

Our philosophical science correspondent
Massimo Pigliucci considers the value of

A Transcendental Philosophy of Science?



Science

Unfortunate it may be, but despite the spectacular successes of modern science, there is no ultimate foundation for our knowledge of the world. This was David Hume's great insight, when he formulated his famous problem of induction. Hume realized that all knowledge about the world is ultimately derived from a process of induction, ie by generalization from specific instances to broader rules. But how do we know that induction works? Because it has worked in the past, obviously. Yet this itself is an example of inductive reasoning, which makes the justification of induction and science itself perilously circular.

Immanuel Kant, who famously was rudely awakened from his philosophical slumber by the very same Hume, took philosophy into what is now called the 'transcendental turn'. This had some unintended consequences, including the current apparently unbridgeable divide between continental and analytical philosophies.

Kant's basic idea here was that human beings are born with a set of innate 'categories' by which our thinking works, such as time, space, and causality. These are ways of organizing the world we derive neither from experience nor from rational cogitation, but which transcend both of these and provide the foundation for our use of both empirical evidence and rational thinking. (In his *Critique of Pure Reason*, Kant defined 'transcendental' this way: "I call all knowledge transcendental if it is occupied, not with objects, but with the way that we can possibly know objects, even before we experience them.") The transcendental move swiftly did away with the perennial debate between rationalists and empiricists, with the conclusion that they were both right to some extent – we do derive knowledge from both experience and reason – but were both also missing a crucial component of the puzzle, the existence of the *a priori* categories.

There is now a small but vociferous group who claim that philosophy of science should take Kant more seriously, in particular that it should admit that its unabashedly naturalistic take on science is deeply flawed. According to a prominent exponent of this school, Gertrudis Van de Vijver at the University of Gent, Belgium,

commenting on the current status of the philosophy of biology, Kant teaches us that "it is impossible to objectively understand the essence of the living." Ergo, scientists are embarked on a hopeless quest, marred by their blind commitment to naturalism.

Werner Callebaut of Hasselt University, Belgium, and the Konrad Lorenz Institute, Vienna, is one of these allegedly blinded philosophers (and in the interest of full disclosure, so am I). Callebaut has battled the forces of transcendentalism in the pages of the journal *Acta Biotheoretica*, as well as at the 2007 meeting of the International Society for the History, Philosophy and Social Studies of Biology (which goes by the horrible acronym of ISHPSSB).

The problem, Callebaut has pointed out, is that both science and philosophy have moved on since Kant's insights. After all, the guy wrote before Darwin, quantum mechanics and Quine, to mention just a few. Modern philosophers of science are very aware of the impossibility of a God's eye view of the world. They are also aware that natural science has explained the otherwise entirely mysterious origin of Kant's categories: we have an innate sense of space, time and causality because natural selection favored such capabilities in order for us to navigate what Kant called the 'phenomenal' world. (There appear to be no survival value attached to understanding the 'noumenal' world, whatever it is.)

Moreover, I don't know of any biologist who is attempting to understand 'the essence of the living' – partly because it is not at all clear what sense that phrase actually makes. On the other hand, there are plenty of (essential?) characteristics of living organisms that one can, in fact, know objectively, or as close to objectively as it is humanly possible (as Kant himself could have reasonably put it). For example, no transcendental twist or turn can do away with the fact that the hereditary material of living organisms comprises a particular macromolecule known as deoxyribonucleic acid, and that it is made of two strands running in opposite directions, normally coiled in the form of a double helix; and that it is this particular spatial arrangement of the molecule which immediately explains how DNA is replicated and passed on to the next generation.

Analytical philosophy has done much during the past few decades to contribute to our understanding of what science is, how it works, and how it achieves its results. It has even helped us to think about what sort of consequences science may have for our ability to live more flourishing lives. On the other hand, I'm not aware of a single transcendental insight that has illuminated anything at all about science, its operation, or its products. In other words, transcendental philosophy hasn't given us any answers we can use in this area – it has simply told us (in rather vague and quasi-mystical terms) that we can't do what we are, in fact, doing.

When confronted with this abysmal record of transcendentalism during a roundtable discussion at the 2007 ISHPSSB meeting, Van de Vijver remarked: "We know the answer: the problem is to find the question to the answer." This immediately reminded me (and, I discovered later, several others who were present) of Douglas Adams' immortal work, *The Hitchhiker's Guide to the Galaxy*. As you may recall, the inhabitants of a distant planet built a massive computer called Deep Thought to ask – over the objections of the local philosophers' union – the answer to the question of life, the universe and everything. After cogitating for a few million years, Deep Thought replied "42" – and then immediately advised the rather disappointed recipients that now they ought to begin to search for the question. To achieve that, it said, a much more powerful computer would be necessary...

Perhaps we too will have to wait until transcendentalists have managed to build Immanuel 'Deep Thought' Kant's successor. In the meantime, analytical philosophers like me are more than happy to keep thinking about science from within the deeply flawed naturalistic framework.

© DR MASSIMO PIGLIUCCI 2008

Massimo Pigliucci is Professor of Ecology & Evolution and of Philosophy at Stony Brook University on Long Island (New York). He is the author of *Making Sense of Evolution: Toward a Coherent Picture of Evolutionary Theory* (Chicago Press, 2006). His philosophical musings can be found at www.platofootnote.org