SCIENCE AS A FACTory?

LOOKING AT SCIENCE EYE TO EYE, NOT FROM ABOVE THE FACTS

Closing workshop of the 2nd funding period of the DK "The Sciences in Historical, Philosophical and Cultural Contexts" (FWF W 1228-G18)

October 4–6, 2018, University of Vienna, Austria

The dichotomy between facts and values, and, relatedly, that between objectivity and subjectivity, has a long track-record in the history of thought. The traditional view, which is still dominant in popular culture but also in parts of the academic community, is that science occupies a privileged status as society’s “fact-factory.” In this workshop we bring together a variety of different perspectives – historical, philosophical and scientific – to discuss whether this value-free ideal of science holds up to closer analysis of the scientific practices.

October 4
Oskar-Morgenstern-Platz 1, Skylounge
17:00 Welcome by Rector Heinz W. Engl & Deans of the participating faculties
17:30 Opening Address by DK-speaker Mitchell Ash (Universität Wien)
17:45 Keynote Lecture by Sabina Leonelli (University of Exeter):
   Investigating Science Through Involvement
19:15 Welcome Reception & Poster Presentation

October 5
Alser Straße 2–4, Uni-Campus Hof 1 / 2.8 (Alte Kapelle)

IS THE FACT/VALUE DIChOTOMY A THOUGHT-STOPPER?
09:30-11:00 Alexander Linsbichler (Universität Wien): The Fact/Value Dichotomy is indeed a Thought-stopper. Rejoice and embrace it!
   Charles Djordjevic (Universität Zürich): The Normative Dimension of Using the Concept of Addiction in Economics: The Case of Gary Becker
   Raffael Krismer (Universität Wien): The Fact/Value Dichotomy is a Thought-stopper!
11:00-11:30 Coffee Break
11:30-12:30 Panel Discussion (Moderation: Sophie Juliane Veigl)

HISTORICAL PERSPECTIVES ON THE FACT/VALUE DISTINCTION
14:30-16:00 Thomas Uebel (University of Manchester): Facts and Values in the Left Vienna Circle
   Fabian Link (Goethe-Universität Frankfurt am Main): Facts and Values in Critical Theory and Critical Rationalism: Convergence and Divergence
   Robert Frühstückl (Universität Wien): On the Values of the Industrial Mathematician
16:00-16:30 Coffee Break
16:30-17:30 Panel Discussion (Moderation: Hanna Lucia Worliczek)
17:30-19:00 Get Together
19:30 Conference Dinner
October 6  Alser Straße 2–4, Uni-Campus Hof 1 / 2.8 (Alte Kapelle)

SCIENTIFIC PLURALISM - THE PROS AND CONS OF ALTERNATIVE FACTS

09:30-11:00  Federica Russo (Universiteit van Amsterdam): Promises and Perils of Scientific Pluralism
Hernan Bobadilla (Universität Wien): What could possibly go wrong? The value of explanatory pluralism
Sophie Juliane Veigl (Universität Wien): When everything goes wrong - limits of scientific pluralism

11:00-11:30  Coffee Break

11:30-12:30  Panel Discussion (Moderation: Alexander Linsbichler)

IMAGES BEYOND SCIENTIFIC EVIDENCE – A CONFLICT BETWEEN EPISTEMIC VIRTUES AND OTHER VALUES IN THE VISUAL CULTURES OF THE LIFE SCIENCES?

14:30-16:00  Raphael Scholl (University of Cambridge): Spot the Difference: Causal contrasts in scientific diagrams
Hanna Lucia Worliczek (Universität Wien): "Can't take my eyes off of you …": Historiographical Approaches to Microscopic Image Practice in Cell Biology

16:00-16:30  Coffee Break

16:30-17:30  Panel Discussion (Moderation: Robert Frühstückl)

17:45-18:15  CONCLUDING RÉSUMÉ AND OUTLOOK
Martin Kusch (Universität Wien)

Please visit our website for details and registration:
http://www.univie.ac.at/dkworkshop2018/index.html
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Abstracts

Science has often been granted a unique and privileged status as society’s value-free ‘fact-factory’. But this public picture clashes with at least two alternative perspectives: On the one hand, esoteric thinkers and influential politicians have attempted to call scientific pictures of the world – of the totality of facts, as it were – into doubt by evoking ‘alternative facts’. More often than not, such approaches appear to be at least as thoroughly unhelpful for our understanding of the world and of science itself as a naive view of science as a value-free ‘fact-factory’.

On the other hand, historians, philosophers, and sociologists of science as well as scientists themselves have deployed a great range of methodological and conceptual tools to develop a more sophisticated account of the non-trivial role of values in science and of an epistemic prerogative of science. In this spirit, the workshop aims at contributing to a more sophisticated and tenable account of the role of values in science by addressing questions such as: How can we distinguish between facts and values, if at all? What role did, do and should values play in science? Are there ‘alternative facts’? How should we deal with alternatives in and to science? How do norms and values (epistemic or otherwise) shape scientific disciplines, cultures and results – and vice versa? The concept of values applied here is understood rather open and ranges from attributes such as epistemic, cultural, social, political to aesthetical, educational and cognitive. This shall provide different perspectives on the main questions addressed above, with a variety of scientific disciplines as the objects of inquiry, like physics, the social sciences, mathematics, geology or biology.

Panel 1 will provide philosophical analyses on the fact/value dichotomy; panel 2 will focus on the historical, cultural and political contexts of the tension between facts and values; panel 3 will explore the importance of pluralism as a value in science; panel 4 will investigate the fact-value dichotomy within the visual cultures of the life sciences.

Panel 1: Is the Fact/Value Dichotomy a Thought-Stopper?

