Extended Abstract

Kant, Einstein, Reichenbach

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My aim in this talk is to analyse the relation between Einstein's postulate of relativity and Kant's view on *a priori* knowledge, in the light of Reichenbach's take on this relation. It is well known that Einstein was inspired by Kant. Although the precise role of Kant's philosophy in Einstein's thought is an issue of an ongoing debate, within the first generation of philosophers who tried to gauge the consequences of Einstein's theories for the philosophy of science – Reichenbach, Cassirer and Carnap, among others - there were already opposing views as to the relation between Kant's philosophy and Einstein's physics. In this talk I will focus on Reichenbach's interpretation of that relation.

Reichenbach famously distinguished between two different aspects of Kant's concept of the *a priori* – the *apodictic* and the *constitutive* a priori. According to Reichenbach we should do away with the apodictic aspect, because it goes against the foundations of empirical science. In his habilitation thesis "The Theory of Relativity and A Priori Knowledge" (1920) Reichenbach sees it as his task to discover what remains of the Kantian a priori in the face of Einstein's theories. In the work Reichenbach formulates his idea of the *relativised a priori* – making it precise how an element of knowledge can be constitutive without being apodictic. In my talk I will show that Reichenbach's idea about the relativised a priori is closely related to the idea of the *functional* a priori of Arthur Pap. Pap's a priori does not refer to propositions that are a priori in the sense of being independent of observation, but rather a priori in the sense of being a *pre*condition for a specific theoretical context. (for example, in the context of Newton's physics it is a priori assumed that forces behave as vectors. This assumption, although a priori, has proven useful in aeons of physics – it is very *a posteriori* indeed)

After characterising the different kinds of a priori of Kant, Reichenbach and Pap, we revisit the relation that we began with: that between Einstein's physics and Kant's a priorism. In what sense should we regard Einstein's relativity postulate as a priori? Certainly not in Kant's sense, of the *synthetic a priori*. Is there a sense of the a priori which we should apply to Einstein's postulate? This and related questions I will attempt to answer in in my talk.

For a draft version of a paper on the relation between Einstein's relativity and Kant's a priorism, please see the following:
https://feddebenedictus.com/2018/03/20/einstein-kant-synthetic-relativity/

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