

# Biological Purposiveness and Analogical Reflection

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## 1. Introduction

In the "Critique of the Teleological Power of Judgment", Kant claims that in the realm of living nature we encounter phenomena that appear to display a peculiar purposiveness. The wings of a bird, for example, seem to be conducive to the bird's capacity to fly and thereby to the survival of the bird as a whole. The whole organism, moreover, appears to be the result of an end-directed developmental process. Some natural objects, namely the living organisms, thus appear to us as if they were characterized by a purposive organization of the whole and its parts, and by a particular end-directedness. In order to account for this, Kant introduces the concept of biological purposiveness, that is, an objective, material, and internal purposiveness.<sup>1</sup>

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<sup>1</sup> In §61 of the *CPJ*, Kant introduces the concept of objective purposiveness as the third of three types of the purposiveness of nature. The first is the subjective purposiveness of nature as a whole for its "comprehensibility" by the human intellect (*CPJ* V 359.4 f.). See, for example, Kant's discussion at *CPR* A 653 f./B 681 f., *CPJ* V 179.19–186.21, and *First Introduction* XX 211.6–216.26. The second is the subjective purposiveness of the objects of aesthetic experience, which "contain a form so specifically suited for [the human power of judgment] that by means of their variety and unity they serve as it were to strengthen and entertain the mental powers" (*CPJ* V 359.9–12); see also *CPJ* V 219.26–236.11. In §§62 and 63 of the *CPJ*, Kant further distinguishes the third type, that is, the objective purposiveness of living beings as "material" from the "formal" (*CPJ* V 362.4 f.) objective purposiveness of geometrical figures, and as "internal" from the "relative" (*CPJ* V 366.25 f.) or "external" (*CPJ* V 368.32) material objective purposiveness of things that are merely "useful" or "advantageous" (*CPJ* V 366.8) for something else. My discussion of Kant's notion of biological purposiveness will focus on this concept of objective, material, and internal purposiveness.

On Kant's account, this concept of biological purposiveness grounds judgments that have a rather peculiar status. On the one hand, these judgments are elicited by particular experiences of biological phenomena. It is the experience of organisms that leads us to employ the concept of a means-ends relation as characterizing the living world.<sup>2</sup> On the other hand, judgments about biological purposiveness are purely regulative and, hence, make no determinate claim about the character of the biological phenomena themselves. For, as Kant also claims, by means of these judgments we reflect about nature as if it were purposive without determinately explaining it as purposive. This raises the question of how we should make sense of the peculiar status of judgments about biological purposiveness, given that those judgments are in some form dependent on particular experiences without, however, making any determinate claims about the objects of those experiences.

My aim in this paper is to propose an answer to this question which focuses on the analogical character of this type of teleological judgment that Kant introduces at the beginning of the "Critique of the Teleological Power of Judgment". As Kant argues, teleological judgments are employed in order to reflect about living nature "in *analogy* with the causality according to ends" (*CPJ V* 360.23), that is, in analogy with the end-directed causality of an intelligent agent. Teleological judgments may thus be regarded as analogical considerations about particular experiences. And yet, teleological judgments do not make any claims about the purposive nature of the objects of those experiences themselves, but only about the way in which we reflect about those objects by means of an analogy.

While the analogical status of claims about biological purposiveness has been recognized in the literature, its particular import may remain unclear.<sup>3</sup> For if, as Kant argues, we cannot *know* that living nature *is* purposive, what help is it to *reflect* about nature *as if it were* purposive? Answering this question is, I think, complicated by the fact that Kant's discussion of the role of teleological reflection expresses two apparently diverging tendencies. Kant argues not only for the heuristic use of teleological judgment as a helpful guide for the study of nature, but he also claims that

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<sup>2</sup> See *CPJ V* 366.27 f. In this respect, judgments of objective purposiveness importantly differ from those of the subjective purposiveness of nature (see *CPJ V* 193.24–194.2).

<sup>3</sup> See, e.g., Ginsborg (2001, 237 f.), Guyer (2001, 264-7), McFarland (1970, 111), and McLaughlin (1989, 39).

teleological considerations are indispensable for our very understanding of something as a living being. According to the first suggestion, teleological judgments, while not themselves directly explanatory, provide a useful means for discovering explanations in terms of the laws of nature. On this account, the aim of thinking about living beings by analogy with the "causality according to ends" lies in discovering non-teleological, causal explanations. According to the second claim, by contrast, teleological judgments are presented not merely as a guide for the discovery of non-teleological explanations but as themselves necessary for our understanding of living beings. The aim of teleological judgments, on this account, does not consist in the discovery of causal explanations, but in making possible a conception of the living world that would not have been possible without the use of teleological considerations.

