

KANT, SCHELLING, AND A NEW PHILOSOPHY OF NATURE

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by

Naomi Fisher

Karl Ameriks, Co-Director

Fred Rush, Co-Director

Graduate Program in Philosophy

Notre Dame, Indiana

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Abstract

by

Naomi Fisher

This dissertation provides a new framework for thinking about the relationship of rationality to nature. The philosophy of F. W. J. Schelling, namely the philosophy of nature he develops between the years of 1797 and 1800, is a developmental account of nature and rationality. According to this account, the structures of rationality are independently manifested in the natural world, particularly in the activity of organisms. Thus by looking at the precursors to rationality in animals and their capabilities, we can develop a conception of rationality according to which it emerges in harmony with nature.

The developments in science and philosophy since 1800 require that Schelling's framework be supplemented and modified. And so I take Schelling's *Naturphilosophie* as inspiration and guide in developing accounts of rationality and nature in light of such developments.

The first three chapters of this dissertation are historical, focusing on the

work of Kant and Schelling. In the first chapter I lay out Kant's conception of animal cognition, and in the second I explore the place he gives animals in nature, as it is cognized by rational subjects. I contend that Kant has trouble accounting for the complexity of animal cognition and behavior as well as the gradual emergence of reason. In the third chapter, I lay out Schelling's *Naturphilosophie* and the resultant conception of rationality, which does not suffer from the same problems.

In the fourth and fifth chapters, I discuss the work of philosophers such as John McDowell, Christine Korsgaard, Tyler Burge, and Michael Thompson. With varying degrees of success, these philosophers attempt to incorporate animals into their philosophical systems. And finally, in the sixth and seventh chapters, I lay out accounts of nature and rationality inspired by Schelling and mindful of evolutionary biology and the philosophical tradition discussed in the fourth and fifth chapters. I contend that treating nature and organic activity as purposive allows for a rich account of rationality as making explicit the norms implicit in this purposive activity.

For Jeff

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PREFACE

In the past few decades, several prominent philosophers have brought Kant and German Idealism to bear on issues in philosophy of mind and epistemology. Philosophers such as John McDowell have adopted the Kantian idea—also attributed to Hegel—that certain cognitive capacities shape the content of experience, and this provides an answer to the question of how experience is amenable to discursive thought. My contention is that this tradition is looking to the wrong philosophers as inspiration. The most promising approach to these issues is that of the early Schelling: He provides a framework which rejects the dichotomy between mind and nature, and in doing so solves many problems that are latent in contemporary ways of regarding the relationship of reason to nature.

This contrast between the Kantian approach and Schelling's approach can be illuminated by looking at the place they accord to animals. In giving concepts and language so high an explanatory role in experience, Kantian philosophers tend to ignore non-rational animal experience and its analogs in human animals. While the ways in which animals experience the world vary according to their capabilities, the fact that they experience and make their way around in a world, often successfully, is beyond question. The same is true of very young children.

Thus experience of the world cannot be an all-or-nothing phenomenon that

requires conceptual capacities or reason, as a Kantian picture would require. Since conceptual capacities emerge (both in individual humans and in evolutionary history) from a nature that is incapable of discursive thought, we should look for precursors to concepts and reason in the activity of non-rational animals and children. Rational capacities must emerge from and be grounded in a *practical* domain: we require an account in which interaction with one's surroundings is foundational for the rational capacities that are now so pivotal to the ways in which humans act.

Schelling provides such a system in the *Naturphilosophie*, the system of nature he presented consistently from 1797-1800. According to Schelling, natural forms, from the inorganic to plants and animals and all the way up to humans, are produced along a spectrum of increasing complexity and organized activity. Schelling regards such organized activity as a manifestation of rationality and freedom. The rational structures inherent in nature are made more manifest towards the higher end of this spectrum, which culminates in full-fledged freedom and rationality in the human. Thus reason, far from being something separate from nature that requires a special sort of explanation, is embedded in nature from its simplest forms, and is especially apparent in the activity of animals.

Since the activity of organisms is a precursor to rationality, it is unsurprising that Schelling's description of how humans come to know the natural world focuses on the active and practical aspects of knowing. Knowing is experimental, according to Schelling: we act in certain ways, according to certain conceptions of the natural world, and nature pushes back against these, she answers the questions we ask her

through our activity. For instance, scientific experimentation is a question put to nature, which we ask through our activity of setting up the experiment with a set of theories and hypotheses in mind. A surprising result often demands and leads to a change in our set of presuppositions, and such changes fuel theoretical progress. While this process is never *explicit* in animals, and thus manifests quite differently, we could say that animals do something quite similar in their behavior, especially in learned behavior: They act in a certain way, and when their ends are frustrated, they alter their behavior to better suit the end. Thus Schelling takes seriously the closeness of humans to non-rational animals, without denying the dramatic shift that occurs when reason factors into experience, and the uniqueness of humans in this respect.

This neglected, but rich philosophical system compares favorably to the Kantian system, which is less able to account for animal experience and the developmental emergence of reason. In this dissertation I take this system, Schelling's *Naturphilosophie*, as a starting point and guide in theorizing about rationality and nature. We can modify the conception of nature in its teleological structure and scientific conclusions, and so conceive of nature as a domain in which rational activity is at home, without rational activity being the goal toward which nature is striving. I argue that nature is striving, not for rationality, but for equilibrium, through individual organisms which are also striving for equilibrium with their environments. Individual life-forms and nature as a whole develop increasingly sophisticated ways of attaining these goals, which allows for a dynamic development of species and corresponding abilities. These abilities can be arranged

along a hierarchy according to the degree of sensitivity in their responsiveness to the environment; human rationality can be regarded as the apex of this hierarchy. The development of individual humans from infant to adult also manifests such a hierarchy of abilities, similarly developed as a result of goal-directed activity. Thus rationality has its evolutionary and developmental roots in goal-directed activity, and so is continuous with animal activity, and yet it can take on a life of its own, so to speak, and transform the ends and features of human activity once it emerges.

There are so many people to thank for their help and encouragement. First, I am grateful to Dieter Sturma and his Mitarbeiter, to Markus Gabriel, and to the graduate students at the Uni-Bonn in the summer of 2013. This was where I first presented some of this material, and I am indebted to the community of scholars there for the comments and feedback I received. I am thankful to the Nanovic Institute for European Studies for their support of my research at this time.

I am also honored to have been a part of the Notre Dame Institute for Advanced Study of 2014-2015. The Institute's support of my research made possible the completion of the final two chapters of this dissertation. The insights and expertise of visitors to the institute, in particular Darcia Narvaez, animates much of the interdisciplinary elements of those chapters. I am also grateful to the fellows of the Institute whose criticism has consistently induced me to see my project from a fresh perspective.

The philosophy department at Notre Dame has been my home for these eight years, where I have benefitted immensely from the community of graduate students and professors. I am confident that there is no better place to do philosophy. I do not

have space to name all of these scholars who have helped me along in this project, but let me name a few, with apologies to those I have left out: I am grateful to Babak Bakhtiarynia, Jordan Corwin, Jeff Fisher, Patrick Gamez, Scott Hagaman, Ryan Kemp, Richard Kim, Dan Sportiello, Jordan Rodgers, Amy Seymour, Anik Stanbury, and Aaron Wells, whose conversation and feedback has been invaluable to me. I would like to thank Robert Audi, Paddy Blanchette, Curtis Franks, David O'Connor, and David Solomon for their encouragement and support. I am especially grateful to Sean Kelsey, Jeff Speaks, and Grant Ramsey for their insightful comments on portions of the dissertation. Also, many thanks to Eric Watkins, whose feedback in the final stages of writing and revising was incredibly valuable to me.

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And finally, I am grateful to Jeff Fisher, who has shown me what philosophy can be, and always brings me back to why we do this, who also reads drafts of chapters, tells me when I am wrong, challenges me to do better, and who has given me two beautiful children, Peter and Augusta, without whose constant inspiration this project might have been finished years ago.

CHAPTER 1

KANT ON ANIMAL COGNITION

1.1 Introduction

One major Kantian insight that seems to have taken hold both in philosophy and other academic disciplines is that concepts and beliefs affect the ways we experience. It is my contention that this insight must be tempered with the fact that animals,¹ who have no concepts or propositional beliefs, *also* cognize a world and act coherently in it. When we look at Kant in particular, the question becomes, can Kant, whose central claims include that the concepts of the understanding are *necessary* for the possibility of experience, account for the existence of animals as non-rational, cognizing beings?

While Kant only mentions animals sporadically, what emerges from these various mentionings is surprisingly coherent. He unilaterally rejects the Cartesian account of animals as machines (*CPJ* 5: 464n).² But as is clear from the first sentence of the *Anthropology*, animals have no 'I', no inner sense or unity of apperception

¹ I am using the term "animal" throughout the paper as shorthand for "non-rational animal". I would certainly never mean to imply that humans are not animals, nor am I interested in debating the extent to which animals like dolphins or apes are rational. Therefore I take as my paradigmatic non-rational animals those with middling mental capacities, for example, cats and chickens rather than aphids or orcas.

² See Stephen Naragon (1990) for an interpretation of Kant's views on animals. I concur with Naragon's treatment in most of what follows, but differ on the issue of animal consciousness; see below.

(*Anth* 7: 127; *LM* 28: 276). Animals have no understanding, and so cannot cognize objects (*Logik* 9: 64-5; *Anth* 7: 141). Since the understanding takes the material from the senses synthesizes this material into objective, conscious cognition, animals with no understanding are limited to the material from the senses.³ They have sensibility (*Anth* 7:196), but experience (in Kant's technical sense) is impossible for non-rational animals, since the understanding is what orders representations according to a priori rules and makes experience possible. The question now becomes how animals are unlike machines. If a being has only sensibility, how can it manage to find its way around in the world? We can begin to find an answer to this question in looking at what cognitive tools animals are left with, namely, the representations provided by the sensibility.

1.2 Animals and Obscure Representations

While he denies that animals have an understanding, Kant consistently claims that animals do have something like representations:

The irrational animal <perhaps>⁴ has something similar to what we call representations (because it has effects that are <very> similar to the representations in the human beings) but which may perhaps be entirely different – but no cognition of things; for this requires *understanding*, a faculty of representation with consciousness of action whereby the

³ Whether animals can have something like intuitions (most importantly, whether their sensing takes place in a spatio-temporal manifold) will depend on whether one believes that the manifold is synthesized into intuitions *according to concepts*. This is outside the scope of this paper, but a charitable reading of Kant would not attribute a strong conceptualist position to him such that intuitions would be impossible for animals and small children. See Allais (2009, especially pp. 396-398), who argues that synthesis of a manifold into intuitions (i.e. singular representations) can take place apart from concepts.

⁴ These (< >) indicate that someone crossed out the word in Kant's original Handschrift. This entire note is also crossed out in the Handschrift.

representations relate to a given object and this relation may be thought.
(*Anth* 7:141)

What Kant means by “something similar” to representations can be spelled out in his attribution of “obscure representations” [*dunkle Vorstellungen*] to animals (*Anth* 7:135). Obscure representations are representations of which we are not conscious,⁵ but we are somehow aware of them nonetheless. One example of such representations is the partial signs in the face of a human being that lead us to conclude that this is, in fact, a human being. We are not directly conscious of all the physical characteristics that lead us to this conclusion, but we must be aware of them (indirectly or obscurely) in order to reach the conclusion. Moreover, the above quotation also implies that while obscure representations may relate to an object, that relation is inaccessible to the understanding if the representation is obscure. We thus may not be able to articulate what it is about a face that makes us recognize it as human, but those elements are nevertheless present to the mind.

It is not clear what Kant means either by consciousness of representations or by obscure representations. Consciousness of representations appears to go hand-in-hand with cognition of objects. That is, when we bring something under a concept and thereby *know* it as that type of thing, we are directly conscious of it. Obscure representations, on the other hand, can only be perceived “in his [the human’s] passive side as a play of sensations” (*Anth* 7: 136). So in conscious representation, the understanding is active with respect to a given object, and brings that object

⁵ “Obscure representations are those of which one is not conscious” (*Lectures on Anthropology* 25:479). Kant cannot possibly mean that one is not somehow aware of these representations: the material must be present to the mind in some sense, as is clear from the examples he uses (reading, playing music, judging a person favorably because they are well-dressed, and so on).

under a concept; in obscure representations, the understanding does not act on the raw material of sensation, but the material is still present to the mind, though the mind is passive with respect to it. There is a kind of awareness of, although not attention to, obscure representations. This awareness, however, does not amount to cognition.

To make this interpretation more precise, we can ask whether obscure representations can count as representations “of” something, although that judgment is never made explicit. As in the example above, when we see a human face and recognize it as human, certainly those parts of the face are recognized as parts of a human face. Although I may not conclude that the man standing in front of me has a nose, I am still aware of his nose. If for some reason, it were to become important that I remember that he has a nose, I would certainly be able to do so. It may be best to say that I have an implicit awareness of the nose as a nose, or that my awareness of the nose qua nose is not an explicit awareness. We could say that the material of obscure representations is available to but not cognized by the understanding, but this is no help in the case of animals, who have no understanding. The provisional answer must be that there is a subconscious awareness of the object as appropriate, although it is not brought under the concept.

Kant’s other example of obscure representations involves an organist using all of her limbs to play the organ while engaging in a conversation. So the organist’s attention is not directed at the music, but she is subconsciously producing the piece. One might say she hears the music as she produces it, but she is not listening to it. She may absentmindedly begin a piece without bringing to mind what piece she is

playing. Kant does not make clear what it is about this example that involves representation at all. However, what this example does make clear is that whatever kind of representation is involved in the organist's absentminded playing does not preclude all action, since she is moving her hands and feet. Thus the absence of the activity of the understanding can coexist with a kind of activity. Animals can perhaps act in a similar way, i.e. thoughtlessly, although not incoherently.⁶

To sum up, Kant allows for representations apart from the activity of the understanding in obscure representations, which Kant attributes to both animals and humans. These obscure representations operate on a subconscious level, and manifest an appropriateness to the awareness or cognition of the animal or human. In humans, we could say that such representations are appropriate to a concept, although they are not cognized and so are not brought under a concept. This is still somewhat tentative, and we will further specify what "appropriate" can mean in the case of animals below. But to do this, we must first discuss what else Kant attributes to the mental life of animals.

1.3 Reflection without Concepts

Kant's discussions of animal behavior revolve around instinct as that which takes the material from sensibility and produces an action. He claims that animals "can manage provisionally" with sensibility by "following implanted instincts, like

⁶ Indeed, in an illuminating discussion of the passage in her book *Kant and the Power of Imagination*, Jane Kneller draws attention to the aesthetic properties of the piece in question, a fantasia. The improvisational nature of the piece makes its beauty similar to the beauty of natural products; it is "purposive without a purpose". And so it is in such an action that humans best show their naturalness and kinship to animals, although it is good to keep in mind that no non-human animal can play a fantasia, and so in such an act a human is exhibiting its rational nature as well. See Kneller (2008), pp. 154-158.

people without a sovereign” (*Anth* 7:196). Instinct is “that *voice of God* which all animals obey” (*Conj* 8: 111). Animals, unlike humans, are necessitated in their movement by stimuli (or objects of the senses which impel our choices). Consider this passage from the 1770s *Lectures on Metaphysics*:⁷

With all non-rational animals the stimuli <*stimuli*> have necessitating power <*vim necessitantem*>, but with human beings the stimuli <*stimuli*> do not have necessitating power <*vim necessitantem*>, but rather only impelling <*impellentem*> ... The sensitive power of [free]^l choice <*arbitrium sensitivum [liberum]*^l> is only affected or impelled by the stimuli <*stimulis*>, but the brute one <*brutum*> is necessitated. (*LM* 28: 255)⁸

Kant goes on to explain that humans are free and can withstand the impelling power of stimuli by acting according to motives of the understanding. Animals are necessitated and thus not free, but still Kant attributes to them a sensitive power of choice (*arbitrium sensitivum brutum*), which presumably means their actions can be attributed to them⁹—they are not automata—but could not possibly mean that they can choose between various stimuli. In other words, they cannot act according to or ever in view of motives of the understanding, which is freedom proper, and,

⁷ While this passage is pre-critical, Kant’ views remain the same in the critical period. See A534/B562 and *LM* 29: 896 (Mrongovius, from 1782/3).

⁸ I am indebted to Katerina Deligiorgi for bringing this passage to my attention.

⁹ Since animals lack autonomy and the ability to do otherwise, this attribution cannot amount to a moral imputability.

moreover, the material of the sensibility necessitates their actions, such that they could not choose to do otherwise.^{10,11}

But how does instinct operate on the material of the sensibility and give rise to action? Or, rather, what is instinct, and how does it give rise to action? Often this word is only an imprecise placeholder for the ability to act in a coherent way for the material good of oneself or one's species, although without a thoughtful kind of intentionality. So there should be some way of spelling out how animals can act without an understanding that does not rely heavily on this notion of instinct. Kant offers something like this in the first Introduction to the *Critique of the Power of Judgement*. Animals, like humans, reflect, although this reflection does not determine concepts, but rather, inclinations, which then result in actions: "Reflecting ... goes on even in animals, although only instinctively, namely not in relation to a concept which is thereby to be attained but rather in relation to some inclination which is thereby to be determined" (*CPJ* 20: 211). So when rational beings reflect on the material of the sensibility, they determine a concept that contains those representations upon which they are reflecting. Animals, on the other hand, reflect on their representations and determine some inclination *for* the objects on which they are reflecting. This inclination may be acted upon, or (presumably) it could be

¹⁰ Wood (2007) argues that this is too restrictive an account, since animals appear to be practically free, or at least undetermined in their actions in a way that machines are not. See pp. 125-127.

¹¹ This interpretation of this passage is based on an account of freedom according to which actions are free only insofar as they are (or, at least, always could be) based on motives of the understanding that can overpower sensible stimuli. Just as Kant could say that human actions are imputable when compelled by stimuli, merely in the sense that they are 'theirs', so can animal movements be imputable. Unlike rational beings, however, animals do not have the option of acting otherwise than they do (since they cannot act according to motives of the understanding) and so are not free in any meaningful sense.

overpowered by a stronger inclination for some other object, also determined reflectively.¹²

But inclinations are certainly not all of the same type. An animal does not simply have an inclination for an object; it must have an inclination for behaving in a certain way with respect to the object. It must have an inclination for the object *as* a certain type of object: as food, as a plaything, as a potential mate, and so on. If all inclinations were of the same type, it is difficult to see how a wide variety of actions (e.g., eating, playing, mating) could result from inclinations. In the above discussion of obscure representations we were left with the provisional claim that an obscure representation must somehow represent the object as appropriate, but there is something clearly missing here: appropriate for what? So there must be something added to this account in order to explain how animals can respond to a type of object with the suitable action, without attributing concepts to those animals. If we allow that the responsiveness of animals is rule-following, then the puzzle about obscure representations can be solved, but in different ways for rational and non-rational sensible beings.

“Appropriateness” is my own term, but it turns out to be just the right way of describing the awareness of the object both for rational humans and non-rational animals. In the example above of my cognition of a human figure, I cognize the object as human, but the many components of that object, its facial features and so on, remain obscure. However, I can be aware of those features as appropriate to the object I am cognizing without cognizing those individual features. In the example of

¹² Christine Korsgaard presents a similar account. See Korsgaard (1998), pp. 49-51.

the organist, she is aware of the appropriateness of the sounds she hears to the piece that she is playing while neither thoughtfully attending to nor cognizing those notes.

Similarly, with animals, if we allow that inclinations are of a certain type, that is, not just for objects but for actions on those objects—to eat, possess, or mate with that object—then animals may be aware of the appropriateness of the object, not for a concept, but for a given inclination. So an animal need not bring an object under the concept of food; rather, in reflecting on the object, an inclination for eating that object is determined (or produced), and the animal is aware of the appropriateness of the object for that inclination to eat.

This way of regarding animal reflection is supported by following passage from the *Anthropology*, in which Kant contrasts the rules of the understanding with those of instinct:

[...] the rules [of the understanding] are not to be understood as those according to which nature guides the human being in his conduct, as occurs with animals which are driven by merely natural instinct, but only those that he himself *makes*. What he merely learns, and thus entrusts to his memory, he performs only mechanically [...] and without understanding. (*Anth* 7:196)

So Kant allows that there are rules that guide animals¹³ in their conduct, somewhat akin to the rules of the understanding. These rules, instead of bringing an object under a given concept, could be understood as bringing an object under a certain kind of inclination. Thus when an animal confronts an object, for example, some food, the inclination that is thereby produced is not only for the object, but is for the object *as good for eating*.

¹³ Rules of instinct also sometimes guide humans in their behavior; see *Anth* 7:197 and “Univ. History” 8:17.

In addition to “something like reflection” Kant also attributes to animals reproductive imagination,¹⁴ the non-spontaneous element of the imagination “whose synthesis is subject solely to empirical laws, namely those of association” (B152). In other words, animals can develop associations of objects, perhaps by a process of conditioning, but they cannot recognize these associations as lawful (A766-7/B794-5). This can shed more light on what reflection could mean for animals. For Kant, “to *reflect* is to compare something with the laws of the understanding” (*Bloomberg Logic* §168, 161). He also discusses reflection in the context of concept formation: in reflection one cognizes what many things have in common (*Vienna Logic*, 909; *CPJ* 20: 210-213). Animals cannot form concepts or compare something with the laws of the understanding, since they have no understanding, and therefore no concepts. But if they do form associations through reproductive imagination, then instead of taking up a given perception and comparing it to the laws of the understanding in order to identify the object and perhaps modify the concept, an animal’s representation could trigger an association produced by the reproductive imagination, and determine an inclination. In other words, the representation “fits” what has triggered and satisfied that inclination in the past, and so is “appropriate” to the inclination; the inclination is triggered. If an animal’s inclinations are thwarted, this could lead to a modification in the association.

And so we see how these various capabilities of animals—sensibility, reflection, and reproductive imagination—operate together to produce animal

¹⁴ See *LM* 28: 277.

behavior. But there is still a puzzle in Kant's denial of consciousness to animals, since we tend to think of consciousness as any kind of awareness. I turn now to this topic.

1.4 Consciousness without Unity

Kant says in several places that animals "are entirely lacking in consciousness" and calls instinct "the faculty for performing actions without consciousness" (*LM* 28: 690; c.f. *LM* 28: 276). Several recent papers have claimed that Kant could only mean that they have no *self*-consciousness, and could not possibly mean that they are not conscious *at all*, since they have representations and this implies consciousness.¹⁵ There are difficulties with this interpretive move, however, since according to many interpretations of the transcendental deduction, Kant's argument hinges on the claim that consciousness implies self-consciousness.¹⁶ Animals would be a counterexample to this claim since, according to common understanding, they must be conscious (since they have representations) and yet they are not self-conscious. Rather than interpret Kant as denying consciousness to animals, Stephen Naragon argues that consciousness need not imply self-consciousness, and the many claims that Kant makes denying consciousness to animals arise from the various ways Kant uses the word 'consciousness' (*Bewusstsein*): sometimes he uses it in a robust sense, to mean self-consciousness, and sometimes he appears to use it in a much more minimal sense, to

¹⁵ See Naragon (1990) and McLearn (2011).

¹⁶ Not all interpretations of the transcendental deduction have Kant making this rather strong claim. If one takes the starting point of the transcendental deduction to be ordinary empirical knowledge rather than any kind of consciousness, then the results of the transcendental deduction would be much more limited in scope and would not apply at all to animals. See Ameriks (2003).

mean awareness of any kind. Thus Kant attributes to animals a low-level consciousness (consciousness in the latter sense) that does not imply self-consciousness.

While I think that this approach is in general correct, and that Naragon is right in ascribing to Kant the view that animals have some very minimal form of awareness, Kant is more precise in his language than this interpretation would seem to imply. When Kant uses the word 'consciousness', he almost always is using it in the context of human consciousness, and he means a *unified* consciousness. It is worth noting that this is in tension with how we understand the term, that is, as any kind of phenomenal awareness. Unified consciousness, by itself, is not self-consciousness, but it does imply self-consciousness in rational beings, as Kant shows in the transcendental deduction. (We should, however, be wary of taking his conclusions and applying them in other domains, specifically in the domain of non-rational beings, for whom the transcendental deduction may have no import at all). However, when Kant uses the term 'empirical consciousness', he means awareness that it not unified. At B131-3 he speaks of 'empirical consciousness' as not having any relation of itself to the identity of the subject. He also discusses this notion in a note at A117: he states, "All empirical consciousness, however, has a necessary relation to transcendental consciousness [...] It is therefore absolutely necessary [...] that all consciousness belong to one consciousness." At first glance, this passage might seem to imply that empirical consciousness is necessarily unified. But Kant is simply discussing human empirical consciousness, which would have a necessary relation to transcendental consciousness. Empirical consciousness is used to signify

that which is *not* unified, that is originally episodic and disunified, and which must, in rational beings, come to be unified in a transcendental consciousness.

With these terminological distinctions in hand, Kant's denial of consciousness to animals makes more sense. Moreover, we can be more precise about what kind of awareness animals can achieve—I maintain that it is something quite similar to empirical consciousness as described above. While Kant in his discussions of empirical consciousness is speaking of a philosophical possibility, that is, how consciousness comes to be unified in rational beings, we could extend this notion of empirical consciousness to something that actually occurs in non-rational animals. Empirical consciousness without transcendental consciousness would not be mentally unified. The awareness would be momentary and episodic, and could not be attributed to a single mental being. Perhaps some kind of unity could be salvaged by attributing these states to a physical organism that persists through time, but this unity would not be mentally available to the organism at all.

Several passages in which Kant specifically discusses animals imply that their awareness is minimal and disconnected in this very way. Consider this passage from the L1 Lectures (ca. 1778-1781):¹⁷

They will have no general cognition through reflection, no identity of the representations, also no connections of the representations according to subject and predicate, according to ground and consequence, according to the whole and according to the parts; for those are all consequences of the consciousness which animals lack. (*LM* 28: 276)

And again, from the same lectures, on the following page:

Accordingly we ascribe to these beings a faculty of sensation, reproductive imagination, etc., but all only sensible as a lower faculty, and not connected

¹⁷ See also *LM* 29: 44-45.

with consciousness. We can explain all phenomena of animals from this outer sensibility and from mechanical grounds of their bodies, without assuming consciousness or inner sense. The philosopher must not increase the principles of cognitions without cause. (*LM 28: 277*)

Kant appears here to be saying that since consciousness is not needed to explain animal cognition and behavior, one cannot be justified in assuming that animals are conscious. As mentioned above, however, he cannot mean that animals are not aware of anything at all, since they have a faculty of sensation. Rather, the faculties that animals have cannot be connected to a unified consciousness or inner sense. That is, animals do not have a spontaneous ability to introspect, nor do they have a sense of self that endures through time. They cannot have more than passing awareness of unconnected representations. This is simply because a unified consciousness would play no essential role in accounting for the behavior of animals.

