

Philosophical Column II:

Two Types of Evolutionary Epistemology

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For centuries, philosophers have questioned knowledge itself. What does it mean to know something? How can we justify our beliefs? Can we ever escape skeptical worries and achieve certainty? Should we put more trust in our senses or in our reasoning capacities?

The philosophical subdiscipline in which these and other questions are debated is called *epistemology*. After Darwin, a new interesting question emerged on the horizon of this field: Can evolutionary theory shed new light on some of the classic epistemological problems, or are the two unrelated?

Before we can answer this question, we need to introduce a distinction. In a classic paper on the topic, Bradie (1986) distinguishes two research programs of evolutionary epistemology: the evolutionary epistemology of mechanisms (EMM) and the evolutionary epistemology of theories (ETT).

The *EEM program* reflects on our growing insight about the evolution of our sensory organs and cognitive structures. Especially since Kant, epistemologists are aware that it is necessary to investigate the physical apparatus that enables us to acquire knowledge, and that this can be done with analytical, phenomenological and empirical methods. Nowadays, we have quite a good (although still patchy) understanding of how our sensory organs operate and how our brain processes information. As evolutionists, we are also aware that our perceptual and cognitive capacities are the result of adaptive processes. But do these great scientific advances also help us to solve the problems of epistemology? This can be doubted. First of all, there is no consensus in EEM about what evolution actually implies for epistemology. The interpretations differ widely: Konrad Lorenz (1978) for example has classically argued that the adaptive history of our senses means that we can trust them, and that we will typically perceive the world just as it is. Donald Hoffmann (2019) has recently claimed the opposite: He argues that “evolution hides the truth from our eyes”, as our perceptual and cognitive mechanisms systematically deceive us. So rather than solving the old debate between the realist and the skeptic, evolutionary epistemology seems only to warm it up again. Even though progress in biology gives us plenty of fascinating insight into the functioning of our perception and cognition, it is contested how

this relates to the questions of truth, knowledge, realism or justification that concern epistemologists.

But what about the second program of evolutionary epistemology? In addition to the EEM program, there is also *EET* (evolutionary epistemology of theories). This research program is centered around the analogy between the evolution of biological traits and the development of thoughts and scientific theories. *Prima facie*, the analogy is compelling: As many epistemologists have argued, science evolves in a fashion strikingly similar to biological species. Both involve a process that can be described with the basic notions of variation, competition, adaptation and selection. At any point in scientific history, there are multiple competing theories, and some of them go extinct, whereas others get improved and propagated. The similarities to natural selection have been noticed by many. Richard Dawkins for example has famously conceptualized ideas as *memes*, the cultural analogon to genes (1976). But once again, the merits of the analogy for epistemological purposes are questionable: On the one hand, it appears promising to conceptualize the process of gaining theoretical knowledge in *continuity* with biological evolution. On the other hand, the scientific process of theory choice also differs quite significantly from the process of natural selection: Science is, at least ideally, concerned with truth, whereas natural selection is about fitness. Scientists develop their hypotheses carefully and methodically, whereas natural selection operates on random variation. And finally, unlike natural selection, scientists do what they do *consciously* - at least when the coffee machine is working...

To conclude: Rather than ending the classic debates of epistemology once and for all, evolutionary theory adds new insights and layers of complexity to the already very complex debates concerning knowledge, justification and reality. That is why there is no other way to end this column than with Immanuel Kant's immortal meme: *Sapere aude!*

Literature:

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