

On Judging Nature as a System of Ends

Exegetical Problems of § 67 of the *Critique of the Power of Judgment*¹

Ina Goy

Skillful and demanding scholars such as Ginsborg² and McLaughlin³ base their interpretation of Kant's theory of organic nature mainly on §§ 64 and 65 of the "Analytic" of the *Critique of the Teleological Power of Judgment*. In these sections, Kant demonstrates that human beings understand single organisms not only by mechanical but also, additionally, by teleological explanations. The latter entail two important elements of explanation: a formative power which inheres in the matter of an organism, and an idea of the whole which determines the relationship of the parts to each other and to the organic whole.

In principle I share the opinion that these sections belong to the center of the "Analytic." Nevertheless, I want to emphasize the point that in § 67 Kant formulates an idea which goes far beyond the demands of §§ 64 and 65, namely that not only single products of nature are to be judged as intrinsically purposive but also that nature in general has to be judged as a system of ends. The defense of this claim which is rather inspired by metaphysical than by biological interests seems to be quite difficult for Kant. In addition, none of the older or current commentators has realized the problematic potential of this section up to now,

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- 1 The following three translations of Kant's writings have been used: Kant, Immanuel: *Critique of the Power of Judgment*. Paul Guyer and Eric Matthews (transl. and ed.). In: *The Cambridge Edition of the Works of Immanuel Kant*, Cambridge 2001; Kant, Immanuel: *Critique of Pure Reason*, Allen Wood and Paul Guyer (transl. and ed.). Cambridge 1999; Kant, Immanuel: *Metaphysical Foundations of Natural Science*. Transl. Michael Friedman. In: *Theoretical Philosophy After 1781*. Ed. Henry E. Allison and Peter Heath. Cambridge 2002, 171–270.
 - 2 Ginsborg, Hannah: "Kant's Biological Teleology and its Philosophical Significance." In: *A Companion to Kant*. Ed. Graham Bird. Malden 2006, 455–469 (esp. 456–459).
 - 3 McLaughlin, Peter: *Kants Kritik der teleologischen Urteilkraft*. Bonn 1989, 33–38.

much less has interpreted it. A few remarks can be found in Drews,⁴ Löw,⁵ McLaughlin,⁶ and Brandt.⁷ But Adickes,⁸ Zumbach,⁹ Frank/Zanetti,¹⁰ Quarfood,¹¹ and Zuckert¹² say nothing about the specific problems of § 67. Only Löw¹³ has recognized the parallel with regard to content between § 67 and the “Dialectic” of the KrV. Both passages treat the problem of the possibility of holistic knowledge. However, Löw is not able to explain why Kant shifts the analogous topic of holistic knowledge to another place in the KU. In the KrV holistic knowledge is the specific topic of the “Dialectic” which is called a “*logic of illusion*” (KrV A 61/B 86) for the ideas of reason lack an agreement with the objects of experience, whereas the “Analytic” is called a logic of “*truth*” (KrV A 58/B 82) for the concepts of understanding agree with the objects of experience. In the KU, holistic judgments on organic nature become part of the “Analytic.” How is this possible? Might specific conditions of truth and illusion in reflecting judgments cause this shift? Or is it caused by certain features of organisms which allow us to say that reflecting judgments on organisms rely on ideas of reason but rely also on objects (which in a certain way) are given in experience?

In the following essay I will analyze the thesis and the systematic structure of § 67 and will sketch its importance for Kant’s theory of biology and for Kant’s critical philosophy in general. Besides a strong reading which I argue for, in a weak reading I embrace interpretative accounts which have some support in the text, but are not substantial enough to facilitate Kant’s systematic ambitions.

4 Drews, Arthur: *Kants Naturphilosophie als Grundlage seines Systems*. Berlin 1894, 404–441 (esp. 424 f.).

5 Löw, Reinhard: *Philosophie des Lebendigen. Der Begriff des Organischen bei Kant, sein Grund und seine Aktualität*. Frankfurt/M. 1980, 218 ff.

