# Dealing with values in science: kinds, roles and/or procedures.

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**Long abstract:** In this paper, we inquire how the eternal tension between science and values has been tackled in philosophy of science. We distinguish three strategies:

(a) focussing on different *kinds* of values (e.g. epistemic vs. non-epistemic values) and allowing one of these kinds to be present in science (e.g. epistemic values);
(b) stipulating the *role* values are allowed to play in science (e.g. an indirect, but not a direct role);
(c) specifying a social *procedure* in order to deal with values in science.

Recently, the distinction between a *direct* and *indirect role* values could play in science and expertise, an instance of strategy (b), has been elaborated extensively by Heather Douglas (2008, 2009). In making their judgments, scientists can and should embrace values as guidance, according to her, in considering the *sufficiency of evidence*, the *weighing of uncertainty* and *the consequences of error*, this is the legitimate *indirect* role of values. (Douglas 2008: 10; 2009: 96) Values should, however, not act as *epistemic support* or *providing warrant*, "as reasons for accepting or rejecting an empirical claim" (2008: 10), this is the unacceptable *direct* role of values.

We will scrutinize Douglas' account in our paper and we will claim that identifying the different *roles* of values in science faces similar problems as earlier philosophical accounts distinguishing *kinds* of values in science, i.e. epistemic and non-epistemic values. In this earlier debates, the *epistemic values* were considered acceptable as additional guidance for theory choice beyond logic and evidence in cases of competing theories. Several lists of such 'acceptable' epistemic values have been formulated, e.g., *accuracy, consistency, predictive and explanatory scope, simplicity, fruitfulness* (Kuhn, 1977: 321-22); *predictive accuracy, internal coherence, external consistency, unifying power, fertility, simplicity* (McMullin, 1983: 15-16); *truth, coherence, simplicity, predictive fertility*, ... (Laudan, 1984: 35). However, this *kinds*-of-values strategy faces at least four problems:

(1) *The **interpretation** of the values.* The exact interpretation of every single one of the epistemic values seems contentious.
(2) *The **weighing** (and ranking) of values.* If the different epistemic values cannot all be maximally addressed or satisfied simultaneously by any single theory, model or explanation, the question arises of how these different interests should be balanced or how they must be weighed against one another.
(3) *There is a **variety** of lists of acceptable values.* There is no clear consensus about which values have to be included in the list of epistemic values 'internal' to science.
(4) ***Distinguishing** epistemic and non-epistemic values.* The strict division or dichotomy between epistemic and non-epistemic interests has also come under attack.

We claim that the *role*-of-values approach as developed by Douglas faces similar problems:

(1) The **interpretation** of *uncertainty* – when an indirect *role* for values is allowed. According to Douglas, values are allowed (and needed) to play an indirect role when we do have a case of

uncertainty: "If there is significant uncertainty and the consequences of error are clear, values are needed to decide whether the available evidence is sufficient to make the empirical claim." (Douglas, 2009: 103) However, what is interpreted as a case of (un)certainty depends on an individual expert's judgment. What if two experts have different values and a divergent view on what counts as *uncertain?*

(2) The **weighing** of *uncertainty*: What counts as enough evidence, as (in)significant *uncertainty*? Won't the assessment of which uncertainties surrounding a claim are insignificant, which are potentially significant but acceptable, and which are not acceptable, be subject to individual idiosyncrasies and values?

(3) **Variety** qua *uncertainty* (and the *consequences of error).* The variety of understandings of uncertainty can be due to problems (1) and (2), but they might as well be the result of employing different theoretical frameworks.

(4) **Distinguishing** the two roles of values: if *uncertainty* is to a large extent defined by the theoretical framework – which includes values providing epistemic support and guidance (the *direct* role) – on which the expert relies, the *indirectness* becomes very relative and the boundary between the direct and the indirect role very porous – where does the indirect role ends and the direct one starts?

Each of these problems will be dealt with in more detail. Furthermore, we will investigate whether some of these problems, rather than by the kinds-of-values-approach or Douglas' roles-of-values-approach, could be addressed by stipulating a social *procedure* in order to deal with values in science and expertise, or, whether combining two or all three of the strategies would help us developing a satisfying account of values in science. A good account of dealing with values via social *procedures* can be found in Helen Longino's (2002) *procedural social epistemology.* She presented it as a solution to the problems related to *kinds* of values (cf. her 1996), but it might also solve some of the problems of Douglas' account as will be examined.

**References.**

Douglas, H. (2008) 'The role of values in expert reasoning.' *Public Affairs Quarterly* 22(1): 1-18.

Douglas, H. (2009) *Science, Policy and the Value-Free Ideal.* Pittsburgh: University of Pittsburgh Press.

Kuhn, Thomas (1977) 'Objectivity, value judgment and theory choice.' In: Th. Kuhn, *The Essential Tension*, Chicago: University of Chicago Press, pp. 320-339.

Laudan, Larry (1984) *Science and Values: The Aims of Science and Their Role in Scientific Debate.* Berkeley: University of California Press.

Longino, H. (1996) 'Cognitive and Non-Cognitive Values in Science: Rethinking the Dichotomy.' In L. Hankinson Nelson and J. Nelson (eds.) *Feminism, Science, and the Philosophy of Science.* Dordrecht: Kluwer Academic, pp. 39-58.

Longino, H. (2002) *The Fate of Knowledge.* Princeton: Princeton University Press.

McMullin, E. (1983) 'Values in science.' In P. Asquith and T. Nickles (Eds.) *Proceedings of the 1982 Biennial Meeting of the Philosophy of Science Association.* East Lansing, MI: Philosophy of Science Association, pp. 3-28.

# Dealing with values in science: kinds, roles and/or procedures.

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***Short abstract:*** In this paper, we inquire how the eternal tension between science and values has been tackled in philosophy of science by analysing three different strategies that have been used: (a) focussing on different *kinds* of values (e.g. epistemic vs. non-epistemic values) and allowing some of these kinds to be present in science (e.g. epistemic values); (b) stipulating the *role* values are allowed to play (e.g. an indirect, but not a direct role); and, (c) specifying a social *procedure* in order to deal with values in science.

Recently, the distinction between the direct and indirect *role* values could play in science and expertise was elaborated extensively by Heather Douglas, allowing values to play an indirect role. We scrutinize Douglas' account and claim that identifying the different *roles* of values in science faces similar problems as earlier philosophical accounts distinguishing *kinds* of values, cf. epistemic and non-epistemic values (see, e.g., Kuhn, McMullin and Laudan). The problems discussed concern (1) interpreting, (2) weighing, (3) variety of, and (4) distinguishing the *kinds*/*roles* of values in science.

Furthermore, we investigate whether some of these problems, rather than by the kinds-of-values-approach or Douglas' roles-of-values-approach, could be addressed by stipulating a social *procedure* in order to deal with values in science and expertise (e.g., Helen Longino's demand for critical interaction respecting the four CCE-norms would be example of such an approach), or, whether combining two or all three of the strategies would help us developing a satisfying account of values in science.