To appear in S. Heinämaa, M. Hartimo, I. Hirvonen (eds.) *Contemporary Phenomenologies of Normativity. Norms, Goals, and Values*. Routledge. Forthcoming in 2021. Please, cite the published version.

Epistemic Norms and their Phenomenological Critique

Mirja Hartimo, University of Jyväskylä

Orcid.org/0000-0001-7974-1722

Abstract

Husserl holds that the theoretical sciences should be value-free, i.e., free from the values of extra-scientific practices and guided only by epistemic values such as coherence and truth. This view does not imply that to Husserl the sciences would be immune to all criticism of interests, goals, and values. On the contrary, the paper argues that Husserlian phenomenology necessarily embodies reflection on the epistemic values guiding the sciences. The argument clarifies Husserl’s position by comparing it with the pluralistic position developed in feminist epistemology, according to which sciences may be guided by several competing sets of epistemic values. Further, the existence of alternative epistemic values suggests that choices among such values are social and historically conditioned. Indeed, this is how Husserl’s mature discussion in *The Crisis* can be understood: his examination of Galileo’s contribution in physics operates as a criticism of the unquestioned dominance of certain set of inherited epistemic values, including the values of accuracy and universal applicability. Indeed, his *The Origin of Geometry* endorses another set of epistemic values, most importantly that of ontological heterogeneity. Husserl’s analysis demonstrates that the choice of any set of epistemic values is influenced by historical and social factors. Moreover, Husserl argues that we can only avoid biases due to “spells of the time” by continued reflection – *Besinnung*, in his terms – on the role of values in science.

Keywords

Edmund Husserl, Helen Longino, science, theoretical attitude, social epistemology, epistemic values

**1. Introduction. From value freedom to the plurality of epistemic values**

In the 20th century, the debates about the nature of science transform and develop from the early controversies about the value-freeness of science to the sophisticated discussions about the specific values operative in the sciences. While the early participants of this debate were Husserl’s contemporaries, in this paper I will argue that the later developments offer particularly useful conceptualizations to understand the subtlety of Husserl’s position regarding this debate.

In the 1970s, responding to the criticism directed at *The structure of Scientific Revolutions* (1962), Thomas Kuhn gave the debates about whether science is value-free or necessarily value-laden a new direction by arguing that sciences are guided by objective*, epistemic values*. In this respect, Kuhn’s “Objectivity, value judgment, and theory choice,” a lecture delivered in 1973, but published in 1977, was highly influential. To counter the claim that a choice of a paradigm or a theory is in his analysis necessarily arbitrary or irrational, Kuhn formulated a list of characteristics that a good scientific theory should exhibit. These were: (1) agreement with experiments and observations, (2) consistency (the internal consistency of the theory and its agreement with other, already accepted theories), (3) scope (the theory should extend beyond the particular observations, laws, and/or subtheories that it initially was designed to explain), (4) simplicity (i.e., the theory should be simple and able to order and unify phenomena), and (5) fruitfulness (the theory should be able to disclose new phenomena or previously unnoted relationships among those already known) (Kuhn 1977, 321–322). In the same essay, Kuhn called these characteristics “values” (1977, 331f.), and he went on to explain that their application is not univocal and that they may conflict with each other: he wrote that when used together “they repeatedly prove to conflict with one another. Accuracy may, for example, dictate the choice of one theory, scope the choice of its competitor” (Kuhn 1977, 322). This discussion of epistemic values allowed Kuhn to argue that while the rational choice between the theories is guided by objective criteria, it may also depend on idiosyncratic subjective factors such as the scientist’s individual biography and personality (1977, 324–30).

Arguably, much more can be said about the reasonability of the theory choice, especially if the list of considered epistemic values is developed into a more nuanced one (cf. Douglas 2013, esp. 805). I will return to this issue at the end of this paper, but now I want to draw attention to the way the dichotomy between value-laden and value-free science came to be reformulated in terms of the internal values that guide scientific research and their independence from, vs. dependence on, personal, social, or cultural values after Kuhn. Accordingly, in the 1980s, philosophers started to realize that value-free science is laden by constitutive values (Longino 1983, 7–8; 1990, 4–7), epistemic values (McMullin 1982), or cognitive values (Laudan 1984), all terms used to refer to internal values that guide scientific research as opposed to the contextual personal, social, or cultural values.

While Kuhn held his list of values to be fixed once and for all (1977, 335), feminists and social epistemologists have since the 1970s argued for the importance of alternative cognitive values, such as novelty, ontological heterogeneity, applicability to human needs, and complexity of interaction. For the purposes of the present paper, Helen Longino’s further argument is especially crucial, namely that the existence of alternative lists of epistemic values demonstrates that any choice between constitutive values made in scientific research is social. While Longino holds that the role of contextual values can never be completely eliminated, she thinks that the objectives of the value-free ideal, for example impartiality, are better achieved if the role of values in science is openly recognized and critically examined. This can only take place in a properly structured scientific community, which is open to the possibility of incompatible sets of values (2004, 134, 140).

In this paper, I will relate Edmund Husserl’s evolving view of the sciences to these debates in the 20th century philosophy of science. My aim is to demonstrate that by focusing on the various epistemic values operative in Husserl’s view of science, a particularly rich and subtle view of it can be obtained. I will argue that Husserl’s examination of Galileo’s contribution to physics in *The Crisis* operates as a criticism of the unquestioned dominance of a certain set of inherited epistemic values, such as the values of accuracy and universal applicability. In contrast, his *The Origin of Geometry* endorses another set of epistemic values, most importantly that of ontological heterogeneity. Husserl’s analysis demonstrates that the choice of any set of epistemic values is influenced by historical and social factors. Moreover, Husserl argues that we can only avoid biases due to “spells of the time” by continued reflection – *Besinnung*, in his terms – on the role of values in science. Thus Husserl ends up with a view that resembles Longino’s urge to pay attention to the role of values in science.