6 McLaughlin: *Kants Kritik*, 38.

7 Brandt, Reinhard: *Die Bestimmung des Menschen*. Hamburg 2007, 472–475.

8 Adickes, Erich: *Kant als Naturforscher*. Berlin 1925, vol. II, 466–482.

9 Zumbach, Clark: *The Transcendent Science. Kant’s Conception of Biological Methodology*, Boston/Lancaster 1984.

10 Frank, Manfred/Zanetti, Véronique: *Immanuel Kant. Schriften zur Ästhetik und Naturphilosophie*. Frankfurt/M. 2001, vol. III, 1158–1338.

11 Quarfood, Marcel: *Transcendental Idealism and the Organism: Essays on Kant*. Stockholm 2004.

12 Zuckert, Rachel: *Kant on Beauty and Biology. An Interpretation of the Critique of Judgment*. Cambridge 2007.

13 Löw: *Philosophie des Lebendigen*, 218 f.

1 The Structure of § 67

The title of § 67 “*On the principle of the teleological judging of nature in general as a system of ends*” (KU, AA 05: 377.25 f.) announces the systematic topic of this section. In the following passages, Kant tries to argue for the thesis that human beings are not only allowed to judge *single* organisms as purposive wholes (cf. §§ 64 ff.), but also to judge *nature as a whole* as a “system of ends” (ibid.; cf. KU, AA 05: 381.03). As a potential support for this claim Kant considers six different arguments and discusses each of them in one paragraph of § 67. We judge nature to be a system of ends because

- 1) nature shows all signs of an external purposiveness (KU, AA 05: 377.27–378.11),
- 2) nature is related to the supersensible as the final end of nature (KU, AA 05: 378.12–34),
- 3) nature consists in organized matter as the basis of nature’s purposiveness (KU, AA 05: 378.35–379.04),
- 4) things and features of nature which are supposed to be contrapurposive can be proved to have a purpose (KU, AA 05: 379.20–380.12),
- 5) the beauty of nature is an evidence for the purposiveness of nature (KU, AA 05: 380.13–25),
- 6) nature is related to the unity of a supersensible as a grounding principle of nature (KU, AA 05: 380.26–381.07).

The text entails some signals about how Kant himself estimates the success of the six arguments. The most noticeable indication in the administration of the text is Kant’s introductory remark at the beginning of paragraph six: “In this section we have meant to say nothing except that [...]” (KU, AA 05: 380.26). One could interpret this remark as an indication that (6) is intended as a summary of the preceding arguments to formulate or highlight their result. This is the strong reading.

If argument (6), however, were independent of arguments (1) to (5), Kant’s remark “In this section we have meant to say nothing except that [...]” (ibid.) would suggest that the actually important argument will not be given until paragraph six. The status of the preceding arguments would then be questionable or insufficient. This is the weak reading which becomes destructive if argument (6) turns out to be invalid.

In the following exegesis one of my intentions is to show that the success of Kant’s argumentation relies on arguments (3) and (6), since these arguments entail the strongest systematic reasons for Kant’s claim that we

are justified in judging organic nature as a system of ends: because there is a formative power inherent in matter, and because there is an idea, both of which are causally effective in organic nature.

2 The Thesis of § 67

First of all I want to respond to the thesis of § 67: human beings are eligible to judge “*nature in general as a system of ends.*” What does “*nature in general*” (KU, AA 05: 377.25 f.) mean within this claim? On what range of objects does Kant intend to say that human beings judge it to be “a great system of the ends of nature” (KU, AA 05: 380.19)? One could take three options into closer consideration. “[N]ature as a system” (KU, AA 05: 381.07) of ends includes (a) all organic natural products, (b) all organic and inorganic natural products, or (c), all organic and all inorganic natural products, and all artificial things.

In section one, Kant remarks that in “things that one has no cause to regard as ends *for themselves*” “external relationship[s]” are “hypothetically” and contingently purposive only (KU, AA 05: 378.09 ff., my italics). The meaning of this claim could be that to qualify for a participation in a system of ends things have to be intrinsically purposive and must themselves be organic. This would be an indication for the narrowest thesis (a). However, this claim does not exclude the case that things which are not purposes in themselves nevertheless are not only externally or contingently related to other things.

