

TWO VIEWS ON NATURE: A SOLUTION TO KANT'S ANTINOMY OF MECHANISM AND TELEOLOGY

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British Journal for the History of Philosophy 16 (2008), 351-369

This is the penultimate draft. Please cite the published version.

In the Analytic of the *Critique of Teleological Judgement*, Kant introduces the principle of objective purposiveness of nature. Certain objects of nature, the organisms, must be thought of in teleological terms. They cannot but be considered as *natural purposes*. In the light of the conception of nature brought forward in the first parts of the *Critique of Pure Reason*, this comes as a bit of a surprise; for how can a teleological conception of nature be reconciled with the understanding of nature as completely causally determined? Kant deals with this question in the Dialectic of the third *Critique*. He presents, and claims to solve, an antinomy between a principle of mechanism on the one hand and a principle of teleology on the other. The antinomy has been the object of much debate and rather differing interpretations. In this paper, I shall consider it again.

An interpretation of Kant's antinomy of judgement is made difficult by the fact that, in his paragraph on the '[representation of this antinomy' (KU, AA V: 386),¹ Kant in fact presents *two* different antinomies - one between two regulative maxims concerning the way we consider the world, and one between two constitutive propositions about the world itself (Section 1). In order to understand Kant's view concerning the status and the compatibility of mechanistic and teleological judgements of nature, we therefore need to ask why, according to Kant, we can make no constitutive but only regulative judgements about the apparent purposiveness in nature; and we need to understand in what sense the conflict between the regulative maxims, but not that between the constitutive principles, can be resolved. I shall try to develop answers to these questions (Sections 3 and 4) by taking a closer look at how the conflict between principles of mechanism and teleology arises for Kant at all (Section 2).

According to Kant, it is due to the special character of the discursive human understanding that we have to explain natural objects by means of mechanical laws. Yet, our experiences of organisms suggest that there are certain objects in nature that cannot be explained mechanically but have to be considered

¹ References to Kant's texts are made by citing the volume and page number of the Akademie-edition, with the exception of the *Critique of Pure Reason* which is referred to by citing the page numbers of the original A and B editions. If not otherwise indicated, translations are taken from Immanuel Kant, *Critique of Pure Reason*, translated by Norman-Kemp Smith (London, 1929), Immanuel Kant, *Critique of Judgement*, translated by Paul Guyer and Eric Matthews (Cambridge, 2000), and Immanuel Kant, *Metaphysical Foundations of Natural Science*, translated by Michael Friedman (Cambridge, 2004).

teleologically. Both positions can be reconciled, I shall argue, if they are acknowledged to refer to two different ways of understanding nature - to material nature as the object of scientific investigation on the one hand, and, on the other, to living nature with which we are confronted in everyday life. I thus propose that Kant's antinomy can be solved if the conflicting principles are taken to entail two complementary views on nature. The reconciliation of the two principles, I shall show, does not merely present a needed solution to a problem that, incidentally, arises out of Kant's philosophy. Rather, the resolution of the antinomy points to a way of combining two viewpoints that, according to Kant, must be included in our considerations of nature.

1. TWO ANTINOMIES IN THE DIALECTIC OF THE *CRITIQUE OF TELEOLOGICAL JUDGEMENT*

Kant begins the 'Dialectic of the teleological power of judgement' by reminding his readers of a point with which he was concerned in the introduction to the *Critique of Judgement*. Our understanding of nature as 'the sum of the objects of the outer senses' (KU, AA, V: 386) is based, he says, on two types of law. The first type includes the transcendental principles for the possibility of experience prescribed by the understanding a priori.² These a priori laws are applied to nature by the *determining* use of judgement and thus hold for anything that can possibly be an object of human experience. On their own, however, the a priori laws are insufficient for an adequate account of our experience of nature. They neither determine the specific character of particular natural objects nor the regularities that hold with regard to these objects. It is therefore the task of the faculty of judgement, in its reflective use, to search for more specific natural laws under which can be subsumed the particular objects of experience. The second type of law is thus learned empirically and 'extended' (KU, AA, V: 386) beyond what can be known a priori.

In order, however, 'to have any hope of an interconnected experiential cognition in accordance with a thoroughgoing lawfulness of nature or of its unity in accordance with empirical laws' we require a 'principle' or 'guideline' according to which we can investigate nature and search for the particular empirical laws (*ibid.*). Such a guideline, Kant argues, is given by reflective judgement itself. In the introduction, Kant has shown that the reflective faculty of judgement gives itself the principle of the subjective purposiveness of nature as a most general guideline in the search of empirical natural laws. This guideline is the principle to approach nature *as if* it were arranged and structured in such way that it could be subsumed under laws that combine into a system graspable by our own cognitive capacities. The principle does not say anything about the particular character of the natural

²It could be argued that Kant also refers to the pure laws of science that follow from the application of the categories to the concept of matter. I will say more about these pure laws in the following section.

laws searched for. Yet, as Kant makes clear in the *Critique of teleological Judgement*, the faculty of reflective judgement also gives itself more specific guidelines; and here it can happen, Kant says, that judgement gives itself more than one such principle. Between these principles, therefore,

there can be a conflict, hence an antinomy, on which is based a dialectic which, if each of the two conflicting maxims has its ground in the nature of the cognitive faculties, can be called a natural dialectic and an unavoidable illusion which we must expose and resolve in the critique so that it will not deceive us. (ibid.)