I will proceed in a historical-exegetic manner showing how Husserl’s view of scientific attitudes and epistemic values evolves, starting from *Logical Investigations* (1900–1901) and ending with his last publications in the 1930s. I will do this twice. I will first establish the way in which Husserl’s view of science embodies most of the values listed in Kuhn’s traditional list and are represented especially in *Formal and Transcendental Logic* (1929). After this I will trace the development of the discussion of alternative epistemic values, which I argue culminates with *The Origin of Geometry* written in 1936. This way of proceeding allows me first to establish Husserl’s basic conceptualizations and then refine this treatment with the discussion of the alternative epistemic values. I will focus on Husserl’s view of the theoretical natural sciences, physics in particular, but the main claim of the paper, that the set of epistemic values that guide the discipline in question should not be naively adopted but has to be reflected on, is readily generalizable to other theoretical scientific disciplines, including those in the humanities and the social sciences.

**2. Husserl and the value-freedom of science**

Originally Husserl belonged among those who think that all true science is value-free. His famous argument against psychologism in *Prolegomena* (1900) to his *Logical Investigations* (1900-1901) was motivated by the need to grant objectivity to science and to ensure science’s independence from personal, social, and cultural-historical factors. Respectively, in 1911, he distinguished between the ontology of being which science seeks to uncover and the ontology of valuing which is constituted in value-judgments. In his account, these two spheres must not mix. Thus, when emotions have a role in how we see the world, in Husserl’s view this can happen only insofar as we operate outside of the theoretical attitude presupposed by science. Husserl distinguishes between emotional attitudes and the theoretical attitude and discusses their differences in detail in his research manuscripts. For example, in a passage from 1911, we read:

When I am angry, urgently annoyed by the behavior of a person, then seeing this annoyance should consist in the irritations (*Gefühlserregungen*) themselves and in the ray of noticing (*Aufmerksamkeit*) (appropriation (*Zuwendung*)) that goes through them. By focusing on it, seeing it, I “judge” and express it by saying something like: “that is disgusting!”. But I am not in a theoretical attitude. I do not observe, I do not make any theoretical claims. Should we say that the theoretical interest, the striving, the bias (*Tendenz*) is guided by the objective justification? But what if I, when angry, itemize the reasons for my annoyance? “This was bad of you because, etc.” This is what we often do. The reasons would concern our annoyance, and would nourish it in this case, and everything that nourishes it, remains as its property, and is not a “theoretical consideration, theoretical activity” and so on. (Husserl 2020, 128–129)

Here Husserl distinguishes between, on the one hand, the states of being angry, expressing one’s anger and giving reasons for one’s anger and, on the other hand, the theoretical attitude that is free from all personal interests and emotions. He concludes that the theoretical attitude should not be identified with the requirement of giving justifications for the claims, but by the neutrality obtained by looking at the situation as an impartial observer („*unbeteiligter Zuschauer*“) (Husserl 2020, 129).

A few years later, in *Ideas I* (1913), Husserl continues to consider theoretical acts separately from axiological and emotional acts and sees logic (theory of science), axiology, and praxis as forming parallel disciplines (e.g., 1976a/1982, 58/53; 272/282; 339–340/350–351). When outlining his phenomenology of reason, in paragraph §139 of *Ideas I*, Husserl however raises the question about the interwovenness of theoretical, axiological, and practical truth. But, rather than suggesting a mixture, this interwovenness indicates complex relations of dependency between these areas of investigation, which must be clarified by careful analyses. Furthermore, the interwovenness of different areas of investigation does not compromise the primacy and autonomy of the theoretical reason: for Husserl, “the solution of the problems of reason in the doxic sphere must precede the solution of those of axiological and practical reason” (1976a/1982, 343/336).

In subsequent research manuscripts meant to be published as the second volume of *Ideas I,[[1]](#footnote-1)* Husserl distinguishes between several kinds of attitudes in more detail. In general, by an attitude, Husserl means a habitually persisting direction of the will toward something or other. The theoretical attitude is an intentional attitude in which one is directed “with an active focus to what is objective” (1952/1989, 3/5). In a theoretical act, we grasp and posit a being as a judgmentally determined objectivity, and in the theoretical attitude we accordingly direct our activities persistently to such objectivities. The theoretical objectivities are constituted as categorial objectivities, i.e., as states of affairs, relations, subjects and predicates, and collections. In the theoretical attitude, we are interested in and care for objects only insofar as they exist in themselves, irrespective of our needs and desires.

Husserl develops this analysis to speak of one specific kind of theoretical attitude, namely the attitude of the natural sciences (physics), from which the objectivities “to whose constitution valuing or practical acts have essentially contributed” (1952/1989, 25/27) have been excluded: “Thus, in this ‘pure’ or purified theoretical attitude, we no longer experience houses, tables, streets, or works of art; instead, we experience merely material things” (Husserl 1952/1989, 25/27). Husserl thinks that in such an attitude *epistemic* valuing takes place:

To be sure, it is a subject that is indifferent to its Object, indifferent to the actuality constituted in appearances; that is, this subject does not value such being for its own sake and thus has no practical interest in the transformations such being might undergo and so no interest in fashioning them, etc. On the other hand, this subject does value the knowledge of appearing being and the determination of that being by means of logical judgments, theory, science. Thus it values the “It is so,” the “How is it?” ... The correlate of nature is thus not a subject that in no way strives, wills, or evaluates. That is unthinkable. Knowledge of nature abstracts only from all other values besides the *epistemic values* (*Wissenswerten*). (Husserl 1952/1989, 26/28)

