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The Wolffian roots of Kant's teleology

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ABSTRACT

Kant's teleology as presented in the *Critique of Judgment* is commonly interpreted in relation to the late eighteenth-century biological research of Johann Friedrich Blumenbach. In the present paper, I show that this interpretative perspective is incomplete. Understanding Kant's views on teleology and biology requires a consideration of the teleological and biological views of Christian Wolff and his rationalist successors. By reconstructing the Wolffian roots of Kant's teleology, I identify several little known sources of Kant's views on biology. I argue that one of Kant's main contributions to eighteenth-century debates on biology consisted in demarcating biology from metaphysics. Kant rejected Wolffian views on the hierarchy of sciences, according to which propositions specifying the functions of organisms are derived from theological truths. In addition, Kant argued that organic self-organization necessitates a teleological description in order to show that self-organization does not support materialism. By demarcating biology and metaphysics, Kant made a small yet important contribution to establishing biology as a science.

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1. Introduction

In the 1980s, Timothy Lenoir argued that Kant provided the theoretical foundations of biological research conducted within the 'Göttingen School' founded by Johann Friedrich Blumenbach (Lenoir, 1980, 1981, 1989). Kant took biological explanations to be mechanical explanations, and assigned teleology a *heuristic* or *regulative* function in biology: although we cannot affirm or deny the reality of purposiveness in nature, we necessarily *conceptualize* organic nature in teleological terms. This view, as Lenoir and others have claimed, was fundamental to the emergence of biology as a special science (Zumbach, 1984).

Lenoir's thesis has recently been rejected. Robert Richards and John Zammito have shown that Blumenbach and his followers affirmed the objective reality of natural purposiveness and therefore did not observe Kant's regulative interpretation of teleology (Richards, 2000, 2002; Zammito, 2006, 2009, 2012). According to Richards and Zammito, Kant's influence on the historical development of biology has been misunderstood both by Kant's contemporaries and by modern interpreters. If Kant's regulative teleology was hardly adopted by eighteenth-century biologists and philoso-

phers, we are faced with the following question: why did Kant adopt his regulative interpretation of teleology?

Lenoir, his followers, and his critics have all interpreted Kant's teleology in relation to developments in late eighteenth-century biology. In the present paper, I show that this interpretative perspective is incomplete: it provides an incomplete understanding of the historical and philosophical context in which Kant articulated his ideas on teleology and biology. As such, it cannot fully explain why Kant adopted a regulative conception of teleology.

Understanding Kant's position requires, I shall argue, that one take into account the little known teleological and biological views of Christian Wolff and his rationalist successors. By thus considering together Kantian and Wolffian teleology, we can obtain a balanced account of the importance of Kant's teleology in eighteenth-century thought. Kant's main contribution, as shall become apparent, consisted in *demarcating* biology from various forms of metaphysics. His regulative conception of teleology was a means to demarcate biology from both theology and materialism. By demarcating biology from these metaphysical doctrines, Kant provided a small yet important contribution to establishing biology as a science.

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I will show that Kant's teleology can be profitably interpreted as a critique of Wolffian teleology. Wolff adopted a view on the hierarchy of sciences according to which scientific propositions attributing purposes to organisms are demonstrated on the basis of propositions pertaining to the science of natural or rational *theology*. For Wolff, purposes can be attributed to nature only if one presupposes theological truths. I show that Kant's regulative conception of teleology implied a rejection of this view, and so must be interpreted as an effort to *demarcate* theology and biology. I further show how, in the middle of the eighteenth-century, rationalist philosophers failed to integrate scientific theories of (organic) self-organization within their theistic framework. They criticized and rejected these theories because of their supposedly materialist implications. Kant, however, aimed to *harmonize* traditional teleology with eighteenth-century biology. Taking self-organization to be a fundamental biological concept, he argued that self-organization necessitates a teleological description. In this way, he sought to demarcate biology from *materialism*.

The present study examines a number of little known sources. Although Wolff coined the term 'teleology' and was the first to view teleology as a special science (McLaughlin, 2001, p. 16), his views on teleology and the life sciences have been little investigated.¹ This is unfortunate, since, as I will show, Wolff's views on teleology and its place in the hierarchy of sciences were highly influential in the eighteenth-century. One can often not understand eighteenth-century philosophical debates on teleology without taking into account Wolff's philosophy. I will argue that Kant rejected Wolffian views on the scientific status of teleology and on the place of teleology in the hierarchy of sciences. I do not wish to argue, of course, that Wolff was solely responsible for Kant's teleological agenda. Moreover, Kant's knowledge of Wolff was very likely mediated by the works of various rationalist philosophers who adopted (aspects of) Wolff's thought.² However, the Wolffian conception of teleology, which was textbook knowledge in Kant's time, was very important for Kant and should not be overlooked.