In § 70, Kant tells us that such a conflict in fact arises in the case of judgement's dealing with corporeal and, in particular, organic nature. The faculty of judgement ends up with an antinomy because it gives itself the following two principles:

The *first maxim* of the power of judgement is the *thesis*: All generation of material things and their forms must be judged as possible in accordance with merely mechanical laws.

The *second maxim* is the *antithesis*: Some products of material nature cannot be judged as possible according to merely mechanical laws (judging them requires an entirely different law of causality, namely that of final causes). (KU, AA, V: 387)

The antinomy that arises for the faculty of judgement thus seems to be one between a principle of mechanism and one of teleology. However, before Kant informs us *why this antinomy arises* - in what sense, that is, each of the two maxims has 'its ground in the nature of the cognitive faculties' (KU, AA, V: 386) - and *how the conflict could be resolved*, he presents a second antinomy:

Thesis: All generation of material things is possible in accordance with merely mechanical laws.

Antithesis: Some generation of such things is not possible in accordance with merely mechanical laws. (KU, AA, V: 387)

This second antinomy occurs, Kant explains, 'if one were to transform these ... regulative principles [...] of the first antinomy] into constitutive principles of the possibility of the objects themselves' (ibid.). The fact that Kant presents this second antinomy and then goes on to declare of the maxims of the first antinomy that they can in fact be reconciled (KU, AA, V: 387f.), has led some interpreters to infer that the real conflict, the 'dialectic of the teleological power of judgement', is to be found between the two constitutive principles of the second antinomy.³

³This interpretation was brought forward, among others, by Ernst Cassirer, *Kants Leben und Lehre*

The first antinomy is by these interpreters not taken to entail any real conflict at all. It is understood to present the mere ‘appearance’ (KU, AA, V: 389) of an antinomy. The solution to the antinomy of judgement is reached, it is argued, by simply realizing that the two apparently conflicting principles are not constitutive but merely regulative maxims for the reflective use of the faculty of judgement.

That this interpretation of the antinomy of judgement as mere appearance cannot be correct has already been pointed out by other commentators.⁴ Both the claim that the dialectic of judgement can be found between the thesis and antithesis of the second antinomy and the claim that the first antinomy presents the solution to this dialectic are at odds with Kant’s argument. Contrary to the first proposition, the second antinomy cannot present the ‘unavoidable illusion’ with which Kant is concerned in the ‘Dialectic of the teleological power of judgement’ (KU, AA, V: 385); for the second antinomy is a conflict between two objective principles. In contrast with the first two maxims, the latter two principles do not present subjective guidelines for the reflective use of judgement to be followed in the search for empirical laws of nature. Instead, they assert something about natural objects themselves, not about the way we consider them. They therefore cannot be classed as maxims of the autonomous use of reflective judgement but are ‘objective principles for the determining power of judgement’ (KU, AA, V: 387). Since they are not given by the faculty of judgement itself they clearly cannot be what causes the ‘natural dialectic’ within this faculty.

The second claim of the mere-appearance-interpretation is shown to be false by the fact that the first antinomy itself seems to entail a genuine conflict. The thesis claims that we *must* consider *all* of nature as if it were possible according to laws that are merely mechanical. The antithesis, however, *denies* that we *can* in fact consider *all* of nature as possible according to such laws. Instead, it adds, for the consideration of some parts of nature, we need to refer to laws about final causes. Yet, how can the faculty of judgement fulfil its task of looking for empirical natural laws by following *both* the demand that all of nature must be judged as determined by mechanical laws *and* the request that some parts of nature, as they cannot be judged in this way, must be judged as standing under laws of final causes? No obvious answer seems available. The two maxims thus seem to present a real conflict - a conflict between the principles telling us how to go about in our search for knowledge of the natural laws. More is required, therefore, to solve the antinomy than merely to point out that its thesis and antithesis are regulative maxims for the reflective use of judgement.

(Berlin, 1921) 289ff., and Erich Adickes, *Kant als Naturforscher* (Berlin, 1925), Vol. II, p. 473. More recently, it has been proposed, for instance, by Reinhard Low, *Philosophie des Lebendigen, Der Begriff des Organischen bei Kant, sein Grund und seine Aktualität* (Frankfurt a. M., 1980) 206ff., Robert Butts, ‘Teleology and Scientific Methods in Kant’s *Critique of Judgement*’, *Nous* 24 (1990): 1-16, esp. 4ff., Henry Allison, ‘Kant’s Antinomy of Teleological Judgement’, *The Southern Journal of Philosophy* 30, Supplement (1991) 25-42, esp. 31ff., and Thomas Gfeller, ‘Wie tragfähig ist der teleologische Brückenschlag?’, *Zeitschrift für philosophische Forschung* 52 (1998) 215- 36, esp. 218ff.

⁴Cf., for instance, John McFarland, *Kant’s Concept of Teleology* (Edinburgh, 1970), p. 122, and Peter McLaughlin, *Kant’s Critique of Teleology in Biological Explanation* (Lewiston, NY, 1990) 137ff.

If, then, the mere-appearance-interpretation has to be rejected, how can we explain the fact that Kant mentions two different antinomies in the Dialectic of the *Critique of Teleological Judgement*? Kant seems to be interested in the *contrast* between the two conflicts. On the one hand we have an antinomy between two regulative maxims of the reflective power of judgement. Even though the maxims are, as they stand, in conflict, this conflict is, according to Kant, not unsolvable. On the other hand, we have an antinomy between two principles that make constitutive claims about the objects of experience. As Kant stresses, neither of the two propositions can actually be shown to be true; yet, together they present an irresolvable conflict. It seems, then, that even if the mere-appearance-interpretation is unsatisfactory, it is an important point for Kant that only the conflict between the regulative but not that between the constitutive principles is solvable. This raises two questions. First, why does Kant hold that we can make merely hypothetical and regulative, but no dogmatic judgements about the purposiveness in nature? Second, in what sense, according to Kant, can the conflict between the non-dogmatic maxims, but not that between the constitutive principles, be resolved? In order to be able to answer these questions, I shall take a closer look at how the conflict between the principles of mechanism and teleology arises for Kant in the context of his discussion of organisms.

