



The early Kant's (anti-) Newtonianism

Eric Watkins

University of California, San Diego, United States

ARTICLE INFO

Article history:

Available online 1 December 2012

Keywords:

Kant
Cosmogony
Newton
Necessity
Laws
God

ABSTRACT

It is well known that during his pre-Critical period, Kant was a major proponent of Newtonian physics, for the project of the *Universal Natural History* explicitly uses “Newtonian principles” to explain the formation of the various bodies that constitute our solar system as well as those that lie beyond. What has not been widely noted, however, is that the early Kant also developed a major criticism of Newton, one that is based on subtle metaphysical issues pertaining to God, which are most at home in philosophical theology. Interestingly, this criticism is neither an inchoate precursor of his later criticisms of Newton's account of absolute space, nor isolated to the abstract realm of metaphysics, but has a wide range of implications for the way in which a scientific account of the formation and constitution of the heavenly bodies ought to be developed, that is, for the kind of argument Newton offered in the *Principia*. That Kant remained interested in this set of issues later in his Critical period suggests that, alongside the revolutionary changes that comprise transcendental idealism, there are deep continuities not only in his Newtonian commitments, but in his anti-Newtonian tendencies as well.

© 2012 Elsevier Ltd. All rights reserved.

When citing this paper, please use the full journal title *Studies in History and Philosophy of Science*

1. Introduction

It is widely agreed that throughout his mature works Kant is, in some nontrivial sense, both a Newtonian and an anti-Newtonian. On the one hand, he is heavily indebted to Newton insofar as main aspects of his account of the natural world reveal broadly Newtonian features. Not only does he accept universal gravitation and the notion of action at a distance that is naturally, though not unavoidably, thought to accompany it, but major components of his metaphysics and philosophy of science are also fundamentally Newtonian. In the *Metaphysical Foundations of Natural Science*, in particular, he develops extended arguments for both Newtonian forces of attraction and repulsion and three laws of mechanics that bear striking parallels to (though also notable differences from) Newton's three laws of motion.¹ Moreover, Michael Friedman has recently argued that in the *Metaphysical Foundations* Kant even adopts, with some modification, Newton's main argument of the *Principia* in such a way that the highly abstract principles of Kant's

transcendental philosophy can be realized only by an essentially Newtonian world.²

On the other hand, in his mature works Kant is also quite critical of Newton. Near the beginning of the *Critique of Pure Reason*, Kant famously criticizes both Newton's and Leibniz's accounts of space and time. Specifically, space and time cannot, he argues, be “actual entities” that are absolute, as Newton maintains, nor can they be merely “determinations or relations between things... that would pertain to them even if they were not intuited by us” (A23/B37) and thus relational, as Leibniz holds, but rather must be merely subjective forms of intuition, which is one of the core claims of Kant's most distinctive and foundational philosophical doctrine, transcendental idealism. That is, Kant fundamentally rejects Newton's (and Leibniz's) metaphysics of space and time in favor of his own idealistic system.

What has received much less attention, however, is Kant's relation to Newton *prior* to the publication of the *Critique of Pure Reason* in 1781 and the *Metaphysical Foundations* in 1786.³ To the

E-mail address: ewatkins@ucsd.edu

¹ See, for example, (Friedman, 1992; Warren, 2010; Watkins, 1998; Smith, 2012).

² See (Friedman, 1992), chaps. 3 and 4.

³ Exceptions to this are (Adickes, 1924; Harman, 1983; Laywine, 1993; Lefevre, 2001; Polonoff, 1973; Schönfeld, 2000; Waschkies, 1987; Watkins, 2003).

extent that the reception of Newton in Kant's pre-Critical works is discussed at all, it is typically noted that the early Kant is sympathetic to Newton's position in natural science. His most important innovations are described as lying in his attempt at reconciling his Newtonian views in natural science with a more Leibnizian metaphysics, where the project of reconciliation is not supposed to require a rejection of any particularly fundamental Newtonian doctrines. In this context, the following points are often acknowledged: (1) early in the pre-Critical period Kant accepted Newtonian attractive and repulsive forces and the law of universal gravitation, (2) by 1756, he came to accept a physical monadology that included both atoms and the force of inertia, which can be seen as deriving, in part, from Newton (though also, in part, from Leibnizian considerations), and (3) in 1768, on the basis of incongruent counterparts, he is typically viewed as arguing for a Newtonian conception of absolute space (though later, in the *Prolegomena*, he used incongruent counterparts to support transcendental idealism instead). These points are certainly important since they establish that the early Kant had deep Newtonian commitments.

What has not been seen clearly enough, however, is that and how the early Kant also developed a major criticism of Newton, one that is ultimately based on subtle metaphysical issues pertaining to God that are most at home in philosophical theology.⁴ Moreover, this criticism is neither a precursor of his later criticisms of Newton's account of absolute space, nor isolated to the abstract realm of metaphysics, but has a wide range of implications for the way in which a scientific account of the formation and constitution of the heavenly bodies ought to be developed, that is, for the kind of argument Newton offered in the *Principia*. That Kant remained interested in this set of issues later in his Critical period suggests that, alongside the revolutionary changes that comprise transcendental idealism, there are deep continuities not only in his Newtonian commitments, but in his anti-Newtonian tendencies as well.