The "Critique of the Teleological Power of Judgment" thus presents two accounts of the function of teleological reflection that, I believe, have not been sufficiently distinguished in the literature. I argue that we need to take account of both conceptions in order to make sense of the peculiar status of teleological judgments. Rather than reading Kant as wavering between two distinct accounts of biological purposiveness, however, I suggest that we should understand him as putting forward one coherent conception that has implications for both our scientific practice and our very thinking of the living world. This claim can be substantiated, I believe, by taking a closer look at the different roles that Kant attributes to analogical thinking. I argue that the analogy with the "causality according to ends" provides a heuristic guide to the study of living nature while constituting a necessary condition for representing something as an organized being. It is this insight, I suggest, that sheds light on the question addressed in this paper.

In order to argue for this claim, I begin in section 2 by giving a brief sketch of the analogy that I take to ground teleological judgments. I propose that it is not conceived by Kant as the well-known analogy between organisms and artifacts, but consists in an analogy between the special character of living beings and the capacity of reason. In section 3, I spell out the two functions that Kant attributes to this analogy. Moreover, by clarifying the form and distinctive roles that Kant ascribes to analogical reflection, I show in section 4 how the teleological analogy can function not only as a heuristic tool for the study of nature but also as a symbolic representation that grounds our very conception of living beings. It is this two-fold account of teleological judgment as analogical reflection, as I argue in section 5, that

sheds light on the peculiar status of claims about biological purposiveness. Thus, although further questions will need to be addressed, I conclude that Kant's introduction of the concept of an objective, material and internal purposiveness of nature gives a first account of the special character of teleological judgment.

## *2. Kant's Analogical Conception of the Organism*

How, then, should we conceive of Kant's analogical conception of the organism? As Kant spells out in the opening paragraphs to the "Critique of the Teleological Power of Judgment", our experience of living beings is importantly different from our experience of non-living parts of nature. In particular, Kant claims that we experience organisms as distinguished by a purposive organization of their parts within the whole. The parts of a tree, for instance, seem purposively arranged to maintain the survival of the tree. The leaves, branches and roots each perform a specific function, contributing to its survival. Moreover, the form and functioning of the individual parts of an organism depend not only on the whole but also on each other. In its generation, growth, and regeneration of damaged organs, we can observe how the parts of a tree stand in mutual interaction with one another, reciprocally influencing and maintaining each other. In this way, organisms appear to organize themselves. In seeming to purposively strive for their own existence and survival, organisms display, as Kant argues, not only a purposive organization of parts, but also a capacity for goal-directed self-organization.

Kant is quick to add, however, that we have no reason to expect to encounter this type of purposiveness as an objective feature of the natural world (see *CPJ* V 359.14–17). For the concept of a purpose, on Kant's account, is essentially tied to intelligent agency, that is, to a conscious subject that intentionally sets something as a goal.<sup>4</sup> The "general idea of nature", however, is that of "the sum of the objects of the senses" (*CPJ* V 359.16 f.). By contrast with our own activity, which we can consider

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<sup>4</sup> See *CPJ* V 369.33–370.15. As Kant puts it in his writing *Teleological Principles* (VIII 182.11 f.), purposes have "a direct relation to reason". This assumption has been criticized, for instance, by Illetterati (2008) and Toepfer (2008), who argue that the purposiveness of living beings should not be interpreted on the model of intentional agency but as a type of circular causality. Ginsborg (see pp. xy in this volume) argues for a conception of teleology that is independent of intentionality, but attributes it to Kant himself.

from the practical, first person perspective, we have no reason to expect that nature, regarded as the sum of all causally determined objects of possible experience, will display intentional purposiveness. In this sense, nature is such that "we do not assume [it] as an intelligent being" (*CPJ V 359.22*). According to the general idea, particular experiences will thus lead us only to a more and more detailed account of the causal mechanism of nature, but will not provide evidence for a purposively acting intelligent cause as the origin of that mechanism. This is why Kant claims that the purposiveness that we seem to observe in living beings must have been "projected" (*CPJ V 360.1*) onto nature by means of an analogy: we merely consider organisms *as if* they were purposive by "*analogy with the causality according to ends*" (*CPJ V 360.23*).<sup>5</sup>