2. MECHANICAL LAWS AND THE SPECIAL CHARACTER OF THE HUMAN UNDERSTANDING

According to Kant, the antinomy of judgement arises in the context of a particular type of experience: the experience of organisms. Organisms, Kant has shown in the Analytic of the *Critique of Teleological Judgement*, are experienced as natural objects that cannot be explained by reference to mechanical laws. Instead, they have to be thought of in teleological terms: they have to be considered as if they were *natural purposes*. How can this be understood? What does it mean to say that we cannot explain organisms mechanically but have to view them as purposes? Kant explains this particular view of organisms by means of the special character of our human understanding: ‘we would find no distinction between a natural mechanism and a technique of nature, i.e., a connection to ends in it, if our understanding were not of the sort that must go from the universal to the particular’ (KU, AA, V: 404).

We have already seen that, according to Kant, the a priori laws of the understanding underdetermine the particular objects of experience. In § 77, Kant now says that this is due to ‘the special character of the human understanding’ (KU, AA, V: 405) which ‘must go from the *analytical universal* (of concepts) to the particular (of the given empirical intuition)’ (KU, AA, V: 407). The particular, the given object of experience, ‘cannot be derived from’ the universal, the a priori law ‘alone’ (KU, AA, V: 406f.). It must be determined further by empirical laws which, even though they fall under the a priori laws, always involve an empirical component. Hence, it follows from the particular character of our understanding

that the specific character of the objects of experience must seem *contingent* to our understanding. This peculiarity, Kant argues, is made evident by the comparison with a different possible understanding - an understanding that is not, like our own, discursive but intuitive. Instead of going 'from the *analytical universal* . . . to the particular' the intuitive understanding 'goes from the *synthetically universal* (of the intuition of a whole as such) to the particular' (KU, AA, V: 407). It does not arrive at knowledge by subsuming intuitions given in sensibility under the concepts of the understanding. In fact, it does not even have the distinction between sensibility and understanding. Instead, anything it intuits is an object of knowledge. For the intuitive intellect, consequently, there is no distinction, as there is for the discursive intellect, between possibility and actuality. As a result, there is no contingency with respect to the particular character of intuited objects. Intuited objects are independent from intuitions given empirically. They are completely and necessarily determined by the intuitive understanding.

The contrast between our own discursive understanding and a non- discursive, intuitive understanding can clarify why, according to Kant, the particular character of organisms must seem to expose a certain contingency for us. Yet, it seems that the same problem would hold for any other natural object. Even things that we could explain in terms of natural laws falling under the concept of causality would seem to be contingent in the same respect.⁵ It is thus not yet clear what distinguishes our experience of organic beings from that of other natural objects. In what sense is contingency a special problem for the case of organisms? The special problem comes in, I argue, when we move from the general issue of the underdetermination of experience by the a priori laws of the understanding to the particular case of the underdetermination of experience by the a priori *principle of causality*. Kant makes this move when, in § 77, he characterizes our own discursive understanding as one 'which must progress from the parts, as universally conceived grounds, to the different possible forms that, as consequences, can be subsumed under them' (*ibid.*).⁶

Kant here equates the idea of going from the universal to the particular with that of proceeding from the parts to the whole. In order to see in what sense Kant is concerned with the issue of causality here, we need to take a closer look at Kant's conception of the a priori principle of causality on the one hand and the notion of mechanical laws on the other, and investigate the way in which these two are related.

The principle of causality is an example of the a priori laws of the understanding. It states that '[a]ll alterations take place in conformity with the law of the connection of cause and effect' (KrV, B232). As a transcendental principle, it necessarily holds for any possible object of experience; yet, it does not determine

⁵Similarly, Aquila claims that, although a world represented by an intuitive intellect would be one in which everything is represented as necessary, 'this does nothing to help describe a world in which a sufficient ground lies in the holistic form of certain objects', i.e. the organisms. Richard Aquila, 'Unity of Organism, Unity of Thought, and the Unity of the Critique of Judgement', *The Southern Journal of Philosophy* 30, Supplement (1991) 139-56, esp. 147.

⁶Translation amended.

the particular empirical causes that bring about the concrete object of experience. Even though, according to the law of causality, all changes in nature have a cause, nothing is said about the particular lawful relations of cause and effect that determine concrete objects in nature. In order to gain knowledge about the more specific and empirical natural laws that determine the world around us, we thus need to search for more restricted universals in experience that determine the particular objects by simultaneously falling under the higher universal, the a priori principle of causality. Throughout his discussion in the Dialectic, however, Kant does not actually speak of any *causal* empirical laws but, instead, uses the expression '*mechanical laws*'. Are we, in the light of this, justified in identifying Kant's mechanical laws with empirical causal laws that, as I have claimed, are, according to Kant, necessary in order to gain knowledge of the world of experience? In the *Critique of Judgement*, Kant says very little about his conception of mechanism; and throughout his other writings, Kant seems to use the term 'mechanical' in several different ways. Hannah Ginsborg,⁷ for instance, distinguishes between five different uses that Kant makes of the term 'mechanism'. How, then, are we supposed to understand the 'mechanical' laws that Kant refers to in the antinomy of judgement?