Reaching the natural-scientific attitude requires disengaging the values other than the epistemic values in an act that resembles *epoché*, not a phenomenological *epoché*, but “*a* sort of epoché.”[[2]](#footnote-2) It strips the objects of the natural sciences from the values other than the purely epistemic ones. Consequently, the objects of natural science appear as the “true things,” not as the value-objects or practical objects of ordinary life (Husserl 1952/1989, 27/29; 82/87). Indeed, even the perceived object as seen by a community of normal subjects is still relative to the interests and values of the community, which is not the case with the physical thing. This kind of objectivity has “no index of a dependency of its truth-content upon the subject or upon anything subjective” (Husserl 1952/1989, 82/87). It is related to the “physical world-view or world-structure, i.e., to an understanding of the method of physics as a method which pursues the sense of an intersubjectively-objectively (i.e., non-relative and thereby at once intersubjective) determinable sensible world (*Sinnenwelt*)” (Husserl 1952/1989, 84/89, translation modified). In this worldview, the world is a world of physical things themselves. Husserl then defines the thing itself (of physical nature) as follows:

*[T]he thing itself in itself* consists of a continuously or discretely filled space in states of motion, states which are called energy forms. That which fills space lends itself to certain groups of differential equations and corresponds to certain fundamental laws of physics. But there are no sense qualities here. (Husserl 1952/1989, 84/89)

Ordinarily, however, we are in a personalistic attitude, which is

[t]he attitude we are always in when we live with one another, talk to one another, shake hands with one another in greeting, or are related to one another in love and aversion, in disposition and action, in discourse and discussion. Likewise we are in this attitude when we consider the things surrounding us precisely as our surroundings and not as ‘Objective’ nature, the way it is for natural science. (Husserl 1952/1989, 183/192)

Husserl then argues that the personalistic attitude is more primary than the naturalistic theoretical attitude: “the naturalistic attitude is in fact subordinated to the personalistic, and that the former only acquires by means of an abstraction or, rather, by means of a kind of self-forgetfulness of the personal Ego, a certain autonomy – whereby it proceeds illegitimately to absolutize its world, i.e., nature“ (Husserl 1952/1989, 183–184/193). In the second volume of *Ideas*, Husserl does not elaborate on what he means by “illegitimately absolutizing the world,”[[3]](#footnote-3) but it is a theme he discusses in *The* *Crisis*, to which I will return later in this paper. Here I merely wish to highlight the fact that the attitude discussed already in 1911 as we saw above, is in Husserl’s view more immediate to us than the abstractively produced theoretical attitude. The personalistic attitude is our immediate, natural attitude towards the world and the people and things in it. Whereas it is laden by various values, the scientific naturalistic theoretical attitude is guided only by epistemic values. The change between the two takes place in what Husserl calls “an apperceptive shift” (*einer apperzeptiver Wendung*) (Husserl 1952/1989, 185/195), which effects a disengagement of all personal and social values from the objects studied. The natural scientific, that is, naturalistic attitude involves suppressing the personalistic attitude, and the very idea of the natural scientific attitude is that the personalistic attitude should not influence its judgments.

The development of this discussion of values and sciences culminates in Husserl’s *Formal and Transcendental Logic* (1929), which is about logic understood as a theory of science and hence about the norms and values guiding science. The formal knowledge of logic “provides the standards for measuring the extent to which the ostensible science conforms to the idea of genuine science” (Husserl 1974/1969, 35/31). Goals and values are discussed as “senses” or “final senses,” and they are conceived as final goals of inquiry towards which the scientists have been aiming over generations (Husserl 1974/1969, esp. 13/9).

Among the values, Husserl discusses most importantly truth (as an *adequation to the affairs themselves*, i.e., empirical adequacy) and non-contradiction. These are the two first epistemic values on Kuhn’s list of traditional epistemic values. Husserl also discusses grammatical clarity, which is not on Kuhn’s list. He also identifies some normative goals specific to the development of mathematics. One of these is the “Euclidean ideal” (Husserl 1974/1969, 98/94), by which Husserl refers to the axiomatic form of theories. This goal promotes the value of simplicity that we find on Kuhn’s list, that is, the value that demands systematizing, ordering, and unifying the phenomena. Husserl also introduces an “idea of an all-embracing task: to strive toward a highest theory, which would comprise all possible forms of theories (correlatively, all possible forms of multiplicities) as mathematical particularizations – accordingly, as deducible” (Husserl 1974/1969, 102/98). This goal can be said to embody a theoretical value of generality (cf. scope on Kuhn’s list). Note that Husserl explicitly embraces all the traditional epistemic values listed by Kuhn, except for the last one, fruitfulness. Furthermore, in line with his earlier hints about illegitimate “absolutizing,” Husserl has reservations about the scope: he thinks that one cannot and must not assume general applicability but must, in each case, carefully examine whether a given theory, principle, or a concept is really applicable to a new set of phenomena (Husserl 1974/1969, 207/200).

In addition to the explicit treatment of the epistemic values that guide science, Husserl, in *Formal and Transcendental Logic*, also develops his earlier treatment of a theoretical attitude in which these values are pursued. He now draws attention to the “spirit of critical self-justification” (Husserl 1974/1969, 6/2) that belongs to the scientific theoretical attitude. This criticism is twofold: First, logic as a theory of science is not about everyday judgments, but about the judgments of a scientist who “lives a ‘theoretically interested’ life, with vocational consistency” (Husserl 1974/1969, 129/124). This, Husserl explains, entails that the scientist should strive to capture the truth about the affairs themselves under investigation:

That is to say, his vocational judging is always ruled completely by *intentions aimed at knowledge* (*Erkenntnisintentionen);* and these themselves have their synthetic unity, namely in the unity of the epistemic interests directed to the scientific domain in question (*in der Einheit des auf das jeweilige Wissenschaftsgebiet gerichteten Erkenntnisinteresses*). In the strict sense (which, to be sure, is an ideal one), *knowing* (*erkennen*) his field is nothing else but accepting no judgments as scientific results except those that have shown their ‘*correctness’*, their ‘truth’ by an *adequation to the affairs themselves* and can be repeated originally at any time, with this correctness – that is to say, by a re-actualization of the adequation. (Husserl 1974/1969, 129–130/124, translation modified)

