



# Analogical reflection as a source for the science of life: Kant and the possibility of the biological sciences<sup>☆</sup>



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## ABSTRACT

In contrast to the previously widespread view that Kant's work was largely in dialogue with the physical sciences, recent scholarship has highlighted Kant's interest in and contributions to the life sciences. Scholars are now investigating the extent to which Kant appealed to and incorporated insights from the life sciences and considering the ways he may have contributed to a new conception of living beings. The scholarship remains, however, divided in its interest: historians of science are concerned with the content of Kant's claims, and the ways in which they may or may not have contributed to the emerging science of life, while historians of philosophy focus on the systematic justifications for Kant's claims, e.g., the methodological and theoretical underpinnings of Kant's statement that living beings are mechanically inexplicable. My aim in this paper is to bring together these two strands of scholarship into dialogue by showing how Kant's methodological concerns (specifically, his notion of reflective judgment) contributed to his conception of living beings and to the ontological concern with life as a distinctive object of study. I argue that although Kant's explicit statement was that biology could not be a science, his implicit and more fundamental claim was that the study of living beings necessitates a distinctive mode of thought, a mode that is essentially analogical. I consider the implications of this view, and argue that it is by developing a new methodology for grasping organized beings that Kant makes his most important contribution to the new science of life.

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Although Kant's relation to the sciences has been largely focused on his interest in the physical sciences, recent scholarship has highlighted Kant's engagement the emerging science of life.<sup>1</sup> Whether it is by investigating his exchange with Blumenbach,

exploring his interest in the debates on generation and race, or systematically reconstructing his conception of organisms, studies in both the history of science and the history of philosophy have shown that Kant must be regarded as a contributor to the late 18th century debates on the ontological status and epistemological significance of organized beings.<sup>2</sup> While historians of science have sought to determine the roots of Kant's conception of teleology, or demonstrate its contributions (or lack thereof) to various scientific programs of its time, philosophers have generally focused on the systematic significance of the *Critique of Judgment*, with the aim of understanding the ways in which Kant's final critical work expands upon his understanding of systematic and scientific unity.<sup>3</sup>

<sup>☆</sup> All references to Kant will be made to the Akademie-Ausgabe edition, with the exception of the A/B pagination of the *Critique of Pure Reason*. English translations used are indicated under References.

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<sup>1</sup> The recent rise of interest in Kant's "biology" is evident both in historical and philosophical studies of the *Critique of Judgment*. However, the fact that these studies emerge out of different fields (history of science and history of philosophy) means that their approaches do not always converge. Thus there are numerous studies of Kant's contributions to biology that are not concerned with, for instance, the systematic coherence of his project; and, in turn, there are studies of Kant's conception of organic unity that are not concerned with the historical roots of his conception or his contribution to the scientific programs of his time. There are, of course, important exceptions to this rule, such as [McLaughlin \(1990\)](#). Edited collections also offer important exceptions, given that they often include essays by both historians of science and historians of philosophy. See for instance [Goy and Watkins \(2014\)](#) and [Huneman \(2007\)](#).

<sup>2</sup> [Lenoir \(1982\)](#) is a classic from this perspective.

<sup>3</sup> This is the case in [Zuckert's \(2007\)](#) excellent book, which seeks to account for the systematic unity of the *Critique of Judgment* and understand its contributions to the critical project in general. Other systematic accounts can be found in [Ginsborg \(1997\)](#).

However, although these varying investigations have revealed Kant's serious interest in the life sciences, Kant's highly ambiguous claims regarding the status of a science of life leave us with an important methodological question: how are we to understand his apparent injunctions against the very notion of a science of life? In other words, how are we to account for his claim that there can be no Newton for a blade of grass and his distinctively narrow conception of "proper science" as mathematical physics?<sup>4</sup> Should we ignore Kant's injunction, and instead focus on his actual (historical) contributions?<sup>5</sup> Or should we accept Kant's view on philosophical grounds, but reject it on pragmatic ones? Or, finally, should we read Kant *against* Kant, that is to say, see in Kant's philosophical project an implicit but key move to the development of a science of life?

Although these questions are largely implicit in the differing approaches to Kant's relation to the science of life, the first two map on to the interpretive paths I mentioned above. By regarding Kant from a historical perspective, the first question prioritizes the reality of his contributions to the life sciences and emphasizes his connections to various scientists of the time, and thus exemplifies the position that historians of science have taken on the issue. The second question, by contrast, exemplifies the position of more philosophical approaches, where the underlying issue is whether Kant's views on organic unity and mechanical inexplicability cohere with his larger systematic aims, and the extent to which his solution to the antinomy of teleological judgment successfully offers a solution to the dichotomy between a purposive conception of nature and a mechanical one.<sup>6</sup>

The third question will be the strategy adopted in this paper. It aims to bring together these two concerns—the historical and the philosophical—by focusing on Kant's methodology.<sup>7</sup> My claim is that Kant, despite himself, leaves us with a critical insight regarding the methodology of a science of life, a methodology based on analogical reflection. More specifically, I argue that it is in Kant's explication of the analogical character of teleological judgment, and his related claim that analogical reflection is essential for understanding living beings, that we can resolve the conflict that underlies the antinomy of teleological judgment and that concerns the scientific study of teleology. For it is precisely in Kant's notion of analogical reflection that, I contend, we find a positive contribution to the study of living beings.<sup>8</sup> In contrast to the majority of studies that regard Kant's characterization of teleological judgment in

negative terms, i.e., in terms of what it must *not* or *cannot* achieve, or in terms of its *as if* status, I locate a fundamentally positive moment in teleological judgment, focusing on what it *can* achieve, and the kind of scientific research program it engenders.<sup>9</sup>