Kant gives an explicit definition of mechanical laws in the *Metaphysical Foundations of Natural Science*. Kant's aim in this work is to establish pure natural laws by applying the a priori categories to the concept of matter. In particular, by applying the categories of relation - subsistence, causality and community - to the concept of matter, Kant establishes three laws of *mechanics*. The first law states the conservation of mass: '[i]n all changes of corporeal nature the total quantity of matter remains the same, neither increased nor diminished' (MAN, AA, IV: 541). The second law of inertia says that '[e]very change in matter has an external cause' (MAN, AA, IV: 543); and, according to the third law, '[i]n all communication of motion, action and reaction are always equal to one another' (MAN, AA, IV: 544). The mechanical laws of the *Metaphysical Foundations* are thus concerned with change in matter. In particular, they are concerned with the relation of the movement of one particular part of matter against another - where this movement, as Kant adds, can only be understood in terms of the attractive and repulsive forces of matter (MAN, AA, IV: 536f.).⁸

As we have seen, however, in the *Critique of Teleological Judgement*, Kant is concerned with *particular* material objects of experience, and not with the concept of matter as it can be 'constructed' in pure intuition. In order to explain the former we thus require laws that go beyond and are more specific than the a priori laws of pure science. The mechanical laws of the third *Critique* thus cannot

⁷Hannah Ginsborg, 'Kant on Understanding Organisms as Natural Purpose', *Kant and the Sciences*, edited by Eric Watkins (Oxford, 2001) 231-58, esp. 238f.

⁸For details on Kant's mechanics chapter of the *Metaphysical Foundations* see, for example, Howard Duncan, 'Inertia, the Communication of Motion, and Kant's Third Law of Mechanics', *Philosophy of Science* 51 (1984) 93-119, and Martin Carrier, 'Kant's Mechanical Determination of Matter in the *Metaphysical Foundations of Natural Science*', in *Kant and the Sciences*, edited by Eric Watkins (Oxford, 2001) 117-35.

be the same as the mechanical laws established in the *Metaphysical Foundations*. In the latter work, Kant now claims that all natural science is either pure or applied ‘doctrine of motion’ (MAN, AA, IV: 476f.). It thus seems natural to conclude that while the *Metaphysical Foundations* are concerned with the *pure* doctrine of motion, the *Critique of Judgement* deals with a second sense of ‘mechanism’: the laws of an *applied* doctrine of motion.

This interpretation is supported by certain passages in the *Critique of Teleological Judgement* in which Kant seems to use expressions such as ‘physical-mechanical’ (KU, AA, V: 388) and ‘physical (mechanical)’ (KU, AA, V: 389) interchangeably with the single term ‘mechanical’. As Kant explains in the first introduction to the *Critique of Judgement*, ‘physical- mechanical explanations of events in the corporeal world . . . find their principles in part in the general (rational) science of nature, and partly in those sciences which contain the empirical laws of motion’ (EEKU, AA, XX: 237). By the ‘physical-mechanical’ laws, which seem to be the mechanical laws as such, Kant thus appears to understand the laws that apply to empirical nature and yet instantiate the pure laws of science presented in the *Metaphysical Foundations*. Furthermore, in the brief and few comments that Kant does make about the ‘mechanism of nature’ in the *Critique of Judgement*, he not only refers to mechanism as causes acting ‘blindly’ (KU, AA, V: 360, 377 and 381), but also as the ‘capacity for movement’ (KU, AA, V: 374), as acting ‘in accordance with mere laws of motion’ (KU, AA, V: 390).

Further evidence for this reading is given by a comparison with three earlier works that deal with the mechanical explanation of natural objects. Thus, in the *Universal Natural History and Theory of the Heavens* of 1755, the *Only Possible Proof of the Existence of God* of 1763 and the *Dreams of a Spirit-Seer* of 1766, Kant discusses the possibility to explain inorganic, as contrasted with the impossibility to explain organic, natural objects in terms of mechanical laws.⁹ In these three works, Kant characterizes mechanical laws, more explicitly and in more detail than in the *Critique of Judgement*, as laws that explain nature by reference to the instantiation of the properties of matter - properties which, in the *Metaphysical Foundations*, Kant formulates as the laws of dynamics and mechanics.¹⁰

The presented evidence thus speaks in favour of the view, argued for by Ginsborg, that, according to the *Critique of Teleological Judgement*, ‘we explain something mechanically when we explain its production as a result of the unaided powers of matter as such’.¹¹ Yet, it seems that our investigation has reached a rather odd outcome, for if mechanical laws are simply referring to the empirical

⁹There are, of course, important differences between the arguments that Kant advances for this general distinction in the three works - especially in comparison with the *Critique of Judgement* of 1790. A detailed study of the development of Kant’s argument throughout these works can be found in Cinzia Ferrini, ‘Testing the Limits of Mechanical Explanation in Kant’s Pre-Critical Writings’, *Archiv für Geschichte der Philosophie* 82 (2000) 297-331.

¹⁰References to the laws of dynamics and mechanics are, for example, found in the *Universal Natural History* (NTH, AA, I: 234, 334 and 335), *Only Possible Proof* (BDG, AA, II: 113) and *Dreams of a Spirit-Seer* (TG, AA, II: 329).