Characterizing the attitude as a “theoretically interested” life, with vocational consistency” suggests that the scientific theoretical attitude requires commitment to living a certain kind of life directed at obtaining knowledge of certain specific matters. In addition to the previous characterization of the purely theoretical attitude, this account brings into account the value of “repeatability.” Furthermore, whereas an everyday judger “merely looks and sees” what is given, the scientist is constantly aware that the evidence may be deceptive, and consequently his judgments must be verified by maximally perfect evidence. The scientist thus makes judgments about the givenness of something itself but then goes back to critically evaluate the correctness of the obtained results. Further, such self-criticism “must also be subjected to criticism” (Husserl 1974/1969, 130/125). The scientist’s ultimate aim is that her results become abiding truths “capable of again becoming accessible to insight at any time, and accessible in this manner to *everyone* as a rationally thinking subject, even as they were before their ‘discovery’” (Husserl 1974/1969, 130–131/125). The results of science are social; they have to go through endless processes of being reviewed by peers:

This idea [idea of an interest of theoretical reason], …, is conceived relatively to the idea of a community of scientific investigators, which goes on working *ad infinitum*, a community united in respect of activities and habitualities of theoretical reason. Here we shall mention only the working of investigators for and with one another and their criticizing of one another’s results, those obtained by one investigator being taken over as works that pave the way for others, and so forth. (Husserl 1974/1969, 36/32)

Logic as a theory of science is concerned with judgments made in such a social critical attitude. This attitude is directed at the existent itself and is not only interested in making mere judgments, but, more fundamentally, in the question whether the established judgments are true (Husserl 1974/1969, 135–136/130).

Second, criticism also involves a transcendental dimension. Husserl discusses it in the second part of *Formal and Transcendental Logic*. This dimension of critique requires that one directs the critical regard to the constitutive activity of the scientists’ judgments and examines, clarifies, and fixes the kinds of evidence related to them (Husserl 1974/1969, 184–185/177). This inquiry into the constitutive origins of scientific judgments aims at identifying the internal shiftings of intentionalities and correcting verbal equivocations in judgments. By disclosing such factors, these examinations reveal various kinds of presuppositions characteristic of scientific activity (Husserl 1974/1969, esp. 191–209/184–201). This allows the critic to ask questions about the proper scope of principles and concepts as well as questions about relatedness of scientific judgments to the perceived reality. These are transcendental conditions of the possibility of scientific research. I have discussed them in length elsewhere (e.g., Hartimo 2020a; 2020b; 2021), but for the present purpose, it suffices to notice that the main point of both scientific and transcendental criticism (which are ultimately interrelated) is to guarantee that science truly serves the correct epistemic values, which are independent from personal, social, or cultural interests. I will return to these two separate forms of criticism in the end of this paper where I briefly compare Husserl’s and Longino’s approaches. Before engaging in that, I will show that the theoretical approach elaborated in this section is not the only one Husserl develops.

**3. The crisis of the values on Kuhn’s list and the need for an alternative list**

So, Husserl seems to be a firm advocate of the traditional epistemic values that he thinks should not be influenced by contextual values of any kind, individual or collective. But how, then, should we understand the arguments that Husserl develops about the crisis of science in the 1930s, arguing that “nothing less than that its [science’s] genuine scientific character, the whole manner in which it has set its task and developed a methodology for it, has become questionable” (1976b/1970, 1/3)? The motivation for developing this new form of critique comes from the crisis of the European culture and the role ascribed to the sciences in it. In Husserl’s analysis, the problem, in short, is that the natural scientific rationale that brackets the values as described above overtakes all reasoning about the values, which results in the crisis of humanity. He argues that despite their success, the natural sciences fail to address “questions of meaning or meaninglessness of the whole of this human existence” (1976b/1970, 3/6). Husserl claims that in their value-freeness the naturalized sciences are mute in respect to the problems related to human existence. Yet, Husserl does not want to sacrifice the main sense of the theoretical attitude that studies things as themselves objectively, independently of our preferences and interests.

My claim is that Husserl consistently argues for *rational deliberation* (*Besinnung*) on and critique of values, even the epistemic ones. In his analysis, the choice of any particular set of epistemic values is a historically conditioned choice. To break free of the imprisoning influence of the “spells of our times” phenomenological reflection on the various values is needed. The ultimate choice has to be free and a matter of responsible reasoning; that is, it has to be made with knowledge of the alternatives and with an understanding of the demands of the situation. Thus, I will argue, Husserl’s basic analysis comes near to Helen Longino’s recent position of contextual empiricism. But, before doing so, I will complement the previous analysis of Husserl’s account of the traditional epistemic values with a similar analysis of what he says about the possible alternative epistemic values.

**4. Towards a plurality of epistemic values**

A brief indication of the possibility of plurality of incompatible sets of theoretical values can be found already in Husserl’s *Prolegomena* 1900. In this early contribution, Husserl distinguishes between “nomological,” which is his term for “axiomatic” sciences, and the concrete ontological sciences, characterized by their relation to the described objects, and not by the way they instantiate abstract theoretical structures. The latter sciences include, in his account, “geography, history, astronomy, natural history, anatomy, etc.” He then explains that in these empirical sciences diverse theoretical systematizations of the subject matter may be needed: “[s]ince it is possible that explanation which is directed towards empirical unities, leads to widely divergent, or quite heterogeneous theories and theoretical sciences, we rightly call the unity of the concrete science an ‘extra-essential’ one” (1975/2001, §64).