More unambiguous statements speak in favour of (b) because in section six Kant explicitly says that we “also judge to belong to a system of ends even those things” which “do not make it necessary to seek another principle of their possibility beyond the mechanism of blindly acting causes” (KU, AA 05: 380.29–381.04). Kant unmistakably claims here that “also” inorganic things which are not purposive in themselves can be part of a system of ends. Löw¹⁴ and McLaughlin¹⁵ have argued for this reading. It has even more support by a parallel passage where Kant already concedes to single organisms that inorganic elements, although explicable mechanically only, can be part of a teleological whole. For, although for example the “skin, hair, and bones” in an “animal body” could be conceived as “consequences [Concretionen] of merely mechanical

14 Löw: *Philosophie des Lebendigen*, 219.

15 McLaughlin: *Kants Kritik*, 38.

laws” the “cause that provides the appropriate material, modifies it, forms it, and deposits it in its appropriate place must always be judged teleologically”, so that “everything” in this body “must be considered as organized” (KU, AA 05: 377.17–23).

It militates against the broadest reading (c) that Kant in § 67 never mentions artefacts and explicitly refers to “*nature in general*”, whereat the KU treats the concept of ‘nature’ or ‘natural product’ as an antonym of the concept of ‘art’ or ‘artificial thing’.

3 Six Arguments for Nature as a System of Ends

Let us now consider the six arguments which Kant uses to provide proof that human beings are allowed to judge inorganic and organic nature as a system of ends.

(1) The argument from the external purposiveness of natural products (KU, AA 05: 377.27–378.11)

One could, firstly, conjecture that the question of nature as a system of ends could be replied by the reference to all external purposive relations between single products of nature. In this case the objective, material, and relative “*external purposiveness*” (KU, AA 05: 377.27) would provide an access to the justification of judging nature as a system of ends, as it takes all external purposive relations between single products of nature into consideration.

But Kant himself argues against this approach, that the relative purposiveness in external means-end relations is only hypothetical and contingent; and cannot establish necessary relations between single products of nature which would be necessary for a system of natural ends. Kant reinforces the exclusion of this argument by two examples.¹⁶

16 Firstly: inorganic objects like “*rivers*” and “*mountains*” (KU, AA 05: 377.32 f.) indeed influence the generation of a certain shape of the surface of the earth, which in turn is reflected in the generation of a certain flora and fauna, but “*rivers*”, “*mountains*”, and the shape of the earth entail nothing in themselves whereby they “would require the assumption of a causality in accordance with ends” (KU, AA 05: 378.04 f.). Secondly: living beings that have a purpose in themselves can be part of external means-end relations which prescind from their character as ends in themselves. So human beings do not consider animals that they use as food or for other services as ends in themselves but rather use them as means for their superordinate ends. But these again are only contingent and “hy-

(2) The argument from the supersensible final end of nature (KU, AA 05: 378.12–34)

One could, secondly, conjecture that human beings are justified in judging nature as a system of ends by virtue of being aware of an unconditioned, necessary, and ultimate “final end (scopus) of nature” (KU, AA 05: 378.15 f.) which allows them to conclude that *all* single natural products exist as natural ends.

But if this final end is a “supersensible” (KU, AA 05: 378.16), which – as the “supersensible faculty” of human “*freedom*” (KU, AA 05: 435.21) in moral matters or the supersensible god in theology – “lies entirely outside of the physical-teleological way of considering the world” (KU, AA 05: 378.31 f.), the second argument ‘from outside’ also fails. For then the justification of our demands of knowledge could not be given *within* the framework of natural (biological) science, and natural teleology would lose its autonomy as a science to an external principle originating from moral teleology or theology. (In the context of paragraph two a moral interpretation of the supersensible is more likely, for Kant alludes the “final end” (KU, AA 05: 378.15), a concept which he very consequently uses to characterize human beings as moral beings; cf. KU, AA 05: 434 f.)

