Why must we presuppose the systematicity of nature?

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1. Guyer's challenge to the presupposition of systematicity

In the *Critique of Judgment* Kant argues that, in addition to the *a priori* principles of understanding presented in the first *Critique*, there is a further *a priori* principle associated with the faculty of judgment, that is, with the faculty for "thinking the particular as contained under the universal" (*CJ* 5:179). Unlike the principles of understanding, this is not a principle which we can know to obtain, but rather one which we must merely presuppose or assume. Relatedly, it is subjective rather than objective (e.g. *FI* 20:209; *FI* 20:21; *CJ* 5:184) and regulative rather than constitutive (*CJ* 5:180; *CJ* 5:194). However, like the principles of understanding, it qualifies as transcendental (e.g. *FI* 20:209; *CJ* 5:181 and *passim*). This principle is formulated by Kant in a variety of ways. Some passages characterize the principle as one of nature's purposiveneness for, or conformity to, our cognitive faculties or our faculty of judgment. Others characterize it, with seemingly greater specificity, in terms of nature's systematicity, indicating that it can be expressed in such formulae as "Nature takes the shortest way... it makes no leap in the diversity of its forms ...it is rich in species and yet parsimonious in genera" (*FI* 20:210; cf. *CJ* 5:182). But,

however the principle is characterized, Kant makes clear that it is required for the exercise of judgment, specifically in its reflective rather than its determining capacity, that is, as finding universals for given particulars (*CJ* 5:179).

There are many problems regarding both the interpretation of this aspect of Kant's view, and its defense. One interpretive crux concerns the exercise of reflective judgment for which the principle is required. On the less radical of two alternatives typically distinguished in the literature, the principle is required for pursuing systematic scientific enquiry, in particular constructing taxonomies of natural kinds and hierarchical systems of empirical laws. On the more radical alternative, it encompasses not just the systematization of empirical concepts and laws, but, more fundamentally, the kind of generalization required for arriving at empirical concepts and laws in the first place. Either way, we face a fundamental question: why does the exercise of judgment require us to assume *a priori* that nature is systematic? It would be one thing if the *a priori* principle of judgment merely enjoined us to seek systematic theories of nature. But the principle is not about our own cognitive aims, but about nature itself. That feature of the principle opens Kant to a challenge, which has been articulated with particular force by Paul Guyer (1997, 42), namely that the principle "does nothing but transform our own need for systematicity into a self-serving delusion". The most obvious justification for the principle which Guyer ascribes to Kant is that, without it, our search for systematicity is not rationally motivated. But this justification, Guyer points out, is inadequate: the rationality of our search requires, not a promise of success, but only the absence of a reason to believe that we will fail. Adopting the principle, then, seems to amount to "merely postulating or presupposing that an object will meet one's needs, rather than obtaining evidence that it does" (1997, 44).

Guyer formulates this difficulty in terms of the less radical interpretation of reflective judgment, but it also arises if, taking the more radical option, we think of reflective judgment as aiming at empirical conceptualization *überhaupt*. In the text most supportive of this option, Section V of the First Introduction, Kant formulates the principle as saying that "for all things in nature empirically determinate concepts can be found" (*FI* 20:211), adding in a footnote that, while this might seem to be a matter of logic, logic does not tell us that "for each object nature has many others to put forward as objects of comparison, which have much in common with it as to their form" (*FI* 20:211n). Here again, we can raise a version of Guyer's difficulty: why should the task of empirical conceptualization require us to presuppose in advance that nature is such as to make that task successful, and in particular, that things in nature display enough similarities that we can sort them into kinds? It is true that if nature did in fact display the kind and degree of heterogeneity, which made it impossible for us to recognize things as having common features, presenting us with what Kant elsewhere describes as a "crude chaotic aggregate" (*FI* 20:209), we would be unable to bring objects under empirical concepts. But why does the activity of empirical conceptualization require us to rule out that possibility – a possibility which, at least on the evidence we have so far, does not obtain *a priori*? Why isn't nature's conceptualizability something, which we come to discover through our success in conceptualizing it, rather than something which we have to assume in advance of our conceptualizing activity?