This indicates a possibility for a plurality of theoretical approaches. The source of such plurality lies in the differences in the subject matter, which allows for combination and arranging into “unities” in ways other than on the basis of the ideal offered by the axiomatic sciences. However, at this point Husserl adds that, nevertheless, the abstract sciences are the only genuine basic sciences, “from whose theoretical stock the concrete sciences must derive all that theoretical element by which they are made sciences” (1975/2001, §64). Thus in 1900, to him, the kind of unity obtained by axiomatization is the only truly “scientific” account of unity.

In *Ideas I* Husserl does not hold axiomatization as a self-evident, general model of “truly” scientific theoretization anymore, but restricts it to the disciplines whose domain is “exact,” i.e., mathematically determined. He continues to divide the scientific theories into the axiomatic ones as opposed to the descriptive sciences. He explains that the axiomatic theories presuppose that the examined essences are exact, whereas in the descriptive sciences the examined concepts are essentially vague. Husserl calls the latter ones “morphological” essences, and he points out that the exact sciences and purely descriptive sciences cannot take the place one of the other, and in particular that “no exact science, …, can perform the original and legitimate tasks of pure description” (Husserl 1976a/1982, 155/166). In contrast to the *Prolegomena*, Husserl thinks that the question whether the investigation is exact or descriptive depends “entirely on the peculiar nature of the province in question” and he writes that, for example, the subject matter of the humanities does not admit exact conceptualization and hence is necessarily descriptive (Husserl 1976a/1982, 154/165). In 1912, Husserl explains that the descriptive approach in the natural sciences describes concrete objects and organizes them into species (*Arten*), and then coordinates them into genera [*Gattungen*] with an aim to give a systematic classification of the objects of nature (Husserl 2012, 56–57). In contrast, in the abstract and explanatory natural sciences, such as physics and chemistry, the usage of symbols and purely formal mathematical laws allow scientists to construct any given course of appearances. The explanatory sciences are guided by the idea that for all domains of the sensuous world, such symbolism can be found, and thereby the entire course of the actual experiences can be calculated (Husserl 2012, 58).

Later Husserl suggests that adoption of the exact or the descriptive theoretical attitude can be a matter of choice. This is already indicated in *Ideas II* where Husserl briefly considers an alternative constitution of an “Objective nature,” one that is carried out on the level of intersubjective experience (1952/1989, 89–90/94–95). This idea is developed further in a manuscript from 1926 where Husserl holds that the world can be regarded in two alternative ways: as the world of exact realities and exact wholes (*Ganzheiten*) and as the world of morphological realities and morphological wholes. He argues further that the world is divided into two different types (*Typen*) depending whether holistic behavior (*Verhalten*) is seen as decisive. These two kinds of experiencing the world belong to two different attitudes, between which one can switch.[[4]](#footnote-4) As an example of such a switch of attitude, he gives the zoological reasoning in which animals are first characterized morphologically as living organisms but then, after a change of attitude, they are studied as physico-chemical objects. Or, as he further specifies, while the animals remain morphologically real units, the scientist can proceed to investigate the exact realities contained in them (Husserl 2012, 263). To characterize the differences between these two attitudes Husserl states that the attitude of the exact sciences reveals a theoretical *a priori* determined structure of the infinite world,[[5]](#footnote-5) while the morphological descriptive sciences conceive reality as finitely verifiable, bound to historical situations (Husserl 2012, 286–287).

Ultimately, in line with his statements in *Ideas II* about the primacy of the personalistic attitude, Husserl realizes that all scientific disciplines are primarily descriptive. This is because all empirical sciences of the world start with natural experience, that is, observation, and natural experience is morphological as such (2012, 263). He gives up the opposition between axiomatic and descriptive, between nomological and morphological sciences and starts to argue that all theoretical disciplines are fundamentally descriptive. But some disciplines, namely physics and chemistry refer to exact axiomatic structures (2012, 24). This view then develops into Husserl’s above described social account of the theoretical attitude of *Formal and Transcendental Logic*. According to it, all scientists in their self-critical practices aim at disclosing truths about their subject matter, and in some and only some of them, this means being guided by an axiomatic ideal.

In Husserl’s view, each theoretical discipline is characterized by a specific theoretical attitude unique to it. To a certain extent, the choice between the kinds of attitude is dictated by the subject matter. However, it is often also a matter of interests and goals: even when looking at nature alone, two different attitudes can be distinguished, namely the physicalistic one that has a reference to the underlying axiomatic structure and the (merely) classificatory morphological (e.g., in zoology and botanic). Indeed, Husserl even raises a question whether, on the basis of intuition, one could come up with two different geometries if one was guided by different kinds of ideals of exactness as a norm.[[6]](#footnote-6) This question will be answered in Husserl’s writings in the 1930s, to which I will turn in the next section.[[7]](#footnote-7)

**5. Two kinds of geometry**

Two texts, both written in the same year (1936), in fact within a few months of each other, are particularly poignant for the present argument. These are the long paragraph §9 of *The* *Crisis*, that discusses Galileo’s achievements in physics, and a manuscript titled “The Origin of Geometry” that discusses the historical development of geometry. The former was inserted into the *Crisis* manuscript in September 1936*,* whereas the latter was eventually published as one of the appendices of *The* *Crisis*. Both texts provide a genealogy of a normative ideal of science, that is, of a constellation of epistemic values. Whereas the paragraph on Galileo discusses the physicalistic approach dominant in the modern sciences, the model of geometry discussed in *The Origin of Geometry* seems to derive from Husserl’s sketches on the morphological scientific approach to reality.