(3) The argument from organized matter (KU, AA 05: 378.35–379.04) Since the two initial arguments ‘from outside’ aiming to justify the “idea of the whole of nature as a system in accordance with the rule of ends” (KU, AA 05: 379.01 f.) fail, Kant concludes (“therefore”; KU, AA 05: 378.35) that the justification of nature as a system of ends can be given only by an argument ‘from inside’, namely with regard to the nature of organized matter: “It is *therefore* only matter insofar as it is organized that necessarily carries with it the concept of itself as a natural end, since its specific *form* is at the same time a product of nature.” It must be the “concept” of organized matter which “necessarily leads to the idea of the whole of nature as a system in accordance with the rule of ends” (KU, AA 05: 378.35–379.02; my italics).

But this is all that Kant says in this passage about the argument from matter. Therefore, in terms of a weak reading, one could blame Kant for using a concept of matter in one of the most important passages of § 67 which does not even become rudimentarily transparent. In terms of a

pothetical”, and therefore also they are insufficient to explain why human beings judge nature to be a system of ends at all (KU, AA 05: 378.05–11).

stronger reading one could try to reconstruct Kant's concept of matter in such a way that it could serve the function of providing reasons why human beings are allowed to judge nature in general as a system of ends. Is this possible?

Kant believes bare matter to be a lifeless and inert (KU, AA 05: 383.11; KU, AA 05: 394.27 f.) "multitude" which "by itself can provide no determinate unity of composition" (KU, AA 05: 377.05 f.) and can neither move nor change (KU, AA 05: 394.26 ff.; Refl, AA 14: 110.04 f.). Matter is a substance consisting of parts which are "*divisible to infinity*" namely "into parts such that each is matter in turn" (MAN, AA 04: 503.21 f.). These parts are related to each other by powers which are effective in the parts. If only motive powers are present and effective in the parts, the material object is mechanically explicable. If formative power is present in the material parts as well, the material object is an organism, and is teleologically explicable also.

The significant feature of such a concept of matter is its degree of abstractness leaving the specific material of the object un(der)determined. Matter as mechanically moved or as teleologically organized cannot be distinguished by the different material but rather by the *form* of the power (its law) which is effective in matter. The homogeneity of the un(der)determined matter with regard to its material furthermore allows for the establishment of universal laws of matter both for mechanical and for teleological material nature, depending on the power which is inherent in matter, for instance the physical mechanical laws¹⁷ or the teleological law (principle).

This might be the reason for Kant's conclusion ("therefore") that with regard to its "specific *form*", organized "matter" necessarily "carries with it the concept of itself as a natural end" (KU, AA 05: 378.35 f., my italics). The actual focus of Kant's argument from matter therefore is not a certain concept of matter, but rather (and even more basic and primary) the concept of (a certain formative) power which forms and organizes the undetermined matter and provides the reason why the reflecting subject is lead to a teleological explanation.

(4) The argument from the purposiveness of contrapurposive things (KU, AA 05: 379.20–380.12)

By means "of the example that nature gives in its organic products", according to Kant, one is "justified", and, "indeed called upon to expect

17 Cf. Zuckert: *Beauty and Biology*, 109.

nothing in nature and its laws but what is purposive in the whole” (KU, AA 05: 379.07 ff.). But, it is evident that nature exhibits in many of its processes contrapurposive characteristics, which militate against its purposive organization. Kant’s fourth argument replies to this objection that a deeper understanding even in ostensibly contrapurposive things would be able to recognize purposive structures, and provides proof for this claim in four examples.¹⁸

In line with a weak reading, one could claim that these statements do not reach the status of an argument at all, because the necessary a priori deduction of the thesis that human beings are justified to judge nature in general as a system of ends cannot be achieved by an inductive generalization of empirical examples. The strong reading must accept this objection.