One overarching aim of this workshop is to clarify the seemingly paradoxical observation that: (i) as a matter of fact, science is a value-driven form of human inquiry, which (ii) nevertheless is our best shot at arriving at something like objective facts. In the first panel, we aim to investigate some of the conceptual underpinnings of the very distinction between facts and values: What, if anything, is paradoxical about the juxtaposition of facts and values?

Hilary Putnam, in his book *The collapse of the fact/value dichotomy* (2002), credits David Hume for having introduced the dichotomy between facts and values into western philosophy. According to Hume, a statement expresses a matter of fact if its terms refer to objects that are manifested to us in our experience. In comparison, evaluative statements do not describe objective reality, hence they cannot be a direct result of science. This way of thinking eventually cumulates in the formula which is sometimes referred to as Hume’s Law: No ‘ought’ can be derived from an ‘is’! Putnam’s critique of the dichotomy rests on a variety of considerations. For example, he points out that words like ‘cruel’ function both in evaluative and descriptive ways. One case study in the panel will illustrate that the entanglement of normative and descriptive components is by no means restricted to everyday
speech but can be detected in scientific terminology as well. Another key topic of this panel concerns
the observation that Hume’s approach to drawing the line between facts and values is a principled
one, in the sense that he presupposes empiricism to arrive at the dichotomy. This has been criticized
as an obvious weakness of his approach, given that much of modern science purports to speak of
unobservable realities. We will consider how far pragmatic justifications, according to which the
fact/value dichotomy is relative and/or a matter of degree, could vindicate the distinction or some of
its philosophically and socially desirable implications.

Panel 2: Historical Perspectives on the Fact/Value Distinction
The intention of this panel is to present and discuss various historical perspectives on the fact/value
distinction, on the role of epistemic and non-epistemic values in science as well as on the relation
between the sciences and their cultural, social and political environment in general. Thus, panel 2
should be seen as supplementing the preceding philosophical analysis of the fact/value distinction
with a complementary historical approach. As the adjectives used in the first sentence indicate, the
talks in this section put forward a specific stance toward science as an object of study. It is here not
seen as a solely cognitive enterprise but as a cultural practice, not as completely isolated from its
environment but as integral part and structurally related to society and politics. Consequently,
historical accounts of the fact/value distinction might focus on the question, where, when and under
what particular circumstances a distinction between fact and value was made and in what form?
Who were the people advocating this distinction? Which different roles did it play in its different
historical contexts? And finally, which underlying political and cultural strategies might be associated
with its advocating as well as its criticism? Additionally, talks may focus on the history of specific
epistemic or non-epistemic values in the history of modern science in its respective historical
contexts.

Panel 3: Scientific Pluralism – The Pros and Cons of Alternative Facts
In recent years, scientific pluralism has become an increasingly prominent position in the philosophy
of science. There are several examples in the empirical sciences, for instance explanatory pluralism
concerning the evolution of sex, the non-reductivity of classical mechanics to quantum mechanics or
heterodox schools of economics. A very general idea that motivates pluralist programs maintains
that some or all natural phenomena cannot be explained by only one theory or cannot be
approached by a single method. In this panel, we plan to explore the importance of pluralism as an
additional value in science that goes beyond rather canonical requests for simplicity, scope,
explanatory power and the like.
The most controversial aspect of scientific pluralism is to ask how it is possible that two theories
about one phenomenon are equally true if we are talking about facts in the same empirical world. In
addition to asking for the implicit benefits of having more than one theory, explanation or method
around, we want to put pluralism in resonance with the feminist request of including alternative
perspectives and addressing alternative needs. In addition, we want to discuss what the limits of
pluralism are, how theory choice works in this framework and how it is possible to keep out ‘foul
fruits’. Two case studies in this panel, one of them arguing that alternative views on explanation and
causation can be exerted in seismological research, will endorse scientific pluralism by exploring its
strengths and weaknesses in specific contexts. In a third talk, this perspective shall be contrasted by
asking for the limitations of pluralism and possible implications for science policy. This will be
illustrated by reviewing different theories of inheritance and evolution and asking how certain research programs can be kept out of the scientific enterprise.

Panel 4: Images Beyond Scientific Evidence – A Conflict between Epistemic Virtues and Other Values in the Visual Cultures of the Life Sciences?

During the last decades, visual cultures of the life sciences have become an emerging topic for historians and philosophers of science. Especially the epistemic and representational functions of images seem to be of interest both in academia and for the popularization of scientific knowledge. Although images might have been generated from scientific objects or based on experimentally produced data, they also fulfill functions beyond their fact-finding, evidential character for the phenomena observed. They are – with or without this intent – used to generate effects, such as emotional binding to research objects amongst students and researchers, identification with the visual culture of one’s discipline, acquisition of popularized or handbook-knowledge, e.g. in educational institutions or public health initiatives, affective reactions in a wider public, a visibility of one’s excellence in imaging, or even artistic expression. Thus, these non-evidential visualizations significantly constitute the visual culture of disciplines vis-à-vis both the members of the discipline and a wider audience. They fulfill functions beyond their role in the genesis and development of scientific facts.

In this panel, we aim to debate the tension between the epistemic use of images and such functions of scientifically informed non-evidential visualizations and their eventual implications and retroactive capacities for producing scientific knowledge. How are they used by whom? Which values are applied to their production? How important are values like beauty, persuasiveness or faithfulness for their intended effects? Is there a conflict with epistemic virtues and standards associated with the production of epistemic images? If yes, what are the consequences and how could we deal with them? Do phenomena like the intensively discussed “beautification” blur the differences between different functions of images and the values applied to their production? And finally, how are the identity, values and perception of and expectations towards a discipline constituted by such visualizations that do not serve as classical epistemic instruments?