The Galileo paragraph provides an interpretation of the mathematization of nature as a transformation of the prescientific world into a mathematical manifold, that is, the physicalistic world in itself, as described above. This process of mathematization is guided by the values of (i) exactness (“perfecting ‘again and again’” Husserl 1976b/1970, 23/26)); (ii) abstractness (obtaining “an ideal praxis of ‘pure thinking’” Husserl 1976b/1970, 23/26); (iii) fruitfulness or universal applicability (they can “always be applied to something new” (Husserl 1976b/1970, 23/26)); (iv) generality and completeness, “the possibility emerges of producing constructively and univocally, through an *a priori*, all-encompassing systematic method, all possibly conceivable ideal shapes” (Husserl 1976b/1970, 24/27). In the search for exactness, even sensory qualities become mathematized, even though “indirectly”, so that the whole of infinite nature becomes a peculiarly applied mathematics (Husserl 1976b/1970, 36/37). The process results in an “*emptying of meaning*” in which the actual spatio-temporal value-objects are transformed into numerical configurations. For Husserl, this leads to “technization” and the tendency to superficiality (*zu veräusslichen*) (1976b/1970, 48/48), so that “[t]he extraordinarily far-reaching practical usefulness became of itself a major motive for the advancement and appreciation of these sciences” (1976b/1970, 378/368). Husserl’s discussion of the Galilean idea of science embodies all the values we find in Kuhn’s list: (1) agreement with experiments and observations; (2) consistency (internally with itself and externally with currently accepted theories); (3) scope (it should extend beyond the particular observations, laws, or subtheories that it was initially designed to explain); 4) simplicity (i.e., ordering and unifying the phenomena); and (5) fruitfulness (it promises to disclose new phenomena) (Kuhn 1977, 321–322). In addition, it emphasizes the emptying of meaning by way of transforming the objects and their determinations into numerical configurations. This is arguably in service of ontological simplicity or homogeneity. It also promotes practical usefulness, which is a pragmatic value, not an epistemic one.

The contrast to *The Origin of Geometry* is striking: in it Husserl is likewise interested in accounting for the objective world, but one which is the world for all (Husserl 1976b/1970 369/359). Objectivity arises, not by mathematization, but in communication: “as soon as we take into consideration the function of empathy and fellow mankind as a community of empathy and of language” (Husserl 1976b/1970, 370–371/360). He argues that science is thinking directed at the attainment of truths and the avoidance of falsehood and that it presupposes univocality of expressions, so that they are repeatable with self-evidence (Husserl 1976b/1970, 373/362). New acquisitions are added to the established body of geometrical truths, which is handed down to new generations in the form of written sentences. Yet, geometry should have a built in (*ausgebildete*) “capacity for reactivating the original activities contained within its fundamental concepts” (1976b/1970 376/366). This means that it should carry its original meanings and values, even if only implicitly.

This account of geometry investigates the world, not as the Galilean mathematized physicalistic world, but as the historical cultural world (Husserl 1976b/1970, 378/369), which has an inner structure of meaning that can and should be disclosed (1976b/1970, 380–381/371–372). Generality in this approach is not conceived as an emptying of meaning or unhindered application (homogeneity), but by the idea of free variation: “And precisely in its activity of free variation, and in running through the conceivable possibilities for the life-world, there arises, with apodictic self-evidence, an essentially general set of elements going through all the variants; and of this we can convince ourselves with truly apodictic certainty” (Husserl 1976b/1970, 383/375). Originally, geometry is about the practical, finite surrounding world of things, from which new constructions grow. And only by disclosing this *a priori*, Husserl argues, “can a science as *aeterna veritas* appear” (Husserl 1976b/1970, 385/377).

*The Origin of Geometry* offers an alternative model for scientific knowledge and rationality. Whereas Galilean science embodies the traditional epistemic values listed by Kuhn, *The Origin of Geometry* emphasizes especially “ontological heterogeneity,” which is mentioned in Longino’s “feminist” list of epistemic values.[[8]](#footnote-8) Indeed, seeing objects as something, as belonging to types or kinds within the morphological attitude, suggests sensitivity to the ontological differences among the researched objects. In contrast, the Galilean science that mathematizes all objects into numerical configurations conceals the ontological differences. Likewise, the respective notions of generality are different: *The Origin of Geometry* account based on free variation respects the ontological differences, whereas the generality obtained through mathematization unavoidably loses the ties to the particular natures of the objects under investigation. These differences arguably carry over to how the two models value the complexity of relationships. While Galilean science reduces all relationships to formulae, this is not the case with *The Origin of Geometry*. The “absolutizing” tendency of the Galilean science is tied to the universal applicability obtained by ontological simplification. It is a built-in tendency to apply that particular theoretical attitude across the board. In *The Crisis*, Husserl then examines its harmful effects on human culture and our sense of ourselves.

A thorough examination of the epistemic values of these two Husserlian models of scientific rationality has to be left for another occasion. Important for the present argument is to note the relevance of the competing sets of epistemic values even when we theorize about the physical nature alone. While both of these constellations of epistemic values purport to be independent of the contextual values of their practitioners, Husserl’s *Crisis* argues that even the Galilean idea of science is historically and socially constituted. Whereas he earlier insisted on the ability of the nomological sciences to reveal the structure of the reality, he now thinks of them as useful techniques. This change of mind necessitates a thorough examination of the historically developed grip they have on the modern human being. Thus, Husserl’s exposition has a purpose of showing how the Galilean values have started to dominate the other values, and how this development has led to an “irrational” simplification of the model of rationality. By exposing this development, Husserl opts for the epistemic values that are chosen fully consciously and, hence, rationally. To be sure, Husserl does not suggest that in place of Galilean values we should adopt the epistemic values of the science discussed in *The Origin of Geometry* – his repeated claims about the legitimacy of Galilean science make that clear enough.[[9]](#footnote-9) Instead, he advocates for full consciousness about the role of values in science. For him, this involves recognition of shifts of meaning and noting the concealments of the original value-ladenness. Similarly to Longino, his claim is that “[the method of Galilean science] must be freed of the character of an unquestioned tradition…”(Husserl 1976b/1970, 47/47). Husserl’s aim is to overcome *the philosophic naiveté* related to the adoption of any one single model of rationality and to propose reflection, *Selbst-Besinnung*, which “will serve to liberate us” (1976b/1970, 60/59).