The more radical option gives rise to a further difficulty, namely that it is not clear why empirical conceptualization should require the assumption of nature's systematic unity. According to Kant, "judgment *which seeks concepts for empirical representations as such*... must...assume *for this purpose* that nature in its boundless multiplicity has hit upon such a division into genera and species as makes it possible for our judgment ... to arrive at empirical

concepts, and their interconnection with one another, through ascending to more general but still empirical concepts" (*FI* 20:211n; my emphasis). But why is this assumption necessary? If we have to assume anything at all about nature in order to form concepts like *dog*, *tree* and *water*, why can't it just be that there are natural kinds corresponding to these concepts, without any implication that these kinds can be further subdivided, or in turn seen as subdivisions of higher-level kinds?[1]

In answer to the second difficulty, it might be claimed with Henry Allison that "the necessity for a hierarchical ordering in terms of genera and species follows from the very nature of a concept" (2001, 35). The concept *gold*, for example, is composed of further concepts, such as *yellow*, *metal* and *soluble in aqua regia*; these concepts stand to *gold* as genus to species, but *gold* itself functions as a genus with respect to lower-level concepts of different kinds of gold, various things made of gold, and so on (2001, 35). Ido Geiger (2003) offers a more thoroughgoing justification of the need for systematic unity among concepts, drawing on the Sellarsian idea that since mere intuition cannot give content to our concepts, they can derive their content only from the systematic relations, which hold among them. But even if it is right that we cannot conceptualize nature without thinking of our concepts as standing in systematic relations to one another,[2] it still doesn't appear to follow that conceptualization requires the presupposition that *nature itself* is systematically organized. So Guyer's initial difficulty remains.

Another proposal made by Allison suggests at least a partial response to Guyer's difficulty. This is that systematicity for Kant amounts to Hume's "uniformity of nature", so that, very roughly, the principle of nature's systematicity comes down to the principle of induction (2001, 38). This proposal is supported by a marginal note in which Kant says that Linnaeus

[1]Another possibility, on which conceptualization is restricted to shapes, colors and tones, is considered by Guyer (1990, p. 29).
[2] For a challenge to this view see Guyer (2003, p. 294n8).

"could not have hoped to sketch a system of nature, if he had to worry that, if he found a stone which he called granite this might be different as regards its inner constitution from every other stone, which looked just like it" (*FI* 20:216n). If Hume's problem of induction is the issue, then Guyer is not in a position to claim that we should look for evidence of nature's systematicity rather than assuming it *a priori*, since any attempt to look for empirical support for induction would be question-begging. However, Allison's proposal is called into doubt by Kant's claims that even though the principle of judgment cannot be "learned from observation", it can be "confirmed by observation" (*CJ* 5:186), and that the systematicity of nature is something in which we can feel pleasure (*CJ* 5:187) and *a fortiori* of which we can be aware. This suggests that either systematicity is not equivalent to the "uniformity of nature" in Hume's sense, or that we can be aware of, and find empirical confirmation for, the uniformity of nature. Either way, Guyer's challenge remains: if the systematicity of nature is something which can be (even partially) confirmed in the course of empirical enquiry, what entitles us to assume it in advance of enquiry?

Guyer himself finds an answer to the challenge in two passages, from sections IV and V of the published Introduction, where Kant points out that, even though particular empirical laws cannot be derived from the *a priori* principles of the understanding, they still must be regarded by us as necessary. What allows us to regard them as necessary, he says, is that we consider them "according to such a unity as they would have if an understanding ... had given them for the sake of our faculty of cognition in order to make possible a system of experience according to particular laws of nature" (*CJ* 5:180). In other words, it seems to be the principle of nature's systematicity which allows us to regard particular empirical laws as necessary. According to Guyer, Kant's thought is that "an individual empirical generalization, which will seem

contingent when considered in isolation, will appear to be necessary when it is embedded in a system of such generalizations" (2003, p. 287-288), especially if the system is one in which "generalizations at any level will appear to be entailed by the more general laws above them and confirmed by the more detailed laws beneath them" (ibid.). As Guyer notes, this is still not enough to establish that the principle is "a proposition about nature itself rather than merely an ideal for our concepts of nature" (ibid.), so still not enough to address the basic problem. But he argues that the problem can be addressed if we add a further assumption, namely that we will often need to regard a generalization as necessary without possessing the whole system of generalizations which would entail and confirm it. Regarding such a generalization as necessary requires us to regard it as necessitated "by a system of regularities beyond our concepts, that is, by a system of regularities existing in nature itself" (ibid.).

In an earlier presentation of the same line of thought, however, Guyer presents the view in a somewhat more qualified way. He characterizes Kant as suggesting that recognition of entailment among the putative laws would "to some degree satisfy our demand for necessity even though we might still be able to imagine that the system as a whole could be replaced by some other, though equally systematic set of empirical laws" (1990, 41). The qualifications mark what seems to be a genuine difficulty: why should our conceiving of a law as embedded in some system of laws allow us to think of it as necessary if we do not in turn think of the whole system as itself necessary? We might regard a putative law's being embedded in a hierarchical system as sufficient for its lawlikeness if, following Michael Friedman (1992), we also conceive of the system as anchored at the top by the *a priori* principles of understanding. But according to the line of thought Guyer is considering, it is the recognition of systematicity all on its own which is supposed to allow us to ascribe necessity to the putative laws.