In the literature, this analogy is commonly construed as the analogy between nature and design, and between the creator of nature and an intelligent designer.<sup>6</sup> According to this reading, we regard living beings as if they were the products of design. For it is by analogy with an artifact that is the product of a purposefully acting "will" (*CPJ V 370.13*), as Kant suggests, that we can think of the parts of an organism as being *there for* the whole and, hence, as contributing in a determinate way to the organic body as a whole. And yet, although Kant acknowledges that the artifact analogy can be taken to elucidate the apparently systematic organization of parts within the whole, I believe that this account is only a first component of Kant's analogical conception of the organism. The artifact analogy, as Kant himself recognizes, is ultimately insufficient for shedding light on the special character of nature that we seem to experience in the organic realm. As Kant concludes, the "inner

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<sup>5</sup> In the *CPJ* the need to understand and explain the natural world in mechanical terms, on the one hand, and our inability to account for the apparent purposiveness of living nature mechanically, on the other, raises the notorious difficulty of reconciling the two principles of mechanism and teleology, discussed by Kant in the "antinomy of judgment" (see *CPJ V 385.1–388.19*). Taking seriously the analogical character of biological purposiveness is, I believe, a first step in making sense of the compatibility of teleological judgments with explanations of nature in terms of the laws of mechanics. As I argue below, it is our analogical conception of biological purposiveness that can both make the representation of something as a living being possible and guide our study and explanation of nature in terms of the laws of mechanics (see section 5).

<sup>6</sup> This is how, for instance, Ginsborg (*ibid.*) reads the analogy.

natural perfection" of living beings, that is, their internal organization and purposive directedness

is not thinkable and explicable in accordance with any analogy to any physical, i.e., natural capacity that is known to us; indeed, since we ourselves belong to nature in the widest sense, it is not thinkable and explicable even through an exact analogy with human art (*CPJ V* 375.10–16).

The problem is that the analogy between nature and the product of intelligent design could only account for the first part of the two-fold teleological character of organisms. That is to say, it would only account for the characterization of organisms as displaying purposive organization. But it would not account for the apparent self-organization of living beings, that is, for the way in which organisms seem to bring about themselves and, in so doing, to strive for their own existence and survival. Thus, while artifacts are the products of a purposive agent that is external to these products, organisms seem to produce themselves. They appear to be the products of their own striving.

After rejecting the artifact model as an analogy of the particular character of living nature, however, Kant nevertheless goes on to claim that the concept of an organism is thinkable only through "a remote analogy with our own causality in accordance with ends" (*CPJ V* 375.19 f.). This may be read as a weaker assertion of the same analogy, and hence as the claim that, even if the analogy with human art is ultimately insufficient, it is the best we can get. On a different and, I believe, more plausible interpretation, however, we can read Kant as drawing an analogy not with the products of human activity but with the very capacity for that activity, namely, the capacity of practical reason itself. On this reading, it is the goal-directed and self-organizing features of human reason, that is, our capacity to set ourselves ends and to try to realize them by a coherent and unified employment of our rational faculties, that provides the analogon for living nature.<sup>7</sup>

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<sup>7</sup> I assume here Kant's conception of human reason as not only characterized by the ability for free and end-directed activity, but also presenting a complex capacity whose different functions are purposively related to realizing and maintaining the capacity of reason as a whole. See *CPR* B xxii f., and B xxxvii f. My argument is based on my account of the organism analogy in Breitenbach (2009a, 84–108).

If this reading is correct, then on the one hand Kant rejects the claim that we can draw an analogy between living beings and "human art" which is the result of a "physical, i.e., natural" human activity in the phenomenal world (*CPJ* V 375.16, 13 f.). On the other hand, he explicitly affirms an analogy between the apparent purposiveness of living beings and our own "causality in accordance with ends", that is, the non-physical "practical faculty of reason in us" (*CPJ* V 375.20, 24). Thus, according to this proposal, it is not the external construction of artifacts according to a pre-conceived plan, but the purposive organization and end-directedness of our rational capacities themselves that can provide the ground for an analogy with the particular character of living nature. When we think of living things as purposively organized and self-organizing beings, Kant seems to suggest, we thus regard them by means of an analogy with the purposiveness with which we are familiar from ourselves. By analogy with our own rational activity, we consider organisms as if they were the purposively organized products of their own goal-directed striving and, thereby, as "natural ends" (*CPJ* V 369.32).