**6. Conclusion – Husserl and the question of value-freedom of science**

Like logical positivists and Weber, Husserl was originally a firm believer of the value-freeness of science. In his view, all theoretical attitudes aim at uncovering truths in themselves. Husserl further singles out the natural scientific theoretical approach, which abstracts from all values other than epistemic ones, as especially emblematic of this aim. However, Husserl also identifies a descriptive theoretical attitude, which aims at intersubjective truths and, hence, is not as purified as the natural theoretical attitude. In the *Formal and Transcendental Logic* Husserl argues that all theoretical attitudes, also the natural theoretic one, are ultimately self-critical and social, which he seems to think guarantees the impartiality of the theoretical attitude in question.

In *The Crisis* Husserl shows that the adoption and shaping of these theoretical attitudes is a social and historical matter, which seems to speak against Husserl’s original view of their impartiality. However, I argued that, in contrast, transcendental phenomenology, together with the historical reflection, *Besinnung*, of science, aims at safeguarding the objectivity of scientific method. It does so by revealing the presuppositions of these approaches and, hence, the possible distorted interests and ideologies (such as those of the Galilean science), so that the confusions and shiftings due to them can be corrected. As a result, any particular choice among the theoretical attitudes and epistemic values embraced by them should be a matter of conscious deliberation. In contrast to what Kuhn seems to think, the choice of paradigms is then not a matter of personal taste but a matter of reason, that is, weighing pros and cons of different alternative constellations of epistemic values in the given situation.

The sociality and the historicity of the choice of epistemic values makes Husserl’s view resemble Helen Longino’s view. Both hold that the “scientificity” of science requires explicitness and openness about the role of values in science. This facilitates critical reflection about them, which, in the terms discussed above in the context of Husserl’s *Formal and Transcendental Logic*, can be either internal to the scientific communities or involve also the transcendental point of view. Both, Husserl and Longino call for the former. Longino further focuses on the structural features of scientific communities as prerequisites of this kind of criticism. Whereas Longino urges reflection about the norms, goals, and values of sciences, she does not explicitly evoke the transcendental point of view to do so. Husserl in turn develops a method for systematic transcendental reflection and criticism of the presuppositions, norms, goals, and the kinds of evidence related to scientific practices to facilitate the needed, explicit deliberation about the rationales germane to individual scientific disciplines and the roles of various constellations of epistemic and other values within them. Husserl also analyzes the nature of the crisis that ensues when such reflection is missing.

**References**

Douglas, Heather. 2013. “The Value of Cognitive Values.” *Philosophy of Science* 5 (December): 796–806.

Hartimo, Mirja. 2020a. “Husserl on ‘*Besinnung*’ and Formal Ontology.” In *Metametaphysics and the Sciences: Historical and Philosophical Perspectives*, eds. Frode Kjosavik and Camilla Serck-Hanssen, 200–215. New York: Routledge.

Hartimo, Mirja. 2020b. “Husserl’s Phenomenology of Scientific Practice.” In *Phenomenological Approaches to Physics – Historical and Systematic Issues*, Synthese Library Series, edited by Harald A. Wiltsche and Philipp Berghofer, 63–78. Dordrecht: Springer.

Hartimo, Mirja. 2021. *Husserl and Mathematics*. Cambridge: Cambridge University Press.

Husserl, Edmund. 1952. *Ideen zu einer reinen Phänomenlogie und phänomenologischen Philosophie, Zweites Buch. Phänomenologische Untersuchunen zur Konstitution.* Husserliana IV. Ed. Marly Biemel. The Hague: Martinus Nijhoff. In English: *Ideas pertaining to a pure phenomenology and to a phenomenological philosophy, second book,* trans. Richard Rojcewicz and André Schuwer. Dordrecht, Boston, London: Kluwer, 1989.

Husserl, Edmund. 1974. *Formale und Transzendentale Logik. Versuch einer Kritik der logischen Vernunft. Mit ergänzenden Texten*. Husserliana XVII. Ed. Paul Janssen. The Hague: Martinus Nijhoff. In English: *Formal and Transcendental Logic*, trans. Dorion Cairns. The Hague, Martinus Nijhoff, 1969.

Husserl, Edmund. 1975. *Logische Untersuchungen, Erster Band, Prolegomena zur reinen Logik*. Ed. Elmar Holenstein. Husserliana XVIII. The Hague: Martinus Nijhoff. In English: *Logical Investigations.* *Volume I,* trans J.N. Findlay. London and New York: Routledge, 2001.

Husserl, Edmund. 1976a. *Ideen zu einer reinen Phänomenologie und phäneomenologischen Philosophie. Ersters Buch.* Husserliana III/1. Ed. Karl Schuhmann. The Hague: Martinus Nijhoff. In English: *Ideas pertaining to a pure phenomenology and to a phenomenological philosophy, first book*, trans. F. Kersten. Dordrecht, Boston, London: Kluwer, 1982.

Husserl, Edmund. 1976b. *Die Krisis der europäische Wissenschaften und die transzendentale Phänomenologie. Eine Einleitung in die phänomenologische Philosophie*. Husserliana VI. Ed. Walter Biemel. The Hague: Martinus Nijhoff. In English: *The Crisis of European Sciences and Transcendental Phenomenology*, trans. David Carr. Evanston: Northwestern University Press. 1970.