¹¹Hannah Ginsborg, ‘Two Kinds of Mechanical Inexplicability in Kant and Aristotle’, *Journal of the History of Philosophy* 42 (2004) 33-65, esp. 42.

instantiation of the pure laws of nature, then the principle of causality, or, on the level of the pure laws of science, the law of inertia, would not play any privileged role with respect to mechanical laws. Our earlier suggestion according to which mechanical laws might be identified as empirical *causal* laws would thus turn out to be a misleading characterization. Ginsborg in fact concludes from this that ‘the general suggestion that we view it [i.e. mechanism] as a species of causality seems to me to be on the wrong track’.¹² I would like to argue, however, that Ginsborg’s own interpretation has missed something very important. It can neither account for Kant’s repeated contrast between mechanical laws as dealing with efficient causation and teleological laws as being concerned with final causation; nor can the presented reading explain the only more detailed statement that Kant makes about the nature of mechanical laws in the *Critique of Teleological Judgement*:

Now if we consider a material whole, as far as its form is concerned, as a product of the parts and of their forces and their capacity to combine by themselves (including as parts other materials that they add to themselves), we represent a mechanical kind of generation. (KU, AA, V: 408)

I would thus like to propose an alternative interpretation of Kant’s conception of mechanical laws in the *Critique of Judgement*. I agree with Ginsborg that these laws have to be in accordance with the pure laws of science of the *Metaphysical Foundations*. The former have to accord with the latter in so far as they are empirical laws dealing with *material* objects which, by definition, fall under the laws of matter and motion. I disagree with Ginsborg’s further view, however, that the mechanical laws of the third *Critique* do not present a form of causal laws, understood in terms of the principle of causality of the first *Critique*. According to Kant’s statement about mechanical explanation quoted above, we explain a natural object mechanically by means of the forces of the parts of matter that act on one another and combine themselves into material wholes. This type of explanation, however, seems to be a *special case* of explaining something, as Ginsborg says, by reference to ‘the unaided powers of matter as such’. In speaking of the effects that parts of matter can have on one another by virtue of ‘their forces and their capacity to combine by themselves’ (KU, AA, V: 408), Kant seems to be concerned precisely with the causal processes that go on within matter.¹³ The fact that, in contrast with the first *Critique*, Kant speaks of objects rather than events acting as causes and effects should not lead one to conclude that ‘Kant does not seem to have in mind causality in the sense of the first Critique’.¹⁴ For, other than in the first *Critique*, in the *Critique of Judgement*, Kant is concerned with empirical causal laws that, while falling under the principle of causality, apply to *material* objects of experience. Thus, when speaking of parts of

¹²Ibid., 40.

¹³Cf. Kant’s reference to mechanical explanation in his *Dreams of a Spirit-Seer* (TG, AA, II: 329).

¹⁴Ginsborg, ‘Two kinds’, 40. Similarly, Zumbach speaks of the ‘oddity’ of Kant’s talk of objects entering into causal relationships. Clark Zumbach, *The Transcendent Science, Kant’s Conception of Biological Methodology* (The Hague, 1984) 21.

matter as acting on one another, Kant nevertheless seems to be concerned with events following upon another *causally*: events taking place in the material world. I would thus like to argue that the difference between the mechanical laws of the *Metaphysical Foundations* and those of the *Critique of Judgement* lies not merely in the latter being more applied than the former. Although the empirical mechanical laws, in dealing with material nature, have to agree with the pure mechanical laws, they are not merely the application of these laws. Rather, mechanical laws are distinguished precisely by the fact that they aim to explain an object of experience by referring to the underlying causal processes of matter.

We can thus return to our original question concerning the special character of the human understanding. In what sense is Kant concerned with the principle of causality - as I have argued he is - when he equates going from the universal to the particular with proceeding from the parts of an object to the whole? This question can now be answered according to the proposed characterization of mechanical laws. According to Kant, we can get to the empirical causal regularities that characterize a certain object only by dissecting the latter and investigating its material components. In characterizing our understanding as proceeding from the universal to the particular and, hence, from the parts of an object to its whole, Kant thus makes clear that we can *only* find empirical laws that explain the specific experiences left contingent by the a priori principle of causality if we refer to the underlying forces of their material parts. In the case of empirical causal laws, the more universal thus seems to be identified with the more simple, the parts of a given object. The particular, by contrast, is identified with the complex, the object as a whole. The special character of our understanding not only determines *that* we have to look for empirical laws in order to explain contingent experiences; it also determines the *specific nature* of these laws. In order to explain the contingent objects of experience, we require mechanical laws.¹⁵

¹⁵Ginsborg's interpretation, by contrast, does not seem to account for the particular way in which the need to explain nature mechanically follows from the character of the human understanding as going from the parts of a natural object to its whole. McLaughlin, however, who, in contrast with Ginsborg, understands the mechanical laws of the third *Critique* as explaining a whole by means of its parts, does not seem to clarify the connection between mechanical laws thus understood and the a priori principle of causality. He therefore cannot explain *why* 'the mechanistic form of causality is... binding for us'. Peter McLaughlin, 'Newtonian Biology and Kant's Mechanistic Concept of Causality', in *Kant's Critique of the Power of Judgement, Critical Essays*, edited by Paul Guyer (Oxford, 2003) 209-18, esp. 215. Both Ginsborg's and McLaughlin's readings offer only a partial characterization of the mechanical laws of the third *Critique*. They are two aspects of the interpretation presented here. I develop a more detailed interpretation of Kant's conception of mechanism in Angela Breitenbach, 'Mechanical Explanation of Nature and its Limits in Kant's *Critique of Judgement*', *Studies in History and Philosophy of Biological and Biomedical Sciences*, 37 (2006) 694-711.