One way to defend this line of thought would be to adopt a proposal defended by Philip Kitcher, on which systematicity not merely allows us to regard laws as necessary, but is actually constitutive of their necessity. Kitcher, following Buchdahl (1969), sees Kant's endorsement of the *a priori* principle of systematicity as an answer to the problem of how we are justified in treating any regularity as necessary in the sense of lawlike – that is, counterfactual-supporting – as opposed to merely accidental. According to Kitcher, "Kant's solution to the puzzle of how we manage to recognize the necessity of laws is that... this necessity accrues to lawlike statements in virtue of their incorporation in a system that is constructed by following certain rules" (1986, 209), for example rules enjoining maximum economy in higher-level explanatory principles and maximum diversity in the phenomena they explain. For Kitcher, this is not because incorporation in a system is an external indicator of necessity, or a surrogate for it, but rather because it is simply constitutive of necessity. There is nothing more to being a law of nature or a natural kind than figuring appropriately in the ideal systematization of natural phenomena: laws just are "statements that play a particular role in the system that would emerge from an ideally extended enquiry" (1986, 215).

Kitcher's proposal, however, fails to do justice to Kant's repeated claims that the systematicity of nature is, at least as far as we can tell, contingent, or, in other words, that we can conceive of the possibility that the laws of nature are not systematically organized. It is, Kant says, "surely possible in itself (at least as far as the understanding can determine *a priori*)" that the "manifoldness and heterogeneity of these laws, likewise the corresponding natural forms" could be "infinitely great" so that the laws "manifest a crude chaotic aggregate without the slightest trace of a system" (*FI* 20:209). Relatedly the "harmony of nature with our cognitive

capacity" is "recognized by the understanding as contingent" (*CJ* 5:185).[3] Kant's insistence on the contingency of nature's systematicity is of a piece with his denial that the principle of systematicity is constitutive, that is, that it legislates to nature: "reflective judgment can only give such a transcendental principle as a law to itself...and cannot prescribe it to nature" (*CJ* 5:180). If, as on Kitcher's view, the laws of nature were necessarily systematic, then the principle of systematicity would in effect be prescribed to nature: something which we could know *a priori* and not merely something which we merely have to presuppose in order for reflection to be possible.

2. Nature's purposiveness for our cognitive faculties

I turn now to my own response to Guyer's challenge, which differs from the positions just surveyed by focusing, not on Kant's formulations of the principle of judgment in terms of systematicity, but rather on what I regard as the more basic formulation in terms of nature's purposiveness for judgment.[4] I will offer an account of the presupposition of nature's purposiveness, which makes plausible that it is a condition of the exercise of judgment, viewed as a capacity for empirical conceptualization. I will then argue that, given a plausible assumption

[3] Kitcher (1994) responds to an earlier version of this criticism (in Ginsborg 1992) by acknowledging the need to do justice to the contingency of nature's purposiveness for our cognitive faculties but continuing to maintain the constitutive connection between lawlikeness and incorporation in an ideal system. What is contingent is not that laws of nature constitute a system, but that our current ways of theorizing approximate to that system. In effect, Kitcher distinguishes between the claim that nature's laws are systematically organized *tout court*, which he takes to be necessary, and the more demanding claim that their systematic organization is such that our present ways of theorizing approximate to a grasp of it, which he takes to be contingent. However, the passage just cited from *FI* 20:209 makes clear that we can conceive of natural laws as entirely lacking in systematic organization. More generally, Kant seems to regard formulations of the principle in terms of nature's systematicity as spelling out or making more explicit what is involved in nature's purposiveness for our cognitive faculties, so that it would be odd to suppose that he would combine an insistence on the contingency of nature's purposiveness for our cognitive faculties with a view on which systematicity was constitutive of lawlikeness.

[4] Other approaches which focus on purposiveness rather than systematicity are Floyd (1998) and Zuckert (2007).

about the nature of human concept-formation, the presupposition of nature's purposiveness for judgment commits us to the presupposition that nature is systematic.

Now it might seem that it should not make much difference whether we focus on purposiveness or on systematicity. Either way, it might seem, to adopt the principle of judgment is to presuppose something factual about nature, some objective feature in virtue of which it meets our cognitive needs. And, either way, Guyer's problem arises: what justification do we have for presupposing *a priori* something whose obtaining is discoverable – at least to some extent – by empirical enquiry? But I will argue that, even though the presupposition is about nature itself, it is not factual but normative. Moreover, it contains an irreducible reference to our own judging activity: it is about nature's relation to the very activity of reflective judgment for which the presupposition is required.[5] What we have to presuppose is a certain kind of normative fit between nature and our own judging of it, involving not only the idea that our judging is appropriate, or as it ought to be, with respect to nature, but also, and more fundamentally, the idea of nature's being essentially such as to call for that judging, or to make that judging appropriate. Briefly put, we must presuppose that nature *ought to be*, or *should be*, or *is meant to be* judged by us in the ways in which we do in fact judge it.