Husserl, Edmund. 1996. *Logik und allgemeine Wissenschaftstheorie Vorlesungen 1917/18, mit ergänzenden Texten aus der ersten Fassung von 1910/11.* Husserliana XXX. Ed. Ursula Panzer. Dordrecht, Boston, London: Kluwer. In English: *Logic and General Theory of Science, With Supplementary Texts From the First Version of 1910/11*, trans. Claire Ortiz Hill. Cham, Springer. 2019.

Husserl, Edmund. 2001. *Natur und Geist. Vorlesungen Sommersemester 1927*. Husserliana XXXII. Ed. Michael Weiler. Dordrecht, Boston, London: Kluwer.

Husserl, Edmund. 2012. *Zur Lehre vom Wesen und zur Methode der Eidetischen Variation. Texte aus de Nachass 1891*–*1935*. Husserliana XLI. Ed. Dirk Fonfara. Dordrecht, Heidelberg, London, New York: Springer.

Husserl, Edmund. 2020*. Studien zur Struktur des Bewusstseins. Teilband II. Gefühl und Wert. Texte aus dem Nachlass* (1896–1925). Husserliana XLIII. Ed. Ulrich Melle and Thomas Vongehr. Cham: Springer.

Kuhn, T. S. 1977. “Objectivity, Value Judgment, and Theory Choice.” In *The Essential Tension—Selected Studies in Scientific Tradition and Change*, ed. T.S. Kuhn. Chicago, IL: The University of Chicago Press. 320-339.

Laudan, Larry. 1984. *Science and Values*. Berkeley: University of California Press.

Longino, Helen. 1983. “Beyond ‘Bad Science’: Skeptical Reflections on the Value-Freedom of Scientific Inquiry.” *Science, Tehcnology, and Human Values* 8, no. 1 (Winter): 7–17.

Longino, Helen. 1990. *Science as Social Knowledge*. Princeton, 1990.

Longino, Helen. 1995. “Gender, Politics, and the Theoretical Virtues.” *Synthese* 104, no 3 (September): 383–397.

Longino, Helen. 2004. “How Values Can Be Good for Science.” In *Science, Values, and Objectivity*, edited by Peter Machamer and Goreon Wolters, 127–142. Pittsburgh: University of Pittsburgh Press.

McMullin, Ernan. 1982. “Values in Science.” *PSA: Proceedings of the Biennial Meeting of the Philosophy of Science Association*, 1982, Vol. 1982, Volume Two: Symposia and Invited Papers (1982), 3–28.

1. The texts meant for *Ideas II* were written between 1912 and 1928 but only posthumously published. [↑](#footnote-ref-1)
2. Husserl’s exact phrase is ”eine Art epoché” (Husserl, 1952/1989, 27/29). [↑](#footnote-ref-2)
3. To be sure, a provisional explanation can be found in *Ideas I* (§55), where he refers to ”universalizing” the idea of natural reality to all there is: ”If one derives the concept of reality from natural realities, from unities of possible experience, then ‘all the world’ or ‘all of Nature’ is, of course, equivalent to the all of realities; but to identify the latter with the all of being, and thus to absolutize it itself is a countersense” (Husserl 1976a/1982, 120/129). [↑](#footnote-ref-3)
4. “Two kinds of experiencing can be transposed by a mere alteration of the ‘attitude’, of the determining interest; and when this transition happens, then a coincidence, a consciousness of the unity passes through the apperceptive switch, and this grounds what was said above.” In German: “Zwei Erfahrungsarten sind durch einen bloßenWechsel der ‘Einstellung,’ des bestimmenden Interesses ineinander überzuführen; und wo dieser Übergang erfolgt, dort geht durch den apperzeptiven Wechsel eine Deckung, ein Bewusstsein der Einheit hindurch, welche die obige Rede begründet” (Husserl 2012, 263). [↑](#footnote-ref-4)
5. Husserl writes that “[t]o the essence of the world in general belongs a systematic mathematical structure, an infinite but systematic-mathematical structure.” In German: “Zum Wesen einer Welt überhaupt gehört eine systematische, eine infinite, aber systematisch-mathematische Struktur” (Hussel 2012, 386). [↑](#footnote-ref-5)
6. Husserl asks: ”Kann nicht einem und demselben System der Anschauung als einem ’ungefähren’ verschiedene Ideen der Exaktheit als Normen untergelegt werden?” (2012, 255). His answer at this point (i.e., in 1927) is that this has to be given deepest consideration: ”Das muss also fürs Tiefste durchdacht werden…”(Husserl 2012, 255). [↑](#footnote-ref-6)
7. Husserl’s characterization of his *Natur und Geis*t lectures in 1919 demonstrates his descriptive approach to the scientific disciplines: “[A]s philosophical they [the lectures] do not want to interfere with the scientists’ work, not even to show that the scientist, the master of her own discipline is mistaken, but to clarify and to find the principles of clarification” (Husserl 2012, 179). In German, “[a]ls philosophische wollen sie [diese Vorlesungen über Natur und Geist] in die werktätige Arbeit der Wissenschaften nicht hineinreden, etwa gar um den Forscher und Meister seines Fachs eines Besseren (zu) belehren, sondern sie wollen klären und Prinzipien der Klärung suchen.” (Husserl 2012, 179). [↑](#footnote-ref-7)
8. Longino listed as the “feminist” epistemic values empirical adequacy, novelty, ontological heterogeneity, applicability to human needs, complexity of interaction, etc. (Longino 1995, 386–389). [↑](#footnote-ref-8)
9. E.g., “[a]ctually the process whereby material mathematics is put into formal-logical form, where expanded formal logic is made self-sufficient as pure analysis or theory of manifolds, is perfectly *legitimate*, indeed necessary; the same is true of the technization which from time to time completely loses itself in merely technical thinking. But all this can and must be a method which is understood and practiced in a *fully conscious* (*vollbewusst* *verstandene*) way” (Husserl 1976b/1970, 46/47) [↑](#footnote-ref-9)