Since Kant's main concern is rational beings, he does not often discuss this type of awareness. However, in the following passage, Kant does describe what awareness without consciousness (in the robust unified sense of the word) would be like in humans:

Without consciousness that which we think is the very same as what we thought a moment before, all reproduction in the series of representations would be in vain. For it would be a new representation in our current state, which would not belong at all to the act through which it had been gradually generated, and its manifold would never constitute a whole, since it would lack the unity that only consciousness can obtain for it. (*CPR A103*)

Kant, then, does not deny the theoretical possibility of representations that are not unified. Thus the above description of the lack of unity resulting in a lack of continuity could be regarded as a description of animal awareness. In fact, in a 1789

letter to Marcus Herz, Kant mentions animals when discussing how it would be impossible for someone to have knowledge apart from the conditions of the understanding. He states that all concepts not conditioned by the understanding are empty and useless for knowledge, and that without the understanding, I could not represent objects to myself, I could not even represent myself to myself, or know that I have sense data.

They [i.e. sense data] could still (I imagine myself to be an animal) carry on their play in an orderly fashion, as representations connected according to empirical laws of association, and thus even have an influence on my feeling and desire, without my being aware of them (assuming that I am even conscious of each individual representation, but not of their relation to the unity of representation of their object, by means of the synthetic unity of apperception). This might be so without my knowing the slightest thing thereby, not even what my own condition is. (*Correspondence*, Letter to Marcus Herz, May 26, 1789; 11: 52).

So his denial that animals have understanding or reason leads inevitably to the conclusion that animals can have no connection of representations, but this lack of connection does not preclude these 'sense data' from having an effect on the animal. The lack of awareness Kant mentions in the above passage should not be interpreted strictly, since he specifies that by lack of awareness he means that he is conscious (i.e., phenomenally aware) of each individual representation, but not of their unity. But it may still be unclear how Kant could consider an animal to have something that could be called a representation at all without any kind of unification.

Understanding animals as having obscure representations, representations of which one is not directly conscious, can help resolve the difficulties one might have with regarding animals as having representations but no unified consciousness. If all of their representations are obscure, then animals need not have any kind of mental

unity in order to have those representations. As discussed above, Kant clearly allows obscure representations to play a role in our behavior. Just as I am not conscious of every aspect of a person's face, all of those obscure representations allow me to rightly identify the object in front of me as a face. Similarly, obscure representations in animals may trigger the appropriate response, although animals may not be aware of their own relation to the object (as discussed above, the relation between the representation and the object cannot be thought by the animal). Kant's claims above would imply that animals do not need to be aware of their relation to the object in order to have the appropriate response.

1.5 Empirical Apperception without Transcendental Apperception

But this solution to the problem of animal consciousness introduces new problems: If empirical consciousness has a necessary relation to transcendental consciousness for rational beings (*CPR* A117), how do animals escape this necessity? Moreover, humans also have obscure representations, as discussed above. If such representations are not connected in animal consciousness, there is a danger that these representations may fall outside of the unity of consciousness that humans enjoy, and remain disconnected from the rest of a person's cognitive life, which would be unacceptable. To solve these problems we must delve a bit deeper into how consciousness becomes, or fails to become, unified.

Kantian apperception unifies consciousness—it is constructive—but it cannot be fully constructive such that the only states included in the self are apperceptive ones, since in that case obscure representations would remain

disconnected from and unavailable to consciousness in a rational being.¹⁸ And so we need a way to include non-apperceptive states within the unity of apperception without denying the unifying role that Kant gives to apperception.

If we take empirical apperception (discussed in the first *Critique* (A107)) to be that which accompanies my empirically conscious states in an atomistic way, the role of transcendental apperception (which animals are incapable of) becomes clearer. In taking some of these instances of empirical apperception and determining that the 'I' in each of these instances is the same 'I', transcendental apperception unifies what would otherwise be episodic and disconnected instances of empirical apperception.

It's unclear whether Kant believes animals to be capable of empirical apperception. While he claims that they are not capable of inner sense (see *Correspondence*, Letter to Marcus Herz, 26 May 1789; 11: 52), it may still be possible for an animal, perhaps an animal with advanced cognitive capacities, to have empirical apperception, which would be momentary and atomistic, attaching a

¹⁸ See Ameriks (2000a), pp. 234-264. Here Ameriks also discusses a non-constructive interpretation, according to which apperception involves taking one's own thought as an object, which proves—contra a kind of Humean skepticism—that there is an underlying unity to the self. We have already seen that animals, according to Kant, do not have a unified consciousness, precisely because they have no understanding and so cannot apperceptively unify their various states. So this 'Cartesian' interpretation makes too much of self as an entity which already underlies my various states, and makes apperception a primarily epistemological phenomenon, which on this view becomes a tool to defeat skepticism. We need, rather, to take seriously both the idea that apperception is constructive and not merely epistemological, since it unifies our various states, but that it cannot be completely constructive, for otherwise it can leave important states out.

distinct 'I' to each of the disconnected empirically conscious states.¹⁹ The 'I' that was connected to a particular empirical state would not have much import for an animal, since it would not be connected to any other 'I' in any other state. Thus even if we grant animals empirical apperception, they could not possibly unify the instances of empirical apperception and thereby unify consciousness, since this would require transcendental apperception.

This view of the role of apperception differs from the constructive or self-constituting view of apperception in that there is—logically prior to transcendental apperception—empirical apperception that accompanies all of my states, even my obscure representations. All of these mental states are indexed to *an* I, but that this I is the same as every other is something only available to a rational being capable of transcendental apperception. In other words, all of my representations are attached to me. That attachment, however, is originally inaccessible to my mind, and thus absent any transcendental unity which brings all of these representations together, I will not have unified experience. The construction thus unifies in thought and for the subject the continuity *that was already there* (but unavailable to thought) prior to the construction.

And so in humans, *all* of my empirically apperceptive states would be brought into the self by transcendental apperception, and so even obscure representations

¹⁹ To complicate matters, Kant identifies empirical apperception with inner sense in A107, claiming there that “this consciousness of oneself is merely empirical and always mutable; it can give us no constant or enduring self in the flow of inner appearances.” This is in contrast to the “immutable” transcendental apperception (B132). So here I am accepting that contrast, and using the term “inner sense” to mean (as Kant often does) a sustained and unified inner experience which animals cannot have, and empirical apperception to be individual and variable (B133). On the relationship between inner sense and apperception, see Ameriks (2000b), pp. 241-258. Kant may move back and forth between the two because empirical apperception would be tantamount to inner sense in a being who enjoys unity of consciousness, i.e. in a rational subject.

would be part of the unified mental life of a rational subject. But in animals, there is still no unity that is mentally available to the animal, as the individual 'I's indexed to each mental state are not brought together by any act of the understanding. And so all of their mental states, including their obscure representations, remain disunified.

1.6 Conclusion

Kant's Critical philosophy, which relies so heavily on the unity of apperception, or transcendental self-consciousness, must attribute a very low level of cognitive activity to non-rational animals: the high bar of intellectual self-consciousness is just not something animals can meet; they are thus relegated to the level of mere sensibility, with no unified consciousness and no Kantian experience. However, animals have obscure representations, a disunified empirical consciousness, and the ability to reflect—which for animals simply means the ability of an obscure representation to trigger an inclination. Moreover, we may allow that animals can form associations of objects through the faculty of reproductive imagination, which may give Kant a way of accounting for learned behavior in animals, through the formation and modification of associations of empirical objects.

Nevertheless, animals are completely necessitated in their behavior: they cannot choose between alternative stimuli, nor is their cognitive activity within their control. Their actions are determined simply by their confronting a stimulus, of which they are aware as an obscure representation. This representation in turn gives rise to an inclination to act in a particular way, which cannot be resisted. This model of animal cognition and behavior fits well within the Critical philosophy. And

yet, in denying that animals can have a unified consciousness, Kant makes it difficult to account for the complexity and variety of animal behavior. While the model may fit well with what we know of spiders or ticks, it is less amenable to the behaviors of animals such as wolves or bears or other cognitively advanced mammals, since these animals appear to have memories and emotions associated with those memories. Such animals can be innovative, vengeful, mournful. That such behaviors are the result of built-in machinery that operates without any unity of thought is unlikely.

Moreover, the gradual increase in cognitive abilities that we see both in the animal kingdom and in the development of rationality in an individual human child is not easily accommodated into this framework. Kant has carved out a place for a being with middling mental capacities, but how a being of middling mental capacities could develop into a full-fledged rational human is still a mystery, especially since experience seems to be an all-or-nothing phenomenon, which is fully dependent on the possession of an understanding. And so the gradual emergence of rational forms of thought both in the context of human development and in evolutionary development is at odds with the Critical philosophy.

Animals are problematic for Kant not only in accounting for their cognitive abilities, but also in the ability of a rational agent to explain their presence in nature. Nature as constituted by the categories and forms of intuition is mechanistic, thus all organisms, plants as well as animals, present a particular difficulty for Kant, as they cannot be made intelligible by mere mechanistic laws. Animals can be seen as the stepping-stone between human rational agents and a mechanistic nature: they appear neither to blindly follow mechanistic laws nor to rationally impose laws on a

passive nature. And thus Kant has trouble both explaining how animals might experience and how they can be experienced: they are neither the active, rational agents that have experiences nor the passive, determined nature that we unproblematically experience. Because Kant ties rationality and activity so closely together, he must jerry-rig a place for animals, both as cognizers and cognized, as beings who appear active and non-rational.

I have just laid out Kant's account of animal cognitive structure in contrast to the cognitive structure of rational subjects; now we turn to animals (and plants) as objects of knowledge—how such beings can possibly fit into a science of nature, or what such beings must be *to us* given our own epistemic structures and limits. I will, in the following chapter, discuss Kant's account of teleological judgment as laid out in his 3rd *Critique*. I intend to show how Kant's Critical philosophy gives rise not only to the sharp demarcation of rational and animal cognition just outlined, but also to a separation of rational beings from the natural world which makes the appearance of intelligence or purposive structure in nature mysterious.

CHAPTER 2

KANT, ORGANISMS, AND NATURE

2.1 Introduction

In the previous chapter, I examined the treatment of animals in the Critical philosophy, and discovered that although Kant does provide a coherent and impressive account of animal cognition across his various works, he is still unable to give a truly satisfying explanation of the closeness of certain non-rational animal behaviors to human behaviors, such as their ability to learn and have memories. But since animals are active and non-rational beings, Kant must not only explain their ability to have cognitions, but also our ability to have cognition *of* them. In other words, nature—as the lawful domain of mechanism—could not, on the face of it, have within it beings which appear to be non-mechanistic in their organization and activity.

Kant attends to this problem at length in the third *Critique*, specifically the “Critique of Teleological Judgment.” We find in nature creatures—organisms—which Kant calls “natural ends”, whose purposive organization requires that the organism and its parts be judged as mutually dependent; the parts of an organism are caused by the whole. Kant claims we need the principle of teleology, which attributes final

causes to organisms, in order to make intelligible these sorts of objects. The teleological form of judgment brings with it some theological and moral implications, which Kant draws out most explicitly in the Appendix. Kant invokes God to explain the purposive structure of nature as a whole; that is, he invokes *another* intelligence, separate from that of the subject, to explain the apparent subjectivity within nature, rather than attribute to nature the ability to self-structure.²⁰ Thus I will show how we can understand this issue of confronting organisms in nature as a manifestation of Kant's struggle to account for intelligence or structure in the natural world that does not have its origins in human subjectivity.

In later chapters I will show that there is a promising alternative to Kant's model, that is, a thoroughly *interactive* model of the subject's relation to nature, in which activity and structure are required both in the subject and in nature, and thus need not always be imposed by a rational subject. If one allows that nature can exhibit such rational structures independently of a mind, these difficulties are more easily resolved.

2.2 Organisms as Natural Ends

Kant writes the "Critique of Teleological Judgment" in order to address what appears as an anomaly in his system: organic structure in nature. Many objects confront us that do not appear possible according to the "principle of

²⁰ Kant's immediate successors, I show in subsequent chapters, were intrigued by these issues surrounding the relation of human subjectivity to subjectivity in nature, and rather than attribute the organization in nature to a divine intelligence, they allowed for such intelligence to be immanent in nature, considered apart from the explicitly rational subjectivity of humans. Marx, in his 1844 manuscripts, stresses this kind of naturalism as the "truth" of Hegel's idealism, according to which man "creates or posits objects, because he is posited by objects—because at bottom he is *nature*" (XXVI).

mechanism” (i.e., the principle governing how mechanical causes operate in the world). We must then assume a complementary principle, the “teleological principle,” according to which an object can be considered as if generated by final causes: “We can only presuppose [*voraussetzen*] that we may confidently research the laws of nature [...] in accordance with both of these principles” (Kant, *CPJ* §78, 5: 413). Thus, for Kant, we must assume that every object in nature is possible with respect to one principle or the other. Organisms, in particular, require us to posit final causes: “For it is quite certain that we can never adequately come to know the organized beings and their internal possibility in accordance with merely mechanical principles, let alone explain them” (Kant, *CPJ* §78, 5: 400).

One might object at this point that certainly organisms are not *impossible* objects, according to mechanical principles. They may be merely unlikely. So Kant must have something else in mind when he speaks of the possibility of organisms according to the principle of mechanism. Consider the following example: we cannot regard a bear as an organic whole without the concept of a bear as a purposive unity. In other words, in order for the bear to be possible as an object *for us*, we need to see it as caused according to ends, and all of the parts of this object as working together, with their own subordinate ends, to achieve the end of the bear itself. Take one cell from a muscle in the bear. In this cell, there are ion pumps that maintain certain concentrations of ions in the cell, and if a certain concentration of a certain ion is not maintained, the cell self-destructs. In a muscle cell, a high concentration of calcium ions initiates contraction; this contraction of the muscle is needed for the bear to, for instance, gnash her teeth. But if the concentration is too high (if the ion pumps

somehow break down) cell death occurs. Thus in order to understand the ion pumps in the cell, both the end they serve in the cell (here, a very particular concentration of calcium) and the parts of the pump that serve that end through certain mechanisms, we need to understand both the purpose of the cell in the body, and the overall purpose of the bear. We could not even begin to understand the ion pumps if we did not see this pumping of ions in light of the hierarchy of ends in the bear. It would seem odd, miraculous even, that this hunk of matter sustains itself in the same form with all of these complicated processes going on; the ion pumps would be one of a large number of serendipitous processes that keep the bear in its incredibly unlikely state. This is what Kant means when he speaks of the “possibility” of natural objects (Kant, *CPJ* §75, 5: 400): an object is impossible if we have no satisfactory account of the object, if it seems miraculous to us. A bear seems in this way impossible to us unless we introduce the notion of purposiveness. Once we do, we see the bear is both intelligible and possible: we can understand the working of its parts, and give an account about the way it endures and is organized.

So, in order to understand the workings of the parts or the whole of the bear, we need to see the bear as a purposive object. It is worth saying that this way of regarding the bear as a natural end does not assert that the bear is *caused by* the concept of the whole (as is the case with artifacts), but rather that the *idea* of the bear as a purposive unity is the ground of my cognition of the bear. Kant concludes that it is only by understanding the organism in this purposive way that one is able

to adequately investigate the mechanisms at work in the organism.²¹ Without the teleological principle, there would “remain no guideline for the observation of a kind of natural thing that we have conceived of teleologically under the concept of a natural end” (Kant, *CPJ* §66, 5: 376).

While we need final causes in order to make certain objects and their internal constitution intelligible to us,²² unlike mechanical causes, they are not “found in nature” (Kant, *CPJ* §78, 5: 411). That is, they are not necessary for experience, and so are not constitutive, but merely regulative. We must *regard* organisms as purposive in order to make nature more suitable for our faculties. This regulative posit is not simply about the organism, however, but also about how we can possibly come to know its purposive structure.

2.3 Nature as a Purposive System

In the “Analytic to Teleological Judgment” (§§62-68) Kant introduces this notion of a natural end, and explains the implications of the form of judgment appropriate to natural ends. An organism requires teleological judgment, but not because we regard it as an artifact. In fact, it is a *natural* end because it is *not* an artifact: “One says far too little about nature and its capacity in organized products if

²¹ That is, we can investigate and understand the mechanical processes through their contribution to the overall purpose of the organ or organism. For instance, in the heart, when there is more pressure in the atrium than in the ventricle, it pushes the valve open to enable the flow of blood. This valve mechanism operates as a one-way valve in order to keep blood flowing through the circulatory system, and thus serves the purpose of the heart and circulatory system.

²² See Kant, *CJ* §75, 5: 398: “This maxim of the reflecting power of judgment is essential for those products of nature which must be judged only as intentionally formed thus and not otherwise, in order to obtain even an experiential constitution of their internal constitution; because even the thought of them as organized things is impossible without associating the thought of a generation with an intention.”

one calls this an **analogue of art**: for in that case one conceives of an artist (a rational being) outside of it. Rather, it organizes itself” (*CPJ* §65, 5: 374). Neither, however, can one go so far as to introduce hylozoism or a world soul, since this “contradicts [matter’s] essence” (*CPJ* §65, 5: 374).²³ And so Kant is careful throughout this section to make clear the limits of this form of judgment: it gives no proof of God’s existence, but neither does it prove anything about nature itself. Both mistakes come from regarding the idea of the object (as organism) as a determining *cause* of the object, which could only be the case if the concept of a natural end were constitutive, but as Kant repeats again and again, it is regulative, and valid not for the determining, but only for the reflecting power of judgment (*CPJ* §65, 5: 375). This is because the concept of a natural end does not determine the object, says Kant, but rather is the ground of our cognition of the object.²⁴

Nevertheless, in invoking natural ends, we are led beyond the natural to the idea of an unconditioned end. We arrive at this unconditioned end by regarding nature itself as a system of ends, which we are led to through seeing the purposive relations among natural products. The individual organism and its purposive form does not point beyond nature, and yet:

[...] If one leaves this [internal form] aside and looks only to the use that other natural beings make of it, then one abandons the contemplation of its internal organization and looks only at its external purposive relations, where the grass is necessary to the livestock, just as the latter is necessary to

²³ Kant discusses these dogmatic options and their insufficiency in detail in §§72-73. See also Watkins (2008), pp. 250-253.

²⁴ “For in this way alone is it possible in turn for the idea of the whole conversely (reciprocally) to determine the form and combination of all the parts: not as a cause – for then it would be a product of art – but as a ground for the cognition of the systematic unity of form and the combination of all the manifold that is contained in the given material for someone who judges it” (*CPJ* §65, 5: 373).

the human being as the means for his existence; yet one does not see why it is necessary that human beings exist; thus one does not arrive at any categorical end, but all this purposive relation rests on a condition that is always to be found further on [...] as unconditioned. (*CPJ*, §67, 5: 378)

Kant argues here that although the internal form of an organism is sufficient for the possibility of our judgment of it, we also consider the organism in its external purposive relations, and this leads to the idea of whole of nature itself having an (unconditioned) purpose.

The first link in this chain of reasoning is from the individual organism to the whole of nature. Kant claims that the concept of the former *necessarily* leads to the latter: "However, this concept [of a natural end] necessarily leads to the idea of the whole of nature as a system in accordance with the rule of ends" (*CPJ* §67, 5: 379). The reason we cannot simply stop at the organism, presumably (Kant does not spell this out), is that in order to understand the organism, one must understand it in its natural context. That is, one must look at the purposive *connections* of the organism to its surrounding environment in order to understand the purposiveness of its form. One cannot, for example, understand bees without understanding their purposive connection to flowers, or understand the digestive system of cattle without understanding its purposive connection to grass. And so in considering the purposive form of the organism, one is led immediately beyond the individual to the whole of nature as connected purposively. Thus nature as a whole, like an organism, is purposively organized, it has the internal form of purposiveness, and so it must have an end.

The further claim is that this end of the purposive system of nature must itself be sought beyond nature:

To judge a thing to be purposive on account of its internal form is entirely different from holding the existence of such a thing to be an end of nature. For the latter assertion we need not only the concept of a possible end, but also cognition of the final end of nature [...] for the end of the existence of nature must be sought beyond nature. (*CPJ* §67, 5: 378)

The system of ends, claims Kant, “as far as its ground is concerned, leads us beyond the sensible world” (*CPJ* §67, 5: 381). So far, in the “Analytic of Teleological Judgment”, Kant does not give a detailed explanation of what is meant by this. But in §75 of the “Dialectic of Teleological Judgment” Kant is less clandestine about what the purposive connection of all of nature implies: “We cannot form any concept at all of the possibility of such a world except by conceiving of such an intentionally acting supreme cause” (5: 399). In the same section, he claims multiple times that we need “an intentional causality of a highest cause” (5: 399); “an intelligent being” (5: 400); “a cause [...] that acts in accordance with intentions” (5: 398); and finally, we need to represent the world in general as “a product of an intelligent cause (a God)” (5: 400). Of course, throughout this section, Kant is emphasizing that what we cannot otherwise ground is not the possibility of the *objects*, but the possibility of our cognition of them, and so again, this is only valid for the reflecting power of judgment.

This seems to be quite a jump in reasoning: how does Kant move from a mere supersensible end of nature to a full-blown divine author of the world? Presumably, by claiming that the end of nature cannot be nature itself (“the end of the existence of nature must be sought beyond nature”), Kant is left only with the idea that the end of nature is externally imposed, just like that of an artifact. Judging the world to be an artifact is tantamount to judging the world to have an artificer. Note that in §75

Kant does not claim what we must judge the end of nature to be—he saves this for the Appendix—but simply that this order of final causes requires us to think of the world as intentionally caused by an intelligent being.²⁵

This appeal to a supreme cause as grounding our cognition of final causes in nature, specifically the connection of these causes in nature as a whole, is (at least, initially) separate from the issue of the supersensible ground of nature that is needed to systematically unify the order of mechanical, determinate nature with the purposive order of nature, discussed in detail in §78, and which itself requires a complex line of argumentation. In other words, it is this purposive order of nature that *by itself* requires the assumption of a supreme author; the antinomy, which involves the possible unification of that purposive order with the mechanical, is a distinct problem with its own, distinct solution. One could take as evidence of this the guardedness with which Kant describes the supersensible ground in §§77-78, which is in stark contrast to the repeated assertions of a supreme author of the world in §75.²⁶ I will discuss this more in §2.5 below.

2.4 Contingency and God

Guyer has argued for a different interpretation, according to which the assumption of an intelligent cause of the world is based not on the character of teleological judgment or on the need for an end of the whole of nature, but rather,

²⁵ Another reason, offered by Kant in the Appendix, for thinking of the end of nature as beyond nature is that all ends within nature are conditioned. Thus we need an unconditioned condition, which can only be found outside of nature (see §84, 5: 435).

²⁶ See also §85, where Kant is also clear about how final causes within nature lead one immediately to the idea of an intelligent world-cause (§85, 5: 437-438).

the issue is contingency in nature as such. Organic objects manifest a contingency that is not yet incorporated into a mechanistic understanding of nature, and so we must assume that it is nonetheless something that is a part of mechanistic nature, i.e. the apparent contingent occurrences are in fact necessary. Positing a designer ensures that we can view these contingencies in the organism as necessary. Guyer takes issue with what he interprets as Kant's position here, since this is not an issue unique to organisms: there are all sorts of contingencies in natural objects, inorganic as well as organic.²⁷

Guyer cites a passage from the Introduction to support his interpretation (*CPJ* 5: 179-180). His claim is that Kant cites the same concerns (i.e. the need to represent contingency as necessary) in the case of all nature, regardless of whether or not it is organic, in support of a regulative assumption about God. If we look at the passage, however, Kant is clearly talking about empirical generalizations of mechanical nature, which can and must be organized into a single system. As in the Appendix to the Dialectic in the first *Critique*, Kant is here claiming that these generalizations are regarded as necessary laws "on a principle of the unity of the manifold" (5: 180). Kant does go on to discuss ends, but here he is introducing the concept of an end to apply it to nature as a whole as subjectively purposive for our faculties, which illuminates the discussion in the Appendix, but introduces nothing new (*CPJ* 5: 180-181).

In other words, our assumptions about the necessity of unknown mechanical causes are already attached to heuristics about how we investigate the realm of

²⁷ See Guyer (2005), pp. 98-101.

nature, which themselves involve a further assumption about God. That is, we assume there is a unified mechanical system that explains the whole of nature, and that our currently imperfect and incomplete set of laws approximates this system. God is a further assumption, securing the idea that there is such unity, while the unified system is the direct guarantor of necessity. The general, subjective purposiveness of nature, its suitability for our faculties, is distinct from the specific, objective purposiveness of organic objects.²⁸ Guyer conflates these, perhaps because contingency is cited as a justification for both assumptions. But in the case of organic nature, we have no mediate assurances of necessity, since our understanding is not constituted to order forms of explanation according to purposiveness. We have no unified system to appeal to; moreover, the appearance of purposes seems to disrupt the unity of our system. And so in the case of the objective purposiveness of nature, the assumption involves God directly, as designing the world as artifact. The problem, then, is not with any and all apparent contingencies in nature that must be rectified by an assumption that God makes all things necessary. Rather, the problem is that we must employ the concept of a natural end—and with it a divine author of the world—as that which is necessary to even begin to investigate organic objects, and this concept does not cohere with our mechanical models of explanation. And the radical (miraculous) contingency that would result were we to simply give up these concepts is unacceptable in that it would be scientifically debilitating.

²⁸ For a discussion of objective and subjective purposiveness, see McLaughlin (1990), pp. 39-44. I agree with Guyer that the contingency of nature is certainly at work in the assumptions of systematicity and unity, which themselves ground lawfulness of nature. See Rush (2000), especially pp. 845-847. I disagree that this model is what is operative in the objective purposiveness of nature as discussed in the Analytic of the “Critique of Teleological Judgement”.