The reception of biological theories by mid-eighteenth-century rationalists, such as Reimarus and Crusius, is also little known. These sources are also of crucial importance, I argue, for understanding Kant's philosophy of biology. The study of these sources shows that developments within eighteenth-century biology posed considerable difficulties for rationalist and theistic philosophers. In general, we can say that, at least for the authors I will consider, eighteenth-century biological theories gave rise to vehement metaphysical debates between materialists and theists. These debates provide the historical background to Kant's own thinking about teleology and allow us to appreciate that it was a significant contribution of Kant's to demarcate biology from metaphysics.

The paper is structured as follows. In Section 2, I treat Wolff's views on the science of teleology and teleological explanation. Section 3 offers an analysis of Wolff's so-called *German Physiology*, in which I show how, according to Wolff, theology grounds physiology. In Section 4, I discuss the reception of eighteenth-century biological theories by German rationalists such as Reimarus and Crusius. It is shown how the latter authors struggled with theories of spontaneous generation, organic regeneration, and generation. Section 5 considers how Kant, in the *Analytic of the Critique of Teleological Judgment*, distinguishes teleology from theology. I show that Kant rejects the Wolffian conception of the place of teleology

in the hierarchy of sciences. The Wolffian background elucidates what Kant means when he denies that teleological concepts can function as objective (a priori) concepts of determining judgment. It further explains, in part, why Kant adopted a regulative conception of teleology. Finally, Section 6 examines Kant's account of why phenomena of organic self-organization necessitate a teleological construal of organisms. I show how Kant combines traditional views on teleology with advancements in 18th century biology.

2. Wolff's teleology

In the present section, I will analyze Wolff's conception of teleology. Since Wolff is a relatively unknown figure, I first present some biographical information. I then discuss Wolff's views on scientific method and the hierarchy of sciences. This will enable us, finally, to determine his views on the science called teleology.

Christian Wolff was born in Breslau on January 24, 1679, the son of a tanner. He attended a Lutheran *Gymnasium*, where he studied the writings of scholastic philosophers such as Aquinas and Suarez. In 1699, he enrolled in the University of Jena to study theology. He switched to mathematics, became acquainted with the physicist and mathematician von Tschirnhaus, and received his master's degree from Leipzig in 1702. In 1703, he wrote a work on the application of mathematics to practical philosophy, which attracted the attention of Leibniz. With the help of Leibniz, Wolff became professor of mathematics and natural science in Halle in 1706 (Beck, 1969, pp. 256–261; Drechsler, 1997).

Wolff lectured and wrote on mathematics, logic, natural science, philosophy, law, theology and many other subjects. Many of his (German) works became popular textbooks and were used in various gymnasia and universities (Heilbron, 1979, pp. 43–44).³ In 1723, as rector of the University of Halle, Wolff delivered an address on the practical philosophy of the Chinese in which he argued that moral truths could be discovered independently of revelation. This offended the pietistic theologians at Halle. After much academic and political intrigue, Wolff was exiled from Prussia by King Friedrich Wilhelm I on November 8, 1723 (Beck, 1969, pp. 258–259). Wolff's exile increased his international fame. He became professor of mathematics and physics and professor of philosophy at the University of Marburg. In Marburg (1723–1740), he wrote numerous Latin works in which he presented his philosophy. In 1740, he was recalled to Halle by Frederick II. He became Professor of public Law and of mathematics, privy councilor of Prussia and, in 1745, Imperial Baron of the Holy Roman Empire. He died on 9 April 1754 (Drechsler, 1997, pp. 116–121).

Wolff was an eighteenth-century academic superstar. He was a member of the academies of Berlin, St. Petersburg, Paris and of the Royal Society in London (Beck, 1969, p. 258). Numerous books appeared that discussed Wolff's philosophy and (the history of) the so-called 'Wolffian school' (see, e.g., Ludovici, 1977 [1737–1738]; Hartmann, 1973 [1737]). These books often discuss similar topics and illustrate the position Wolffian philosophy enjoyed in the middle of the eighteenth-century. I will provide one example that highlights the nature and content of these works.

Johann Heinrich Zedler's *Universal-Lexicon aller Wissenschaften und Künste* contains a 128 page long article on Christian Wolff (Zedler, 1748) and a 349 page long article on Wolffian philosophy (Ludovici, 1748).⁴ The first article provides biographical information

¹ A nice account of Wolff's teleology is given by Euler (2008). Yet Euler does not treat Wolff's physiology in detail. Wolff's physiology is central to the present paper. For a comparison between Leibniz's and Wolff's views on teleology, see Engfer (1983). The importance of Wolff's logic for Kant is stressed by Longuenesse (1998) and Anderson (2005). On Wolff's influence of Kant's philosophy of mind, see Dyck (2011). On Christian Wolff's influence on the embryology of Caspar Friedrich Wolff, see Roe (1981). Wolff's and Kant's views on mechanical explanation are discussed in van den Berg (2013).

² I identify several of these sources in the course of this paper.

³ Kant himself used Wolff's works to lecture on mathematics (Naragon, 2006).

⁴ Here, the term 'philosophy' must be interpreted broadly. For eighteenth-century authors, 'Wolffian philosophy' comprises every topic he wrote about, i.e., everything.

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