3. THE IMPOSSIBILITY OF CONSTITUTIVE, AND THE NECESSITY OF REGULATIVE, PRINCIPLES OF MECHANISM AND TELEOLOGY

The particular character of our discursive understanding thus makes it necessary for us to explain nature by means of mechanical laws. What does this now mean for the case of our experience of organisms? According to Kant, we experience organisms as essentially distinguished by a certain kind of organization: a particular kind of arrangement of the parts within the whole and a reciprocal interdependency between the individual parts. If we consider, for example, ‘the structure of a bird, the hollowness of its bones, the placement of its wings for movement and of its tail for steering, etc.’ (KU, AA, V: 360) we seem to think of the parts of an organism as determined by their function within the organism as a whole. We can only understand the eye of a bird by reference to its function for the visual capacity of the bird. We understand the eye as that organ which enables the bird to see. The existence and specific form of the parts of an organism thus appear as if they were designed for the existence and survival of the organism as a whole. Moreover, in its directedness towards its own survival, the organism seems to bring about *itself*. The generation, growth and regeneration of damaged parts of an organism seem to display not only a particular organization, but also a capacity of the organism for *self-organization*.

The attempt to give an explanation of organisms is now faced with a special contingency problem. For, as we have seen in the preceding section, in order to explain an object of empirical experience, we need to subsume it under mechanical laws. We need to explain it in terms of the underlying forces of its material parts. As an effect of the causal processes of matter, however, the apparently functional arrangement of the parts of an organism within the organism as a whole would appear to be a mere coincidence. For ‘nature, considered as a mere mechanism, could have formed itself in a thousand different ways without hitting precisely upon the unity’ (KU, AA, V: 360) essential to the particular character of an organism. It does not seem imaginable for us, however, that the arrangement of an organism should have been merely contingent. As we have seen, organisms are characterized precisely by the fact that their parts seem to be arranged in such a way that they contribute towards the existence and survival of the organism as a whole. There is thus something about organisms that requires an explanation that is not necessary for inorganic nature. Organisms seem to display a characteristic that cannot be explained by means of mechanical laws. How then can we understand the idea of an organism as directed towards the existence of the whole, as, in other words, purposive for the whole? According to Kant, we can think of organisms in this way only according to an analogy with the end-directedness of our own rational action. Although we cannot have any experience, let alone knowledge, of a purposiveness or end-directedness in nature, we thus consider organisms, Kant says, *as if they were natural purposes*.

The need to consider an organism as if it were directed towards its own existence and survival arises for Kant with respect to the mere ‘possibility of its form’ (KU, AA, V: 408). It is the ‘internal possibility’ (KU, AA, V: 400) and the

inner ‘constitution’ (KU, AA, V: 389) of an organism that displays a certain purposive organization. Yet, in some passages Kant speaks of the ‘generation’ of a natural object ‘from final causes’ (KU, AA, V: 413). This has led some interpreters to stress the distinction between the mere inner possibility of an organism and the way in which it is generated. I agree with Ginsborg at this point, however, that the self-producing character of organisms make it very difficult to draw a sharp distinction between the inner functioning of an organism and its origin. For

[t]he functioning of an organism includes, not only the activities through which it maintains itself in maturity, but also its growth and development; and these processes are continuous with the process through which the organism comes to be in the first place.¹⁶

The generation of an organism, I therefore propose, should be understood as a special case of the particular, apparently purposive, directedness which seems to characterize our experience of organisms.

From the case of the experience of organisms we can now conclude that we can make no dogmatic assertions about the existence or absence of purposiveness in nature. On the one hand, the need to explain nature mechanically by means of empirical laws is due to the character of our human understanding. We can imagine that a different understanding would not need to explain nature in this way. On the other hand, we can regard nature as purposive only according to an analogy. Our very concept of a natural purpose, and hence the impossibility of mechanical laws in the production of organic beings, is ‘inexplicable’. It is an idea that, although it can be ascribed to nature by means of an analogy, can never be proved to have a real application in nature. Consequently, we are incapable of making any determinate statement about the presence or absence of final causes in nature. We can neither claim nor deny that there are things in nature whose generation and inner workings require final causes. Nor can we claim or deny that all things in nature are possible merely in accordance with mechanical laws. Neither the thesis nor the antithesis of Kant’s second antinomy can therefore be proved to be true. Any philosophical system that aims to make determinate assertions about the apparent purposiveness in nature, Kant therefore infers, has to fail.¹⁷

¹⁶Ginsborg, ‘Two kinds’, 50.

¹⁷In §§ 72-3, Kant discusses what he classifies as idealistic and realistic theories of organic nature. The idealistic position, expressing the thesis of the second antinomy, conceptualizes the purposiveness of organic nature as unintentional, hence as reducible to the mechanism of nature. The realistic position, representing the standpoint of the antithesis of the second antinomy, claims that such purposiveness is intentional, and hence inherently different from mechanical causality in nature. Both positions stand in direct opposition to one another. Yet, according to Kant, neither side can prove its assertion. As dogmatic and constitutive assertions, their claims cannot be validated.