### *3. Two Functions of Teleological Judgment*

According to Kant's conception of teleological judgment, we may consider nature by means of the analogy with our own capacity for purposive activity, as long as we do not make any determinate claims about the purposive character of nature itself. But if we cannot know that nature is purposively organized and goal-directed, what is the function of this analogical conception? How can the analogy with human reason help us in making sense of the living world?

On Kant's account, teleological reflection is suitable only for certain empirical objects. Thus, Kant argues that the

concept of the combinations and forms of nature in accordance with ends is still at least *one more principle* for bringing its appearances under rules where the laws of causality according to the mere mechanism of nature do not suffice (*CPJ* V 360.26–29).

Teleological judgment comes into play, Kant here suggests, when the laws of mechanical causality are insufficient for subsuming particular experiences under "rules" (*ibid.*). This statement can, I think, be read in two ways. First, Kant can be understood as referring to the insufficiency of natural mechanism for *explaining* given

appearances.<sup>8</sup> Where the attempt to provide an explanation in terms of the laws of mechanics fails, teleological considerations provide a heuristic guide for the study of natural phenomena. As Kant puts it in the "Dialectic of the Teleological Power of Judgment",

it is a [...] necessary maxim of reason not to bypass the principle of ends in the products of nature, because even though this principle does not make the way in which these products have originated more comprehensible, it is still a heuristic principle for researching the particular laws of nature (*CPJ V* 411.1–5).

When objects of experience do not appear to be amenable to mechanical explanation, Kant suggests, thinking about those objects as if they were purposively organized and directed at their own ends may guide scientific research. According to this conception, teleological judgment performs the role of a heuristic research tool, where the ultimate end of employing such a tool is the discovery of natural laws.

This first account presents a rather weak reading of the function of teleological judgment as a helpful means for the study of nature. In other passages, however, Kant makes a second and stronger claim. He argues that mechanistic causality is insufficient not only for formulating explanations in terms of the laws of nature, but also for making sense of our experiences of living nature at all. Kant suggests that we cannot even think of living beings without judging them teleologically: they are products of nature "that can only be conceived by us in accordance with the concept of final causes" (*CPJ V* 380.28).<sup>9</sup> Thus, it is by reference to the idea of biological purposiveness, Kant argues, that we can first make sense of the possibility of

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<sup>8</sup> I shall leave to one side here the exact nature of Kant's account of mechanical explanation in general, and the mechanical inexplicability of living beings in particular. See the different readings presented by McLaughlin (1989, 137–161), Ginsborg (2004), and Quarfood (2004, 196–205). I discuss the mechanical inexplicability of living nature in Breitenbach (2008, 355–362).

<sup>9</sup> See §62 where Kant contrasts the "merely formal" objective purposiveness of geometrical figures with the "material" objective purposiveness of living beings (*CPJ V* 362.4 f.). While, in the case of geometrical forms, Kant argues that the principle of formal purposiveness "does not make the concept of the object itself possible" (*CPJ V* 362.13 f.), he seems to imply that, by contrast, the principle of material purposiveness does make the concept of an object, namely that of a living being, possible.

organisms that cannot otherwise be comprehended. By regarding a tree as alive, for instance, we think of it as a unity of systematically organized parts that are purposively arranged within the whole and purposively striving towards the survival of the whole. In this sense, teleological judgment has a function over and above its heuristic use in science. Judgments of biological purposiveness are not only useful for the study of nature, but also necessary for considering parts of nature as living beings at all. As Kant puts it in the "Dialectic of the Teleological Power of Judgment", "even the thought of them as organized things is impossible without associating the thought of a generation with an intention" (*CPJ* V 398.29 ff.).

