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**Title:**

*Scientific knowledge as Epistemic Tools*

**Author:**

Mieke Boon

Department of Philosophy, University of Twente, Enschede, The Netherlands. m.boon@utwente.nl

**Abstract:**

Are common ideas on 'what knowledge is', adequate for understanding how knowledge is produced and used in scientific practices? Commonly, we assume that knowledge describes or represents something (called 'world'), and next, that its representational character explains *why* knowledge can be used in performing epistemic tasks: Knowledge can be used *because* it represent its supposed external target objects such as atoms or DNA more or less accurately, in relevant respects and sufficient degrees. Yet, we can also reverse this order by assuming that something (called 'knowledge') is *constructed for a function*, namely for performing epistemic tasks, and next, that this functional character explains 'what knowledge is'. On this account, knowledge is firstly constructed as a tool for thinking about the world, rather than as a representation of it.

In this presentation, I will defend that the notion of knowledge as epistemic tool presents us with a comprehensive account of scientific knowledge that not only provides a different take on: (1) the traditional question of how scientific knowledge is justified, but also explains (2) how it is possible to construct successful scientific knowledge, (3) how scientific knowledge is related to the world, and (4) how it is possible to use scientific knowledge in thinking about the world. Traditional philosophy of science has ignored or deliberately avoided the second and the fourth issue – it has focused on the first, and it has dragged the third issue into the domain of metaphysics.

Scientific knowledge as epistemic tool involves a different way of thinking about 'what knowledge is' – that is, it involves giving up some basic intuitions. For example, rather than a model *of* DNA, scientists have constructed a model that enables them to think about the phenomenon of inheritance – it is a model *for* the observed phenomenon (e.g., the ability of cells to reproduce). Also, the model is not firstly tagged onto, and justified by a hidden biochemical structure. Rather it is tagged onto and (partly) justified by perceivable phenomena and measurable data that are mostly produced by technological instruments. Furthermore, and due to this situation, using scientific knowledge for thinking about a phenomenon such as inheritance (e.g., thinking about how inherited traits change or get disrupted by natural causes, or, how to technologically change or knock-out inherited traits) takes the same route backwards. Manipulations are not performed directly on the supposed structure such as the biochemical structure of DNA. Rather, the supposed manipulation consists of technological procedures by means of instruments.

Both philosophers of science and textbooks in science have the tendency to detach scientific models from the crucial aspects that take part in the construction of knowledge, thereby suggesting that scientific knowledge, such as a concept or a model, firstly points at and/or represents an inherent, independent underlying structure. Alternatively, keeping these aspects on board, so to speak, that is, maintaining them as part of the scientific concept or model, helps explaining several important characteristics of it, such as: (1) how the model is tagged onto tangible things (e.g., essential aspects of measurements and instruments) and (2) that the model is constructed in view of specific epistemic purposes – which in turn guides and enables its proper and productive epistemic uses.

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