Thus, instead of making determinate statements about the presence or absence of purposiveness in nature we can only make assertions about the way we consider the world. We can formulate such maxims as are entailed by the thesis and antithesis of Kant's first antinomy. Furthermore, the case of our experience of organisms shows that, according to Kant, the views implied by the maxim of mechanism and the maxim of teleology are not only possible but *necessary* for our conception of nature (KU, AA, V: 386). The maxim of mechanism is, as Kant says, 'provided to . . . [the faculty of judgement] by the mere understanding a priori' (*ibid.*). It is a transcendental condition of any possible experience that if 'we experience that something happens, we in so doing always presuppose that something precedes it, on which it follows according to a rule' (KrV, A195/B240). All objects of nature are thus necessarily caused. In order to gain knowledge of the empirical character of nature, we therefore have to find out the empirical causal connections that hold in the world, and, as we have seen in the previous section, this entails that we must explain nature in terms of mechanical laws. We must expect, therefore, that '[a]ll generation of material things and their forms must be judged as possible in accordance with merely mechanical laws' (KU, AA, V: 387).

The maxim of teleology, by contrast, is 'suggested by particular experiences that bring reason into play in order to conduct the judging of corporeal nature and its laws in accordance with a special principle' (KU, AA, V: 386). Because of our experience of organic beings, whose characteristic nature does not seem to be explicable by means of mechanical laws, we infer that '[s]ome products of material nature cannot be judged as possible according to merely mechanical laws' and that 'judging them requires an entirely different law of causality, namely that of final causes' (KU, AA, V: 387). Due to the particular character of organisms given to us in experience and due, also, to the particular nature of our human understanding, we cannot but consider organisms as purposive. Each of the two conflicting maxims of the first antinomy, we can conclude, 'has its ground in the nature of the cognitive faculties' (KU, AA, V: 386).

4. TWO VIEWS ON NATURE

However, even the formulation of these two merely regulative maxims, as I have shown in Section 1, presents a conflict for reflective judgement. Yet, if both maxims are necessary for us, how can this conflict be resolved? The answer to this question, I suggest, goes beyond, yet, to a certain degree, incorporates the mere-appearance-interpretation mentioned and rejected in the first section. According to this interpretation, the resolution to Kant's antinomy of judgement is reached simply by pointing out that the thesis and antithesis are merely regulative principles about our judgement of nature, rather than constitutive principles concerning the objects of nature themselves. I agree that it is an important step to realize that the conflicting principles are merely regulative maxims.¹⁸ I claim,

¹⁸This can also explain Kant's claim that '[a]ll appearance of an antinomy ... rests on confusing

however, that this realization is not sufficient for the solution of the antinomy by itself. Further considerations are needed.

Consider again the conflict of Kant's antinomy of judgement. In following the maxim of mechanism, the reflective faculty of judgement gives itself the rule to assume that all objects of experience are explicable by means of mechanical laws. If it now turns out that a mechanical law is found and taken to explain a certain object of experience, it is the faculty of judgement, in its determining use, that applies this law to the particular experience under investigation. It is only in this way that we can gain knowledge about the more specific character of nature. If, in a different case, no empirical law is found, this would be no reason, according to the first maxim, to believe that the object under consideration could not, in principle, be explained mechanically. According to the second maxim, however, the same case could alternatively mean that there is something about the object under consideration that simply cannot be grasped by means of mechanical laws. Objects for which this alternative is the case, according to the second maxim, are the organisms.

In order to understand why these two positions do not entail a contradiction, we need to see that they are compatible with the following view: we might find mechanical laws that explain the material processes underlying an organism without fully explaining what it is that distinguishes the organism from non-organic natural objects. For we might be able to find mechanical laws that hold for the underlying matter of an organism. Yet, Kant's claim seems to be that these mechanical laws will always leave something about the organism unexplained. As Kant says in *The Only Possible Proof of the Existence of God*, 'even if I could fully understand all its [i.e. a living body's] springs and pipes, all its nerve ducts and levers, its entire mechanical organization I should still be amazed . . . at the way so many different functions can be united in a single structure' (BDG, AA, II: 152). Even if, as Kant adds in the *Critique of Teleological Judgement*, we have to regard certain objects of nature as possible only in accordance with laws that refer to final ends,

reflection in accordance with the first maxim is not thereby suspended, rather one is required to pursue it as far as one can; it is also not thereby said that those forms would not be possible in accordance with the mechanism of nature. It is only asserted that *human reason*, in the pursuit of this reflection and in this manner, *can never discover the least basis for what is specific in a natural end*, although it may well be able to discover other cognitions of natural laws. (KU, AA, V: 388; my italics)

a fundamental principle of the reflecting with that of the determining power of judgement ...' (KU, AA, V: 389), which has commonly been used to support the mere-appearance-interpretation.

We can therefore infer that

the principle of a mechanical derivation of purposive products of nature could of course subsist alongside the teleological principle, but could by no means make the latter dispensable; i.e. one could investigate all the thus far known and yet to be discovered laws of mechanical generation in a thing that we must judge as an end of nature, and even hope to make good progress in this, *without the appeal to a quite distinct generating ground for the possibility of such a product, namely that of causality through ends, ever being cancelled out.* (KU, AA, V: 409; my italics)

On the one hand, we thus have to think of all nature as explicable mechanically. And yet, on the other hand, we must consider the mechanical laws as never able to explain the particular character of the apparently purposive arrangement of organisms. This interpretation of the two regulative maxims, I suggest, presents a solution to the antinomy of judgement by implying two different views on nature. While the first maxim is concerned with nature as the material object of scientific investigation, the second maxim is concerned, more broadly, with nature that we ordinarily encounter as our natural environment. The first maxim is thus concerned with material nature of which we can have testable, or verifiable knowledge. The second maxim, by contrast, deals with nature as we experience it in everyday life. Our experience of nature understood in this sense, may not always reach what Kant calls ‘logical clarity’ or ‘clarity through concepts’ (Log, AA, IX: 62). Instead, it may be known only analogically and thus reach merely an ‘aesthetic clarity’, a ‘clarity through intuition’, or, as Kant also describes it, a certain ‘vividness and comprehensibility’ (*ibid.*).