In making this suggestion, I am extending, to the case of nature's purposiveness for our cognitive faculties, an interpretation I have offered elsewhere of Kant's notion of purposiveness in the biological and the aesthetic contexts.[6] According to this interpretation, purposiveness can be identified, very roughly, with normativity as such. More precisely, it can be identified with a notion of normativity considered in abstraction from any considerations of accordance with reasons or rationality. This is the very minimal notion of normativity captured by expressions

[5] This is also emphasized by Floyd, for example in her characterization of the principle as one which "judgment gives itself *heautonomously*, i.e. circularly and self-reflexively" (1998, p. 207).
[6] See Part III of Ginsborg (2015), especially Essay 10.

like “ought” and “should” in contexts where they cannot be replaced with expressions like “has conclusive reason” to, or explicated more indirectly in terms of an agent’s reasons.[7] One motivation for this interpretation is to help us make sense of Kant’s paradoxical-seeming claim that organisms are “natural purposes”. This claim is problematic because the notion of a purpose seems to be associated for Kant with that of conscious design, and to apply paradigmatically to artifacts, whereas Kant insists on the status of organisms as products of nature. There seems to be a tension, then, between the thought of an organism as a purpose – canonically, “the object of a concept, in so far as the latter is thought as the cause of the former” (*CJ* 5:220) – and the thought of its being, not a supernaturally produced artifact, but something which comes to be through genuinely natural causes.

The solution to the difficulty about the idea of a natural purpose lies in attending to a certain feature of production by design, namely that it has a normative aspect. The potter who sets out to make a vase has in mind a certain concept of what she intends to produce – the concept of an object made of certain materials, and with a certain size, shape and color – and that concept plays a role in her production of the vase. But the role it plays is not just causal but normative: the concept figures in her mind as a normative constraint on how the vase is to turn out, as determining how it *should be* or *ought to be* or *is meant to be*. If it turns out in such a way that the concept does not apply to it – if, say, it comes out of the kiln with a green color rather than the yellow she intended – she will think not merely that it is yellow rather than green, but that, in being green, it falls short of what she had in mind, that it is not the way the cup is meant to be or supposed to be. The normativity implicit in her attitude towards the vase is independent of reasons. She need not have had any reason to choose yellow rather than green for the color of

[7] That there really is such a notion of normativity is up for debate. For defense, see Ginsborg (1998) and Essays 10 and 15 of Ginsborg (2015).

the vase, and she may actually prefer the green color to the color she intended. But that does not stop her, or us, from thinking of the color in normative terms, as "failing to conform" to the standard she had in mind and as representing a "mistake" or an "error" in the production process.

Appeal to this "thinly" normative aspect of design – "thin" because it makes no reference to reasons – allows us to understand how natural objects, for Kant, can be thought of as purposive without undermining our conception of them as products of nature rather than design. To think of an object as purposive, we do not have to think of it as produced by an intelligent being so as to conform to a normative constraint: we can leave the intelligent being out of the picture, and simply think of the object as conforming to a normative constraint. Although, then, we get our initial handle on the notion of purposiveness by reflecting on what is involved in actual production by design, the core of the notion is not the idea of design itself but rather that of the normativity implicit in design. Kant suggests this in a passage where he characterizes teleological judgments about natural things in explicitly normative terms, saying that such a judgment "compares the concept of a product of nature as it is with one of what it *ought to be*" (*FI* 20:240). He points out that we recognize, of an eye, that it is something by means of which we can see, and of a stone, that it is suitable for building. But, he says, "it is only of the eye that I judge that it *ought* to [*sollen*] be suitable for seeing" (ibid.). Like an artifact, an organic being is something of which we can say not merely that it is a certain way, but that it ought to or is meant to be that way.

The purposiveness just described is what Kant calls objective purposiveness, which is a matter of how an object, artificial or natural, ought to or is meant to *be* (or, relatedly, what it is meant to *do*). But the purposiveness of nature for our cognitive faculties is not objective, but subjective: a matter, not of how nature ought to or is meant to *be tout court*, but of how nature

