for example. And the argument from inductive risk does not seem particularly relevant when examining basic research in theoretical physics if it is impossible to predict whether the results will ever be applied anywhere. Aesthetic values, on the other hand, can have a substantial impact on such research, and their relationship to epistemic values is unclear. On the one hand, the beauty of a theory can be misleading, but on the other, the beauty of a proof can enhance its intelligibility, and it is unclear whether the simplicity of a theory should be considered an epistemic or an aesthetic value, or both. As Longino has pointed out, a researcher's political preferences can influence which epistemic values they choose to prioritise. Similarly, aesthetic values and preferences can come into play in science and permeate the background assumptions on which research is based. How does this affect the objectivity of the research?

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