(5) The argument from beauty of nature (KU, AA 05: 380.13–25) That furthermore “beauty in nature” could lead to the conclusion of an “objective purposiveness of nature in its entirety, as a system” (KU, AA 05: 380.13 ff.) is, in line with the weak reading, not convincing, too. Because if inorganic and organic nature obviously is partly beautiful, partly not beautiful how then can it be that human beings *must* judge nature in *general* as purposive? Additionally, Kant has distinguished the subjective purposiveness in the realm of aesthetics with regard to the beauty in nature quite clearly from the objective purposiveness of nature (§ 61). In an aesthetic judgment the power of judgment is reflecting on a certain subjective feeling of pleasure which results from the free interplay of the faculties of imagination and understanding. In teleological judgment the power of judgment is reflecting with empirical concepts of understanding about a natural object and is trying to find a more general concept of reason to unify the empirical concepts of understanding. There is no way to immediately draw a conclusion from an aesthetic to a teleological reflective judgment (from the beauty of nature in general to the teleological organization of nature in general).

18 These examples are (a) “vermin” serves as an “incentive for cleanliness” and for the “preservation of health”, (b) mosquitoes and other insects spur “people to drain the swamps and let light into the thick, airless forests” and thereby make their “abode more salubrious”, (c) the “tapeworm” is given to the human to make good a certain “defect in its organs”, and (d) dreams are a “remedy” avoiding that sleep would amount to a complete “extinction of life” (KU, AA 05: 379.20–380.12).

In line with a stronger reading one could suggest that the fifth argument does not treat the beauty of nature as evidence for nature's teleological organization but rather that Kant intends to say that in face of a beautiful object the faculties of an aesthetically judging subject enter a harmonious and consonant interplay which fulfils the natural purpose of these faculties of the judging subject. The focus of the argument then would not be a conclusion from beauty of nature to its teleological organization but rather the claim that even a subject judging aesthetically in the face of the beauty of nature could be considered as an instantiation of the teleological organization of nature. However, this reading of the argument would have the status of an example only, even though it would not be entirely empirical like the examples in (4).

(6) The argument from the *unity* of the supersensible ground of nature (KU, AA 05: 380.26–381.07)

Kant himself exposes the remaining sixth argument as mentioned above. It reads as follows: since we, judging a single organism, already underlay an "idea" which "leads us beyond the sensible world", the "unity of the supersensible principle" must "be considered as valid in the same way" for "the whole of nature as a system" (KU, AA 05: 381.04–07).

The interpretation of this argument is very much up to the exegesis of the phrases "unity of the supersensible principle" or "ground", and of "valid in the same way." In line with a weak reading one could conjecture that the supersensible unity or ground designates different teleological ideas of reason which human beings apply to different single natural products and to nature as a whole, and that Kant intends to draw an analogy between the applications of ideas of reason on both kinds of objects (single organisms and nature as a whole). Since we underlay our judgment of a single organism the idea of its specific purpose, as the teleological principle of the single organism, we are analogously justified in underlying our judgment of nature as a whole in the idea of nature as a system of ends as its teleological principle; since once we are allowed to apply an idea of reason in the case of a single organism we are also justified by an analogy to apply an(other) idea in the case of nature as a whole.

The weakness of this reading is that the supposed analogy between the judgment of a single organic being and organic nature as a whole is fragile: for instance, Kant insists on the fact that it is "[e]xperience" (KU, AA 05: 366.27) leading us to material purposive judgments of nature. In the case of a single organism, experience as the initiation of a tel-

eological judgment is actually given. But nature as a whole is not an object of possible experience at all. And in the case of nature as a whole it is not possible to say that the principle of teleological judgment with regard to its initiation “is derived from experience”, but with regard to the “universality and necessity” it must be “a priori” (KU, AA 05: 376.15–19).

Another, stronger reading would result from a strict interpretation of “unity” in the phrase “unity of the supersensible principle”, namely that it would designate only one single principle: the supersensible as such which is even more fundamental than our different ideas of reason of the purposive unity of single organisms or of nature as a system of ends in general. In line with this reading one would avoid the problems of the analogy, for the analogy would not be necessary at all. The single organism as well as the inorganic and organic nature as a whole would have to be judged teleological because all of them would be related to the same supersensible unity as the ultimate justifying principle of teleological organization. However, here it would be of major importance to point out that this type of supersensible *is a human idea of a supersensible grounding of nature in nature*, because otherwise one would run into the same dilemmas as in argument (2), namely that natural teleology becomes dependent on an external principle, for instance a theological or a moral one. Another remaining difficulty is how this reading fits into the line of argument in Kant’s theory of biology in general (KU §§ 61–78, 80 f.). What kind of supersensible unity does Kant have in mind?