Under the title of the 'objective purposiveness' of living beings, Kant thus refers to our teleological conception of organisms as, on the one hand, presenting a heuristic tool for the study of nature and, on the other hand, grounding our very conception of the particular nature of organic beings. Considered in isolation, however, neither of these two conceptions seems to give a satisfactory answer to the question of the peculiar status of teleological judgment. According to the heuristic conception, judgments about biological purposiveness are purely regulative, but it remains unclear why such a regulative consideration is elicited by the experience of particular living beings and, indeed, required for the consideration of those beings. According to the second conception, teleological judgments are necessary in order to conceive of certain experiences as representing living beings at all. And yet, if teleological judgments ground our very thinking of organisms, one may wonder in what sense they may be regarded as purely regulative rather than constitutive of the living world.

The question then is whether, among these two apparently diverging tendencies in Kant's account of biological purposiveness, we can find a coherent conception that makes sense of teleological judgment as linked to the experience of particular natural objects while providing a purely regulative reflection on those experiences.<sup>10</sup> As a first step towards answering this question, I suggest that Kant is not wavering between two alternative accounts, but presents one conception of

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<sup>10</sup> Quarfood (2006, 736) gives a clear expression of this problem when he writes that "the difficulty lies in balancing the claimed indispensability of teleology with its regulative status" without, however, interpreting Kant as making either "constitutive" or "trivial" statements about teleology.

teleological judgment that has two different but related functions. Kant seems to refer to these two functions when, regarding the teleological principle that in organisms that "nothing [...] is in vain" (*CPJ V* 376.13), he states that

in the case of the abandonment of the [...] principle there would remain no guideline for the observation of a kind of natural thing once we have conceived of it teleologically under the concept of a natural end (*CPJ V* 376.33–36).

The principle to search for the purposive organization and directedness of living beings, Kant seems to suggest, provides a guideline for the investigation of those things that we have already judged teleologically as natural ends. In other words, in thinking about living beings we not only reflect about them by means of the concept of biological purposiveness, but also, by means of this reflection, are led to observe and investigate the particular structures and processes that characterize living nature according to teleological principles.

The proposed differentiation of these two inter-connected functions of teleological judgment clarifies, I believe, the first, heuristic, role of judgments about biological purposiveness. It shows that teleological judgments are elicited by particular experiences of living beings precisely because we already conceive of those living beings as natural ends. This reading leaves open, however, how we should construe the second function of teleological judgment. If, in other words, our very thinking about the living world is grounded in a teleological judgment, then one might wonder whether such judgment is not in fact constitutive of living nature. Other commentators have proposed to answer this question by arguing that teleological judgment, on Kant's account, enables "a level of special experience" (Quarfood 2006, 736) of living beings. Moreover, insofar as teleology is regarded as an enabling condition for such experience, it has been considered to be "constitutive for the identification of biological objects" (Goy 2008, 230, my translation).<sup>11</sup> Questions can be raised about these readings, however. Most importantly, in what exactly does this special experience of the living world consist? And how should we conceive of its relation with experience proper, which grounds our cognition of the objects of biology? What, in other words, is the connection between the phenomena that can be studied in biology and the level of special experience that we may associate with these

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<sup>11</sup> See also Toepfer (2004, 382 ff.).

phenomena? In order to answer these questions, I believe that we need to take a closer look at the form of analogical reflection on Kant's account. In particular, we need to examine more closely the character and role Kant attributes to the analogical reflection that grounds our understanding of living nature.

#### *4. Teleological Judgment as Symbolic Representation*

In his lectures on *Logic*, Kant characterizes analogies, on a par with induction, as one of "the two kinds of inference of the power of judgment" (*Logic* IX 132.21 f.). Analogies, he claims, are "functions not of the *determining* but the *reflecting* power of judgment" that infer "from *many* determinations and properties, in which things of one kind agree, to the *remaining ones*, insofar as they belong to the same principle" (*Logic* IX 132.6 f., 26 ff.). By comparing two things that share certain properties we can thus infer by analogy that certain other properties, known to hold for only one of the two objects, also hold for the other. In this way, we can arrive at general concepts that subsume different phenomena. Analogical judgments are thus "useful and indispensable for the sake of the extending of our cognition by experience" (*Logic* IX 133.24 f.). Insofar as analogies can "give only empirical certainty" (*Logic* IX 133.25 f.), however, Kant argues that they provide merely "crutches of human reasoning" (*Busolt Logic* XXVI 680.9 f.). They present a methodological device that can help us in the search for empirical truth. This, I believe, sheds light on the heuristic function that Kant attributes to teleological reflection in the *CPJ*. We may, for example, reflect about the apparently purposive development of an animal body by analogy with the goal-directedness of our own purposive activity. And we may investigate the parts of an organism by analogy with the purposively arranged parts of an intentionally designed product. These analogical considerations may help us in focusing our research into the causal processes that determine the development of organisms, and the causal relations that hold between their individual parts.