ought to or is meant to *be judged*. By way of transition to this latter idea, we might return to the example of artifacts, and note that we can speak not only of how a vase ought to, or is meant to *be* – hollow, tall enough to accommodate the stalks of flowers, stable, impermeable to water – but of how it ought, or is meant to, *be used*. A vase is not just something which facilitates the preserving and displaying of cut flowers but something to which that use is, in a sense, appropriate or fitting. Someone who stores pennies in the vase, or uses it as a water-jug, is, in the same sense, not using it as it ought to be used, or not making proper use of it. The sense of normativity here, as in the case of how the vase is meant to be, is independent of reasons. There is no reason to refrain from using a vase as a penny-jar or a jug, or – if the vase is attractive – as an ornament. But the flower-displaying use remains privileged in a sense, which it is at least possible to describe using normative terms like "should" and "ought." Even though in most contexts talk of how a vase should be used or, more generally, treated, has a prudential or moral content – that vase shouldn't be taken on the camping trip because it's valuable, or because we promised the owner we'd be careful with it – we can still speak of certain uses as corresponding or failing to correspond to how the vase "should" be used in the thin sense which is most naturally captured by idioms like "meant to" and "supposed to". This is especially clear where the relevant behavior is more complex. We speak of how a violin should be or is meant to be played – roughly by drawing the bow across the strings between the end of the fingerboard and the bridge – without any implication that one has reason not to make sounds on it in other ways. For example a composer might specify that the player hit the bow against the strings or play below the bridge, and in such cases part of what makes the result aesthetically interesting is that the violin is not being played in the way in which – in the thin sense – it should be played.[8]

[8] An extreme case is Helmut Lachenmann's 1969 *Pression* for solo cello, in which – quite deliberately – the cello is never played as a cello "should be" played.

I have been using the example of artifacts to illustrate the general idea of a normative fit between an object and certain behavior where the object not only facilitates the behavior but also makes it appropriate. While Kant does not explicitly discuss this kind of normative fit between a particular object and our overt behavior in relation to it,[9] I think he does invoke an idea of the same kind of normative fit between an object and our psychological response to it: namely, in the idea of the subjective purposiveness that we ascribe to an object when we make a judgment of beauty.[10] Such a judgment, on my reading, consists in the subject's responding imaginatively to an object in a way which involves her taking that very response to be appropriate to the object, but without the thought that she is according with a rule or concept which determines that response as appropriate. In contrast to the case of an objective judgment about the object, where she might take herself to be responding appropriately in virtue of the fact both that the object has a certain objective property and that she is judging it to have that property, she simply sees the object as normatively calling for that response, or as making it appropriate. The property she ascribes to it in having that response, that of making appropriate the very response she is having, is ineliminably normative and subjective. It is not that she takes there to be some objective fact about the object which gives her a reason to respond to it in the way she does, or makes it the case that her response is veridical: rather, in responding to the object she perceives it, in a way which cannot be further analyzed, as simply meant to be responded to in that way. This is what it is, as I understand Kant, for her to perceive the object as subjectively purposive in the sense relevant to judgments of beauty.

There are important disanalogies between the aesthetic case and that, say, of the violin. For one thing, the activity of playing a violin does not essentially involve taking what one is

[9] Although it might be seen as a form of "relative" or "extrinsic" objective purposiveness (see *CJ* §63 and §67).
[10] See Ginsborg (2015, pp. 90 and 248).

doing to be appropriate to the violin; whereas as I understand the judgment of beauty, one's imaginative response to the object essentially involves awareness of the appropriateness of one's response. For another, we can specify how a violin ought to be played, that is, to give what might be regarded as rules for playing a violin, or standards for violin-playing, whereas this kind of specification is not possible in the case of one's imaginative response to the beautiful object, where one can specify how one ought to respond to a given object only by saying that it is *this way*. What the violin example is intended to bring out is simply the idea of a certain kind of normative fit between a thing and one's response to it, where the normativity is of a "thin" kind which does not involve the thought that one has reason to respond in the way one does. That idea is central to my understanding of nature's purposiveneness for our cognitive faculties, to which I now return.

3. The principle of nature's purposiveness as a condition of empirical conceptualization

I suggested above that the *a priori* presupposition of nature's purposiveness for judgment amounts to the presupposition that nature ought to be, or should be, or is meant to be judged by us in the ways in which we do in fact judge it. I went on to try to clarify the notion of normativity invoked in that formula, and to indicate how it can be understood as figuring in Kant's account of the purposiveness of artifacts, organisms and especially objects of aesthetic judgment. I now want to explain why the presupposition, so understood, is required for the exercise of judgment.