Moreover, the “contingencies” in organisms, as I explained above in the example of the bear, are of a completely different nature than the contingencies in inorganic objects. The former appear to us miraculous in a completely mechanical nature, while the latter seem merely arbitrary. Moreover, it is not problematic to assume (in fact, we need to assume) that there are mechanical causes of the *apparent* contingencies in inorganic nature, and that we can increase our knowledge of these causes through further investigation into mechanics. Thus, according to Kant, we cannot assume that our understanding of organic objects can be increased through a further investigation into mechanical causes *unless* we first consider them natural ends. This is in contrast to inorganic objects that are not yet fully understood, for which we can increase our understanding by simply investigating the mechanical causes at work in the object; in other words, we are ignorant of the further causes at work in the inorganic object, while an organic object is not merely unknown, but unintelligible. Consider the following passage, which is at the beginning of the Critique of Teleological Judgment:

For if one adduces, e.g., the structure of the bird, the hollowness of its bones, the placement of its wings for movement of its tail for steering, etc., one says that given the mere *nexus effectivus* in nature, without the help of a special kind of causality, namely that of ends (*nexus finalis*), this is all in the highest degree contingent: i.e., that nature, considered as mere mechanism, could have formed itself in a thousand different ways without hitting precisely upon the unity in accordance with such a rule, and that it is therefore only outside the concept of nature, not within it, that one could have even the least ground *a priori* for hoping to find such a principle. (*CPJ* §61, 5: 360)

While it is true that inorganic nature often appears to us as if it could have “formed itself in a thousand different ways,” it is not the case that there is a kind of “unity in accordance with a rule” that requires explanation in the case of inorganic objects, as

it does in the case of the bird above. My concept of an animal as self-maintaining, reproducing, etc. does not belong to the order of mechanical explanation. And so I must assume that there is a *different* order of nature, the purposive, which is valid only for the reflecting power of judgment, but necessarily includes the assumption that God is the author of this order, since the purposive connections in nature as a whole indicate that nature must have some external end.²⁹

2.5 The Architect, the Intuitive Intellect, and the Supersensible

In the “Dialectic of the Teleological Power of Judgment”, Kant sets up and resolves the antimony of teleological judgment. The exact manner of the set-up and resolution of this antimony is the subject of much scholarly debate, and outside the scope of this paper. Here I take for granted that the antinomy is between the two regulative principles of judgment, and is resolved by the appeal to a supersensible ground of nature in which the mechanical order of explanation of nature can be reconciled with and subordinated to the purposive order of nature.³⁰ Kant is clear

²⁹ Henry Allison (1991) makes the same interpretive move as Guyer, assuming that the contingency as such which warrants the move to the purposiveness of nature as described in the introduction to the 3rd *Critique* (such that it is suited to be judged according to the requirements of the understanding) is “the same contingency” as that which he claims as a basis for supposing the reflective validity of the principle of teleology, or what Allison calls “intrinsic purposiveness”. However, in his elaboration of this claim he shows that there are two types of wholes that present themselves to the understanding: those that are mere aggregates and can therefore be conceived mechanistically, and “those in which the whole is thought as somehow prior to and conditioning its parts and their internal arrangements” (p. 35). While we are given no ground for differentiating these two types (as I have argued, there must be a difference in the nature of the contingency involved), the conclusion is that we must represent the latter type as products of design. See Allison (1991), pp. 34-35.

³⁰ Watkins (2009) offers a convincing account of the set-up of the antinomy (see especially pp. 190-202), as well as the problems involved in several attempts to characterize its resolution.

that it is the mere possibility of such a reconciliation which makes legitimate our continued use of the (apparently contradictory) thesis and antithesis.

Kant does not (in §§77-78) explain what this supersensible ground of nature is supposed to be. Rather, the supersensible remains “the undetermined concept of a ground that makes the judging of nature in accordance with empirical laws possible” (§78 5: 412). And so the unification of the thesis and antithesis does not rest on a claim about the objects of nature (including natural ends) as possible (conceptually determined) objects. Rather, the unification is elucidated for the reflecting power of judgment by an appeal to this ground (§78 5: 412). What Kant means by this is that the mere possibility of such unification in the supersensible means that nature as *both thoroughly* purposively ordered and mechanically ordered is possible. Nothing stands outside the scope of either form of explanation.³¹ And so we can continue to investigate nature with both principles.

We must imagine this possible unification in an intuitive intellect; that is, an intellect which proceeds not from the parts to the whole (or the abstract universal to the parts), as ours does, but an intellect that intuits the whole in its totality and proceeds to the parts (§77). That is, it is not enough to say that there is a unified supersensible ground of nature, rather, one must say that these two modes of conceiving nature can themselves be unified in a complete understanding of nature. We must do this in order to be confident that nature is thoroughly lawful, which our disjunctive approach to nature would seem to belie. Similarly, we must be able to explain what is lacking in our own understanding such that nature is unified in this

³¹ See §66 5:371; c.f. Watkins (2014), pp. 121-123.

way and yet we do not experience it as such. The contrast of our own, discursive intellect with the intuitive intellect explains the limits of our understanding in such a satisfactory way. We therefore assume a supersensible ground, in which teleology and mechanism are unified, and which could be cognized as thoroughly lawful by an intuitive intellect.

Note that Kant does not invoke God in this resolution to the antinomy. Instead, he repeatedly claims ignorance of any specific properties of the supersensible ground, “of which we can cognize nothing” (§78, 5: 414); “we cannot form the least affirmative determinate concept of this” (§78, 5: 412). And yet, Kant is still appealing to an intentional cause in his discussion of the principle of teleology: “only intentionally acting causes for the possibility of organic beings in nature can be assumed” (§78 5: 413). And so we see that an author of the world is *only* invoked, and yet is decisively invoked, as an integral part of the conception of nature as purposive. And so one ought to keep separate these two presuppositions, that of God as invoked in the purposive understanding of nature, and that of a supersensible ground of nature, of which we can know nothing. In the Appendix, even, Kant is not concerned with uniting these principles as much as he is with filling out the notion of a supreme author of the world by invoking human moral activity as the highest end of the physical world, and thus connecting the physical teleology as discussed in §67 and §75 with a moral teleology, such that we can say more specifically *why* the world was created by an intelligent cause, not simply that it was created. And so the line of argument in the Dialectic, involving the antinomy and its resolution in the supersensible ground, is only indirectly relevant to the Appendix, in that it shows

judgment according to final causes to be indispensable.³² Rather, the main point of connection in the *Dialectic* to the *Appendix* is the cursory, but important claim, emphasized in §75, that judgment according to final ends necessarily involves the assumption of an ultimate end of nature, which must be sought outside of nature.

2.6 Conclusion

Thus the discovery of self-organizing beings in nature does not fit easily into the understanding of nature as it is presented in Kant's *Critical* system. In order to account for such structures in nature, Kant does not change his notion of nature as thoroughly lawful or completely amenable to our discursive understanding, which is the view of nature cemented into the *Critical* philosophy at its very beginning, in the 1st *Critique*. Rather, he posits *another* intelligence to explain the apparent purposive order of nature. We must continue to see organisms as objects, part of nature constituted by our forms of intuition and the categories—although now additionally as elements of the purposive order created by a divine intelligence—rather than manifestations of their own finite subjectivity.

If one finds this framework unacceptable or at least intellectually unsatisfying, it is important to note that there are not many options available to the Kantian. If one allows that something like final causes must play a role in our scientific investigations, and yet maintains (as Kant does) that only mechanical causes can truly be exhibited in nature, then our cognition of organisms will either remain ungrounded, or we must adopt some kind of non-dogmatic grounding

³² See, for instance, §80, 5: 417.

explanation, such as Kant's: the regulative assumption of a designer. Apart from changing the notion of nature to something that can *itself* exhibit teleological structure (that is, it is a thing that, like an organism, is self-organizing), there is little that could be done to ground the purposive system of ends exhibited by nature. Of course such a change in the concept of nature could not easily be accommodated into the Critical philosophy, so in order to find such a model of nature, one that can accommodate teleology—not as an anomaly but as integral to nature—we must look elsewhere.

Animals are difficult to fit into Kant's Critical philosophy; the difficulty stems from Kant's conception of nature as structured by forms of human subjectivity. Any structure necessary for our theoretical experience is introduced by the categories and forms of intuition, or, if that is not enough to cover all of nature's organization, from a regulative posit (for instance by the principle of the power of judgment). I know this structure because my own faculties are imposing it on the world of theoretical experience. Kant states, with respect to the categories, "Thus we ourselves bring into the appearances that order and regularity in them that we call **nature**, and moreover we would not be able to find it there if we, or the nature of our mind, had not originally put it there" (*CPR* A125). Kant's attempts to accommodate animals show that he thinks similarly about regulative posits. We encounter order and regularity in nature *that we did not put there*—this seems to contradict the above quotation. Some rational being must have put it there, and so we need a regulative posit, which is justified by that very need.

Animals are particularly problematic in Kant's Critical philosophy, in two important ways. On the one hand (as I show in the previous chapter), they differ from rational beings in that they have no understanding and so cannot structure the world in order to make it suitable for experience. Thus any response they have to their environment cannot be attributable to any cognitive processing: cognition in animals is instead limited to an awareness of representations which trigger inclinations, and thus the animal remains a passive observer of the states that necessitate its responses. Also, as organic objects, animals cannot be an unproblematic part of nature since organic structure is not necessary for the possibility of experience, and so this structure is not constituted by our own cognitive faculties. So the question of how organic objects appear in nature and can be known by us is answered by the assumption that they are the product of a designer, and that these forms of knowledge cohere with the ordinary mechanical modes of understanding through the assumption of a supersensible ground.

One way of framing this aspect of Kant's philosophy is to say that the nature is in itself merely a receptacle of structure, which is determinately knowable by us in virtue of our own minds being the source of that structure. Thus when we confront any seeming subjectivity or intelligence in nature, either with the activity of animals or their purposive organization, we must either explain away the apparent subjectivity or regulatively posit some other supernatural intelligence as its origin. Animals are unique in that they are active, self-organizing, and natural. But for Kant, anything that is a part of nature cannot be the source of its own organization. Organized activity ultimately cannot be something totally independent of our ways

of knowing, and thus cannot be seen as arising out of and belonging exclusively to nature.³³ Thus just as animals cannot really be subjects, since their activity is purely necessitated and any kind of awareness they have cannot belong to a unified consciousness, they also cannot be self-structured or structured by nature: We must posit their own purposive structure as imposed externally.

In regarding rationality as sequestered from nature, Kant produces a system in which the discontinuity between humans and animals is striking.³⁴ Schelling is especially helpful in this context, since he conceives of the relationship between rationality and nature as one in which human rationality can itself be seen as a product of nature, the ultimate and highest expression of the rationality already present, in an implicit form, in the natural world. Thus built into Schelling's picture

³³ See Ameriks (2000b), pp. 315-319 for an alternative way of reading Kant, such that there is an isomorphism between a contemporary sort of naturalism that maintains an affinity between mind and nature (a "transcendental naturalist noumenalism"), and Kant's own transcendental idealism. Such a naturalism differs from what I present in the following chapters in that it takes the character of mind to be inexplicable in natural terms.

³⁴ This apparent separation of humans from nature is somewhat mitigated by the appendix to the "Critique of Teleological Judgment", in which Kant claims on practical grounds that nature is ordered purposively for the sake of our freedom. Such freedom, however, is achieved only through disciplining one's natural self and inclinations, so that nature is ordered to the highest good of humans: happiness in accord with virtue.

It is worth noting that Kant is here privileging the practical posit. The theoretical proof of God's existence in this context, the teleological proof or the argument from design, is dismissed in favor of the moral argument. That we must assume an intelligence who designs nature according to ends, which is already clear as a regulative posit, does not guarantee God's existence. That God designs nature for the achievement of humanity's highest good, for the exercise of autonomy and its accorded happiness, has weight that cannot be accorded to any other argument, presumably because Kant reifies the posits in the practical realm much more so than those in the theoretical.

Thus Kant sees himself as having bridged the gulf between human freedom and nature, so that rather than nature being inimical to the purposes of humanity, it turns out to be the stage for their achievement of their highest purpose (*CPJ* 5: 175-6). Here Kant can be seen as attempting to overcome the moral gulf between humans and nature (that is, the idea that nature is a challenge to our moral progress, and is therefore inimical to human freedom), but we are still very much left with the gulf between theoretical reason and nature, by which I mean the idea that the unity and self-organization in nature must somehow be provided by our own cognitive structures, which impose such things on a passive, inert nature. And so animals still function outside of this framework, and can be neither rational knowing subjects nor mechanical natural objects governed purely by the rules of our understanding.

of nature is a continuity between animals and humans, which allows for a compelling emergent account of human rationality. Below I will present Schelling's conception of nature and the resultant epistemology, according to which the activity of animals can be regarded as a manifestation of the rational activity of nature that is fully and explicitly manifest in human activity.

CHAPTER 3

SCHELLING ON NATURE AND RATIONALITY

3.1 Introduction

Shortly after Kant's Critical philosophy took center stage in German academic life, several philosophers, among them Schiller, Schelling, Fichte, and Hegel, took issue with what they saw to be an undue separation of humans from nature built into the machinery of the Critical philosophy. Because they were influenced by the insights of Kant's philosophy and deeply convinced of its error, these philosophers took on the project of upending the Critical philosophy, while staying true to its "spirit", in such a way that man would be at home in nature.

Schelling's *Naturphilosophie* is the result of one such project. Unlike Kant, Schelling treats nature as a productive, active being in which freedom is manifested in all of its products, from rocks and bacteria up to rational human beings. Thus human rationality emerges from and is in harmony with all of nature. In this paper, I will show that this harmonious relationship of reason and nature is not only apparent in this account of reason's emergence, but is also manifested in Schelling's unique epistemology. The unity of man and nature is not just an implication of the

framework of Schelling's *Naturphilosophie*, but is the starting point for thinking about how one comes to know nature.

Schelling's idea of nature clearly departs from Kant. While Kant's nature is passive and constituted by our active, constructive forms of subjectivity, Schelling's nature is independently active, free, and exhibits rationality. But what is less clear from the outset is that Schelling's idea of *reason* is radically altered from what comes before. By regarding rationality and freedom as manifested by an unconscious nature, Schelling makes them the *precondition for* reflection and subjectivity, rather than a characteristic or *result of* reflection and subjectivity. Thought is not the home of rationality, although it is the most explicit expression of it. Rationality and freedom are also clearly expressed, in an implicit form, through the activity of animals. It is this shift in the idea of reason that gives rise to Schelling's epistemology, which, as I will argue below, takes as its guiding idea that humans are paradigmatically *natural* beings, and this naturalness is expressed in and through the activity of scientific inquiry. The most significant result of Schelling's *Naturphilosophie* is this philosophy of science, which can illuminate contemporary discussions of science, epistemology, and philosophy of freedom.

In this chapter I will give an overview of the *Naturphilosophie*, and then discuss the ways in which Schelling is adopting or modifying aspects of Kant's Critical philosophy. Central to Schelling's epistemology in this period is the idea that knowledge is a result of the productive activity of interfering with nature, and is thus continuous with other forms of productive activity in nature. To explore this continuity, I will in the final sections of this paper turn to Schelling's treatment of

animals to see how human reflection both fits into and constitutes a unique part of Schelling's organic nature.

3.2 Schelling's *Naturphilosophie*

In his *Naturphilosophie* Schelling breaks radically both with the Fichtean and Kantian transcendental idealisms, which both privilege the subjective contributions to experience. Beginning in 1797 with the advent of his *Naturphilosophie*, Schelling had begun to distance himself from Fichte's transcendental idealism. They both appear to be unaware or dismissive of the increasing opposition of their philosophical systems until 1800, when Fichte at least seems to regard them as irreconcilable (Schulz, *Briefwechsel*, p. 105). This progressive distancing culminated in 1801 with the young Hegel (then a follower of Schelling) publishing his *Differenz-Schrift*, which delineated the ways in which Schelling's philosophy deviated from, and was superior to, Fichte's. Throughout Schelling's work in this period, the influence of Fichte looms large, as can be clearly seen in the 1800 *System*. Hegel's essay, however, is correct in its characterization of the differences between Fichte's and Schelling's philosophy in this period, those differences which made it impossible for them to collaborate as they had originally planned. Most importantly, Schelling's system, unlike Fichte's, is not one in which a mode of philosophy which privileges the objective in experience, what Fichte calls dogmatism, is rejected in favor of idealism. Rather, for Schelling, transcendental idealism and the philosophy of nature jointly comprise the whole of philosophy, and neither is complete without the other:

To make the *objective* primary, and to derive the subjective from that, is, as has just been shown, the problem of *nature-philosophy*. If, then, there is a

transcendental philosophy, there remains to it only the opposite direction, that of *proceeding from the subjective, as primary and absolute, and having the objective arise from this*. (*System*, 7 [342-3]; see also *Entwurf*, p. 194.).

In transcendental philosophy, the ‘objective’, or the basic principles of the world of nature, is derivable from the ‘subjective’, or the principles of self-consciousness. So far Fichte and Schelling are not so different. But Schelling proposes that *Naturphilosophie*, in which one can derive the principles of consciousness from nature, or the ‘subjective’ from the ‘objective’, has equal priority:³⁵

But if Nature *can* produce only the regular, and produces it from necessity, it follows that the origin of such regular and purposive products must again be capable of being proved to be necessary in the relation of its forces, in Nature thought as independent and real—it follows *that therefore, conversely, the ideal must arise out of the real and admit of explanation from it*. (Schelling, *Entwurf*, p. 194)

One could read the above passage as claiming merely that because nature acts with necessity, it must be governed by ideal laws that somehow emerge from or are explicable in terms of nature. However, in various other passages, Schelling makes clear that what is being explained is not ideal laws governing nature, but the emergence of self-consciousness. For instance, in the 1800 *System* Schelling claims that nature’s progressive development of forms results in instances of nature attempting to become an object to itself, which is ultimately achieved in the rational nature of humans, “whereby nature first completely returns to herself” (*System*, 6 [340-1]).

³⁵ Richards (2002), whose study of the biographical details and scientific context of Schelling’s work is indispensable, regards Schelling as a disciple of Fichte during this period, which leads to some philosophical misunderstandings; for instance, he regards Schelling’s *Naturphilosophie* as subordinated to a Fichtean idealism up until 1799, rather than of equal priority (see especially pp. 131-134). Beiser (2002), pp. 471, 483 has Schelling ultimately giving explanatory priority to *Naturphilosophie*; see Förster (2012), pp. 228, 247 for the view that Schelling sees *Naturphilosophie* and transcendental philosophy as two equally basic, complementary aspects of philosophy. On this issue I concur with Förster.

The stages in which self-consciousness comes to emerge from an 'unconsciously productive' nature are presented in detail in Schelling's 1800 *System*, although in this work, the project is to explain how self-consciousness comes to distinguish itself from nature, since Schelling's focus here concern the perspective of subjectivity. In other words, we can see the emergence of rationality from the perspective of *Naturphilosophie* as an exogenous emergence, in which a new form of life emerges from natural forces. We could then call the emergence of rationality, from the perspective of transcendental philosophy, an endogenous emergence, since the perspective is one internal to subjectivity, and thus must explain how that subjectivity comes to distinguish itself from its objects. In his *Ideen*, Schelling summarizes quickly the key step in the dialectical process by which this occurs:

At that time [prior to any philosophical questions] man was still at one with himself and the world about him ... [But] his spirit, whose element is *freedom*, strives to make *itself* free, to disentangle itself from the fetters of Nature and her guardianship. (*Ideen*, p. 10)

This account begins with an original 'oneness' with nature, which Schelling terms a philosophical state of nature, in which humans do not see themselves as distinct

from the natural world.³⁶ It is also important to note that, while freedom is here identified as belonging to man, it does not appear out of nowhere and attach itself merely to man. Rather, the natural world already reveals itself “in gradual approximations to freedom” (*Ideen*, p. 36) which culminate in humanity. In its most complex stage, Nature, though humanity, is then able to take itself as an object of thought, and thus man “frees himself” from mere nature, through the spontaneity of reflection:

As soon as man sets himself in opposition to the external world ... the first step to philosophy has been taken. With that separation, reflection first begins; he separates from now on what Nature had always united, separates the object from the intuition, the concept from the image, finally (in that he becomes his own *object*) himself from himself. (*Ideen*, p. 10).

Thus reflection is the highest manifestation of freedom in nature, and it is what, at this state in Schelling’s work, the term ‘freedom’ is often used to name. It is not, however, the only manifestation of freedom, since freedom is also needed in order to explain life, for instance, in animals. Mere reactivity or response to stimuli is not enough to explain even the movements of animals, and thus already in the living

³⁶ This idea of an original unity and a subsequent ‘fall’ from unity, which is then to be overcome in the end through philosophy, is taken up in Hegel’s *Philosophy of Nature*. See *Zusatz* to §376 (emphasis added): “Spirit, which has apprehended itself, also wills to know itself in Nature, *to make good again the loss of itself*. This reconciliation of Spirit with Nature and with actuality is alone its general liberation, in which it sheds its merely personal habits of thoughts and ways of looking at things. This liberation from Nature and Nature’s necessity is the Notion of the Philosophy of Nature. The forms which Nature wears are only forms of the Notion, although in the element of externality.” Nassar (2014) has a convincing account which characterizes the “fall” of reflection as the opposition of the absolute I to itself, which gives rise to the empirical and to the subject/object distinction; see especially pp. 126-128.

This overarching structure of fall and reasoned return is a pervasive feature of philosophy and literature in this time period. Ameriks (2012) discusses such structure (as an “elliptical path”) in Kant’s own philosophical work, as well as in that of his contemporaries. See particularly his discussion of Hölderlin, pp. 281-302, especially p. 285: “In this context the notion of an ellipse signifies a ‘dialectical’ experience as a kind of alienation in which human beings, at the individual as well as the species level, swing away from their origin much further than expected, but then can eventually move back toward a proper self, chastened and matured by the ‘eccentric path.’” Certainly the same could be said of the structure of Schelling’s philosophy in this time period.

organism “we meet that absolute unification of Nature and Freedom in the same being” (*Ideen*, p. 36).³⁷ We will discuss Schelling’s idea of freedom more below.

Schelling’s *Naturphilosophie* is sometimes dismissed as metaphysical (mostly in order to contrast it with the naturalism of Hegel or Kant), often without a detailed explanation of what is meant by this.³⁸ Presumably, these philosophers are referring to Schelling’s overall explanatory schema, according to which the infinite productive force of nature is set in contrast to a limiting, individualizing force: It is the interaction of these forces which produces the various objects in nature, including inanimate matter at one end of the spectrum, and self-conscious rational animals at the other.

This idea of an interplay of opposing forces is taken from Kant’s treatment of matter in the *Metaphysical Foundations of Natural Science*, according to which matter is the product of attractive and repulsive forces.³⁹ But rather than analyzing the concept of matter itself, Schelling opts to derive the concept of matter as that which becomes an object of intuition for us. He concludes that any object that I intuit

³⁷ These statements are moving into the realm of transcendental philosophy, which details (in a Fichtean way) the I’s construction of itself as an object of knowledge, which can be known through intellectual intuition (see Beiser (2002), pp. 473-474; for a convincing account of Schelling’s difference from Fichte in this period see Sturma (2000)). *Naturphilosophie* describes the process by which nature produces the human as the culmination of its striving for freedom, transcendental philosophy describes the process by which “man sets himself in opposition to the external world”, a separation that is eventually overcome through intellectual intuition. Thus both arrive at unity from different directions, and each describes knowledge differently from the standpoint and vocabulary of that framework. The epistemology set forth in the *Naturphilosophie* is my focus here; what goes on in the transcendental philosophy is outside the scope of this paper.

³⁸ See Pinkard (2002); Bowie (1993).

³⁹ C.f. Michael Friedman (2013), especially pp. 75-77, on how Schelling elaborates on this Kantian notion of matter as a product of attractive and repulsive forces. It is worth noting that this is not a simple comparison between the nature of matter and the nature of knowledge (Richards (2002) presents it this way, see pp. 130-132); rather, the idea of nature as a product of opposing forces animates the *Naturphilosophie* at all levels, as we will see below.

must be something I can interact with; it must be both active and passive, as I must be both active and passive in my ability to be affected by it. Thus just as the mind feels itself in its thinking to be a product of two mutually contradictory elements, activity and passivity or freedom and confinement, so must objects or matter be the product of two contradictory forces: "What, after all, can work upon the mind, other than itself, or that which is akin to its nature? It is therefore *necessary* to conceive of matter as a product of *forces* ... the mind can oppose *to itself* only what is analogous to itself" (*Ideen*, p. 175).

It is this basic idea that Schelling extends to all of nature: matter, plants, animals, and humans result from an interplay of productive activity or life and a limiting, individualizing force.⁴⁰ Nature is thus at its essence *not* dead, passive matter and mechanism, but rather life, freedom, and rationality:

The essence of all things (which are not mere appearances, but rather converge through an infinite series of stages of individuality) is life; the accidental is only the manner of their life, and also the dead in nature is not in itself dead—it is only extinct life.⁴¹

Nature's drive, the drive of the productive force, is to make this life and freedom explicit and knowable, to become an object to itself, which it achieves through humanity's development of self-consciousness. On its way to this ultimate purpose,

⁴⁰ See Förster (2012), pp. 232-238 for an excellent account of how these forces produce various kinds of natural objects.

⁴¹ My translation: "Das Wesentliche aller Dinge (die nicht bloße Erscheinungen sind, sondern in einer unendlichen Stufenfolge der Individualität sich annähern) ist das Leben; das Akzidentelle ist nur die Art ihres Lebens, und auch das Tote in der Natur ist nicht an sich tot— ist nur das erloschene Leben." (*Von der Weltseele*, p. 596)

this productive force produces all natural objects, this “series of stages of individuality.”⁴²

However, we must be more specific about *how* this occurs. Nature (productive nature, or *natura naturans*) produces its products (*natura naturata*) and in producing them, strives to *become identical to them*. This is achieved by the products gradually manifesting more and more the productive power of nature. Animals, like nature, also are productive: they shape the world around them. The ultimate unity of producer and product is achieved in the human, the *rational organism*, who can become conscious of the principles of her (and thus nature’s) production. It is this unity of producer and product that is the standpoint of knowledge.⁴³ These points require further specification. After discussing Schelling’s relation to Kant, I will turn to Schelling’s conception of knowledge in this period.