Insofar as the thought of living beings as natural ends does not itself present an empirical knowledge claim, however, it cannot be identified with the kind of analogical inference that Kant characterizes in his lectures on *Logic*. It is thus crucial that, in the *CPJ*, Kant presents a different characterization of the role of analogies as providing not a heuristic tool for empirical investigation, but an indirect, symbolic

representation of concepts that cannot be represented directly.<sup>12</sup> This symbolic representation is made possible, Kant explains, by judgment performing

a double task, first applying the concept to the object of a sensible intuition, and then, second, applying the mere rule of reflection on that intuition to an entirely different object, of which the first is only the symbol (*CPJ V* 352.13–16).

By applying a concept to an object experienced in intuition, Kant argues, we can thus transfer the way we think about the first object to a second object not itself experienced in intuition.

Kant presents this account of symbolic representation as grounded on analogical reflection in §59, the penultimate paragraph of the "Critique of the Aesthetic Power of Judgment". There, he argues that "the beautiful is the symbol of the morally good" (*CPJ V* 353.13). The concept of moral goodness and the related concept of freedom are rational concepts that cannot be represented directly by application to experience. Instead, Kant claims, they can be represented only indirectly, that is, analogically by means of the beautiful, as a symbol. In particular, it is our mode of reflection on the beautiful, a reflection that involves the free play of the faculties and, thereby, grounds a disinterested appreciation of the object, that can be transferred over to our reflection on the morally good.

Similarly, Kant argues two paragraphs later at the beginning of the "Critique of the Teleological Power of Judgment" that the concept of the objective purposiveness of nature is not applicable to experience itself. The concept of a purpose cannot be found in nature, but can only be used to represent the character of living nature by means of an analogy. I suggest that this analogical elucidation of living beings, too, must be understood according to Kant's conception of symbolic representation. Analogies, according to this conception, present not "an incomplete similarity between two things, but rather a complete similarity between two relations of wholly dissimilar things" (*Prolegomena IV* 357.27 ff.; see also *CPR A* 179/B 222). Just as in our rational activities we set ourselves ends and strive for the realization of those ends, so we view living beings as purposively directed towards their own ends.

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<sup>12</sup> Kant's different discussions of the nature and roles of analogies can, I believe, be read as presenting a coherent conception of analogy that performs varying functions in different epistemic contexts. A defense of this claim will have to await another occasion.

And just as our rational activities are purposively related to realizing and maintaining our rational agency, in the same way the working of the parts of living beings are purposively related to ensuring the existence and survival of the organism as a whole. Thus, it is the analogy with human reason and its end-directed and self-organizing activity that provides a symbolic representation of the objective purposiveness in biological objects. Just as moral goodness can be represented symbolically through the analogy with aesthetic experiences of the beautiful, in the same way the objective purposiveness of nature can be represented symbolically by experiences of the end-directed causality with which we are familiar from our own rational activities.<sup>13</sup>

What is crucial about this reading is that it presents the analogical thought-process of transferring reflections from one object to another as the very ground of our understanding of organisms as natural ends. The important insight here is that the analogical reflection is itself creative in making the representation of something as a living being possible. It does so by picking out certain structural parallels between organic nature and our own rational capacity, and by transferring associations of purposiveness with which we are familiar from our rational activity into our consideration of the natural structures. Certain parts of nature that strike us as structurally similar to human reason are thus considered as displaying internal purposiveness according to the analogy with reason. This analogical consideration does not, therefore, simply draw out existing similarities between the apparent purposiveness of living beings and our own purposive activity, but first constitutes a representation of some parts of nature as purposively organized and end-directed. By projecting thoughts that we associate with our own rational purposiveness onto our consideration of certain natural objects, we thus reflect on those objects in a way that would not have been possible without the analogy. We first make sense of these

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<sup>13</sup> One may worry that neither of these symbolic representations consists in a simple analogy of an empirical concept (such as that of a "handmill") with a rational idea (such as that of a state that "is ruled by a single absolute will" (*CPJ* V 352.18 f.)). Neither the beautiful nor the capacity of reason and its causality of ends can straightforwardly be cognized in nature. But even if representation of these concepts is itself dependent on further indirect, and hence symbolic, representation, I believe that it may nevertheless form part of an—albeit more complex—analogical reflection. Indeed, the analogy between human reason and the organism may be symmetrical to some extent, in elucidating both sides of the analogical reflection. I argue for this in Breitenbach (2009a, 84–108 and 154–172).

objects as parts of living nature. It is this "double task" (*CPJ* V 352.13) of our faculty of judgment that thus enables us to represent natural objects as purposively organized and self-organizing living beings.