Following Kant's very general characterization of judgment as "the capacity to think the particular as contained under the universal" (*CJ* 5:179), I adopt the more radical of the two options distinguished in section 1, taking reflective judgment to aim not just at the

systematization of concepts and laws, but at empirical conceptualization *überhaupt*. Our need for the principle of purposiveness stems from a claim to normativity, which I take to be built into the very activity by which we come to arrive at empirical concepts. Roughly, on my view, we bring objects under empirical concepts by exercising the same kind of sorting or discriminative capacities possessed by animals. What makes our exercise of those capacities different from those of animals – what makes it genuine conceptualization – is that, in sorting the objects as we do, we take what we are doing to be appropriate to the objects. We don't just sort them together in a particular way, say sorting the dogs together or the green things together, we take it that this is how we should sort these objects. I take this to be part of what Kant has in mind in the first *Critique* when he describes concepts as rules for synthesis, in particular the synthesis of reproduction in imagination described in the first edition Transcendental Deduction.[11] Our reproduction of past representations to form the perceptual image of a dog involves calling to mind elements from our representations of previously perceived dogs, and so amounts to a kind of sorting of the presently perceived dog with other dogs. That the features which come to mind are of previously perceived dogs, as opposed to previously perceived cows, is not a result of our already having grasped a concept which guides our reproduction of past representations, but rather of natural tendencies to associate representations in certain patterns rather than others, tendencies that are by and large shared with animals. Unlike animals, however, we are conscious, in calling to mind past representations, of what we are doing as appropriate to our present circumstances. That consciousness distinguishes our synthesis of representations from the "blind" association carried out by animals. It makes it the case that we regard it as governed by a rule, which is – on my understanding of Kant – just what it is to think the individual we are perceiving under a concept.

[11] See Essay 3 of Ginsborg (2015).

According to this line of thought, it is implicit in our activity of empirical conceptualization – or, in the terms of the third *Critique*, reflective judgment – that it involves the consciousness of that very activity as appropriate to the objects with respect to which it is carried out. Without that consciousness, we would not be conceptualizing at all. Rather, our reflection would be of the kind which Kant describes as "going on... in animals, although only instinctively, namely not in relation to a concept which is thereby to be attained but rather in relation to an inclination which is thereby to be determined" (*FI* 20:211). Here it is important to note that the relevant sense of appropriateness cannot be spelled out in terms either of veridicality or of rational justification. It is not that we recognize that Fido is a dog and hence that, in conceptualizing him as a dog, we are making a judgment about Fido, which is true rather than false. Nor is it that we recognize that Fido is furry and barks, and so should be sorted with the other furry barking things as opposed to the mooing things. While we can justify the claim that Fido is a dog, viewed as an exercise of determining judgment, by saying that Fido barks and is furry, and that observation has shown us that furry barkers are dogs, there is no comparable justification for the exercise of reflective judgment which yields the concept *dog* rather than *dog-or-cow* or *green* rather than *grue*. As Kant puts it, reflective judgment has to proceed "not schematically, but technically, not as it were merely mechanically... but rather artistically" (*FI* 20:213-214). Empirical conceptualization, viewed as making concepts possible rather than as the application of concepts we already possess, has to proceed without the benefit of antecedently grasped rules, which tell us how it ought to be done, although, as in the case of artistic production, this does not preclude a consciousness of ourselves as normatively constrained in our activity. Even if the artisan does not already have in mind detailed specifications for something she is making, and at some point comes to a point in her work where she has no rule to tell her

how to proceed, she can still think of what she does as the right or appropriate thing to do in that context, or as according with a standard which cannot be specified until after the work is completed (and perhaps not even then). Similarly, in empirical conceptualization, we think of our sorting as governed by a standard determining how the objects should be sorted, even though we cannot specify that standard except in terms of the concepts yielded by the activity of sorting itself.

These considerations suggest a parallel between the reflection on nature which yields empirical concepts, and the reflection on a particular object in virtue of which we judge it to beautiful. In both cases we have an imaginative activity which involves the consciousness of its own appropriateness with respect to the object (or objects) towards which it is exercised. And in both cases that consciousness does not depend on the prior consciousness of rules specifying how we ought to carry it out. In the aesthetic case I used this idea to explain the subjective purposiveness involved in making a judgment of beauty. To perceive the object as subjectively purposive is to perceive it as normatively calling for, or making appropriate, our response to the object. I am drawing on the same idea to explain nature's purposiveness for judgment. To take nature to be purposive for our exercise of reflective judgment in conceptualizing nature is to take it to make appropriate our ways of conceptualizing nature. Our justification for regarding nature in this way is that, if we did not, we would not be able to regard our conceptualizing as appropriate with respect to nature, which would mean that it would not amount to conceptualizing at all. There would be no need for the presupposition of purposiveness if, as in the case of determining judgment, we could think of what we were doing as appropriate in the sense of veridical or justified. That would be a way of thinking of our activity in normative terms, as fitting nature, without having to ascribe anything normative to nature itself. We can

think of the judgment that Fido is a dog as appropriate to nature without thinking of nature as meant to be judged by us in such a way that we judge Fido to be a dog. It is enough to think of nature as being such that Fido is a dog, or, in short, to think that Fido is a dog. But in the case of reflective judgment there is no alternative to thinking of the appropriateness involved in our own cognitive activity with respect to nature in terms of a corresponding normative feature of nature with respect to our activity. To think of ourselves as judging appropriately we have to think of nature as making our judging appropriate, in a sense which involves the ascription of something irreducibly normative not only to our own judging but to nature as well.