3.3 Schelling’s Critique of Kant

Kant and Schelling thus disagree most fundamentally about how to characterize nature: For Kant, as discussed above, nature, or the sum total of all phenomena, is constituted by our understanding. What is essential to nature is just that which is essential for our understanding nature as determined by transcendental idealism. But these things—the categories and forms of intuition, as

⁴² Cf. Schelling’s *Timaeus* (1794), for the role of Platonic Ideas in this gradation of forms. Already in this early commentary we see both Schelling’s indebtedness to Kant, especially in his philosophy of biology (see especially p. 213) and his distancing from Kant, insofar as he affirms the independent existence of the Platonic Ideas and the imperfection of the human intellect in accessing the pure intelligible forms (pp. 221; 233; and esp. 237-238). C.f. also Lovejoy (1959), pp. 418-419 on Schelling’s influence on Schopenhauer in this respect.

⁴³ Here I disagree with Förster (2012, especially pp. 238-239) who regards the relationship between producer and product as one of continual oscillation, rather than progressive unification.

well as our regulative attributions and the resulting scientific claims about the natural world—these things do not belong to nature as something that can be considered as existing apart from human subjectivity; our attributions are not true of nature ‘in itself’.

Schelling dismisses the Kantian idea that we must regard nature as formed or organized by our finite minds. He states, in opposition to Kant, “But I have long sought to know just how you could be acquainted with what the things are, without the form which you first impose on them, or what the form is, without the things on which you impose it” (*Ideen*, p.33). In other words, how do we know what is imposed by us onto the object, and what is contributed by the object itself? In the case of organisms, Schelling thinks that Kant cannot rule out the possibility that the purposiveness is not imposed by a mind, but is rather in the object itself. Or, alternatively, there may not be any meaningful distinction between subject or mind and object in this case. Also, the restriction of purposiveness to certain objects is arbitrary, since we cannot identify what makes it such that we must view certain objects and not others as purposive: “how does it come about that you impose this idea only on *certain* things, and not on *all*, that further, in this representing of purposeful products, you are in no way *free*, but absolutely constrained?” (*Ideen*, p. 33). According to Schelling, the only satisfactory answer Kant could give is that there is something purposive about the objects themselves, apart from the form we impose on them.

That these criticisms will not convince the Kantian should be clear; the answers to these criticisms are already apparent in Kant’s original presentation. For

Kant, as always, what we impose theoretically, whether the forms of intuition, the categories, or applications of the ideas of reason (as is the case with purposiveness), is what we must impose in order to experience or determinately judge, and he can thereby isolate what is contributed by rational subjectivity.⁴⁴ That we cannot know or judge objects in isolation from the contributions of our schematized forms of rationality is hardly an objection, since it is built into the Critical machinery: those forms of subjectivity are validated *because* we cannot determine or judge the object apart from them.

Kant can similarly respond to Schelling's question: why some objects, and not others? Kant's way of distinguishing those purposively judged objects from others is just that we regard as purposive those parts of nature which would otherwise remain unintelligible to us. Organisms are unintelligible to us without final causes, whereas inorganic objects are perfectly intelligible. He does not need to identify some particular thing about the object in itself that makes this the case; moreover, according to the critical framework Kant could not possibly say anything of the kind. We know that we find ourselves constrained to think of the objects in this way; we cannot know that the objects in themselves *are* this way, or even what it is about the objects that makes it so that we need to think of them in this way.

Schelling's objections are interesting, then, not in that they defeat the Kantian, but because of what they reveal about Schelling's own views. Interestingly,

⁴⁴ In the case of organisms, purposiveness is not necessary for experience in general, but just for judging particular objects, so the principle at work is regulative, rather than constitutive. See Kant, *CJ* §77, 5: 408: "... this principle does not pertain to the possibility of such things in themselves (even considered as phenomena) in accordance with this sort of generation, but pertains only to the judging of them that is possible for our understanding."

Schelling *also* engages in a form of transcendental argumentation, but his conclusions are much more far-reaching. In the above example of matter, Schelling argues that the nature of thought must be mirrored in the nature of matter. In examining the conditions for the possibility of thinking, we come to the conclusion that the mind must be both active and passive. We extend this activity and passivity to all of nature, to all that is knowable, not because it is the means by which the mind has access to the world, but because all of nature must be similarly active and passive in order to be knowable. In other words, the conditions for the possibility of knowledge require that the objects of knowledge have the same active/passive nature as the mind. Thus transcendental argumentation ends up *not* in imposed forms of subjectivity, but rather it ends with an extension of the nature of the mind to all of those things it claims to know. That I experience objects at all shows that objects interact with my mind, which shows that they must have the same basic nature as my mind.⁴⁵

Thus, Schelling's claims are less restrictive than Kant's. For Kant, we are entitled to knowledge claims about our forms of thought simply because they are our own. Schelling maintains that this is not knowledge at all: the mind must focus on an object that is not identical to itself, an object of which the mind is not the explanatory ground, in order to have knowledge.

One clear formulation of Schelling's opposition to Kant, which also helps to explicate the details of the claim, central to the above argument, that like must be known by like, comes out in Hegel's *Differenz-Schrift*: knowledge requires a 'real

⁴⁵ C.f. Beiser (2002), pp. 511-515.

unity' of the knower and known; real unity is not possible if either nature or intelligence alone is assumed as the explanatory basis of the other. Schelling, unlike Kant, does not make the faculties of the subject the explanatory basis or ground of the structures in nature:

For the sake of explanation [in Kant's philosophy], intelligence and nature are put into a relation of causality, the one being the ground, and the other that which is grounded. Nothing is achieved this way, however, except that the opposition gets fixed as absolute, and through the semblance of merely formal identity—such as causal identity is—the way to absolute unification is completely cut off. (Hegel, *DFS*, p. 162)

So the major problem with Kant's view would be that intelligence is considered to be the ground of nature. (While Hegel puts this in terms of causality, it becomes clear in his further explication that he merely means explanatory ground, since the formal elements of experience do not *cause* events or objects in nature, but are rather they ground our experience of nature). While this grounding 'formally' identifies⁴⁶ nature and intelligence, that is, the structures of intelligence *are* the structures of nature, Kant's position here actually makes it so that nature and intelligence cannot be unified, since in order to achieve such a unity, they must be really opposed: "Where the identity is formal and the opposition is ideal, nothing more than an incomplete synthesis is possible" (*DFS* p. 159). So a strong distinction in the formal elements of my mind and those formal structuring features of nature is required in order for nature to be something I could know and judge. Otherwise I am not comprehending anything that is beyond the structures of my own rational mind.

⁴⁶ The use of 'identity' here points to the idea that what I know for Kant derives its structuring elements from my rational mind—it is my own forms of intuition, categories, and posits which provide the formal elements of my experience—the formal elements of the objects of my knowledge. This 'formal identity' precludes real knowledge of something distinct from myself; real knowledge requires 'unity', not mere formal 'identity', as explained below.

In other words, I cannot be really united with nature, and therefore cannot truly grasp nature, if nature is not distinct from me. If the organization in nature is put there by my mind (whether constitutively or regulatively), then what I can know in nature is just an extension of myself (for Kant, that is *how* I know anything about nature), and thus there is nothing to grasp. This is what Hegel calls 'formal identity.' If nature is really distinct from me, then there are two interesting consequences: it must be the source of its own organization, and nature and intelligence can be absolutely unified in knowledge.

The issue here is not that Kant wrongly inserts intelligence into nature, as if nature should be seen as devoid of intelligence; Hegel's insight is that for Schelling, intelligence is a feature of nature considered in itself, apart from the contributions of the mind: "In the philosophy of nature, the absolute substance is nature, of which the subject, intelligence, is only an accident" (*DFS*, p. 161). Rather, one ought not mix transcendental philosophy into the philosophy of nature. If one science is assumed as more basic or the explanatory basis of the other (as Kant's transcendental philosophy is the basis for his philosophy of nature), then they are no longer distinct and there is nothing to unify; there is nothing to be known that is distinct from the knower. This mixing is not the absolute unity that Schelling requires. His proclamation that "I myself am *identical* with Nature" (*Ideen*, p. 36) cannot amount to the Kantian claim that natural phenomena can be explained in terms of what is required for subjective experience, nor can it amount to a claim that intelligence can be explained naturalistically. Clearly, both claims would set up one of the sciences as primary and would raise either nature or intelligence to the level of the Absolute. To

make the Absolute either subjective (as Fichtean idealism does) or objective (as Spinozism does) is not just undesirable for Schelling, it is impossible. The dichotomy of subject and object would still remain in the Absolute, since each needs to be conditioned by the other (Hegel, *DFS*, p. 166).

Schelling succeeds in making possible the absolute unity of subject and object in his *Naturphilosophie* by maintaining a distinct science of nature, according to which nature has elements of rationality and freedom *attributed to nature itself*, not considered to be an imposition required by reason or as a condition for experience. So the subjective element of nature is not posited as a result of transcendental philosophy; the science of nature maintains its distinctness.

It is now clear why Schelling would object to Kant's critical framework in which our faculties are regarded as the source of the formal elements of experience. Kant and Schelling agree that "organization as such is conceivable only in relation to a *mind*" (Schelling, *Ideen*, p. 32).⁴⁷ But for Kant, of course, the structure we know in nature comes from our faculties, and we know what in nature comes from our faculties by finding out what is necessary merely for the possibility of experience. For Schelling, the structure must be regarded as belonging to nature itself: in Hegel's terminology, nature must be objective Subject-Object, not just object. Only then, can the real unification of objective Subject-Object (i.e. nature) and subjective Subject-Object (i.e. intelligence) take place. But Hegel does not give us an account of how this unity is achieved, or even why we would call knowledge a unification of nature and

⁴⁷ C.f. Kant, *CPR* A125: "Thus we ourselves bring into the appearances that order and regularity in them that we call **nature**, and moreover we would not be able to find it there if we, or the nature of our mind, had not originally put it there."

intelligence. For the details of this unification, we must take a closer look at how Schelling discusses our access to nature in this early period. If we take seriously the Kantian background, according to which knowledge is a result of my own structuring of the elements of experience, and we still would like to maintain a non-Kantian kind of realism, according to which the structure of experience really belongs to that which is known in itself, then the only solution can be that my own structuring coheres with the self-structuring of the object of knowledge: I am, in this particular way, united with the object of knowledge. This kind of unification is indeed how Schelling characterizes knowledge. I will fill out the details of this account below.

3.4 Conscious Production: Freedom and Knowledge

With this background now in place, that is, the main points of Schelling's *Naturphilosophie* and how it differs from Kant's ideas about nature, we can now turn to how freedom and knowledge operate in the *Naturphilosophie*. Schelling's epistemology is intimately tied to the concepts of freedom and activity: thus knowledge is something that requires *free interaction* with the world, rather than merely passive receptivity. I show below that this approach to knowledge is amenable to gradation, such that animals could exhibit lower forms of knowledge just as they exhibit lower forms of freedom.

3.4.1 Conscious Production: Freedom

The early Schelling, in contrast to Kant, adopts a notion of freedom in his *Naturphilosophie* that can be at home in the natural world. He rejects the idea that in order to be free we must escape the influence of nature, locating the source of this error in an improper separation between mind and matter (*Ideen*, p. 13). He criticizes Kant's notion of freedom, saying that with such a notion, "how things affect *me* (a free being) is not at all conceivable ... There can only be deed and act in me; from me events can only *proceed*; there can be no passivity in me" (*Ideen*, p. 13). While this may not be a fair reading of Kant, this passage highlights the difference between Kant and Schelling insofar as Kant characterizes freedom as at least partially escaping determination in and through the sensible world through motives of the understanding; he locates the source of freedom entirely in the spontaneous activity of the understanding, opposing this realm to that of a determined and passive nature. In contrast, for Schelling, nature is infused with productive activity and can itself be seen as the source of freedom: as mentioned above, nature is itself progressive manifestations of freedom, and the human is the highest manifestation of freedom in nature:

So long as I myself am *identical* with nature, I understand what a living nature is as well as I understand my own life; I apprehend how this universal life of Nature reveals itself in manifold forms, in progressive developments, in gradual approximations to freedom. (*Ideen*, p. 36)

Schelling's notion of freedom, then, is not one of independence from nature: At its essence, nature is free, and so there is no contradiction between being fully free and fully natural. While freedom requires activity, it is not *pure* activity or the absence of any passivity. Like Kant and post-Kantians, however, Schelling regards freedom as

most properly used to describe rational, reflective beings who determine their actions consciously. What Schelling describes as freedom in the *Ideen* is later (in his Introduction to the *Erster Entwurf* of 1799) described as “productivity”. This is helpful, since, in contrast to freedom, it is easy to understand what productivity in nature is meant to indicate, and we can straightforwardly identify human freedom with conscious productivity. In this later vocabulary, nature is unconsciously or blindly productive of its various forms, which themselves manifest varying degrees of productivity, which culminate in the human.⁴⁸ But the human is not just one part of nature: it is reflective, and as the culmination of nature’s productivity, it is consciously productive, that is, it is free in the fullest sense. Unlike unreflective animals, man “sets himself in opposition to the external world”, that is, he takes it as an object of reflection. This opposition to and separation from nature (and himself, since he also takes himself as an object of reflection) is, however, not absolute, since man and nature are ultimately the same, reflection will eventually lead to knowledge of this sameness, which is a type of reunification (*Ideen*, 10).

So while Kant claims that transcendental freedom, freedom in the fullest sense, requires absolute independence from sensible determination, Schelling’s notion of freedom is characterized by a kind of productive activity that requires interaction between nature and the self. The language of *production* is apt since production is not (at least, not usually) creation *ex nihilo*, but it requires materials

⁴⁸ ‘Again, the fact that Nature, wherever it is left to itself ... produces of its own accord, as it were, regular forms ... or the fact that in the animal kingdom (that product of the blind forces of Nature) we see actions arise which are equal in regularity to those that take place in consciousness, and even external works of art, perfect in their kind—all of this is explained in our view by saying that it is an unconscious productivity in its origin akin to the conscious’ (*Entwurf*, p. 194).

that a craftsperson works with in order to produce something. Moreover, while the materials are manipulated by the craftsperson, they have proclivities that ‘fight back’, so to speak, and the product is determined not merely by the activity of the craftsperson but also by the limiting activity of the materials. We can see the activity of animals as a species of such production, as animals shape their environments, and this requires both an environmental ‘given’ to be shaped along with the activity of the animal, and the end result—a beaver’s dam or an antelope caught and killed—is a product of these two elements. Thus production is a fully natural phenomenon, and so freedom, as conscious production, has its origins in nature. As we saw above, reflection is intimately tied to human freedom as conscious production; it may not come as a surprise, then, that knowledge for Schelling is a species of human production.⁴⁹ Let’s now turn to examine this notion of knowledge.

3.4.2 *Conscious Production: Knowledge*

Knowledge, for Schelling, is a kind of making. We *produce*, or rather, are co-producers of, the objects of knowledge (*Entwurf*, p. 197). This is not the Kantian notion that nature is partially constituted by our concepts. Rather, in interacting with the world in a practical manner, we interfere with its activity: we put a question to it, which it is in turn compelled to answer. Schelling in his 1799 Introduction to his *First Outline for a System of the Philosophy of Nature* gives a concise formulation of this idea:

⁴⁹ For Kant, although knowledge may be ‘produced’, the notion of production that Schelling is here appealing to is much more pragmatic. For Schelling, the activity of production is not mere rational activity; rather, from the perspective of *Naturphilosophie*, productive activity *grounds* reason, and so reason cannot be the source of it.

Now, it would certainly be impossible to get a glimpse of the internal construction of Nature if an invasion of Nature were not possible through freedom. It is true that Nature acts openly and freely; its acts however are never isolated, but performed under the concurrence of a host of causes which must first be excluded if we are to obtain a pure result. Nature must therefore be compelled to act under certain definite conditions, which either do not exist in it at all, or else exist only as modified by others.—such an invasion we call an experiment. Every experiment is a question put to Nature, to which it is compelled to give a reply. (*Entwurf*, pp. 196–7)

Thus, data in science (or, by extension, the empirical basis of any kind of theoretical knowledge) emerge from active interaction with the natural world: we must interfere with it, change it, and ask a question. And we must do so with an idea of what the answer will be. Thus ‘data’ are not given or found, rather, they are co-produced by the practitioner of a science and nature, as a result of that practitioner’s questioning of and interference in nature. Schelling goes on,

But every question contains an implicit *a priori* judgment; every experiment that is an experiment, is a prophecy; experimenting itself is a production of phenomena. (*Entwurf*, 197)

We approach nature with an a priori idea of what the phenomena will be, and, in experimenting, we manipulate the natural world, producing these phenomena, which may not always be in accord with our original ‘prophecy’. Thus there is a kind of feedback loop in which nature’s response to our questions, nature’s active interaction with our productive activity, can then alter our a priori judgments and affect the kinds of experiments we conduct in the future. For Schelling, then, a priori does not designate particular principles or the means by which we come to know them; rather, a judgment is a priori if it plays a certain role in cognition. Strikingly, he claims that a judgment that is originally “merely historical” *becomes* a priori when we become conscious of its necessity (p. 198; I/3 278). Schelling is not simply

equating a priori and necessary in a mere terminological shift. Instead, he is claiming that the principles we come to believe are nature's own governing principles are the ones that determine what sorts of experiments we conduct and the expected outcomes, and so they function as a priori for us.⁵⁰

Schelling likens this type of knowledge that results from this interaction to the knowledge of a craftsman who is "the soul of his work" because "it preexisted in his head before he exhibited it as a reality" (*Entwurf*, p. 196).⁵¹ The practitioners of a science, then, are like craftsmen continually producing objects. They do so with an idea of what the object will be, but often it turns out differently. According to Schelling, then, we are continually making and remaking nature, in hopes that it will accord with our ideas of it, and continually modifying those ideas as a result. He contrasts this type of intimate and interactive knowledge with "mere seeing," in which we are merely acquainted with the existence of an object, and which should not be called knowledge at all (p. 196). Only in becoming acquainted with the principles of an object's possibility can we claim to know it, and in the case of nature

⁵⁰ For a different view, see Richards (2002), pp. 141-144, 291. Richards misunderstands Schelling's point in the *Entwurf*, stating "Principles induced from the latest experimental and theoretical work could, [Schelling] argued, be repositioned within a framework that was both deductive and yet reliant only on natural philosophical concepts" (p. 291). Richards then misses the idea that these principles are not 'induced' but are rather *put to use* in scientific experimentation, and they are not 'placed in a deductive framework' but are rather operative in the practical a priori framework of the experimenter, which is logically consistent but not deductive. Beiser (2002), pp. 523-528 also misconstrues the relationship between the empirical and the a priori, since he reads Schelling's use of 'a priori' in the traditional epistemological sense.

⁵¹ See Ostaric (2006), pp. 184-203 on Schelling's 1794 commentary on the *Timaeus*. In an illuminating discussion, Ostaric draws attention to the "creative subjectivity" of the demiurge in Schelling's commentary, which is connected also to Kant's conception of genius (see esp. p. 199 n. 37). Here I take Schelling to mean that such creative subjectivity is not only how we ought to see *nature's* productivity, but also that such creative subjectivity is a precondition for knowledge, and is present in all human knowledge.

we become acquainted with its productive activity by also engaging in such productive activity.

Schelling is here discussing the kind of knowledge involved in natural science, or what we might anachronistically term scientific paradigms or the foundations of science, but this coheres with many other statements he makes about knowledge more generally. In the slightly earlier *Ideen*, he claims *freedom* is the ultimate precondition for all human knowledge: “Only by contrast to a free activity in myself does that which freely acts upon me take on the attributes of reality; only upon the original force of my *self* does the force of an outer world break in.” In knowing, he claims “activity and passivity are in the fullest interaction” (*Ideen*, p. 174). Thus freedom is not just *action* but *interaction*, since it requires passivity with respect to the activity of the “outer world”. If, as I argued above, freedom and conscious productivity are interchangeable, then the account of knowledge in the *Ideen* is the same as that presented above from the *Entwurf*: we interact with the world around us based on our current conceptions—the a priori principles governing our production— and it pushes back and changes those conceptions. This interaction with nature, mediated by principles, is what makes knowledge possible.

And finally, Schelling’s statement that “the free man alone *knows* that there is a world outside him; to the other it is nothing but a *dream* from which he never awakes” (*Ideen*, p. 174) is best understood in the context of the comment above on “mere seeing”: unless we are working to discover the new a priori, to discover the inner nature and necessity of the world around us, we are not coming to knowledge at all, but rather merely watching the world go by.

And so, the conception of knowledge in the Introduction to the *Entwurf* is not, as some have claimed, an aberration from what came before and what comes after, perhaps a result of Schelling's closeness to Goethe at this time.⁵² While perhaps the *framing* of this epistemology—in terms of experiment—might be a feature of Goethe's influence, the underlying ideas of conscious productivity or freedom being the precondition for knowledge remain the same throughout the *Naturphilosophie*, and can even be read in continuity with Schelling's later philosophy.⁵³

One could object, at this point, that Schelling just amounts to a closet Kantian: notwithstanding his insistence that nature is not constituted by our understanding, what this “a priori” amounts to cannot be anything but Kantian constitution. That is, we still interpret our world through our understanding of it; he merely replaces the fixed notions of the categories and forms of intuition with a more malleable “a priori”, our current understanding. And thus there is even less reason to think that Schelling has any right to claim real knowledge of nature over and above Kant: An ever-changing a priori, since we expect it to change, cannot truly be latching on to what is real in nature. According to this interpretation, Schelling would find himself

⁵² See Richards (2002), pp. 140-142. Nassar (2010) also argues along these lines. It is worth noting, however, that even if the expression of these ideas is altered considerably in the 1799 Introduction to the *Entwurf*, the main points of the *Naturphilosophie*—the equal priority of *Naturphilosophie* and transcendental philosophy, the self-producing aspect of the organic (*Ideen*, pp. 30-31), nature as itself a self-producing organism (*Weltseele*), and, as I have just shown, the epistemological framework—are consistent throughout this period.

⁵³ This epistemology, according to which one discovers through experience features of the world amenable to thought, is a feature of Schelling's philosophy throughout his lifetime, and sets him apart from other idealists. See Rush (2014) on the positive philosophy: “Schelling's is an odd sort of empiricism, according to which the more one experiences the world the more the world's structure antecedent to thought is discovered to be compatible with thought” (p. 235). This later philosophy departs from the earlier Schelling in that it gets progressively more pessimistic, in terms of how exhaustive of successful such knowledge can be; complete harmony with nature (seemingly possible, perhaps even inevitable in the *Naturphilosophie*) is not within reach. This is especially apparent in the *Freedom* essay, see pp. 36-42.

in the company of neo-Kantians such as Carnap and Reichenbach; he is in essence a Kantian with a “relativized a priori”.⁵⁴

This reading may present itself as the obvious interpretation of Schelling if one were simply to look at the passages mentioned above from the *Entwurf* in isolation. But, since Schelling is so keen to distance himself from the Kantian ‘constitutive’ view of nature, this cannot be correct. Ultimately, Schelling’s idea of the a priori does not reduce to a role played in cognition, although the a priori *does* play a role in cognition. The reason we call it a priori does not have to do with our cognitive processes. Rather, since nature (the thing that is known) operates according to necessary a priori principles, when we come to know those principles we also term them a priori, and they thereby come to play that role in our interactions with the natural world. He states:

*It is thus not that WE KNOW nature a priori, but rather that nature IS a priori, that is, everything individual in it is determined in advance through the whole or through an idea of nature generally. But nature is a priori, so it must also be possible to recognize it as something a priori, and this is indeed the meaning of our claim. (Entwurf, I/3 279)*⁵⁵

It is, perhaps, true that Schelling is taking a cue from a Kantian picture of how we might come to know something, that is, by being the source of its principles of constitution. There is, however, a better way to state Schelling’s position such that the differences with Kant are more manifest. Nature *produces* or *constitutes itself* though *its own* a priori principles. How, then, can we come to know these principles, since we are not the source of them? We come to know them by occupying the place

⁵⁴ See Friedman (2001), pp. 71-82; see also Reichenbach, pp. 48-60.

⁵⁵ My translation from the German; modified from *Entwurf*, p. 198 of the Peterson translation.

of nature and engaging in such production ourselves. We can do this because we are the culmination of nature's striving for unity. Humans, as rational organisms, are the unification of producer and product: as organisms, we are *natura naturata*; as consciously productive (rational and free), we are *natura naturans*.⁵⁶

So we get hints (through experience) of what these principles might be, we adopt them and produce natural phenomena with them, and in doing so, we become like nature. Or stronger: we simply *are* nature, producing. When our production is successful, we recognize the a priori and necessary status of these principles. A lack of success in this context would not be a failure to produce, but a mischaracterization of the principles of production, such that what we thought we were producing and what we produced were not the same, and thus the principles would require modification. We stand in for nature in her production, so to speak, and thus have an intimate knowledge of the principles of this productive activity.

This picture may be easily confused with the neo-Kantian one, since the scientific procedure remains the same. Nevertheless, it is realist in a way that the neo-Kantians cannot claim to be, since nature has independent principles governing its activity. It also does not rely on any kind of correspondence theory of truth, since nature's principles are operative in my productive activity. There are not two sets of principles, one in the world and one in my head. Rather, there is one set of

⁵⁶ This is my main disagreement with Förster, who claims that it is "obvious" that in nature, "that which is intuited (that which is doing the producing) and the one doing the intuiting (the philosopher) are not identical" (2012, p. 239). This identity of the philosopher and nature, which Förster here rejects, is not just apparent in the *Entwurf*, as described above, but is a feature of the *Naturphilosophie* throughout this period (see, for example, *Ideen*, p. 36). And thus Förster's characterization of the *Naturphilosophie* as involving a "re-creation" of nature (pp. 232, 247-249) is misguided, since it is better regarded as a result of *participation in* nature's creating, by which we come to know it.

principles, which are nature's a priori principles of production, and are therefore *my* a priori principles of production, but my explicit characterization of these principles of production may fail when I use them in my own projects, scientific or otherwise.

Consider an example: I design and make a small remote control airplane. I am guided by my idea of the airplane and several principles which mediate and guide my production of the object. When finished, the plane will not fly. Something has gone wrong with my framework of principles. I produced the plane according to nature's principles, but I had mischaracterized them and applied them inappropriately in my production of the plane. And so I set about figuring out where my explicit characterization of these principles has gone wrong. *Since I am an organism*, a natural producer, the "correct" principles are *my* principles of production, but they may still be opaque to me. Thus bringing them to an explicit and correct characterization requires this process of discovery.