### *5. Reflective Judgment and Empirical Cognition*

This account of the analogical character of teleological judgment as providing a symbolic representation of organisms can now shed light on the peculiar status of claims about biological purposiveness. First, it can illuminate the way in which the teleological judgment of something as a natural end constitutes a reflective representation of certain natural objects as alive, even though it does not constitute the objects of that representation themselves. And it can clarify, second, the relationship of this reflective representation of living nature with particular experiences that provide the basis of our knowledge of the empirical world.

As we have seen, Kant argues that we can represent parts of nature as purposively organized, end-directed living beings only by means of reflecting on the empirically given by analogy with the causality of ends. This representation of something as a living being is not a determinate representation of a natural object but an analogical reflection on certain aspects of nature. The important insight of this is that it is this analogical reflection that makes the symbolic representation of biological purposiveness possible and, thereby, enables us to have what may be called a reflective awareness of some parts of nature as alive. Thus, when other commentators speak of teleological judgment as enabling a "level of special experience" (Quarfood 2006, 736) this should be understood, I suggest, as the claim that our representation of living nature is a particular reflective awareness that is made possible by teleological judgment.

A comparison with the relationship between aesthetic judgments and experiences of the beautiful can, I believe, illuminate this characterization of the relationship between teleological judgments and our representation of biological purposiveness. In aesthetic judgment it is our non-conceptual reflective response to certain formal features of the object that generates our feeling of aesthetic pleasure and, thereby, the experience of beauty.<sup>14</sup> It is this reflection that grounds the

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<sup>14</sup> Kant argues that in reflecting about these forms our understanding and imagination are in harmonious "free play": they interact freely, reflecting about certain forms unconstrained by

experience of aesthetic pleasure, without representing any particular property, such as the property of beauty, in the object itself. Similarly, in the case of teleological judgment, it is our reflection on certain aspects of nature that constitutes a representation of something as a purposively organized and goal-directed living being, without attributing to nature any particular property, such as the property of purposiveness, itself. In contrast with aesthetic judgments that are unconstrained by the employment of any particular concept, teleological judgments do, of course, make use of the concept of purposiveness. And yet, this concept is not employed to subsume given experiences, but only to reflect about nature analogically. Rather than determinately ascribing to nature the property of purposiveness, it is the non-determining reflection that constitutes a representation and a reflective awareness of the objects as natural ends.

In parallel with aesthetic experience, there is thus no independent standard against which we could measure the truth or objective validity of our teleological judgments about the living world. We cannot, in other words, look behind our analogical considerations in order to check whether living nature really is, for instance, striving for, or purposively directed towards, its own existence and survival. The reflective consideration of empirically given objects, in both aesthetic and teleological judgments, constitutes a representation of nature *as* beautiful and, respectively, *as* purposive, without determinately claiming nature to *be* beautiful or, respectively, to *be* purposive.<sup>15</sup>

And yet, if considerations of the living have the same status as considerations of the beautiful as non-constitutive, purely reflective representations, one may wonder how these representations relate to particular experiences of the natural world and to knowledge of the objects of those experiences. One may question, moreover, where this leaves biology as the study of the living. Do we need to conclude, in other words,

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the employment of any particular concepts; and they interact in "harmony", reflecting about these forms as if they could be subsumed under a concept just as in determining judgments (*CPJ* V 217.22, 218.10).

<sup>15</sup> A more detailed discussion of the relationship between aesthetic and teleological judgments would go beyond the scope of this paper. See Ginsborg (1997) and Zuckert (2007, in particular 23–86) for in-depth accounts.

that on Kant's account biology is as incapable of making determinate judgments as aesthetics?