In Section 2, I describe how a pro-Newtonian interpretation of Kant's views early in his pre-Critical career could seem attractive. Specifically, I first show how, in his attempt to reconcile Cartesian and Leibnizian positions on the *vis viva* debate in the late 1740s, Kant initially rejected one central aspect of Newton's position, the law of inertia, (albeit without seeming to have given the matter careful thought), while accepting another and trying to develop further consequences from it, which end up being fundamentally anti-Newtonian, though Newton is not the primary focus of Kant's attention. I then describe how one might view Kant as coming to adopt a much more Newtonian position in the *Universal Natural History* in 1755. For even though Kant explicitly notes several differences between Newton's position and the one he develops, the temptation to gloss over these differences as superficial is clear, making it easy to stress that what is most central to Kant's overall project at this time—his basic position and argument for it—is fundamentally Newtonian.

In Section 3, I argue against this kind of pro-Newtonian reading by showing that his broad and deep Newtonian commitments notwithstanding, Kant breaks from Newton in the *Universal Natural History* by lodging a substantive criticism of Newton's position on God's governance of the world and offering a major alternative to it. Specifically, I show that Kant proposes to explain the harmonious order of nature not by appealing to the immediate will of God (which would, he thinks, unnecessarily render his position vulnerable to a serious line of criticism), but rather through re-

course to matter and its necessary laws. Kant can avoid the heretical implications one might attribute to this kind of "naturalist" view by denying that explanations of the order of nature must invoke either God or matter, since he understands God as the ground not only of the existence of matter, which is a commonly held view, but also of the very possibility of matter and its necessary laws, which is a not a standard position at the time. For such a position to be coherent, however, Kant must be able to explain how God could ground possibilities. I describe how Kant holds that God grounds the possibilities of things not through his will (which would, he thinks, be viciously circular), but rather through his essence as a self-sufficient being with a distinctive kind of intuitive intellect. I conclude by showing that the conception of God that Kant ends up adopting coheres much better with a number of structural features of the constitution of the universe than does a conception that would appeal directly to the will of God. As a result, though Kant is critical of Newton's position on this fundamental point, he has reason to think that the position he develops actually provides strong support for the empirical world that Newton had described with such incredible precision and genius. In this way, one can, I hope to show, appreciate how the early Kant can simultaneously and consistently be both for and against Newton in fundamental respects.

2. The emergence and character of the early Kant's Newtonianism

2.1. Kant's earliest stance towards Newton

In his first publication, *Thoughts on the True Estimation of Living Forces* (1746/49), Kant's main goal is to reconcile the Cartesian and the Leibnizian positions on the *vis viva* debate. His argument, in brief, is that the Cartesian estimation of force (according to which 'dead force', or mv , is conserved in nature) is mathematically correct for bodies that require an external stimulus for their continued motion, but that the Leibnizian estimation (according to which 'living force', or mv^2 , is conserved in nature) is correct for bodies that move without requiring any external cause to sustain their motion. Though Newton's position agrees with Descartes's on this point, Kant always pits Descartes (or the Cartesians) against Leibniz (or the Leibnizians); neither Newton nor any of the Newtonians who are involved in the debate plays any explicit role in Kant's discussion. As a result, Newton is not directly involved in the main topic of this work, as Kant frames it.

Nevertheless, Newton's position is relevant to the *True Estimation* in three ways. First, Kant makes the well-known point that it is unseemly for God to have to continually add motion to the universe to keep it from coming to a standstill, as Newton maintains (1:58).⁵ At the same time, this particular criticism seems, *prima facie*, to be an isolated and relatively minor point; Kant acknowledges borrowing it from Leibniz and nowhere in the rest of his work does he explicitly indicate that any significant consequences follow from it.

Second, immediately after presenting the main contours of his resolution of the *vis viva* debate, Kant explicitly recognizes that his position entails the rejection of Newton's law of inertia (1:155). Since bodies endowed with a certain kind of motion have 'dead' rather than 'living' forces, they are not capable of sustaining themselves in motion; that is, their motion will diminish of itself

⁴ Waschkes and Schönfeld are more attuned than others to the way in which features of God are relevant to the order of nature in the early Kant's views. For example, Waschkes notes that Kant's intent in the *Universal Natural History* is to show "dass eine konsequente Anwendung der Newtonschen Physik zu einem physikotheologischen Gottesbeweis führt, der die Existenz eines Gottes Leibnizischer Prägung sicherstellt" (Waschkes, 1987, p. 18). As we shall see below, Kant develops his conception of God in ways that go well beyond Leibniz's position, at least on certain crucial points.

⁵ References to Kant's works will be noted by volume and page number in parentheses from the *Akademie* edition of Kant's works (Kant, 1900). Translations will be from Kant's (1992, 1996, 2012).

Download English Version:

<https://daneshyari.com/en/article/1160464>

Download Persian Version:

<https://daneshyari.com/article/1160464>

[Daneshyari.com](https://daneshyari.com)