4 Reasons for a Strong Reading of § 67

Kant himself diagnoses arguments (1) and (2) as invalid. According to the weak reading, the other arguments also fail. The argument from matter (3) is too cryptic, argument (4) insufficiently argues by means of empirical examples for an a priori principle, argument (5) improperly identifies the structure of aesthetical and teleological judgments, and argument (6), due to the use of a fragile analogy, remains problematic. Therefore, from the point of view of the weak reading, Kant’s thesis that human beings are justified in judging nature as a system of ends goes wrong. According to the strong reading, however, argument (4) remains controvertible, argument (5) may be shifted a bit to increase its plausibility but this shift cannot overcome its exemplary status. Arguments (3) and (6) bear the systematic potential. I have sketched very briefly which direction a strong

reading would have to take to increase the validity of both arguments. If (3) and (6) were to succeed, the teleological judgment of nature as a whole could be justified by a unifying ground of a certain formative power effective in matter (3) and by the idea of a grounding supersensible unity (6).

Concluding this paper, I want to return to my questions from the beginning and try to explain why § 67 is so difficult and why I advocate a strong instead of a weak reading of the arguments of this section. In § 67, Kant tries to justify a demand of knowledge with regard to a whole of inorganic and organic nature which can never be given in experience, and which, according to the criteria of knowledge established in the KrV would be dialectical per se. Therefore, in the first instance one could suppose that Kant right from the beginning overstretches his aims and consequentially falls behind his own demands.

However, the theory of the teleology of nature in the KU is based on the reflecting power of judgment, a faculty working between other faculties of the mind. In the realm of organic nature, the power of reflecting judgment mediates between understanding and reason, the latter being the faculty of ideas. Consequently, in a teleological reflective judgment the power of judgment is always related to an idea, which means that it is always related to a holistic element of knowledge transcending the empirically given and introducing a hypothetical element in the demands of teleological knowledge – even if the power of judgment is reflecting on a single organism, an object which *seems* to be entirely given in experience. Therefore the significant difference which marks the distinction between an “Analytic” and a “Dialectic” in the KrV does not apply in the KU. Reflective judgments about single organisms which seem to be given in experience *and* organic nature as a whole which seems not to be given in experience, have the same epistemological structure. They are related to the idea of the whole, the supersensible. But why, then, are both kinds of judgments not part of a “Dialectic”, but rather are part of the “Analytic”?

A possible answer could be that the teleological conception of organic nature in the KU is not only grounded in an idea of reason, but is also saturated with experience (different from the teleological conception of nature presented in the transcendental ideas in the “Dialectic” and in the “Appendices” of the “Dialectic” of the KrV, where teleological judgments are only grounded in ideas of reason). Kant explicitly claims, that it is “[e]xperience” which “leads our power of judgment to the concept of

an objective and material purposiveness”, to the “internal purposiveness” of nature (KU, AA 05: 366.27–367.10). But what in experience is it which “leads” us to deliver a teleological judgment? I think here Kant’s answer is that we consider the effects of a certain form of causation in organic nature (*ibid.*), and the ultimate grounding of this causation is the formative power inherent in matter. Therefore, one could claim that Kant’s argument from matter (3) which, as we have said above, is rather an argument from the formative power inherent in matter, is exactly this element of a theory of teleology which anchors teleological judging in experience, for the effects of this power are given in experience – and which makes these topics part of the “Analytic” and not of the “Dialectic” of the *Critique of the Teleological Power of Judgment*.

Finally, we have to offer a tentative answer as to why Kant highlights (“In this section we have meant to say nothing except [...]”; KU, AA 05: 380.26) the argument from the unity of the supersensible ground of nature (6) more than the argument from power and matter (3), if both of them entail basic justifications as to why we are allowed to judge nature in general as a system of ends. The answer is that the formative power inherent in matter *strives* to realize the idea of the organic whole in the realm of experience and therefore is as important but nevertheless is dependent from the idea of nature in general as an organic whole.