Despite the similarities between aesthetic and teleological judgment, this conclusion is not entailed by Kant's analogical account of biological purposiveness. For although our teleological judgments make only a reflective awareness of nature as purposively organized and end-directed possible, it is this reflection that can, in turn, function to pick out certain objective structures and processes in nature to be studied by the biologist. These objective structures and processes are those that must be given in experience in order to be reflected on by means of the analogy with human purposiveness. As Kant argues

the teleologically employed power of judgment provides the determinate conditions under which something (e.g., an organized body) is to be judged in accordance with the idea of an end of nature (*CPJ* V 194.12–15).

In teleological judgments, one may read Kant as claiming, we pick out particular phenomena that are considered by analogy with our own rational purposiveness. Even though the reflection made possible by the teleological judgment goes beyond the determinate representation of the objects of experience, it is a reflection that is suitable for the consideration of certain phenomena. And it is these phenomena that can also be considered in abstraction from our teleological reflection and can be studied by the biologist. In judging teleologically, we may thus regard the parts of a tree, to use Kant's own example, as contributing purposively to the working of the organism as a whole. And we may consider the tree's generation, and its capacity for growth and regeneration of damaged organs, as aspects of the tree's goal-directed striving for its own survival (see *CPJ* V 371.7–372.11). It is through this teleological consideration that we regard the natural object as a living organism. Abstracting from this teleological reflection, moreover, we can also investigate the causal laws that determine the natural structures thus picked out. We may, for instance, examine the causal connection between the photosynthesis of the leaves and the energy consumption of the organism as a whole. Or we may study the causal processes that determine the division of meristematic cells that give rise to the different parts of the tree and keep it growing. It is this relationship between our reflective awareness of living beings as natural ends, on the one hand, and our empirical cognition of the

natural world, on the other, that leaves room for the possibility of studying organisms in the biological sciences.

The idea that teleological judgment is "constitutive for the identification of biological objects" (Goy 2008, 230) should thus, I believe, be understood as the claim that, although teleological judgment makes possible a representation of living nature that is not itself constitutive of the objects of biology, it can function to pick out those very objects in experience. By reflecting about certain natural structures, such as non-linear, holistic causal structures, as objectively purposive, teleological judgments distinguish some parts of nature from their environment as those parts that are to be studied by the biologist. Moreover, once we have identified something as a living being we can use teleological considerations as regulative principles for the study of the causal processes that determine living nature. Employed as heuristic tools, teleological considerations may then guide us, for example, in investigating the evolutionary history of the traits of an organism, or the causal roles that the parts of an organism play within the organic system as a whole.<sup>16</sup> We can thus investigate, in biology, the causal histories and structures of those objects that, through analogical reflection, we represent to ourselves as living beings.

## *6. Conclusion*

This paper set out to make sense of the peculiar status of judgments of biological purposiveness on Kant's account. Its aim was to shed light on the question of how we should conceive of teleological judgments as, on the one hand, being purely regulative while, on the other hand, being at least in some sense linked to the character of particular experiences. I have argued that we should answer this question by considering the particular analogical character of judgments about biological purposiveness. More specifically, I have proposed we should make sense of the analogical character of teleological judgment as having two functions. Teleological judgments present analogical inferences that serve as heuristic tools for the study of nature, and they function as symbolic representations that constitute a reflective representation of parts of nature as natural ends. As a heuristic device, teleological judgment is purely regulative while being useful for the study of nature insofar as we already experience living beings as natural ends. As symbolic representation,

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<sup>16</sup> I elaborate on the heuristic use of teleological reflection in biology in Breitenbach (2009b).

teleological judgment constitutes a reflective awareness that is non-constitutive of the objects of experience while consisting in analogical reflection on empirically given structures.

This account raises many questions that are the subject of Kant's "Critique of the Teleological Power of Judgment". More will need to be said, for example, about the compatibility of considering parts of nature as objectively purposive and the explanations of natural objects in terms of efficient causality. Ultimately, as I have indicated in this paper, I believe that Kant's account of our conception of living beings as purposively unified and striving for their own existence and survival is something that ought to be understood in the more comprehensive context of our own human nature. It must be comprehended against the background of our nature as beings that are not only cognizers but practical agents who conceive of themselves as both free and part of the causal structure of the natural world. Although a more detailed exploration of this claim goes beyond the scope of this paper, I hope to have shown that Kant's introduction of biological purposiveness as a type of analogical reflection gives an important first account of the peculiar status of teleological judgment.<sup>17</sup>

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