4. From purposiveness to systematicity

I want now to address two lacunae in the account offered so far. First, in saying that we have to presuppose that nature is meant to be conceptualized by us in the ways in which we in fact do conceptualize it, I seem to have left no room for the obvious fact that we frequently revise our concepts. Second, I have said nothing about Kant's formulation of the principle in terms of the systematicity of nature, although it is that formulation, which most clearly generates the difficulty described in section 1. To address both of these lacunae, I want to be clearer about the claim that we must think of nature as meant to be conceptualized in the ways we conceptualize it. That claim, as I understand it, does not rule out the thought that we might come to reject particular concepts and systems of concepts in favor of concepts, which we find more appropriate to nature than the ones we had before. What it does rule out is two possible thoughts, neither of which can be entertained by us without undermining the claim to appropriateness built into our conceptualizing activity. The first is that there is no such thing as an appropriate way of conceptualizing nature: that any one way of sorting the natural things presented to us is as good

as any other. The second is that, while there are appropriate ways of conceptualizing nature, these are completely at odds with our natural ways of conceptualizing. Neither thought can be rejected on empirical grounds. In particular, the second is quite consistent with the idea that our natural dispositions to sort things have so far enabled us, by and large, to make predictions which turned out to be successful, and indeed that our ways of sorting will continue to facilitate successful predictions indefinitely. But if we allow either thought as a possibility, then we cannot keep hold of the idea that, in sorting objects as we are naturally inclined to sort them, or, so to speak, as nature invites us to sort them, we are sorting them in a way which is also appropriate to nature. To borrow a phrase from Kant, we have no alternative but to think of our sorting as "random and blind, and without legitimate expectation of its agreement with nature" (*FI* 20:212).

So understood, however, the principle is not so strong as to rule out the possibility of our revising our present system of concepts. It requires, not that our natural sorting inclinations correspond immediately to the ways in which natural objects would be sorted by an ideal human enquirer, only that they tend to take us in the direction of those ways. And this is something which we in fact take for granted in the course of empirical scientific enquiry. For our revisions of the concepts initially yielded by our natural ways of sorting things are themselves arrived at through procedures which make use of those basic ways of sorting and rely on the assumption of their appropriateness. When, for example, we come to classify whales as mammals instead of fish, or to distinguish what we earlier thought of simply as jade into jadeite and nephrite, we are still following our natural sorting inclinations. The difference is just that these inclinations are having their effects in a different context. In broadening the concept *mammal* to include whales and other marine mammals, we are still relying on a natural sense of what is similar to what, but as applied to anatomy and mode of reproduction as opposed to shape and habitat. Similarly, in

coming to distinguish different chemical substances which initially strike us as belonging together, we will often rely on experiments whose results we interpret in ways corresponding to our more basic sorting inclinations – for example when we use the color of a piece of litmus paper to determine whether something is an acid or a base.

There is also a second respect in which, in revising our systems of concepts, we rely on our natural sorting inclinations. This is that we are naturally inclined not only to sort things at the "basic level" and in ways corresponding to simple features like color and shape, but also at various different levels of specificity. We do not – and this is something, which again comes naturally to us – rest content with just sorting Fido together with the other dogs. We also sort him, more specifically with the poodles, and, if we are dog fanciers, with a particular breed of poodles. In the other direction we sort him with other animals and more generally with living things. It is of a piece with this feature of how we sort that we are inclined to prefer ways of sorting which are more conducive to systematic classification. This is part of what drives us to revise our initial classifications. Our carrying out such revisions with the aim of arriving at an increasingly systematic classification of nature is itself a natural feature of our sorting behavior, and it is part of what makes it the case that we do not stop at the conceptualizing which is required for ordinary experience but rather go on to engage in scientific enquiry.

This second respect points to a way of addressing the other lacuna, regarding the connection between purposiveness and systematicity. Suppose we assume, as suggested above, that it is a structural feature of our ways of conceptualizing nature – itself a way, albeit a higher-order way, of conceptualizing nature – that we conceptualize in ways that are conducive to systematic theories of nature. Then our presupposition that nature is meant to be conceptualized as we in fact conceptualize it, will imply that nature is meant to be conceptualized in a way

which is systematic, which amounts to saying that it is, in fact, systematically organized. Presupposing this is presupposing something about nature and not just about our cognitive faculties. Moreover, the content of the presupposition is factual rather than normative: it says something about how nature actually is, something which can be at least partially confirmed by our experience of nature. But it is not vulnerable to Guyer's challenge, because we can show how it follows – given a further assumption about the nature of our own conceptualizing activity – from a principle which is not itself factual and which, if the argument sketched in section 3 is correct, is a genuine *a priori* condition of reflective judgment.