Ultimately, Schelling takes seriously our continuity, as organisms, with other animal species, and through his characterization of both rationality and nature makes rationality a *natural* phenomenon.⁵⁷ I will develop this thought further in the section below by examining in more detail the continuities and differences between animals and humans in the *Naturphilosophie*.

3.5 Schelling on Animals

Contrary to most contemporary understandings of nature and matter, nature exhibits its essence most clearly not in lifeless matter but in "higher" life forms such

⁵⁷ Heckman (1983) has this as the central question of the *Naturphilosophie*: "Wie entsteht aus der Natur Geist?" (p. 291), and he goes on to argue for the compatibility of this picture with evolution.

as humans and animals. Rather than seeing animals as a composite of dead matter and something else (like a life force)⁵⁸ which animates it, or, similarly, as nature “plus” in which what we consider to be most natural is lifeless matter, which can only take on special capabilities and properties due to other factors such as complexity, Schelling regards animals and humans as paradigmatic natural objects, for in these objects the essence of nature, living intelligence, is most manifest. That humans as rational organisms are natural can be seen in two ways: first, they are continuous in their abilities with other organisms, second, they manifest the productive essence of nature more than any other natural product.

Organisms, according to Schelling, are *self-producing*: “The organic, however, produces *itself*, arises out of *itself*” (*Ideen* p. 30). This refers not only to reproduction, but also to assimilation, in which an organism takes in food and it becomes a part of them, and sustenance, in maintaining health or in healing after an injury or illness. Unlike artistic production, in which the organization is imposed on the object from the outside, an organism “*organizes itself*”; “it is cause and effect of itself” (*Ideen* p. 31). Thus the unity of an organism lies in its organization and does not depend on whether we regard it as a unity (31). All organisms have the above characteristics, but animals have them to a greater extent than plants. Consider the following passage:

Vegetation is the negative life-process. The plant itself does not have life; it comes to be only through the development of the principle of life, and has only the appearance of life in the moment of this negative life-process. In the plant nature divides what it unites in the animal. The animal has life in itself,

⁵⁸ On the inseparability of matter and form in animals, see *Von der Weltseele* 594; *Ideen* 31.

because it itself ceaselessly generates the living principle, which is extracted from the plant through foreign influence. (*Von der Weltseele* 591)⁵⁹

The animal has “more spontaneity and ability to change its situation” than the plant (591). So the animal “has life in itself”, whereas the plant does not, because the animal self-produces and self-organizes spontaneously and *of its own accord*. One way to further specify this difference would be to see the ways that non-rational animals, although they cannot reflect, exhibit a unified agency in their behavior that plants do not exhibit. Both plants and animals can react to stimuli in a non-behavioral way, for instance in the turning of a leaf or in the blistering of skin in response to heat. But the animal exhibits responses that are not “extracted through foreign influence”, as these are, but are rather produced by the animal itself, considered as a unified agent. This “unity” is what is missing, or (in Schelling’s words) “divided” in the plant.

That Schelling sees all of nature as a living organism should not be surprising, given the above description of organisms.⁶⁰ Their self-organization and self-production are characteristics of nature as a whole as it develops toward human self-consciousness. Moreover, the interdependence of all of the parts and the unity of the whole are suggestive of ecosystems and ultimately to all of nature. As Schelling

⁵⁹ My translation from the German: “Die Vegetation ist der negative Lebensprozeß. Die Pflanze selbst hat kein Leben, sie entsteht nur durch Entwicklung des Lebensprinzips, und hat nur den Schein des Lebens im Moment dieses negativen Prozesses. In der Pflanze trennt die Natur, was sie im Tier vereinigt. Das Tier hat Leben in sich selbst, denn es erzeugt selbst unaufhörlich das belebende Prinzip, das der Pflanze durch fremden Einfluß entzogen wird.”

⁶⁰ This is one more way of saying that nature is productive of its various forms. See Beiser, 2002, pp. 519-523; here I differ with his characterization of Schelling’s difference with Kant being that he gives the organic “constitutive” status: the notion of “constitutive” relies on the idea of imposed forms of subjectivity in nature, which Schelling clearly rejects. Nature itself, as producer, contains this subjective element independently. See Krings (1983).

explains in *Von der Weltseele*, this “general organism” of nature is not emergent; it does not supervene on individual organisms or even ecosystems.⁶¹ Rather, the organism is what is basic, and the individual objects in nature are its products:

Life is not a characteristic or product of animal matter, but conversely, matter is a product of life. The organism is not the characteristic of individual natural things, but conversely, the individual natural things are just as many limitations or particular ways of intuiting the general organism. “I know nothing more backwards, than to make life into a property of things, since on the contrary the things are only the properties of life, only various expressions of the same; thus only in living can the multiplicity interpenetrate and become one” (Jacobi’s *David Hume* p. 171). The things are thus not the principles of the organism, but conversely, the organism is the principle of things. (*Von der Weltseele*, 599)⁶²

This claim can perhaps be made more plausible in examining the case of an ecosystem, which is in some sense a microcosm of all of nature. In ecosystems, all parts are dependent on each other. If one species or system is destroyed or compromised, then the ecosystem will attempt to adapt, to find a new equilibrium. If the equilibrium is disrupted to too great an extent, the entire ecosystem can be destroyed. Thus in this sense an ecosystem (and, by extension, all of nature) is irreducible to its parts, and it makes its parts possible: organisms cannot exist, we

⁶¹ Regarding this “general organism” as emergent in this way would be more palatable to contemporary readers. Seeing nature as one large system in which all parts play an essential role, as in the case with organs in a body, would essentially be tantamount to taking seriously the interdependence of all of nature. This is not what Schelling claims, but this fact of interdependence, which occurs in inorganic nature as well, may lend credence to this view which otherwise might appear unmotivated.

⁶² My translation from the German: “Das Leben ist nicht Eigenschaft oder Produkt der tierischen Materie, sondern umgekehrt die Materie ist Produkt des Lebens. Der Organismus ist nicht die Eigenschaft einzelner Naturdinge, sondern umgekehrt, die einzelnen Naturdinge sind ebenso viele Beschränkungen oder einzelne Anschauungsweisen des allgemeinen Organismus. »Ich weiß nichts Verkehrteres, als das Leben zu einer Beschaffenheit der Dinge zu machen, da im Gegenteil die Dinge nur Beschaffenheiten des Lebens, nur verschiedene Ausdrücke desselben sind; denn das Mannigfaltige kann im Lebendigen allein sich durchdringen und Eins werden«. (Jacobis *David Hume* S. 171.) Die Dinge sind also nicht Prinzipien des Organismus, sondern umgekehrt, der Organismus ist das Prinzipium der Dinge.”

cannot conceive of them existing, apart from some appropriate environment or system of organisms in a natural setting. In this way they are the “organs” of the ecosystem; ecosystems could similarly be regarded as the “organs” of that organism that is all of nature.⁶³

Since all of nature is to be viewed as the product of the life of this general organism, it might be difficult to see how animals, as mentioned above, “have” life more than plants do (and by extension, humans would have life to a greater degree than non-rational animals). But if we see the life of the general organism as that which Schelling refers to as “productive activity” in other works, this difficulty resolves itself. Animals are products of the life of the organism, but they are special products which take on the features of that organism in an important way; that is, they are spontaneously self-producing and self-organizing. They have that productive activity, the living principle, within themselves. And to this extent they are more akin than plants or inorganic matter to that general organism that is all of nature. We have all of these animal abilities as well; we self-produce and self-organize, and in addition to this we have the ability to reflect, to take our own thought as an object. So not only do we reflectively self-produce and self-organize, we also reflectively produce natural objects. This is most striking in the example of science, where our reflective production is focused on nature, and so we are clearly embodying that life of the organism which produces all natural things.

One convenient consequence of this aspect of Schelling’s *Naturphilosophie* is that it coheres quite nicely with one other feature of German Idealism, with which

⁶³ For the usefulness of this concept of self-organization in physics and chemistry as well, see Heuser-Kessler (1986).

we are all familiar: that of Hegel's *Geist* or Schelling's similar concept, that of the 'mindedness' of nature, the reflective awareness in humanity which is the culmination of nature's striving. Human self-consciousness and reflection is thus the self-awareness of this organism. This also provides another way into seeing what motivates Schelling to adopt this picture of nature. If we scale back *Geist* until it is unaware but still active, until it is (in Hegel's terminology) the *Begriff* in nature, we can see how we indeed *must* regard all of nature as a unity, since the *Begriff* is the still-unconscious structuring principle of the natural world. Thus our own conscious activity is irrevocably united with the unconscious activity of nature; it is the culmination of the striving of that activity toward intelligence and *Geist*; it is that activity finally made explicit. This unconscious striving and productive activity is Schelling's nature; this is what he calls the life of the general organism.

Just as, for Hegel, the *Begriff* is continuous with *Geist*, so for Schelling all of nature is in the same way continuous with human mindedness. We can see this both macrocosmically and microcosmically. Macrocosmically, as explained directly above, the organism of nature strives, in its activity and organization, toward self-awareness. This self-awareness can take the form of human self-consciousness or reflection on the natural world. Of course, once this self-awareness is developed, it is not limited to knowledge of nature, since it can reflect on itself and thus "disentangle itself from the fetters of Nature and her guardianship" (*Ideen*, 10).⁶⁴ Taking itself as an object produces a situation in which we can reflect on our own reflection, so to

⁶⁴ For how this macrocosmic continuity relates to the idea of God as the absolute, both in the *Naturphilosophie* and in subsequent developments in Schelling's thought, see Lovejoy (1936), pp. 316-326.

speak, and thus reflection is not limited to taking nature as its object; it becomes free, and can progress in a way that is perhaps best expressed in Hegel's *Phenomenology of Spirit*, although it is worth noting that there are several important differences between Schelling and Hegel in how they would each characterize the progressive aspects of human consciousness. Most importantly, Schelling regards progression as driven not by contradictions in thought, but by the practical failure of principles to aid in production, and thus it is appropriate to regard Schelling's account as always returning to nature and grounded in productive activity.

Similarly, microcosmically, there is continuity between individual higher-level organisms⁶⁵ and the human. Non-rational animals, although they are not reflectively aware, exhibit intelligence and freedom in its highest non-reflective forms. We can see this in the "rational" responses of an animal to its environment, in learning or problem-solving, in the social attachments and communal structures they form, and even perhaps in some low-level conceptual capabilities,⁶⁶ that is, the ability to regard (or at least treat) an object as belonging to a kind. Reflection is perhaps a small progression in terms of capabilities, but a large one in terms of consequences. While many of our behaviors can be regarded as taking place without reflective

⁶⁵ Schelling is, as should now be apparent, very much committed to a hierarchy of forms in nature. This can perhaps strike people as implausible or speciesist, but one need not be committed to, for instance, a single quantitative ordering in which every species is assigned a level according to its abilities. Rather, we can simply say that animals and plants have various capabilities and functions, and some have those capabilities and functions to a greater extent than others, due to complexity or development of social groups, and so on. I will explore these issues in depth in a subsequent chapter.

⁶⁶ Whether or not animals have conceptual capabilities will depend on what one regards as a concept.

awareness,⁶⁷ the context in which these acts occur, and the significance they carry, is forever altered by the introduction of reflection. Moral responsibility, for instance, seems to be something that can only be conferred on reflective beings. What I would like to here draw attention to, however, is the closeness that human animals exhibit to other animals. Since Schelling makes productive activity the basis of his epistemology, knowledge does not appear on the scene without precedence. There is something like knowledge among animals, which we might provisionally term 'know-how'. Animals may be unconsciously productive; they may produce according to principles, as in the case of a spider constructing a web or beavers building a dam, without being aware of those principles and without an ability to reflectively modify those principles—although, of course, they are often *unreflectively* modified as a result of an animal's frustrated activity. This 'know-how' is the basis for all knowledge, as we can see in Schelling's discussion of science as a conscious productive activity. Thus discontinuity of the capacities of animals with our own does not pose a particular problem for Schelling, as it does for the Kantian. Our capacities *are* animal capacities, we just have the added capability of reflection.

3.6 Conclusion

On Schelling's conceptions of nature and rationality, the origins of rationality are entirely natural. This is therefore is a *kind* of naturalism, since within this framework, explanations—of humans, of rationality, of the possibility of knowledge

⁶⁷ I (and, I hope, all people) mostly act without thinking, even if I can give a *post-hoc* justification for my activities; e.g. "Why did you roll through that stop sign?" "Well, there weren't any cars around; why would I stop?" Such justification does not imply that the act was thought through, or that I made a conscious decision.

—rely entirely on features of nature. Nevertheless, one could contend that this kind of naturalism is unattractive, since the conception of nature it rests on, that of nature as a productive whole, is unmotivated or dogmatic.

This charge of dogmatism fails to regard Schelling's work as a whole. When one looks in isolation at the system of nature presented, with its productive and limiting forces, perhaps it is a fair objection to claim that this is a return to pre-Kantian metaphysical excess. But Schelling does not present this system of nature without also showing how we are justified in our knowledge of it. Schelling argues that in order to be known, nature must bear the same features of the mind, the same activity and passivity, or, in his later terminology, the same productivity and limitation. And so it is preemptive to ignore Schelling's thought on the basis that it is unacceptably dogmatic, without addressing his epistemology.⁶⁸ And it is on this basis that he can say "*we originally know nothing at all except through experience, and by means of experience*" (*Entwurf*, p. 198, I/3 278). It is through experience, through examining the conditions for my knowledge, that I originally come to posit the principles governing nature, and through experience, through my productive activity, that I put to use the principles of such activity, and know them as the a priori principles of nature.

Thus the *Naturphilosophie* offers to contemporary readers an account of rationality and nature that is worthy of attention. Schelling regards nature as a unified whole, similar to an organism, and humans as part of that whole; this is certainly not in tension with contemporary understandings of ecology. Rationality is

⁶⁸ Beiser (2002) makes a similar point; see pp. 466-467.

continuous with animal capabilities: As discussed above, the productive activity in nature is the basis for human knowledge, and thus reason is not mysterious or supernatural, but is entirely natural. And so this account offers a more promising starting point than the Kantian or Hegelian “naturalisms” that have been taken up. For Schelling, nature is in its essence productive, its highest manifestation of its productivity is in us, and we can then turn back to the world with confidence in our knowledge that in coming to know nature, we are coming to know those very forces that manifest themselves in us through free activity and rationality.

With this background now in place, the contrast between the Kantian account of experience, which could be termed intellectualist, and Schelling’s account in the *Naturphilosophie*, which has as its basis the productive activity of nature, we can now turn to discuss the contemporary accounts of the relationship between humans and nature. The most promising and interesting accounts, those of, for instance, Tyler Burge and John McDowell, take as models Kant and the German Idealists. Thus this background will enable us to better evaluate these contemporary accounts. Again, focusing on the place of animals will provide a means of evaluating the continuity between humanity and the natural world.

CHAPTER 4
A KANTIAN LEGACY:
SEPARATING SELF AND NATURE

4.1 Introduction

Starting in the 1970s, there has been a resurgence of interest in incorporating Kantian ideas into contemporary anglo-american philosophy, in the areas of philosophy of mind and moral philosophy, among others. In particular, many philosophers (including John McDowell and Christine Korsgaard) have, contra Humean and pragmatic accounts, put forward theories of mind and perception that give a higher place to the role of reflective reason or concepts in perception and action. These theories tend to be more flexible than Kant's, not relying on a rigid faculty psychology or a set list of categories, due to contemporary ways of understanding the origins of concepts and language. Nevertheless, these various accounts, like Kant's own, often falter in their treatment of the relationship of humans to the rest of nature. In this chapter I show how the various failings of these accounts are in large part due to a Kantian (not necessarily Kant's) idea that pervades this literature, namely, that the self is defined in terms of the reflective or spontaneous activity of reason. In emphasizing the role of reflection in human

experience, these philosophers tend to downplay the natural or organic aspects of human life, leading to a sharp divide between human agents and the rest of nature.

One family of views takes a Kantian approach in the philosophy of perception; the unity of their views lies in taking a strictly conceptual or intellectualist view of perception.⁶⁹ I take adherents of this sort of view to include Wilfred Sellars, Donald Davidson and John McDowell. Since McDowell's account of perception is well-developed and defended, I will take him to be a good representative of this group. My criticisms of his philosophical positions, modified only slightly, may be taken to apply equally to the rest of these philosophers.

McDowell identifies language and concepts as the structuring agents in perception, rejecting the possibility of non-conceptual content. It is unclear, given this framework, how non-conceptual and non-linguistic beings could be aware of various bits of information from their environments.⁷⁰ Human agents thus live in a world that is entirely constituted by their rational (or what McDowell calls "spontaneous") activity: every perception is already interpreted according to a conceptual framework developed among and shared by various humans. McDowell

⁶⁹ My terminology, which here follows McDowell, doesn't have an easy mapping onto contemporary philosophy of perception, which often uses "concept" in various and incompatible ways. By "concepts" I (and McDowell) mean mental and perhaps linguistic items, and they mediate (and, for McDowell, make possible) my perceptions. My perceptions have "conceptual content", and it seems that what makes possible this content is the operation of my concepts on the non-contentful stuff of sensation. See Speaks, forthcoming, chs. 9 and 10; Speaks (2005). What Speaks refers to as "absolute nonconceptual content" (2005, pp. 359-360; 373-376) is what McDowell terms simply "nonconceptual content". Thus McDowell's denial of nonconceptual content amounts to the claim that the contents of perception must be the same as the contents of belief. These contents are constituted through concepts, considered as mental or linguistic items.

⁷⁰ Kant certainly allows for non-conceptual content in the case of obscure representations, as discussed above. Thus McDowell's account tends to be more extreme and to face more problems in accounting for animal cognition than Kant's own account. I will discuss a possible "middle position" for McDowell below, in which there is something informational about animal perceptions that does not rise to the level of content. I do not think such a "middle position" could be viable for McDowell.

attempts to show that this human activity of perception is somehow harmonious with nature considered as a “realm of law” (that is, nature considered apart from this rational activity), but I will show below that this attempt fails.

The other family of Kantian views that I will address in this chapter come from the philosophy of action. I take their representative to be Christine Korsgaard, but any philosophy of action that regards rational self-constitution to be the test for ownership of action will be subject to the same criticisms. Korsgaard, while she allows for something like non-conceptual grounds of behavior, is committed to a notion of autonomy and selfhood according to which these grounds cannot function in human action, properly so-called, unless we reflectively take them up as reasons. So while Korsgaard is more successful in accounting for the behavior of animals, she regards reason as so pervasive in human experience that nothing which counts as human experience could stand outside of its explicit operation.

One might wonder why I treat these two accounts—one dealing primarily with cognition and the other with action—in the same chapter and under the same heading. It is my contention that they share a common motivation which leads to their various problems. In defining ourselves as selves wholly in terms of our rational activity, rather than with the full scope of activity of a rational organism, both accounts function with a kind of distaste for the natural and a lack of ownership over any part of our lives that does not attain the level of explicitly rational activity. Thus there is nothing we could possibly hold in common with a natural world that is not itself explicitly rational. As I will show below, both McDowell and Korsgaard are held captive by this kind of dualism. McDowell tries,

but ultimately fails, to demonstrate any continuity between human beings and the rest of nature, animals in particular. McDowell cannot say what it is humans do in fact have in common with the rest of nature. While he claims that we share “perceptual sensitivity” with animals, this claim does not amount to much because animal perceptual sensitivity functions automatically and causally, whereas our faculty of sensibility is qualitatively different: it is “permeated with spontaneity” and thus delivers content that is only and only ever could be conceptual. In other words, animal perceptions could never be normative, whereas ours, in order to count as perceptions “of a world” (and thereby to be operative in a “space of reasons”), *must* be. I will discuss this in detail below.

Korsgaard views self-constitution as including all and only rationally endorsed grounds of action or belief. A view of the self as thus constituted renders meaningless any claim that one is a natural being, since any natural impulse would *only* count as part of the self if it were taken up and endorsed by reason. To put the matter dramatically, once rationality enters the picture, animality, in the sense of responding to or owning one’s natural impulses, is left in the dust. We are not “rational animals” but are rather agents who overcome the natural and animal parts of themselves by remaking them according to the project of self-constitution.

After laying out the features of these Kantian accounts, I show that any account which either (like McDowell’s) rejects non-conceptual content or (like Korsgaard’s) endorses a radical notion of rational self-constitution will be unsatisfactory. Instead, we require an account that allows rationality and concepts to emerge gradually, and to have low-level analogs in some animals. We also need

philosophy of perception and action to take seriously the ways in which human rational agents are like non-rational animals, in that much of their activity and mental lives are affected by things which take place outside of the actual, if not potential, grasp of reason.

4.2 McDowell and the “Myth of the Given”

According to McDowell, the problem of how we can have knowledge about the world has hitherto been dealt with in one of two ways: either one claims there is some non-conceptual experience at the base of our epistemological activities which serves to justify and orient them, or one claims that there is no such experience and justification depends not on a “bottoming out” at experience but on the coherence of one’s beliefs. McDowell dubs the first mode “the Myth of the Given” and often refers to the latter as a “frictionless spinning in a void.”⁷¹ The problem with the first is that the non-normative content of a non-conceptual experience cannot serve to justify beliefs in a “space of reasons.”⁷² The problem with the latter is that it completely gives up on the notion of the world-directedness of thought; this is unacceptable. McDowell’s solution is to regard experience as completely and everywhere infused with concepts; there is no such thing as non-conceptual content. Thus, “the world” is not something “outside” of a conceptual scheme; it is always constituted by a

⁷¹ Following Sellars; see Sellars (1963), p. 170.

⁷² McDowell opposes the space of reasons to the non-normative realm of law. According to McDowell, the best that non-conceptual content could do with respect to our beliefs is to offer causal (non-justificatory) explanations; thus, the Myth of the Given “offers exculpations where we wanted justifications” (p. 8). Here he is invoking Davidson, who maintains that the idea of something (whether it be sense data, “the Given”, the world, nature) to be organized by concepts is unintelligible (1973).

conceptual scheme and can serve as justification in the space of reasons:

“experiences themselves are already equipped with conceptual content” (p. 25).

Already we can see that animals will pose a problem for McDowell, insofar as they do not have conceptual schemes, but still are receptive and responsive to their environments. McDowell is aware of this problem and attempts to solve it. He says “What we share with dumb animals is perceptual sensitivity to features of the environment. We can say that there are two species of that, one permeated by spontaneity and another independent of it” (p. 69). McDowell maintains that sensibility in humans is quite different than sensibility in animals: human perceptions, because they are “permeated by spontaneity” can function as justifications in the space of reasons. Animal perceptions cannot. He argues, against Gareth Evans’ contention that human spontaneity or rational capacities add something extra onto the purely natural activity of perception, that we need not think of human capacities as “added onto” the natural material of perception in this way, but we instead should think of them as changing the very nature of perception itself.

This argument is to a degree successful: it is the case, as McDowell contends, that we do not need to think of human rationality as something tacked onto a sensible animal nature, and it seems McDowell is at least heading in the right direction by noticing that rationality and spontaneity change the way we perceive the world around us. But what the comparison with animals brings out is not that we need to revert to a kind of picture in which human and animal perception are the same, but rather that denying the possibility of non-conceptual content goes too far.

If there is no such thing as non-conceptual content, then all content must be conceptual. Thus animals either have conceptual content in their perceptions (something McDowell cannot allow) or there is *no content* in their perceptions. And then it becomes unclear how they are perceptions at all.

Perhaps McDowell could contend that while animals cannot have *content* to their perceptions, content is something very specific that functions normatively in the space of reasons—this is, after all, his justification for the claim that there cannot be non-conceptual content, although one might worry that such a definition makes the claim vacuously true. Nevertheless, let us go along and say that animals could have non-contentful perceptions which contain information, but this information does not function normatively, that is, there is not a “correct” or “better” way to respond to it such that the information serves as a justification for the response. And so we can say, for instance, that a spider is perceptually sensitive to the vibrations in her web, which provides her with information that she cognizes in some way, such that she will attack the source point of those vibrations when they occur. But the vibrations do not *justify* the attack, but rather merely provoke it.

What is untenable about this position is that the notion of “information”, when stripped of all normativity, does not function plausibly in descriptions of higher animal behavior. Either this notion collapses into a notion of stimulus, in the sense of mere causal stimulus, or it must rise to the level of justifying content, on McDowell’s picture. Some animals are easy to “trick”, and the causal stimulus picture functions adequately in these cases. One can tap the web of a spider and always she will attack that point on the web, no matter how many times she is “tricked”, or

provoked by the stimulus to attack that point. It seems the “information” is simply a kind of causal impetus that gets the animal to behave in a certain way. But in more cognitively advanced animals, a perception is more than a mere causal impetus. A dog may be sent on a fruitless chase several times by a person pretending to throw a ball. But fairly quickly, the dog will cease to run unless it sees the ball in the air. It seems that what goes along with the perception of the human arm in motion is a certain expectation of what will occur afterwards, or a cognitive connection of some kind between the event of the ball being thrown and the ball being found. Thus the information in the dog’s perception is such that when the expectation is repeatedly not met, the dog somehow adjusts his perception of or cognitive processing of the throwing of the ball, so that it is not connected straightforwardly to the finding of the ball. So, unlike in the case of the spider, we cannot say that the perception merely provokes, but does not justify the chasing behavior. The dog chases because of a certain desire or end he has (to play) and he perceives the throwing motion as connected to the fulfillment of that desire or end. Thus the perception of the throwing motion seems to be normative. It is difficult to see how else we could describe such learning behavior. And if McDowell allows that the perception is normative and is normatively connected to certain behaviors in animals, but is nevertheless non-conceptual, then the whole motivation for his view disappears. Then he must admit that there can be perceptions that are non-conceptual but that are normative, and there is no reason these non-conceptual perceptions cannot serve to justify and orient our cognitive activities (since they justify and orient other animal behaviors).