The second maxim thus adds to, rather than contradicts, the first maxim by claiming that there is something about our ordinary experience of nature which falls outside the realm of the scientifically investigable. The maxim of teleology points out that there is something about our experience of living nature which we cannot explain (*erklären*), but can only elucidate (*erläutern*) by means of analogy. In one sense, therefore, Kant can allow for ‘a deeper-level analysis of the organism’s workings in terms of inorganic parts’.¹⁹ He can allow for this kind of explanation in so far as it would be an explanation of the material processes that go on within the organism. He must reject such a mechanical explanation, however, as an explanation of the essential character of the organism as a living being.²⁰

¹⁹Ginsborg denies this. Ginsborg, ‘Two kinds’, 48.

²⁰Zumbach seems to propose a similar resolution to the antinomy when he claims that Kant is not an ontological, but an explanatory, anti-reductionist. According to Zumbach, Kant merely denies that we can reduce the teleological to a mechanical understanding of nature. Kant does not deny, Zumbach argues, that ‘living processes are just complex and special patterns of physical and chemical processes’ (*Transcendent Science*, 88). Yet, according to the interpretation proposed in this paper, the latter kind of constitutive claim about what living processes *really are* cannot be justified. Living processes can be *viewed* as physical and chemical processes. However, they can (and must) also be viewed as teleological processes.

The thesis and antithesis of Kant's antinomy of judgement are thus shown to be compatible as entailing two different ways of looking at nature. I would like to claim, furthermore, that the two proposed views on nature are not only compossible, but also *require* one another. On the one hand, we may speak of the mechanical consideration of nature as necessary for the teleological judging of nature. For even if we think of an organism as a natural purpose, and of its parts as defined by means of their functions within the organism as a whole, we need to consider mechanical processes in order to know how the particular parts realize their functions.

For where ends are conceived as grounds of the possibility of certain things, there one must also assume means the laws of the operation of which do not *of themselves* need anything that presupposes an end, which can thus be mechanical yet still be a cause subordinated to intentional effects. (KU, AA, V: 414)

Thus,

the mere teleological ground of such a being [i.e. an organized being] is equally inadequate for considering and judging it as a product of nature unless the mechanism of the latter is associated with the former, as if it were the tool of an intentionally acting cause to whose ends nature is subordinated, even in its mechanical laws. (KU, AA, V: 422)

On the other hand, we can also speak of the teleological way of considering nature as necessary for the mechanical investigation of nature. For in order to investigate the material processes that go on within an organism, we need to be able to pick out the organism in the first place. We can only consider a part of nature as an organic whole, however, by looking at it as a natural purpose. In order, therefore, even to start a scientific investigation of the mechanically explicable processes that go on within a bird, for example, we need a teleological view upon nature. Thus, the teleological approach to nature is 'still a heuristic principle for researching the particular laws of nature' (KU, AA, V: 411). It is in this sense that we can understand Kant's claim that mechanical judgements 'must always be subordinated to a teleological principle as well' (KU, AA, V: 417).

5. CONCLUSION

The two maxims of reflective judgement thus propose two complementary views on nature. One way of looking at nature can, and indeed must, subsist next to the other. This does not mean that the two maxims can, for us, be *unified* under one principle:

Our reason does not comprehend the possibility of a unification of two entirely different kinds of causality, that of nature in its universal lawfulness and that of an idea that limits the latter to a particular form for which nature does not contain any ground at all. (KU, AA, V: 422)

According to Kant, we can only assume that the mechanical and teleological principles could somehow be unified under one higher principle in the supersensible realm. The supersensible, however, is merely a transcendent idea. It is not theoretically graspable ‘given the limitation of our understanding’ (KU, AA, V: 413). To us, the unification of the two maxims therefore remains unavailable. Both principles retain their status as two distinct and necessary ways of looking at nature.

We can thus distinguish between two attempts to resolve the antinomy. On the one hand, one may attempt to solve the antinomy by uniting the two maxims in one single principle. In the empirical world, this attempt has to fail. On the other hand, one may try to reconcile the two maxims as complementary, yet distinct, views on nature. It is in this second sense that the antinomy can be resolved.²¹ The solution depends, first, on the status of the two maxims as regulative principles about the way we consider nature. Second, it depends on the fact that the two maxims refer to two different views on nature. The solution to Kant’s antinomy of judgement therefore presents not merely a solution to a problem that, incidentally, arises out of Kant’s philosophy. Rather, it proposes a programme for combining two different but necessary viewpoints in our consideration of the natural world around us. We can thus try to explain all of nature by means of mechanical laws, while at the same time being aware that there is something about nature, as we experience it, that we will never be able to explain in this way.

ACKNOWLEDGEMENTS

A shorter version of this paper was presented at a one-day conference on Kant, Morality and the Sciences at the Department of History and Philosophy of Science, Cambridge University, in March 2005. I would like to thank the participants for an inspiring discussion. I would also like to thank Nick Jardine and Joan Steigerwald for very helpful comments on earlier versions of the paper.

²¹We should thus reject the view that Kant’s introduction of the supersensible presents the only way to solve the antinomy and that, as the supersensible is not graspable by us, there can be no adequate solution to the antinomy. This view is proposed by Veronique Zanetti, ‘Die Antinomie der Urteilskraft’, *Kant-Studien* 83 (1993) 341-55, esp. 352.