How does this solution to Guyer's challenge compare to Guyer's own defense of the principle of systematicity in terms of the need to regard empirical laws as necessary? While I have been focusing on reflective judgment as a capacity for recognizing objects as instances of empirical concepts rather than as a capacity for recognizing events as instances of empirical laws, the solution I have proposed is consistent with the idea that the principle is needed in order to recognize the necessity of empirical laws. This is because there is an intimate connection between the thought that our natural ways of sorting things are appropriate to nature, and the thought that the regularities we perceive among phenomena, *qua* instances of the corresponding concepts, are lawlike. For example, we find it natural to sort things in ways corresponding to the concepts *salt* and *water* as opposed to the artificially constructed concepts *stuff in a blue cylindrical container in my kitchen* and *stuff that comes out of the tap*, and so we think of *salt* and *water* as corresponding to ways in which the phenomena we observed ought to be sorted. That attitude is of a piece with our taking the statement "salt dissolves in water" to express a lawlike generalization, in contrast to the merely accidental generalization expressed by "the stuff in blue cylindrical containers in my kitchen dissolves in the stuff that comes out of the tap." It is

our tendency to regard different samples of salt and water respectively as meant to be grouped together – as members of the same natural kind – which disposes us to regard various observed instances of salt's dissolving in water as manifesting a lawlike regularity.

My account of the role of judgment in recognizing the necessity of empirical laws is, however, unlike Guyer's in not appealing to systematicity as such, but rather to the more basic notion of purposiveness. It is true that the regularities we regard as necessary are typically also regarded by us as systematically related to higher-level regularities. However, that is not because systematicity as such is a criterion of lawlikeness. Rather, it is because – as a matter of fact – we are disposed to conceptualize in a way, which is conducive to a systematic understanding of nature, so that we end up regarding as lawlike just those regularities which we can also incorporate into an explanatory system. There is thus no need to follow Kitcher in taking systematicity to be constitutive of lawlikeness, with the consequent risk of undermining Kant's view that a regularity could be lawlike and still resist incorporation into a systematic theory.

One might still worry, though, that the difficulty I raised for Kitcher about systematicity recurs for the more basic notion of purposiveness. It is essential, if we are to preserve Kant's commitment to the regulative character of the principle of judgment, that we can make sense of the idea that nature's purposiveness for judgment is contingent. On my reading, that amounts to saying that we must be able to acknowledge the possibility of a mismatch between our ways of conceptualizing nature (and, correspondingly, the regularities we conceive as lawlike) and ways in which nature ought to be conceptualized (and, correspondingly, the regularities which genuinely are lawlike). Can we, while assuming that our ways of conceptualizing are appropriate to nature, also make room for the possibility that natural things ought to be conceptualized in ways that are quite different from those which come naturally to us? Or is it built into the

concept of a natural kind or a natural law that it accords with our ways of conceptualizing, so that we cannot conceive of natural kinds or lawlike regularities which cannot be grasped, as such, by human beings?

The answer lies in recognizing the essentially first-personal character of the principle. The presupposition that nature ought to be conceptualized in the ways we conceptualize it is implicit in our conceptualizing activity. It makes reference to that conceptualizing activity not third-personally, *qua* the conceptualizing activity of human beings, but first-personally. We assume, in our activity of conceptualizing, that nature calls for, or makes appropriate, *this very activity*. But, even though we cannot exercise reflective judgment without conceiving of a normative fit between our activity of reflective judgment and nature, we can still step back and adopt a third-personal view on the relation between that activity, now conceived as the actualization of human sorting dispositions, and the ways in which natural things ought to be sorted. And, from that point of view, the concept of a way natural things ought to be sorted comes apart from the concept of how human beings in fact sort them. We get the idea that there so much as *are* ways in which nature ought to be conceptualized – that there are, in other words, genuine natural kinds and corresponding empirical laws – only through taking our own ways of sorting natural things to be appropriate to nature, and thus ruling out the possibility of a radical mismatch between our ways of conceptualizing and ways in which nature ought to be conceptualized. But once we have the notion, on the one hand, of a way in which nature ought to be conceptualized, and, on the other, of the a way in which human beings are naturally inclined to conceptualize nature, we can see how the two might come apart. It is possible, then, to see how the principle of purposiveness is "subjectively necessary" (*FI* 20:209) for the exercise of reflective judgment – something which, in our capacity as conceptualizers we have to take for

granted – while at the same time allowing that the principle, conceived as making a third-personal claim about the relation between human cognitive capacities and the natural environment to which they are directed, is "objectively contingent" (*CJ* 5:185).[12]

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