Thus, McDowell is left with a kind of causal stimulus picture of animal behavior—every non-rational animal is, like the spider, merely triggered in its behavior—and animal sentience or consciousness seems to be completely superfluous to this account.⁷³ While it is clear that McDowell would reject a Cartesian account of animals as mere machines, it is equally clear that there is nothing in his theorizing about animals that would require that he do this.⁷⁴

The “frictionless spinning vs. myth of the given” dilemma only manifests itself, claims McDowell, if we adopt a strict dualism between nature as the realm of law and human spontaneity and rationality as operating outside of that realm of nature. In rejecting this dualism, we can either try to account for rationality in terms of a “bald naturalism” (p. 76) or, as McDowell recommends, broaden our notion of the natural world to include spontaneity (see also Wood, 2007). In doing so, we avoid a mysterious and supernatural view of freedom or rationality.⁷⁵ We also can

⁷³ One could, in response to the above argument, say that there are more complex mechanisms at work in dogs and other seemingly more intelligent mammals, such that their behavior mimics human normative behavior. This would, however, be an odd coincidence: why should the triggered behavior of animals appear so similar to the normative behavior of humans? Moreover, the solution will strike many as simply counterintuitive. We believe that many animals are consciously aware of the world around them, and we believe this because they behave in ways that indicate such awareness. If the behavior is not indicative of awareness, but rather of complicated behavioral mechanisms, then there is no reason to believe have such awareness and that they, for example, feel pain. This consequence indicates the implausibility of the view.

⁷⁴ Davidson shares this view of animals, and denies that they can have beliefs, desires or intentions, in part because he considers all of these items to be propositional thoughts involving concepts: For Davidson, there is no other kind of thought. In order to believe that I am seeing a cat, Davidson writes, I must have mastery of a variety of concepts, including animality, veridicality, seeing, and so on. It is worth noting that this view precludes young children from having beliefs of this kind, although they can distinguish cats from other objects and rightly identify them (even joyously shout “Cat!”) the child cannot have beliefs. This is because “one must have a quite fully developed set of basic concepts before one has any concepts at all” (Davidson, 2001, p. 125). This statement (as Davidson admits) makes accounting for the gradual emergence of rationality in individual humans difficult at best. See also Davidson (2001), pp. 95-105.

⁷⁵ McDowell calls this view “platonism”, drawing off its use in the philosophy of mathematics (pp. 77-78).

maintain a distinction within nature between the space of reasons, as the locus of normativity and rationality, and the realm of law, as the domain of science.

Unfortunately, this last point makes the whole suggestion ineffective. By allowing spontaneity and rationality into nature, McDowell simply means to allow *human* spontaneity and rationality into nature. It seems that the epistemological constraints McDowell places upon himself at the outset end up as inconsistent with his final—supposedly “Hegelian” (p. 83)—solution. By locating spontaneity, receptivity, and conceptual capacities within the realm of the natural, he claims to overcome a dualism between mind and world. However, simply locating the mind in nature does not overcome the dualism unless we explain how the capacities of the mind emerge naturally and are in harmony with nature, such that the question of how the mind has access to the world becomes tractable.⁷⁶ In other words, McDowell’s solution seems like conceptual gerrymandering, while a more robust account would give an explanation (although not necessarily a reductive one) of mindedness in nature. Instead of overcoming the dualism, he expands the concept of nature to encompass it, and then simply renames the dualism, so that instead of nature vs. spontaneity/rationality, we have the realm of law vs. the space of reasons. In particular, McDowell’s claim that “second nature”, that is, the development of and initiation into conceptual schemes within communities, emerges from first nature (human as organism) just seems to fall into the “frictionless spinning” of coherentism unless we can somehow explain how the conceptual schemes are

⁷⁶ See Toner (2008), p. 236.

sensitive to the non-conceptual. And then we are back to the problem of the Myth of the Given. McDowell is stuck in the dilemma with which he began.

In addition to denying the possibility of non-conceptual content, McDowell limits self-determined action to those actions that are preceded by a kind of rational reflection or weighing of reasons. That is, he groups together “weighing reasons”, “deciding what to think and do”, and “exercising spontaneity” (p. 115). Since animals cannot weigh reasons, they cannot decide, they cannot self-determine, and they are “slaves to immediate biological imperatives” (p. 117). This Kantian notion of reason or rationality as explicitly reflective is extremely constraining, much more so than Kant’s own notion of rationality. Most human actions certainly do not fall under McDowell’s notion of rationality. One goes about one’s day without weighing reasons, for the most part, and yet, if asked to give an account of why I did this rather than that, I can certainly produce one. Oftentimes we do weigh reasons, but rational action would seem to cover a wider range of actions than those that are explicitly deliberated over.⁷⁷ It is this type of non-deliberative rational action that I would like to attribute to non-human animals, and it is this type of action which McDowell cannot explain.

Kant’s account, as discussed in the first chapter, is insufficient in part because he cannot allow for any kind of mental unity in an animal, although, unlike McDowell, Kant allows for non-conceptual content in the form of obscure representations. Although McDowell does not discuss this explicitly, he could attribute more mental unity to the animal than is available to Kant, because

⁷⁷ Moreover, only if one had a very narrow notion of freedom would one say that these actions are not free, or that one does not exercise spontaneity in performing these actions.

McDowell is not as theoretically constrained. While Kant cannot allow animal representations to be unified in a single consciousness, since for Kant unified consciousness implies self-consciousness, McDowell could unproblematically attribute unified consciousness to animals, over and above mere awareness. But both Kant and McDowell believe that experience of an objective reality is something that comes along with conceptual capacities. McDowell states, “Creatures without conceptual capacities lack self-consciousness and—this is part of the same package—experience of objective reality [...] We cannot construe them as conceptually reshaping a world-view in rational response to the deliverances of experience” (p. 114). This statement is slightly vague as it stands—what, for instance, constitutes “reshaping a world-view”? Animals, of course, refine their behavior as a result of their experiences—a naïve cat, for instance, will treat a shrew like a mouse, and partially eat it. After this, the cat becomes sick and in the future will avoid eating this rodent (MacIntyre, 2001, p. 34). Is the cat “reshaping its world-view in response to the deliverances of experience”? It seems that any kind of learning, of which sophisticated animals are clearly capable, could be construed as such reshaping. Certainly animals have no explicit *science*; they cannot *reflect* on their world-view. But that they have an orientation toward their world, and that it is modified according to their experiences, seems to be incontrovertible. They see some things as good to eat, or play with, and so on, and some not. They see some other animals as a nuisance, and some as non-threatening, some as peers to vie with; often (although not always) these “categories” are fluid and can be modified through experience.

So since animals cannot modify concepts (since they have none), we will have to find an account, then, that either has a looser definition of concepts, or one that has room for some kind of non-conceptual content. One way we could perhaps modify McDowell's account to make it more accommodating to animals is to allow for lower-level concepts, that is, non-linguistic concepts which are highly general. So an animal would have proto-concepts, with their own kind of proto-conceptual content, which might always be tied to some behavior. Some examples could be "thing to eat", "thing to mate with", "thing to flee from", and so on. Also, we could distinguish between deliberative action (that is, explicitly deliberated-over action, which would be limited to rational agents) and non-explicitly deliberated-over coherent and intentional action (that is performed by animals, and also is a species of human action). This would be a move in the right direction, but it leaves many questions unanswered: what is the nature of these proto-concepts? How are they similar or dissimilar to the concepts operative in human cognition? How do they arise naturally? And (for McDowell, especially) can proto-conceptual content function in a "space of reasons"? Allowing this middle-ground between what McDowell calls "the realm of law" and "the space of reasons" will lead us further in the direction of something like Schelling's nature, which allows for a certain amount of non-human rationality (although implicit) and spontaneity in nature. Giving satisfactory answers to the above questions would, I think, land us in an account quite similar to Schelling's.

A Kantian view that is friendly to a richer account of animal cognition is Christine Korsgaard's. She moves in the direction described above. While her

account opens up avenues for continuities between animals and rational agents, her commitment to radical self-constitution undermines these continuities and we are left again with an unrealistically strong division between rational and non-rational animals. Korsgaard considers animal perception to be practically loaded; in other words, animal representations are directly perceived as teleologically coded. Objects are perceived as *for eating*, *for mating with*, and so on, such that these perceptions lead immediately to action (Korsgaard, 2008, p. 31).⁷⁸ Rather than extending this practical notion of perception to the human case, however, Korsgaard maintains that human, rational responses differ radically from this kind of animal response, in that a rational agent starts from scratch and must construct her normative world based on considered and reflectively endorsed principles.

4.3 Korsgaard, Animals, and Self-Consitution

Christine Korsgaard has an account of how animals are responsive that is much closer to Kant's own account, and it does not suffer from the same limitations with respect to animals as McDowell's. However, for Korsgaard (and for many other similar accounts, such as those of David Velleman, Sabina Lovibond, and David Bakhurst⁷⁹), the project of self-constitution is front and center when dealing with responsiveness. Animals cannot self-constitute, since they are neither rational nor

⁷⁸ For other presentations of this account, see "The Authority of Reflection" in Korsgaard (1996), pp. 92-4, and "Fellow Creatures" pp. 83-87.

⁷⁹ See Velleman (1996); Lovibond (2002); and Bakhurst (2011). Lovibond claims that ethical formation or education, which involves initiation into a linguistic community, is what ultimately leads to "authorship" of actions; see especially pp. 67-87 of *Ethical Formation*. Bakhurst, taking his cue from McDowell, believes that children become fully initiated into the "space of reasons" through *Bildung* or a kind of education, and through this gain autonomous control of their thoughts and actions.

reflective,⁸⁰ and so the discontinuity between humans and animals is again quite striking. For Korsgaard, the project of self-constitution requires that rational agents *reflectively* adopt grounds for action, while animals simply perceive the grounds and act automatically. I would contend, against this account, that this gives reason too great a reach, and it is simply not true to human psychology that we constitute our own world in the radically autonomous way that this account would imply. Like McDowell, Korsgaard gives reflection too pervasive a role in human action.

According to Korsgaard, perceptual representation and desires or aversions (determined by instinct or as a result of learning) are not easily separable. Perceptions are already practically loaded, and thus tell the animal what to do, rather than give an animal information on the basis of which the animal must figure out what to do. So these “teleological perceptions” (called teleological because the objects perceived are marked out as being “for” a given behavior or calling for a certain response) “ground” an animal’s action in a straightforward way: The representation is the cause of the action (Korsgaard, 2008, p. 31).

For a rational agent, on the other hand, perception provides potential grounds for action or belief, and “we are aware of the potential grounds of our beliefs and actions as potential grounds” (p. 31). So in a transition to rationality (either real, in the sense of evolutionary or developmental, or imagined) there is a loss of unity; the environment becomes “a heap of perceptions, or rather experiences, and it is now up to us to put them back together into a picture of the world” (p. 33). Korsgaard’s idea is that reflective distance reduces the once-unified

⁸⁰ And no non-rational animal has a “self”, in the substantive sense that it is meant here.

teleological “world” of the animal into a heap of rubble, which we must rationally reconstruct in order for it to count as a world for us.⁸¹ Such a reconstruction is what self-constitution is: we re-make the world as a world normatively ordered according to our own rational requirements. In order for actions or beliefs to count as our own, we must reflectively endorse some reason for that belief or action. “Once the space of reflective awareness [...] opens up between the potential ground of a belief or action and the belief or action itself, we [...] must be able to endorse the operation of that ground, before we can act or believe” (p. 32). This endorsement is not optional: we “absolutely require reasons to believe and act as we do” (p. 32).⁸²

This view, interpreted in a certain way, is absurd: one could think that I must reconstruct the teleological structure of my perceptions as well as endorse the various ends connected with these perceptions. So not only must I endorse the end of eating delicious candy, but I must also decide what counts as fulfilling that end, that is, I must rationally endorse the claim that Whoppers are delicious, rather than merely perceive them as delicious. We need not go this far in our interpretation. Korsgaard, as I interpret her, is content with the view that while an animal (or perhaps a toddler) will simply see Whoppers as good-for-eating (and, as a result, eat them), for an agent, the description of the item (delicious, chocolatey) comes apart from the teleological ordering (good-for-eating). Reason must fill this gap with some

⁸¹ McDowell proposes a similar account: moral education involves a distancing from one’s natural impulses that then allows one to call these impulses into question and act against them: “[Moral education] effects a kind of distancing of the agent from the practical tendencies that are part of what we might call ‘his first nature’” (1995, p. 170).

⁸² David Velleman (1996, see especially pp. 720-726) endorses an idea similar to this one: In order to count as an agent, one must exert conscious control over one’s actions. Merely reactive “actions” (such as instinctively reaching out to catch a glass) do not count as actions at all, since I have not reflectively endorsed their suitability for my goals.

kind of endorsed action principle—“Delicious, chocolatey things are good to eat (after dinner, at least)” —which would connect those descriptions in the heap of rubble to the actions, thus re-constituting a world.

Korsgaard’s picture of animal perception as normative could lend itself to a more moderate view, according to which a rational agent would be *able* (but not required) to reflect on those teleological perceptions. This would allow a variety of stances towards one’s perceptions and impulses. One could take them for granted and thoughtlessly act on them, one could consider and reject them, or reflectively adopt them. Tamar Schapiro, partially invoking Korsgaard’s view here on animals, adopts this less extreme view.⁸³ While Korsgaard thinks that these animal inclinations must be reconstituted and rationally integrated in order to count as belonging to the agent, Schapiro is happy to count mere, unincorporated animal-like inclinations (teleological perceptions) as part of one’s motivational arsenal, but one that is not directly responsive to volition. Inclinations do not “issue from the part of me that can be held directly accountable for what it does” (Schapiro, 2009, p. 256). The rational, volitional part of me, according to Schapiro, is what issues decisions about what to do; reason can “keep my will from siding with my inclination” (p. 255), but my inclination, which issues from my “inner animal”, will not listen to reason. The result is a picture that is still disjointed, and although Schapiro still counts that inner animal as a very real part of myself, it’s not a part of me that produces action or can be held accountable: All inclinations must still in some sense be allowed through the gate of action, which is guarded by my “outer human”, the

⁸³ See Schapiro (2009), especially pp. 246-256.

rational, volitional part of me. Schapiro sees inclinations as part of me, but they are a part that must still be reflectively endorsed if they are to result in action attributable to me.

It is important to see why Korsgaard herself would be slightly averse to such a view. The rational agent must view *everything* not originating in her rational activity as a foreign infringement on her person. She states, "I believe that in order to regard your movements as actions that you can attribute to yourself as their author, you have to see these movements as arising from yourself as a whole, rather than from something working in you or on you" (Korsgaard, 2008, p. 34).⁸⁴ Korsgaard sees natural impulses as falling into the latter category: something working in or on you. Thus "you" are identified completely with things touched by your rational activity; nature, natural impulses, desires, perceptions that once were normative: these all take place in the world outside of reason, outside of the person, and can only enter back in through reflectively-endorsed inclusion in a person's rational construction of self and world.⁸⁵ So unlike Schapiro, who believes that inclinations can be part of me without my acting upon them or endorsing them, Korsgaard believes that for my (not yet acted upon) inclinations to count as part of me, they must be reflectively endorsed.⁸⁶

⁸⁴ See also Korsgaard (1996), especially pp. 227-229.

⁸⁵ See Geuss (1996). Geuss points out that Korsgaard's identification of the self with the giving of the law is much stronger than Kant's stated position, and has difficulty answering the objections of post-Kantians such as Schlegel.

⁸⁶ Korsgaard in an earlier work also seems to allow that desires that result from the interaction of my agency and circumstances may be seen as part of myself (1996, pp. 238-242). However, it still seems that these impulses and desires must be reflectively produced. Korsgaard gives an example of someone who is tempted to do something, but then has thoughts regarding the inconsistency of this action and her identity, and this gives rise to a desire not to do this thing. So she remains committed to this criterion of reflective endorsement.

Korsgaard's account seems implausible in part because it simply seems impossible for a person to rationally endorse every potential ground of her beliefs and actions. Also, being aware of the potential grounds *as* potential grounds, as she says is required of anyone who is to count as an agent, seems to attribute to the agent a level of awareness that most people rarely (if ever) attain. Additionally, both Korsgaard's view and the more moderate view of Schapiro have a hard time accounting for human activity that takes place under the radar of reflection, as they both deny that any such action can be attributed to the agent. But it seems that we often want to and do claim ownership of actions that we commit unreflectively. For instance, a pianist may not remember how a particular piece of music goes until she goes through the action of playing the piece: She cannot reflectively endorse the ground of her action of pressing certain notes on the piano because these grounds are not reflectively available to her. But certainly she is the one playing the piece, and it would be absurd to say that it was not her, but her hands, or her "inner animal" that played the music.⁸⁷

Similarly, I may absentmindedly plunge my hand into a bowl of Whoppers and eat them without even thinking about it, and still defend my action as my own. If

⁸⁷ This sort of example is particularly important because it highlights the fact that my unreflective behaviors are not always (or even, in my opinion, most of the time) "animal" in the sense of emerging from appetites we have in common with animals. An animal could not play a sonata, an animal cannot drive a car, but reflection is certainly not always at work when I carry out these actions. I may, like an animal, simply see the steak as good-for-eating and eat it, perhaps without a fork. However, in the way that Korsgaard would describe this as teleologically ordered, we might describe any action, unique to humans or not, that is done unreflectively as teleologically ordered. I simply see the green light as to-be-driven-through and drive through it, without thinking. In fact, performing these actions, such as piano-playing and driving on autopilot is often regarded as a kind of achievement of the agent, although what it appears to do is to make the action simply part of the array of actions done in this unreflective, animal-like way, simply in response to certain practically-coded perceptions. My fingers move at the familiar sounds and touches as I play the music in ways that I cannot articulate.

someone said to me “Why are you doing that? You are ruining your appetite,” I could say, “I do it because I am hungry and I like Whoppers.” Thus the action is retroactively endorsed and justified, but it doesn’t thereby become mine simply because someone has drawn my attention to it. Rather, one ought to say that it was mine all along. Conversely, I might suddenly exclaim “Oh my! What am I doing? I am ruining my appetite!” Korgaard and Schapiro might explain this as a case of natural impulse or my inner animal making me behave in ways that are not attributable to me as an agent, and then characterize my response as evidence of my non-endorsement of the impulse, and thus as evidence that the action does not count as issuing from me as an agent. However, this regret does not seem to be relevantly different than any other instance of regret. In the first scenario, I may, after justifying that action, eat all the Whoppers and then sit down to dinner a half hour later and say, “Ugh! What have I done? I’ve ruined my appetite; I should not have done that.” Whether I once endorsed and justified that action or not seems irrelevant to how I characterize it now. Whether it was endorsed before, during, after, or not at all also seems irrelevant to whether or not it counts as mine.

4.4 Conclusion

We can now summarize the problems with this family of Kantian views. First, according to McDowell, how language or concepts can relate to a non-conceptual world is mysterious. If we want to claim that our concepts have a kind of legitimacy, we need some conditions of their use apart from the condition that they be deployed consistently with each other and their rational relations. Transcendental idealism is

no solution at all, because humans end up as foreigners in the realm of nature.

McDowell thus proposes his solution: to join these two worlds together such that the *only* world is the natural world, constructed out of our shared concepts, which in turn are developed in community and sensitive to prior experiences. But as I show above, this solution falls prey to the dualism McDowell attribute to transcendental idealism, since it makes concepts (and with them, content, spontaneity, and objectivity) a particularly human phenomenon and creation. In order to show how concepts, rationality and freedom are indeed natural, we need to show how they are inherent in all of nature such that they emerge in their particular explicit manifestation in humans.

As mentioned above, McDowell's insistence that the "space of reasons" is "second nature" does not successfully remove the distance between human agents and the rest of the natural world; rather it relocates what McDowell regards as a problematic dualism, only now the dualism occurs *within* what he terms nature.

Korsgaard's account also results in a strong division between humans and the rest of nature. While she gives a rich account of how animal perception functions, Korsgaard's commitment to a Kantian notion of self-constitution leads to an account of human perception that again results in a radical discontinuity: rather than human perception being already "practically loaded", for Korsgaard, every ground for action and belief must be "taken up" by the subject in a process of world- and self-constitution. The result is that nothing is really given so much as actively constituted in perception, and reflection is given an implausibly pervasive role in human experience.

For Korsgaard, McDowell, and the various Kantian philosophers of action or perception, the “self” is not something that is in harmony with nature, but is something that appears over and against nature; the self consumes with reflection all the natural impulses, desires, and perceptions of the animal, transforming them into something that can function in a rationally constituted world (for Korsgaard) or in a “space of reasons” (for McDowell). I (as a self) only extend as far as my rational and spontaneous activity; only the things that are incorporated into and through this activity count as part of me. It is *this* Kantian inheritance that these philosophers share, and this Kantian inheritance that ought to be left behind.

We should be cautious, however, of swinging too far in the other direction: Kantian insights ought not be abandoned in favor of either a crude kind of empiricism, according to which concepts are irrelevant to the character of perception, since there is an empirical “given”, or a reductive account which explains human rationality entirely in behavioristic terms.⁸⁸ Reflective abilities change the nature of perception and activity, making possible freedom, responsibility, a new kind of sociality, science, literature, and many other remarkable, particularly human achievements. So rather than abandon entirely the project of giving an account of humans as natural, organic beings (by treating rationality as both the entirety of the self and entirely independent of nature); or, conversely, minimizing the effects of reason on human life (by giving a reductive or deflationary account of reason), we ought to allow rationality to be something inherent in the natural world, although

⁸⁸ For a good argument against such reductive, naturalistic accounts, see Pippin (2009), pp. 39-42, although Pippin here seems to think that the normative questions of the humanities should be insulated from the scientific treatment of nature, and so he makes the other (Kantian) mistake: rationality (or here, normativity) is seen as entirely independent of nature. See also Nagel (2012).

only made explicit in human activity. If we consider practical experience to be more basic than conceptual experience, it will be immediately clear how we could locate a kind of rationality and freedom in nature. If the basic goings-on in the natural world have a kind of rationality implicit in them, then human rationality is this rationality turned reflective and explicit. In other words, our rationality emerges from the structural relations in nature—we could also say that rationality comes to maturity within nature—not the other way around.

CHAPTER 5
CONTEMPORARY ALTERNATIVES:
INCORPORATING ANIMALS

5.1 Introduction

As I have demonstrated in the previous chapter, there are many ways of approaching perception, philosophy of mind, and philosophy of action that end up minimizing or disregarding the more animal aspects of ourselves, and this is often manifest when looking at how these approaches can be adapted in the case of animal perception, mind, and behavior. We should attempt to correct this minimization, but in doing so, we should not ignore the important differences that language can make in perception, for this would be to swing too far in the opposite direction, towards a crude empiricism that does not do justice to the transformative nature of language and concepts for human experience and action. Rather, a satisfactory approach to these areas will maintain that the natural and the rational are mutually dependent, and will neither reduce one to the other nor ignore one at the expense of the other.

Several recent books have claimed to offer new ways of conceptualizing the relationship between mind and world that do justice both to animals and to the

animal aspects of human nature.⁸⁹ Tyler Burge's *Origins of Objectivity* begins in a promising way, by lamenting the over-intellectualization of experience in the wake of Kant. But what Burge then offers is a taxonomy of basic kinds of cognition with a set of strict definitions, or "constitutive conditions". I will argue that this approach brackets off discussions of the emergence of rationality and the dependence of cognition on other forms of organic activity, and these discussions are necessary for a full understanding of objectivity and perception.

Burge claims that primitive agency provides the foundation for perception and objectivity: This should lead to an account where knowledge and action are seen in reciprocity. However, his emphasis is on the constitutive conditions of perception, rather than on how perception comes to be—in his own words, on the "what" rather than the "how" (p. 533). This method assumes that these questions are easily separated. But if perception is dependent on animal activity for its emergence and *original* character, the *ongoing* character as well as the developmental emergence of perception may be dependent on the activity and physical functions of the organism. If this is the case, defining perception in isolation from its context in the life and ends of an animal would inevitably distort our understanding of it. In other words, Burge separates questions of biological function from psychological function (by which he means perception and representation) and so at the outset removes the possibility of accounting for any mutual dependence or interplay between the biological and psychological.

⁸⁹ Another example of a book in this tradition is Thomas Nagel's *Mind and Cosmos*. His positive account is much less developed than those I discuss in this chapter; nevertheless this book is indicative of the dissatisfaction many feel with contemporary accounts of the relationship between mind and nature.

Michael Thompson, in *Life and Action*, attempts to give an account of practical activity that does not rest on empirical or contingent theories about human nature, but rather on a priori forms of judgment, 'life-form', 'action', and 'practice'. Thompson conceives of human action and practice as a specification of the organic activity of bearers of a life-form, and so he appears to take seriously the organic aspects of the human. For Thompson, it is important that our moral philosophy be both *a priori* and Aristotelian. Thus rather than basing his practical philosophy on the malleable, empirical concept of human nature, Thompson appeals to the a priori concept of a 'life-form' as that which is operative in a virtue theory. This notion of a 'life-form', as well as that of 'action' and 'practice' can be comprehended through a new kind of Fregean form of judgment, and so these concepts are a priori and can function legitimately in explanations in place of concepts like 'human'. One can appeal to life-forms to explain normative judgments, and to practices to explain ethical judgments. Forms of judgment involving life-forms and practices involve what Thompson terms "the wider context", which is essential for understanding the life-form or practice in question. I will argue below that Thompson stops short of giving a satisfactory account of how these three forms of judgment are related to each other. Specifically, he does not say what it is about a life-form that can make practice (and with it ethical normativity) possible. So the character of the relationship between life and rationality is not something explored in this book: Thompson draws attention to this continuity, but does not explain it. Nevertheless, he provides a framework that avoids the main drawbacks of Burge's approach, since one of his main conclusions is that life, action, and practice must be understood in their environmental and

historical contexts. While Thompson does not explore how these contexts might affect our understanding of particular human practices, this conclusion fits nicely with Schelling's *Naturphilosophie* as I will present it in Chapters 6 and 7. Briefly, understanding human rationality and knowledge as an activity with a developmental history and natural context will lead us to an understanding of nature as exhibiting implicit forms of such activity. This will allow us a full and satisfying explanation of how human rational activity can emerge from and be continuous with animal activity.

The focus of these works indicates that philosophers are aware of the problems latent in the intellectualized or Kantian accounts of experience and are looking for alternatives which do not neglect the organic features of human activity, while still non-reductively affirming the unique place of rationality therein. Both Burge and Thompson offer steps in the right direction, but both have shortcomings that can be resolved by taking seriously the insights of Schelling's *Naturphilosophie*.