An investigation of Kant's account of scientific methodology will require an explication of the apparent tension between his notion of "proper science," as elaborated in the *Metaphysical Foundations of Natural Science*, and his attempt to develop an "empirical science" in the *Critique of Judgment*. Thus, I will begin with an examination of this tension, and its attempted solution in the antinomy of teleological judgment. I will then proceed to consider Kant's account of teleological judgment, highlighting what Kant distinguishes as its "problematic" character. I argue that it is problematic insofar as it cannot offer what Kant calls "explanation," a point that has been largely overlooked in the literature. Following a negative account of teleological judgment, i.e., an account of what it *cannot* achieve, I go on to provide a positive account, which is fundamentally based on its analogical character. It is this positive contribution of teleological judgment as a form of analogical reflection that, I contend, provides the basis for Kant's understanding of the study of living beings or the science of life.

### 1. "Proper Science," empirical science and the antinomy of teleological judgment

Kant's infamous statement that it would be absurd to hope that "there may yet arise a Newton who could make comprehensible even the generation of a blade grass according to natural laws" has been taken to imply that for Kant the science of biology is simply impossible.<sup>10</sup> While this statement follows from Kant's views of nature as mechanism, and closely resembles earlier claims he makes on the knowability of living beings,<sup>11</sup> it does not sit well with the overarching aims of the *Critique of Judgment*.

The goal of the third *Critique* is to make intelligible those beings that are, from the perspective of mechanism, inexplicable. Importantly, this intelligibility implies the development of a scientific research program. After all, Kant describes teleology as "indispensable" for scientific research, writing that "it is in fact indispensable for us to subject nature to the concept of an intention if we would even merely conduct research among its organized products by means of continued observation..."<sup>12</sup> In other words, Kant introduces teleological judgment precisely because it can contribute to scientific investigation. But in what sense and to what extent can teleological judgment contribute to science?

These, I think, are the key questions that Kant is posing and attempting to answer in the antinomy of teleological judgment, which aims to resolve the conflict between two scientific modes of

<sup>4</sup> Kant (1790), AA 5, 400 and Kant (1786), AA 4, 468.

<sup>5</sup> Or lack thereof. The debate regarding Kant's significance for the development of biology (and his understanding or misunderstanding of key thinkers at the time, especially Blumenbach) can be found in Richards (2000, 2002) as well as Zammito (2012).

<sup>6</sup> See for instance Allison (1992); Breitenbach (2006); Watkins (2009).

<sup>7</sup> Huneman (2006) takes a similar approach, locating in Kant the origins of the two main paths that biology undertook in the 19<sup>th</sup> century. While Huneman focuses on Kant's conception of purposiveness, however, I focus on Kant's methodology and his introduction of analogical reflection in teleological consideration, both of which I regard to be his most significant contribution.

<sup>8</sup> Another recent account of Kant's positive contribution to the life sciences can be found in van den Berg (2013). In concert with the approach that I take here, van den Berg's aim is to show that Kant, despite himself, offered important tools for the development of the science of life, in contrast to both theology (Wolffian teleology) and (French) materialism. While I think van den Berg rightly situates Kant in this context and thereby illuminates Kant's differences from both approaches, he does not properly explain why the materialist approach could not, on its own, have offered a science of life, nor does he explain how Kant's specific contribution (i.e., his non-theological teleology) provided much needed tools. Furthermore, van den Berg does not properly consider Kant's narrow conception of science, and thus does not reflect on the limitations that Kant himself places on the possibility of a science of life. Nonetheless, and in agreement with van den Berg, my aim here is to show that Kant did offer significant tools for the science of life, but these were, above all, methodological tools, i.e., new ways by which to look at or regard the world.

<sup>9</sup> By way of conclusion to a recent article titled "Biological Purposiveness and Analogical Reflection," Angela Breitenbach suggests the need to undertake precisely such an investigation, writing that "more will need to be said...about the compatibility of considering parts of nature as objectively purposive and the explanations of natural objects in terms of efficient causality" (Breitenbach [2014], p. 146). My aim, in line with Breitenbach's suggestion, is to understand the positive research program that teleological judgment offers and differentiate it from the program developed through judgments according to mechanism and efficient causality. Thus I take teleological judgment as contributing to a *scientific* account of nature, even if not an account that accords with Kant's earlier conception of science.

<sup>10</sup> Kant (1790), AA 5, 400. Richards (2002, p. 229), for instance, argues that this statement "delivered up a profound indictment of any biological discipline attempting to become a science." See also Zammito (2003), who argues that the significance of this claim must be understood in relation to Kant's regulative/constitutive distinction.

<sup>11</sup> See for instance, Kant's essay "On the only possible proof for the existence of God," where he maintains that living beings are contingent and thus inexplicable from the laws of nature. Kant (1763), AA 2, 107.

<sup>12</sup> Kant (1790), AA 5, 398.

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