

MAIMON'S SUBVERSION OF KANT'S
CRITIQUE OF PURE REASON:

There are no Synthetic *a priori* Judgments in Physics

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Maimon characterized his philosophical position as "rational dogmatism and empirical skepticism" (*Tr*, II, 436). In this paper I concentrate on the latter half of this description, and argue that Maimon's empirical skepticism subverts and jeopardizes Kant's project in the *Critique of Pure Reason*.¹

Kant's transcendental philosophy rests on the assumption that we do have valid synthetic judgments *a priori*, and he elaborates an answer to the question of how these are possible. The said synthetic judgments *a priori* were to be found in mathematics and in an apodeictic part of physics, which Kant called "pure physics". He constructed this pure physics in his *Metaphysical Foundations of Natural Science* on the basis of geometry and a "logic of realities" governing positive predicates which he called "real opposition". This "logic of realities" was intended to bridge the gap between mathematics and physics, between motions and forces. Maimon criticized the concept of "real opposition", maintaining that it was merely empirical. Thus he undermined Kant's project by arguing that physics is entirely *a posteriori*, hence also more or less probable, but not apodeictic. Whereas Maimon's "empirical skepticism" subverts and checks all "dogmatic" philosophy, "critical" and "speculative" alike, he nevertheless entertained the ideal of "rational dogmatism". His unique position consists in upholding both these seemingly incompatible doctrines.

¹ For suggestions and criticism I am indebted to Jan Bransen, Paul Franks, Klaus Hamberger, Wolfgang Lefèvre, Peter McLaughlin, Helmut Pulte, Volkmar Schüller, and Yaron Senderowics. The final version of this paper was written during my stay at the Max-Planck-Institute for the History of Science, Berlin. I am very grateful for the hospitality I enjoyed there.

1. *The Role of Apodeictic Physics in Kant's Philosophy*

"The general Problem (*Aufgabe*) of Pure Reason" says Kant under this heading in the second edition of the *Critique of Pure Reason* is to answer the question: "How are synthetic judgments a priori possible?" (*CpR*, B 19) That such synthetic judgments a priori exist is proved by the fact (*Factum*) that "pure mathematics and general science of nature" exist (*CpR*, B 128). Thus the answer to the question of how such judgments are possible also answers the following questions (*CpR*, B 20):

"How is pure mathematics possible?
How is pure science of nature possible?"

And Kant continues (*CpR*, B 20-21):

"Since these sciences actually exist, it is quite proper to ask *how* they are possible; for that they must be *possible* is proved by the fact that they are *real* (*wirklich*)". – [my italics].

Kant's project hence depends on his establishing that such sciences do exist. The task is not the same for mathematics as for physics. The claim that mathematics is "evident" (i.e., apodeictic) was generally accepted; Kant had to prove that it was synthetic and not (as Leibniz maintained) analytic. As to physics, the claim that it is synthetic was generally accepted; Kant had to prove that it was apodeictic. It seems, however, that he assumed that this latter was commonly accepted; at least he affirmed a few years later that "all natural philosophers" concurred in believing that natural laws should be of "apodeictic certainty".² In the second edition of the

² See *Metaphysische Anfangsgründe der Naturwissenschaft*, AA, IV, 472: "All natural philosophers who wanted to proceed mathematically in their work [...] rightly held that letting merely empirical principles prevail in these questions would be not at all compatible with the apodeictic certainty which they wanted to give to their natural laws..."

One such influential view is Leonhard Euler's, as expressed in the preface to his "Mechanica" of 1736: "In the second chapter, I investigate what effect a force acting on a free point, be it at rest or in motion, must exercise. From here the true principles of mechanics are derived, from which everything pertaining to the change of motion must be explained. But since these are very easily confirmed, I demonstrate that they are conceived not as merely certain but also as necessarily true (*ut non solum certa, sed etiam necessario vera esse intelliguntur*)."

Euler (1912), 10.

Compare this view with Henry Pemberton's, quoted below.

Critique of Pure Reason (1787), he in fact conceded that the existence of "pure natural science" could be doubted (*CpR*, B 21n.), but at that time he believed to have already shown in the *Metaphysical Foundations of Natural Science* (1786) that there was, indeed, such physics as was both synthetic and apodeictic.³

It is important to distinguish clearly here between "apodeictic" and "certain" knowledge. Practically all philosophers (Maimon included) were firmly convinced that Newtonian science was true. The essential difference was whether it was considered (like logic) apodeictic or as certain as the very best empirical knowledge can be; whether, that is, it was *a priori* or *a posteriori*. Only the first view (which Maimon did not share) justifies Kant's project in the *Critique of Pure Reason* as presented above.⁴ Whether or not this interpretation is endorsed, it was certainly Maimon's understanding of Kant. It cannot be doubted, writes Maimon (III, 429n.),

Ernst Cassirer saw in Euler the "philosophische Mündigkeitserklärung der neuen mathematischen Wissenschaft" (Cassirer (1974), 477), since henceforth it was science and not philosophy which determined the criteria of "objectivity": Philosophy was not to dominate experience "but merely to understand it and lay bare its fundaments" (Ibid.). In his "Réflexions sur l'espace et le temps" (1748), Euler stated clearly that in metaphysical investigations concerning nature, the certainty of mechanical principles and not metaphysics should take precedence (§ 1 and 2; cf. Cassirer (1974), 475-476). Cassirer sees in this reversal of roles between philosophy and science a preparation for Kant's systematic philosophy, which builds on this principle.

³ Indeed, in the *MANW* ("Mechanics", Prop. IV; *AA*, IV, 544), Kant presents his deduction of Newton's three laws of motion (and in Newton's exact formulation) in an *a priori* fashion. Concerning the third law (*actio est reactio*), Kant remarks (*AA*, IV, 549) that Newton "did not dare to prove it a priori and therefore appealed to experience." The derivation of this "lex antagonismi" builds on the compounding of motions in the "Phoronomy" (*AA*, IV, 551), which will be considered later in this paper.

Stadler (1883), 185 and 189, emphasized the difference between the empirical epistemological status of the laws of motion according to Newton and their *a priori*, necessary nature according to Kant.

In the introduction to the second edition of his *Critique of Pure Reason*, Kant merely names some such synthetic *a priori* judgments of physics. The "*physica pura*" or "*rationalis*", which contains these principles or laws, deserves, so he says (*CpR*, B 17, B 21n.), to be "separately dealt with in its whole extent" as an independent science. Exactly this is what he undertook in his *Metaphysical Foundations of Natural Science*.

⁴ On the widespread view that Newton's mechanics was certain and on the understanding of the analytic-synthetic method which gave it the appearance of *a priori*, see Freudenthal (1986), 70-71.

Salomon Maimon: Rational Dogmatist, Empirical Skeptic

Critical Assessments

Freudenthal, G. (Ed.)

2003, VII, 304 p., Hardcover

ISBN: 978-1-4020-1473-4