5.2 Burge on Animal Objectivity

Tyler Burge, in his recent book *Origins of Objectivity*, maintains that philosophy has for too long construed perception as dependent upon conceptual or linguistic structures, and he takes the activity of animals to be evidence against such a construal. Burge draws attention to two families of what he calls "Individual Representationalism", according to which representation is made possible through the higher cognitive resources of the individual (p. 13). According to Burge's characterization, "First-family" Individual Representationalist views, which might

more colloquially be termed ‘empiricist’, hold that these resources enable one to combine or manipulate basic sensory elements, building them up into something that can properly be called representation. Members of this family include British empiricists such as Russell and Ayer, positivists such as Schlick and Carnap, and phenomenologists such as Husserl and Merleau-Ponty (p. 16).⁹⁰ “Second-family” views hold that these cognitive resources, construed usually as conceptual capacities, are what make perception possible in the first place. Perception is regarded as basic; in contrast to “first-family” views, the basic elements of sensation are *already* informed by concepts, rather than present and available to the operation of conceptual capacities. Adherents include Frege, Wittgenstein, Sellars, Strawson, Quine, and Davidson (p. 18).⁹¹ Both families, claims Burge, “rule out perceptual representation of physical particulars by animals and very young children”, since animals and young children lack the requisite cognitive resources (p. 23). In Part II of the book, Burge gives detailed arguments against the various philosophical camps of Individual Representationalism. Whether these arguments succeed depends on what cognitive structures are required for perception, and what one means by ‘perceptual representation’. So he attempts to show in each case that animals do, in

⁹⁰ I have reservations about this characterization of the views of the philosophers Burge claims fall into this family (in particular, the characterizations of Husserl, Heidegger, and Merleau-Ponty are entirely off the mark (see pp. 129-133)). I also see little reason to accept the claim that such views cannot accommodate the representations of animals and small children. Rather, it seems to me that a member of the “first-family” could say that beings who lack rational cognitive capacities have a limited ability to manipulate basic sensory elements, but they nevertheless have those elements, which contain information about the environment (and are thus “representational”) to some degree. However, my focus (and Burge’s) is on what he calls “second-family” views, and his criticism of these views is much more on target.

⁹¹ In Chapter 3, I discussed various “Kantianisms”, a family of views related to this one. Much of my criticism of these views is in line with Burge’s criticism of what he calls here “second-family Individual Representationalism”.

fact, perceptually represent objects, and that the requirements given by Individual Representationalists for what constitutes perceptual representation are such that animals cannot meet them.

Insofar as he is critical of the “second-family” Individual Representationalist views, I am in accord with Burge. He is right to point to these views as problematic, and the reasons he gives for dismissing them are, for the most part, convincing. But what he replaces these views with is not much of an improvement. His commitment to discovering “basic kinds” and drawing distinct boundaries between them leads to an account that is limited to definitional forms of explanation. Such a method, I argue below, makes impossible interesting explanations about how objectivity and rationality emerge from and are in harmony with nature. Below I will summarize Burge’s views on perception, and then I will discuss his overall explanatory framework and why it is deficient.

5.3 Burge on Perception

Burge is primarily concerned with demarcating perceptual objectivity from other kinds of sensation, and he does so by offering a series of “constitutive conditions” of perception. These conditions are the conditions on something being what it is. “Constitutive conditions ground explanations of something’s *nature*, the aspect of what it is that could not possibly be different if it is to be and remain what it is” (p. 5). Thus much of Burge’s positive project is laying out the constitutive conditions of perception, and explaining the relation of perception to objectivity, representation, and veridicality. It is Burge’s contention that all of these things come

as a package: “The beginnings of perception in the evolution of various animals are simultaneously the beginnings of a primitive sort of objectivity. Those beginnings are also beginnings of a primitive sort of mind. Representation, perception, and objectivity are where mind begins” (p. 10). Perception is “constitutively” objective and aimed at veridicality (p. 383); in other words, it belongs to the very nature of perception to be aimed at veridicality, and thus to emerge jointly with representation and objectivity.

Burge takes many notions to be brute and thus not in need of explanation, since he conceives of explanation as primarily reductive.⁹² In other words, he seems to think that unless we can reduce the notion of representation to what he calls “biological function” or show how it contributes to evolutionary fitness, and thus that it is nothing more than an adaptive mechanism that need not be veridical, then it is a “nature” or “basic kind” that functions in a different sphere of explanation than that of biological function. Consider:

Biological explanations of function explain a different feature of reality than do explanations of veridicality and error. Biological explanations of sensory registration and function, on the one hand, and psychological explanations that center on accuracy, on the other, are different types of explanation (p. 303).

⁹² This conception of explanation manifests itself in a number of dismissals of other views. For example, Burge critiques philosophers who regard representation as a matter of degree, citing Ruth Millikan (Burge, p. 294). But in the very passage he cites (Millikan, 1987, p. 86), Millikan is certainly not trying to reduce all representation to signs, in the way that stormy clouds signal or “represent” rain. She identifies the difference between these things as one of intentionality, but then explains that she is not offering exhaustive definitions of these things, but rather, paradigms. This form of explanation certainly does not gloss over the differences between various forms of signs, but it eschews strict definitions. For a brief argument that conceptual analysis should be eschewed in favor of this form of explanation, see Millikan (2012). Burge is clearly concerned more with definitions as the starting point of explanations, and so he interprets the lack of differing definitions of a sign versus a representation in Millikan’s work as an indication that there is no important difference.

Burge moves rather quickly from the claim that no reductive explanation of veridicality is possible in purely biological terms, to the claim that biological function is *irrelevant* to veridicality, or “Evolution does not care about veridicality” (p. 303).⁹³ The function that is fulfilled in representational success is not the fulfillment of biological function (p. 308). But this is too quick: certainly it could be a *partly* biological function, but not a *merely* biological function. Evolution could “care about veridicality” without being fully determinative of it.⁹⁴

Burge briefly discusses the preconditions for the development of perception, objectivity, and mind. A primitive kind of non-representational⁹⁵ agency constrains perceptual psychology; specifically, it constrains the range of attributes an animal perceives. That is, the pre-perceptual needs and activities of an organism (or its evolutionary ancestors) set the range of attributes that will be perceptually available

⁹³ Plantinga uses an idea similar to Burge’s here as his starting point for the “Evolutionary Argument Against Naturalism”, stating, “natural selection is interested, not in truth, but in appropriate behavior” (2011, p. 316). Plantinga goes on to argue that evolution, through the mechanism of natural selection, would not lead to the development of cognitive faculties aimed at veridicality. However, in an earlier formulation of the argument, see Plantinga (1993), pp. 219-228, he considers beliefs to be either adaptive or maladaptive traits that pop onto the scene without precedent, and thus does not consider the possibility that they may develop out of (and in conjunction with) adaptive systems of sensitivity to the environment, which would already tune behavior to accurate informational sensings. While I disagree with the strong divide between veridicality and adaptability assumed by both Burge and Plantinga, I agree that a substantive conception of reason cannot emerge from adaptation alone. See Chapter 6 for more discussion of this topic.

⁹⁴ Burge takes himself not merely to be offering one kind of explanation among many, but rather explicating the nature of a thing. Certainly it would be possible to give one purely psychological (that is, non-biological) explanation of veridicality, and we have not lost anything, and someone else could give an explanation in terms of biological function, and we could all be happy. If this were Burge’s project, then it would be silly to object to it. However, since Burge’s search for constitutive conditions are the search for the nature of the thing, the claim here—that biological function is irrelevant to his explanation of perception—amounts to the claim that biological function is irrelevant to the *nature* of perception. It is this claim that is unmotivated.

⁹⁵ Recall, representation, mind, veridicality, and perception come as a package. And so non-representational agency can belong to an animal that does not experience a world distinguished from its own internal states, but such an animal can have an awareness of some kind, perhaps a central nervous system, and can, according to Burge, “act”.

to that organism (pp. 326-327). So an animal without representational capacities can still “act”—that is, they can still functionally respond—to sensory information. But an animal that has representational capacities, that *perceives* and acts will represent goals related to their biological function. These goals can be objects; in a telling example, the goal represented by the spider is “the prey, (represented as such)” (p. 340).⁹⁶

This account could be expanded in interesting ways, perhaps to explain how it is that evolution could lead to or contribute to something like objectivity and veridicality. Does the animal develop a kind of awareness of its functions gradually? Does the frustration of biological functions in cases of inaccurate representation contribute to the further development of such capacities? Burge, however, does not seem to think that such a project is promising. “Any agency guided by perception has, in addition to biological functions, functions associated with representation [...] Perception’s basic baseline representational function is to represent veridically” (p. 339). Burge is (rightly) determined to avoid any solution that would reduce cognitive function to biological function and fitness. But again, in disallowing any appeal to biology in an explanation of perception, he cuts off fruitful discussion of the relationship between these two kinds of function or possible interplay between them.

The insistence on strict demarcation, rather than a developmental story, leads to many oversimplifications in Burge’s account. This is not merely because Burge prefers to talk in terms of definitions. He is clear that his “constitutive

⁹⁶ This bears some similarities to Korsgaard’s account of animal action; see my discussion in the previous chapter on teleologically encoded perception.

conditions” are not mere definitions: they are meant to indicate what makes a thing that thing. And so theorizing in terms of these constitutive conditions flattens out *both* what might be relevant differences in kind (between, for instance, adult human representations and the representations of a fish), as well as any developmental story, since every transition cannot be gradual, but must be a leap from a thing with one kind of nature (spelled out by the constitutive conditions) to a thing with an entirely different nature (spelled out by its constitutive conditions). According to Burge, an animal is either perceiving objectively or it is merely sensing; these are the basic kinds that can function in our explanations. There is not much room for variation within these kinds, because of his insistence on identifying constitutive conditions. It is therefore unsurprising that Burge underemphasizes the role of background beliefs in human perception, claiming that perception and belief are independent and conceptually distinguishable (p. 343 n. 73; c.f. pp. 537-544). Human perceiving, for Burge, is of the same kind as animal perceiving: all instances of perception must fulfill the set of constitutive conditions to count as perception, and so all perception has the same fundamental character. Thus background beliefs do not change the nature of perception, even if perception in beings with propositional beliefs seems to differ in fundamental ways from non-rational animal perception.⁹⁷ Burge is trying to isolate constitutive conditions of perception, but by doing this he brackets out all things that do not apply in every instance of

⁹⁷ He also underemphasizes the interrelatedness of the senses (p. 373), and the role of learning in perception (p. 307). What I say here about rationality could also be said of these instances of perception: that intermodal perception bears a different character than unimodal perception, or that perception guided by learning has a different relationship to objectivity than perception in animals that do not have the capacity to alter their behavior. In the words of Millikan (see n. 3), paradigms may be more helpful than definitions in arriving at a full understanding of perception.

perception. But, isn't it possible, indeed, isn't it the case, that perception in humans has paradigmatic qualities, essential to our understanding of it, that do not apply in all instances of animal perception? If this is the case, then Burge's search for a set of conditions, determinative of the *nature* of perception, that apply universally to all instances of perception, would hinder, rather than help, our understanding of perception. This universal set of conditions would dictate that human perception be "perception plus": perception with a few things added on. But if the introduction of rationality changes the very nature of perception, this cannot possibly be the case.⁹⁸ The "constitutive conditions" would change and so would not be constitutive conditions at all. In fact, the search for constitutive conditions would necessarily be fruitless.

The solution to this problem is not, as Burge's method would dictate, isolating another basic kind, say, 'rational perception' and then giving the constitutive conditions for it. Rather, in looking for the significance of these commonalities between rational and non-rational animals, we should ask how and why perception alters when reflection and rationality and language are introduced, or similarly, we should ask how the capacity to learn (in a behavioral sense) might arise and contribute to a sense of the objective. We should explore these complexities, not bracket them away by our methods of explanation.

Burge is correct to set the bar lower for objectivity, so that many animals are included in the class of beings who experience a world, as opposed to a mere

⁹⁸ See Boyle (forthcoming) for a discussion and critique of "additive" theories of rationality. Burge here endorses what Boyle calls an "additive" theory of rationality, as opposed to the "transformative" kind of theory which Kantian philosophers should adopt.

barrage of stimuli, and this accords better with what we know about animals and small children. He has given better definitions of these terms and has better distinguished sensation from perception, which provides a framework from which we can move forward with these interesting questions, since we are no longer beholden to the view that perception or objectivity necessarily involves linguistic or rational capacities. But it is his focus on distinctions and constitutive conditions that distracts him from fruitfully examining the origins of perception and objectivity, and he thus misses the relevance of their origins to their character.

Burge is focused on sorting animals into classes based on their cognitive capacities, primarily, into the class of animals whose cognition involves objectivity and that class of animals whose cognition does not. So the activity of animals is mostly ancillary to this philosophical enterprise. He does claim that primitive agency is a constraint on perception, but after fulfilling this role, agency seems to fall out of the picture; it is otherwise irrelevant to cognition. A Schellingian account, as I've presented it in Chapter 3, offers another sort of perspective, according to which organic action *remains* the foundation for knowledge, not just as an evolutionary or developmental precondition. Recall that for Schelling, knowledge of nature is possible through the sensitivity of our productive organic activity to the natural world. When engaging in scientific inquiry, this knowledge is explicit: we conduct experiments, we test nature, and modify our principles according to the results of our activity. And animals can have an implicit kind of knowledge, as a result of their activity. They don't formulate principles, but they learn to hunt for worms after a rain, or (after a brush with danger) to avoid things that look like *that*. Thus while

Burge's language is primarily concerned with cognition (animals "represent" goals), a more fruitful approach will have language centered on activity (animals *act for* ends). Activity comes in degrees, and is exhibited in its most basic forms in plants and bacteria. In its advanced forms, we might say that activity becomes agency, insofar as it involves the whole organism. As animals' interactions involve more awareness, their activity becomes more agential, and they begin to learn. Ultimately, that interaction becomes free in the fullest sense, and animals can reflect and reason about their interactions. Thus, if we can say, with Schelling, that knowledge is production (see Chapter 3), we can also make the claim that production by non-rational animals is implicit knowledge. That we can formulate and reflect on the principles of our production indicates that those principles pre-existed our formulation in an implicit form.⁹⁹ But this is clearly not a reductive account. Schelling does not say that knowledge is nothing more than animal production, and clearly rationality changes the very nature of production, just as certain cognitive capacities change the nature of animal activity into something agential. But at every phase, action is still center stage, and pivotal to further development.

5.4 Thompson's 'Fregean' Method

In *Life and Action*, Michael Thompson attempts to provide a new framework for practical philosophy, one that will rest on a set of concepts including 'life', 'action', and 'practice'. The book is divided into three essays, each a philosophical investigation of one of the three concepts above. The main motivation for such a

⁹⁹ Birch (2014) makes a similar argument with respect to norms of behavior.

project is to provide the groundwork for an Aristotelian ethics that does not fall into the trap of using empirical concepts like 'human.' Rather, since 'life-form' or 'practice' have something like the status of a priori concepts (p. 6), one can safely refer to 'the life-form I bear' without dragging something contingent or empirical into ethics.

Thompson's method involves an appeal to, and extension of, Fregean forms of judgment. He proposes that Frege's treatment of forms of judgment is incomplete; there are forms of judgment that are not captured by Frege's analysis of object, concept, relation, and so on. These forms of judgment include those involved in life (specifically forms involving 'life-form') and action. Thompson's central maneuver here, which he calls "Fregean", is to claim that these concepts "can be explained or comprehended precisely through a reflection on forms of thought or judgment" (p. 14). In other words, by examining the ways in which we speak and think about a certain class of thing—the life-form—we can come to understand what is distinctive of that kind of thing.

Specifically, Thompson claims that the logical determinations of object, concept, relation, and so on can be further specified by the determinations 'life-form', 'organism' and related concepts. Each of these concepts captures a "category of being" that is specified by its form of judgment (p. 19). The form of judgment distinctive of a life-form, Thompson goes on to argue, is a "natural-historical judgment". These are judgments in which the subject is the singular life-form ("the Texas bluebonnet" or "the bobcat") and a way of being is predicated (in the present) as suited or prototypical to that life-form ("carries nitrogen-fixing nodes on its

roots”; “mates in Spring”). Thompson argues convincingly that the referent of the singular term cannot be the average bobcat or even the properly-constituted bobcat (since no bobcat is properly-constituted in every single respect). There is no object that is the referent of the term ‘the bobcat’, because the form of judgment is not about an object, but about the life-form (pp. 63-69).

But how, one might wonder, can Thompson claim that the “life-form” is pure or a priori (p. 6) when the specification of a life-form always involves natural-historical judgments, which, as described above, are learned through experience? Certainly no one knows a priori that the bobcat mates in Spring. But Thompson does not think that individual life-forms (such as ‘the bobcat’) are known a priori. Thompson can maintain that the form of judgment is itself a priori: the concept of a life-form is pure, although the content of the concept of a particular life-form, that of ‘bobcat’, for instance, is something learned from experience. So Thompson is responding to the person who might object to any appeal to a life-form in explanations. If I say, “That’s not a healthy bobcat; the bobcat has two to four cubs, and this bobcat only has one”; an empiricist might object that the notion of ‘healthy’ brings in an improper normativity that could not possibly be gleaned from experience of bobcats. Thompson would respond that the ‘life-form’ form of judgment involves appeal to the wider context (here, the functioning and health of the bobcat in its environment) and is such that deviations from the life-form can be regarded as defects. So these forms of judgment are safe for scientific and philosophical inquiry.¹⁰⁰

¹⁰⁰ See pp. 8-9, 19-20.

5.5 The Life-form and Normativity

Thompson will not allow normativity to enter into the characterization of a life-form, or even to be built into natural-historical judgments. He says that he has “rejected any account of natural-historical judgment in normative terms, suggesting that the order of explanation must run the other way” (p. 80). In other words, natural-historical judgments are non-normative facts about a life-form. The normative judgment is an *inference* from these facts. From the natural-historical judgment “the S is F” and the particular judgment “this S is not F” we can infer that this S is defective. “It is in *this* sense that natural-historical judgments are ‘normative’, and not by each proposition’s bearing some sort of secret normative infrastructure” (pp. 80-81). Thus the normativity enters in through the comparison of the object to the “wider context”, its life-form. So Thompson is adamant that a life-form cannot be characterized through normative language; rather, it must be characterized in purely descriptive, non-normative terms.

If we consider various forms of generic propositions that may involve life-forms, it becomes clear that the inference Thompson appeals to above is often problematic.¹⁰¹ “The S is F” can take forms such as “Ducks lay eggs” or “The mosquito carries West Nile virus.” According to Thompson’s explanation of how normativity emerges as an inference from natural-historical judgments, a duck that does not lay eggs (for example, because it is a male) or, more pointedly, a mosquito

¹⁰¹ See Leslie (2011) for an exploration of the various kinds of generic propositions; the examples I use in this paragraph are from this article. I am indebted to Jeff Speaks for this insight.

that does not carry West Nile virus would be defective. While only a small percentage of mosquitoes carry the West Nile virus, the same is true Thompson's example of the mayfly ("The mayfly breeds shortly before dying"): only a small fraction of mayflies actually breed. What makes it so that normativity seems justifiably inferred from the statement about mayflies but not from the statement about mosquitoes? It seems that we must say something about what makes an organism a good organism, such that breeding would be part of our characterization of it, but carrying a virus would not be.

There are other problems that emerge from Thompson's exclusion of normativity as a condition of something being a life-form. Particularly, there are many cases where good-making features of an animal go beyond adherence to the life-form. For instance, consider the following natural-historical judgment: "The bobcat will not hunt other small animals when the hares are scarce, and so much of the population is lost to starvation." If any normativity follows from this judgment, then we would have to say something like "any bobcat who begins eating squirrels when it cannot find hares is defective." But certainly, a bobcat who can resourcefully search for alternative prey is an *exceptionally* good bobcat. To put the point another way: some species of animals have maladaptive traits. Any individual animal that corrects for such traits would (on Thompson's account) be as defective as an animal suddenly started exhibiting maladaptive behaviors atypical for its species. We cannot explain exceptionally good or healthy organisms if the only tools at our disposal are the natural-historical judgments, although this is not to say that we need not appeal to the life-form at all. We would need a richer conception of a life-

form that would allow ends to be specified, such that a wolf that is an exceptional hunter still counts as a properly-constituted wolf. We must refer to the ends of the animal, what it means for this kind of animal to thrive.

This line of criticism can be carried over into other facets of Thompson's work. Consider Thompson's account of 'practice': in Part III of *Life and Action*, Thompson provides an account of obligatory actions as a kind of rule-following according to the dictates of a practice one bears (see especially pp. 207-210). But this account encompasses only obligatory action or engrained practices. How do we account for supererogatory actions? Or innovative instances of goodness in which someone breaks with the norms of a practice in order to make it better? The possibility of these kinds of action imply that there is a substantive notion of goodness needed to evaluate actions that fall outside of the scope of the examples that Thompson uses, such as promise-keeping and acts of fidelity. So there are problems concerning how normativity operates in this framework, both in the case of the life-form and in the portions of the work dealing with ethical normativity.

One final problem with this exclusion of normativity to the characterization of natural-historical judgments is that this makes it difficult to exclude judgments of inorganic objects from this characterization, in particular those that are classified in terms of processes: main-sequence stars, composite volcanoes, and so on.¹⁰²

Thompson wants his characterization of the form of thought to demarcate all and only organisms—this much is clear from his discussion on pp. 70-71, in which he

¹⁰² For instance, 'the pre-main sequence star continues to contract until the temperatures in the core reach high enough values that nuclear fusion reactions begin.' Numerous other inorganic examples (as well as examples of things that don't count as organisms) abound—mountains, solar systems, black holes, and (more tententiously) populations or ecosystems.

differentiates natural historical judgments from judgments about the inorganic compounds.¹⁰³ However, more complex examples will be more difficult to exclude. The main-sequence star goes through a kind of “life-cycle”, which can be interrupted, say, by a neighboring black hole or a collision of galaxies, but that has a certain paradigmatic shape, and takes place in a “normal” context, just like any object bearing a life-form. When we talk about “the main-sequence star”, we assume this normal context, a wider set of conditions of normality: no black holes, no colliding galaxies, no atypical elements sneaking into the star. So I maintain that Thompson fails to pinpoint something distinctive about life in his account appealing merely to these forms of judgment.¹⁰⁴ If Thompson were to allow stars and volcanoes to be life-forms, then normative judgments would ostensibly follow from the natural-historical judgments of these things. But certainly we are saying something more substantively normative when we say a cat is unhealthy or defective than when we say that a particular star is not a good example of a main-sequence star. So Thompson ought to allow for normativity to enter into his characterization of natural historical judgments, such that a condition on something being a life-form is that we make normative judgments about it, presumably because life-forms include

¹⁰³ Also, Thompson argues against other accounts of life by appealing to this very same objection—while their criteria are met by organisms, they are too broad: they are also met by non-organisms. For instance, that something grows is not a good criterion for life, since trash heaps grow (p. 43). Thus Thompson, by his own standards, needs a strict demarcation between what is alive and what is not.

¹⁰⁴ See pp. 70-71. It is worth noting that what Thompson says here about bobcats could equally be said about, for example, composite volcanoes, even if it cannot be said of water or oxygen: the “normal” conditions and context of the composite volcano are “presupposed’ by the life-form itself; and how the bearer comes to arrive in them will itself be described in natural-historical terms” (p. 71).

teloi that its bearers can achieve or fail to achieve. This seems a more promising way of demarcating living things from the inorganic.

But let us set these objections aside for the moment,¹⁰⁵ for there are many promising and interesting features of Thompson's work that do not depend on these issues surrounding normativity; moreover, Thompson could deflect the above objections by allowing normativity to be part of the characterization of a life-form, and the conclusions he reaches would otherwise remain the same. So let us proceed with such an account in mind, although Thompson would not like it.

5.6 The Life-form and Forms of Life

Thompson's concept of 'life-form' opens up promising avenues of thought in several respects. First, that humans are the bearers of a life-form highlights the commonality between humans and other animals without remaining tied to that commonality. All organisms, including humans, are subject to judgments regarding the life-form to which they belong and which acts as a normative standard for their life and health. Thompson goes on to explain the logical forms of judgment distinctive of action and practice, which provide a basis for ethical judgments. These logical determinations are further specifications of the life-form *in certain cases*. Those cases are picked out, not by some special feature of the life-form, but rather but by their being among the class of objects that we describe with these forms of judgment. So the commonality that exists between ourselves and animals does not prevent us, as it often does in certain naturalistic accounts, from speaking about

¹⁰⁵ I will return to this issue at the end of the chapter.

ourselves in more than behavioral or reductive terms, or from accounting for human action, morality, rationality, and so on in ways that go beyond mere evolutionary explanations. Moreover, Thompson's characterization of the form of judgment, as involving the wider environmental and historical context, avoids regarding evolutionary explanations as necessarily irrelevant to one's characterization of, for instance, human rationality. In this way, Thompson opens up forms of explanations that go beyond Burge's restrictive methodology.

One other issue Thompson gets right is that an examination of how we describe things can lead to a better understanding of what is presupposed in those descriptions. What he isolates as 'life-form' does not seem to suffer from the limitations in application that the notion of species-as-form has in the Aristotelian tradition. What counts as a biological species seems to be an artifact of human convention, and so species-concepts cannot play a foundational role in a normative theory that is binding (pp. 31-32). Moreover, species-talk doesn't do the work those in this tradition would like it to do, since the normativity emerging out of species talk can of course vary a great deal within species, particularly when the same species are found in disparate environments: the good-making features of a wolf in the arctic tundra are not the same as those of a wolf in northern Africa. The notion of a life-form seems to be what is in fact presupposed in certain ways of talking about animals and humans, and it allows for different levels of generality ('the mammal', 'the wolf', 'the African wolf', and so on). As Thompson states, "no special difficulty arises from a moralist's appeal to the life-form, named 'human', that all of us share: we make such appeal already in everything we think of ourselves and one

another” (p. 82). Like Kant in the third *Critique*, Thompson is claiming that these concepts are necessary, not for the possibility of experience, but for the intelligibility of certain kinds of things: the things we already describe in this way, the things we *need* to describe in this way. So we are entitled to these concepts and ways of speaking, because otherwise, a whole host of things (organisms, their behaviors, ethical actions, and so on) would be unintelligible to us.

But it remains unclear how our manner of speaking about certain kinds of things justifies the manner in which we speak about them.¹⁰⁶ Examining these forms of judgment renders insight into how we think about animals and humans, but it does not tell us *why* we think of them in this way. It seems plausible to assume that if our ways of speaking tell us something about the world, this is because other ways of speaking have been ruled out due to their impracticality in use: We cannot speak about organisms in the same way we speak about rocks because we would be missing something essential about organisms if we were to do so. Killing a deer to eat it becomes an impossible enterprise if I can only conceive of the deer as a conglomeration of mechanical processes. There seems to be a reason for this beyond that I speak one way about deer and another way about a rock formation. In other words, Thompson is clear that deer *are* understood through the wider context of their life-form. To explain that they *need* to be understood in this way could perhaps be justified through an exploration of *why* they are understood in this way. But this

¹⁰⁶ The quotation in the above paragraph would seem to imply that the justification is as follows: it would be unfair to require a justification of life-form concepts, since they are as widely employed as other sorts of concepts. But this is not a justification, but an explanation for why no justification is necessary. We can grant that it may be unfair, but still be interested in the question: What is the world like such that we cannot help but speak this way? This is an interesting question in particular because so many seem opposed to speaking in this way.

goes beyond the confines of Thompson's method and the scope of his book. Similarly with practices: Thompson establishes *that* we appeal to the wider context of our actions in the evaluation of them. But what is it about us that makes this possible? Why are we the kinds of animals that can engage in this sort of thing? There is more interesting work to be done here.

Similarly, Thompson does not give many details about how his different levels of analysis are related to one another. It is unclear, for instance, how being a bearer of a life-form makes taking part in practices possible. Thompson appeals to this determination of 'life-form' in his final chapter on 'practice', but this discussion points out some interesting parallels, not any substantive connections:

I represent this life-form as potentially instanced in other individual organisms, and as a measure of good and bad in whatever does bear it and as containing a special kind of cause of whatever is reckoned good according to that measure [...] I think of the agent as the bearer of a *practice*, a 'form' of a different sort, but nevertheless something that is potentially present in other agents, something that acts as a measure of what is good and bad in what bears it, and something that can account for what is reckoned good according to that measure. One turn of the categorial framework gives us the concept of a life-form or a living nature; the other gives us the concept of 'form of life' or a 'second nature' (p. 208).

The appeal, then, to 'life-form' at this stage, does not amount to an elaboration of, or dependence on, this concept as elucidated earlier; rather, Thompson is simply drawing parallels for the sake of explaining better what he means in saying that a practice is a form of life and that practical judgments can emerge from this framework. While he does claim that the concepts in one sphere are "presupposed" in the other, and that each level (life, action, practice) makes possible the following one (pp. 1-2), there is no indication that the parallels in structure result from this. So it is unclear if the similarity among the levels is necessary or the result of any kind of

constraint imposed by the spheres of analysis on each other. And so there is more work to be done in connecting human life to human practice: how do these levels constrain each other?

One way to connect these spheres would be to say that action and practice are specifications of the life-form in beings who are rational and free. Thompson hints at this toward the end of Part I, stating, “The real problem is to grasp the complexity and distinctions that are introduced with the categories of intellect and will” (p. 82). One could say that one aspect of a properly-constituted organism of a rational, free sort is that it conforms to the norms of the practice it is engaged in. And this can be said without implying that the health of the organism is what justifies or substantiates the ethical normativity, since this is not a reductive explanation (p. 32). It is unfortunate that Thompson says so little about these connections. It is possible that Thompson, in this book, wants to avoid those familiar and difficult issues connecting freedom with morality, and so avoids making any claims about how being intellectual or autonomous makes one a particular kind of life-form, such that the “wider context” of one’s behaviors becomes ethically loaded. To make such connections he would have to say more about how the will or intellect contributes to, or makes possible, the specifically ethical kind of normativity.

We get a nod toward McDowell in the above quotation from p. 208.

Thompson uses language of first and second nature: The life-form is “living nature” and practice is “second nature” or a “form of life”. This separation hints at a Kantian (or rather, a McDowellian) solution, according to which rationality, once it emerges, takes on a sort of life of its own, disconnected from “living nature” and so from the

practical and animal aspects of the self. This kind of solution is unacceptable, for the reasons laid out in Chapter 4. Most importantly, it fails to satisfactorily explain how “second nature” is indeed natural, and thus how it is in harmony with “first nature”. One way of connecting them harmoniously, which is available to Thompson,¹⁰⁷ is to conceive of practices in a richly contextual way, such that bearing a life-form is not ancillary to engaging in a practice or a mere pre-condition for such engagement, but is rather *part of what it means* to engage in a practice. That is, the characterization of practice must be such that one can say why an animal can engage in such a thing but an angel cannot. Indeed, regarding all human activities in this way would lead to an account in which one such activity, the rational activity of perceiving and knowing the world, is one in which physical interaction with nature is paramount.

And now (to return to an earlier point) it is clear why normativity must be at the forefront of our characterization of life, rather than an implication of it. If we characterize the organic in the way that Thompson recommends, we’ve left out how important interaction with the environment is for a given species and its development. It is not merely that individual organisms interact with their environments in the ways specified by their particular life-form. Rather, entire populations will, through complex interactions with their surroundings, modify their behavior *and themselves* in goal-directed ways. And so *what that life-form is* is

¹⁰⁷ C.f. Thompson (2004), pp. 73-74: “It would take another essay, or a treatise, to develop the matter properly - in particular to resolve the very difficult problem of the mediation of a human's apprehension of fundamental practical truth by his induction into more local, specific, determinate so-called social practices, or shapes of Bildung or 'second nature'. My present point is only this, that the idea that cognition of the human form is everywhere empirical cannot be permitted smugly to operate as an a priori impediment to the development of a naturalist account.” So Thompson is aware that his description of the life-form does not provide much in terms of how specifically human or ethical normativity comes to be, but is rather a starting point which deflects a certain kind of objection.

at any given time the result of a developmental, goal-directed history of interactions with nature. And so to say that normativity cannot enter into the characterization of a life-form is to make this entire history and emergence of the particular life-form unintelligible to us. This bears repeating: the evolutionary history of a life-form (and thus the natural-historical judgments definitive of it) cannot be understood apart from the goal-directed developments of the organisms in response to their environment, which are *good* deviations from the life-form, something Thompson cannot countenance. Thus goal-directed (and therefore normative) interactivity with nature is what it means to be alive, to be a bearer of a life-form. The features of this goal-directed interactivity will vary with the capabilities and projects of the organisms; for instance, the interactivity of organisms capable of rational reflection gives rise to freedom, culture, science, morality, and so on.¹⁰⁸

So Thompson's account, which stops short of giving any explanation of how being a living organism is relevant to rational action, can be filled out in the above manner so that we see how being an organism is relevant to, in his words, "forms of life" or human practices. I will explore and develop such a model, which is inspired by Schelling's *Naturphilosophie*, in the following chapter.

¹⁰⁸ There are uncontroversial examples of such goal-directed adaptation in instances of environmental change or opportunities, see, for instance, Gopnik (2011) on dogs adapting themselves to humans, and "Dogged Persistence" (2013) for a similar example in urban coyotes. More interestingly, however, it seems that genetic plasticity allows for heritability of traits acquired in the lifetime of an individual organism, in a Lamarckian vein. For support of such an idea in contemporary evolutionary biology, see Bateson and Gluckman (2011); Lamb and Jablonka (2005); Pigliucci (2005). Expanding ideas of heritability beyond hard genetics is by no means uncontroversial, but it is a growing trend in biology and the philosophy of biology. This topic is the subject of Chapter 6, and so I will discuss these issues and controversies in detail below.

5.7 Conclusion

Taking Schelling as our guide will allow us to give an emergent account for what Burge calls 'objectivity' that is not reductive, that is, an account that does not explain objectivity in purely evolutionary terms or reduce objectivity to some other property. It will offer a way of conceiving the relationship between Thompson's life-form and his form of life that is harmonious and that does not unduly separate our rational selves from nature. I have shown in a previous chapter that Schelling offers an account of nature and reason that is illuminating, non-reductive, and free of the problems that beset the Kantians. In the remaining two chapters I will give an account that combines Schelling's insights with those of contemporary biology and philosophy.

CHAPTER 6
SCHELLING AND EVOLUTION:
REIMAGINING THE *SCALA NATURAE*

6.1 Introduction

Schelling's *Naturphilosophie*, as a practically oriented account of the development of reason and knowledge, provides a way of taking seriously forms of rationality implicit in nature, particularly in animals, as well as the precursors to explicitly reflective thought in young children. Simply claiming that there are forms of rationality implicit in nature is not enough; we also need to say *how* rationality is implicit in nature, and what property or properties of non-rational organisms count as manifestations of this implicit rationality. This reframing of the *Naturphilosophie* will allow us, with Schelling, to conceive of nature's products as organized on a spectrum of gradually increasing forms of cognition. This developmental notion of reason avoids Kantian discontinuity problems, namely the mind-world divide and the nature-reason divide.¹⁰⁹ This reframing and rehabilitation of Schelling will also

¹⁰⁹ There are two issues here: First, Kantians have trouble with the opposition of the normativity of mindedness, insofar as reasons are reasons for action with the neutral realm of world. In McDowell's terms, we could call this opposition the space of reasons vs. the realm of law. So it seems that there is a radical emergence of normativity from the non-normative in the Kantian picture. Similarly, there is an opposition between the subjective *structuring* features of reason and objective *structured* nature. How reason as subjective emerges from an objective, inert nature is the second issue.

allow us to take seriously the important differences between rational and non-rational animals.

In previous chapters, I have shown that we are in need of an account of the relationship between mind and nature that allows for experience and perception to take place in non-rational animals and in non-rational (usually young) humans. Moreover, we need such beings to be able to develop into the kind of being that can reflect. Reflection cannot destroy unreflective action: we cannot regard reason as so ubiquitous that the self cannot exist apart from it, since often actions that are clearly attributable to people are performed unreflectively. Reflection must be *natural*—it must be an expression of nature rather than something opposed to it, *and* it must be special—it must begin to explain unique human capacities such as the capacities for moral action, religion, art, and science: We need a developmental account of reflection as emerging out of nature, but we cannot make that account reductive, such that reason would be *nothing more than* an adaptive behavior.¹¹⁰

I will argue below that “sensitive response” in the context of goal-directed activity works as a property of natural things that is manifested to various degrees in non-rational organisms, and can be seen as the relevant precursor to reflective thought in humans. Sensitive response takes place in organisms at all levels: all respond to their environment in ways that are sensitive to features of that environment. The more flexible the response the more “advanced” along the hierarchy the animal is. Fitting activity to ends is something all organisms do, whether knowingly or not. When the ends of a plant are frustrated, there is not

¹¹⁰ Here I defer to Burge and Plantinga; see previous chapter, n. 93.

much that it can do; often a defense mechanism is triggered. Some animals, when their ends are continually frustrated, will alter their behavior to be more suited to the end. A human animal will take this a step further and fit her own activity to the end in the way that she reflectively considers is best.

I propose that we see human rationality as developing within this paradigm of goal-directed animal behavior. We can thus say that human rationality *originally* developed because it was a means to some biological end. This does not, of course, mean that we must only ever conceive of human rationality as subordinated to biological ends of fitness or survival. Indeed, human rationality facilitates the taking up of ends that have no fitness value. In other words, human reason may come to be as instrumental reason (in Kantian terms “hypothetical reason”), but then develop into the capacity to reason about ends and truth.

In the following pages, I will explain how Schelling’s hierarchy of natural forms within a nature striving for rationality can be modified to be a hierarchy of capacities in a nature with an alternative teleological structure, such that we can still see reason as an achievement and advancement (although not the necessary or necessarily final one) of nature. I will then explain how rational cognitive capacities emerge within this framework.

6.2 The *Scala Naturae*, Reconceived

Schelling locates all natural beings on a scale according to the degree of their freedom. Humans are the highest manifestation of nature’s freedom; they are

reflectively self-determining according to principles. Schelling frames this in terms of “conscious productivity”:¹¹¹

Again, the fact that Nature, wherever it is left to itself ... produces of its own accord, as it were, regular forms ... or the fact that in the animal kingdom (that product of the blind forces of Nature) we see actions arise which are equal in regularity to those that take place in consciousness, and even external works of art, perfect in their kind—all of this is explained in our view by saying that it is an unconscious productivity in its origin akin to the conscious. (*Entwurf*, 194)

The “unconscious productivity” that Schelling speaks of in this quotation is meant in two senses: first, nature itself unconsciously produces all of its forms: Considered apart from humans, nature is not reflective. But also, this productivity is also manifested in (and partly achieved through) the productivity of nature’s products—the “animal kingdom”. Organisms (again, excluding human organisms) are *also* unconsciously productive; they produce and organize themselves through self-maintenance, assimilation, and reproduction. Schelling does not mean to deny that animals are conscious, but merely that animals (and nature) are not conscious of the principles by which they produce.

Humans also have the ability to produce *consciously*, that is, with an awareness of the principles of their production. The example in the quotation is “external works of art”, which makes clear that Schelling is thinking of something particular to humans: we produce according to ideas and principles, although the product, because it is co-produced with nature, outstrips our original conception and can thus lead to changes in our ideas and principles. Thus humans are the

¹¹¹ I argue in Chapter 3 that Schelling uses “conscious productivity” interchangeably with “freedom”. Producing according to principles is what Schelling regards as the highest manifestation of freedom.

highest manifestation and fulfillment of nature's productivity; we are nature become conscious, and so we should consider ourselves as sharing an identity with nature:¹¹²

So long as I myself am *identical* with nature, I understand what a living nature is as well as I understand my own life; I apprehend how this universal life of Nature reveals itself in manifold forms, in progressive developments, in gradual approximations to freedom. (*Ideen*, 36)

Thus the *Naturphilosophie* relies on a hierarchy of forms in nature, from the least free to the most, with humans at the top of the hierarchy, but still very much a part of nature.

In his magisterial work *The Great Chain of Being*, Arthur Lovejoy argues that the history of the idea of such a hierarchy is "the history of a failure"; it is the history of an idea that *must* fail when we recognize the temporal and dynamic nature of the natural order.¹¹³ In the world of the completely rational *scala naturae*, there is no room for contingency, change, or for differences between form that are not easily comparable in hierarchical terms. However, such criticisms cannot be levied against Schelling, for whom nature is not a complete and perfect manifestation of rationality, but is rather an imperfect *striving toward* rationality.¹¹⁴ Thus temporality, change,

¹¹² Schelling's claim of identity here is to be taken seriously; it is not metaphorical. But it may be more accurate to talk instead of a part/whole relation, in which the part can be identified with the whole, but the whole cannot be identified with the part, and so it is not a symmetric kind of identity. I am nature but nature is not (just) me. When I am thinking, nature is thinking, just as when my hand is touching the table, I am touching the table. My hand is me, but I am not (just) my hand.

¹¹³ See Lovejoy (1964), especially pp. 329-333.

¹¹⁴ Lovejoy acknowledges this in his discussion of Schelling, and presents his philosophy as the last and almost unrecognizable iteration of the idea of a Great Chain of Being, particularly in its rejection of transcendence and its radically "evolutionary" character. See pp. 315-326. See also Ameriks (2012), pp. 134-135 for a discussion of how Schelling later describes his *Naturphilosophie* as a "positive" philosophy, in contrast to the "negative", purely rationalist, a priori framework of other idealists, Hegel in particular.

contingency, and qualitative differences in form are at home in Schelling's nature. We never fully understand ourselves or nature, because nature is always ahead of our understanding, frustrating our projects, unconsciously producing with us, such that what we produce is oftentimes baffling, even to the creators. Thus nature cannot be contained or tamed by human reflection; it is human reflection that is constantly adjusting itself and reorienting itself to nature's caprice.

But Lovejoy, and others, would object to any hierarchical view of nature as outdated and ultimately mistaken. Many would regard such a view as unacceptably anthropocentric; moreover, such a hierarchy is made obsolete through our current understanding of the tree of life, according to which all species have been evolving for the same amount of time. In such a world, there are only accidental and arbitrary differences in form. On what basis could one accidental form turn to another and say, "I am higher than you; I am the *true* product of nature"? It seems that any notion of a hierarchy that is meant to reflect the true workings of nature is doomed to failure.¹¹⁵

6.3 Modified Natural Teleology

And yet, certainly *something* is increasing in evolutionary history. Such an increase would indicate that we can place natural things along a hierarchy, according to the degree that they manifest that *something*. In evolutionary biology, it is seen as a truism (perhaps a hopelessly vague one) that in evolutionary history, one

¹¹⁵ We could introduce all kinds of artificial hierarchies, based on any number of properties. We could order all natural forms by their ability to survive at high temperatures, or by their ability to see long distances. But this is of course not what Schelling has in mind: there is an order, a teleology, to nature's production that is manifested in the individual products, such that we can place them on a hierarchy according to how full a manifestation of nature's production they are, how *free* and *rational* they are. I am indebted to Grant Ramsey for this distinction.

witnesses an increasing “complexity” in organisms.¹¹⁶ Complexity can be specified in a variety of ways, in number and diversity of parts, in length of description of an organism, and so on. However one specifies it, here we must recognize that there is already a teleology of sorts in evolutionary orthodoxy that is meant to reflect the true workings of nature: nature tends toward complexity, and produces organisms along a spectrum of complexity, working generally to produce more complex organisms over time.¹¹⁷ My argument in this section is that we can specify this *telos* of nature in a way that both makes sense of *why and how* complexity increases. Instead of seeing complexity (or some other property) as a goal toward which nature strives, we ought to see it as the byproduct of nature’s striving for self-maintenance and equilibrium. To this end, I will first explore different types of teleology (external vs. internal), then explain what type of teleology nature exhibits, and then argue that we can specify complexity as the environmental sensitivity of means-end pathways for an organism. This formulation is a vast improvement on previous formulations, and it helps to explain various features of evolutionary development.

¹¹⁶ See, for example, McShea and Brandon (2010); Lineweaver, Davies and Ruse (2013).

¹¹⁷ This does not mean that relatively simple organisms will all disappear, since clearly single-celled organisms are still ubiquitous. Rather, alongside these organisms, other, more complex ones will continue to emerge.

A *telos* can be internal or external (that is, externally imposed).¹¹⁸ External teleology is most appropriately applied to artifacts, which exhibit the same purposive structure as organisms (the reciprocal relationship between part and whole), but are designed for some external end. Seeing organisms as having an external *telos* is part of what makes the notion of a *scala naturae* unacceptable to the modern secular or scientific mind. Internal, Aristotelian teleology is often confused with external teleology, or, alternatively, it is thought to rest on an outdated metaphysics that relies on species-concept-as-form.¹¹⁹ Both Schelling and Aristotle do have a teleology that rests on static formal concepts in a way that is unacceptable, given what is known now about the fluidity and contingency of species. Nevertheless, an internal *telos* can be specified in various ways, and I will argue below that an acceptable and helpful way to specify the *telos* of an organism is as striving toward self-maintenance. This is also how we ought to see the *telos* of nature as a whole. Such a specification avoids the problematic formal concepts, allowing for an internal teleology that resonates with contemporary science.

¹¹⁸ Such a distinction within teleologies is discussed by Taylor, pp. 321-328. What notion of teleology Kant held is not accurately represented in these passages, as Taylor's Hegel attributes the "internal" teleology to Kant as well as Aristotle. Although Kant discusses purposive *forms* (on analogy with products of art), his notion of teleology is decidedly external, as purposiveness in form calls for the regulative assumption of an externally imposed *telos*, and he simply does not consider the possibility of an internal *telos* of nature as a whole. Taylor's Hegel berates Kant for "refusing teleology a place" in the order of things, but this is also an inaccurate representation of Kant; teleology is of utmost importance in unifying Kant's system (see *CPJ* Appendix, 5:416-484).

¹¹⁹ See the Chapter 5 discussion of these problems with species-concepts in the context of ethical theories.

6.3.1. External teleologies (Aquinas and Kant)

External teleologies are sometimes operative in arguments for God's existence. William Paley's famous argument about stumbling upon a watch and contemporary Intelligent Design-style argumentative analogs are predated by various other philosophers appealing to purposes in this way. Both Aquinas and Kant make use of external teleology, but in more helpful and nuanced ways than contemporary caricatures might imply. Likely the clearest expression of the external teleology of nature is found in Aquinas' fifth way:

The fifth way is taken from the governance of the world. We see that things which lack intelligence, such as natural bodies, act for an end, and this is evident from their acting always, or nearly always, in the same way, so as to obtain the best result. Hence it is plain that not fortuitously, but designedly, do they achieve their end. Now whatever lacks intelligence cannot move towards an end, unless it be directed by some being endowed with knowledge and intelligence; as the arrow is shot to its mark by the archer. Therefore some intelligent being exists by whom all natural things are directed to their end; and this being we call God. (*Summa Theologica*, I. q. 2, art. 3)

In claiming that natural things without intelligence "cannot move towards an end" Aquinas is rejecting the possibility of a purely internal *telos*; if unintelligent things act for ends, they were *designed* by an intelligence to act for that end. But Aquinas also mixes in a bit of internal teleology, since the end they act for is their own good, "so as to obtain the best result."¹²⁰ Thus organisms (and, for Aquinas, inorganic matter as well) are strongly analogous to human artifacts in that they are designed

¹²⁰ This difference between Aquinas and Aristotle (discussed below) on form can be seen to emerge from a much more fundamental difference: for Aristotle, pure actuality is finite form; for Aquinas, God is pure actuality. God creates all things *ex nihilo*, and so gives finite things their form. See Owens (1993), esp. pp. 48-52.

for a purpose. They are disanalogous insofar as the purpose they act for is their own good rather than merely for the good of some external agent.

Kant further specifies what is at issue here.¹²¹ In claiming that thinking of an object as a natural end “necessarily leads to the idea of the whole of nature as a system in accordance with the rule of ends” (*CPJ* 5:379), Kant is going beyond Aquinas: he maintains that individual organisms must have an external purpose *and* that (partly because of this) our reason assumes that nature *as a whole* must have an external purpose. He states,

The internal form of a mere blade of grass can demonstrate its merely possible origin in accordance with the rule of ends in a way that is sufficient for our human faculty of judging. But if one leaves this aside and looks only to the use that other natural beings make of it, then one abandons the contemplation of its internal organization and looks only at its external purposive relations, where the grass is necessary to the livestock, just as the latter is necessary to the human being as the means for his existence; yet one does not see why it is necessary that human beings exist; thus one does not arrive at any categorical end, but all this purposive relation rests on a condition that is always to be found further on [...] as unconditioned. (*CPJ*, §67, 5: 378)

Kant argues here that the internal form of an organism is sufficient for the possibility of our judgment of it, but we also consider the organism in its external purposive relations, and this leads to the idea of whole of nature itself having an (unconditioned) purpose. There is an important insight here. Consider cattle, which are a clear example of an organism that is part artifact, a ‘cyborg’ of the animal kingdom. Cattle have an internal purpose, but they also have an externally imposed purpose: they are easy to kill, pleasant to eat, and render large amounts of meat. They have been made that way by being bred as livestock for millennia. But we could

¹²¹ See also Chapter 2, where I discuss these issues in more detail. Here I am relying on Watkins (2014).

put this less harshly, and rather than saying that cattle are part artifact, we could say that cattle and humans co-evolved in a symbiotic relationship, such that they stand in external purposive relations; we could say the same of certain flowers and their pollinating insects. In fact, we could say that nature *as a whole* exhibits the internal purposive structure and interdependency of parts (and of part and whole) we see in individual organisms. No organism can exist in isolation, just as no organ can exist in isolation; the external purposive relations of an organism are a subset of the *internal* purposive relations of that organisms ecosystem (or, by extension, the whole of nature), just as the external purposive relations of, for instance, my circulatory system to the other purposive systems in my body are a subset of the internal purposive relations of my body considered as a functional whole. And so the distinction I am operating with here—that of external vs. internal teleology—is not so simple: internal teleologies will, necessarily, involve external teleological relations of the parts. But any given functional, purposive unity, objects that exhibit what Kant calls the “internal form” of purposiveness, may or may not have an internal end. A watch and a tree both exhibit the internal form of purposiveness. A watch will have an external *telos*, as will any artifact. A tree, although it stands in externally purposive relations—and thus from the point of view of a larger functional unity like an ecosystem or nature as a whole has an external *telos*—*also* and primarily (considered from the point of view of its own form, rather than the larger form of which it is a part) has an internal *telos*.

It is worth noting that the purposive relations within an organism, or the external purposive relations of the organism with other features of its environment,

are not fixed. Organs that originally evolved to perform one role in the organism can take on different roles in response to external circumstances. An organism may evolve to eat a certain kind of food, and then change its diet, which will result in an alteration of the external purposive relations in the ecosystem. As long as these changes are gradual and come about in response to the environment, there is no problem seeing them as part of the purposive unity of the organism or ecosystem. On the other hand, if a frog is struck by lightning and grows a pair of wings which enable it to fly, this does not seem to be part of the purposive unity that is the organism; it even seems a mistake to call these appendages “wings”. Thus it is important to distinguish *causal* function, which may be entirely accidental, from the purposive unity of the organism, which makes reference to the history of that organism. Our flying frog has, through this radical developmental break, ceased to be a frog.¹²²

After arguing from the external purposive relations within nature to nature as a system of ends, Kant goes on to argue (to my mind, unsuccessfully) that nature, because of this purposive structure, must have a final *telos* that is unconditioned and thus lies outside of, external to, nature.¹²³ To be brief, I believe Kant does not give sufficient consideration to the possibility that nature has an internal *telos*, concerned as he is to unify the moral and theoretical posits, in precisely the way that

¹²² I am indebted to Grant Ramsey for this point.

¹²³ This is all a regulative posit, of course. Kant does consider the *dogmatic* possibilities of a “living nature” as well as the dogmatic possibility of design, rejecting both on account of the dogmatism (*CPJ* 5: 392). But he goes on to regulatively posit the designer *rather than* the *internal* purposiveness of nature as a whole without giving any consideration to the latter. Watkins (2014) argues that we can derive some motivation for this view from Kant’s conception of reason; see especially pp. 125-129.

reason does, and regarding nature as self-producing does not lend itself to such unity.¹²⁴ This possibility of an internal *telos* is taken up and explored in Schelling's *Naturphilosophie*; I will now turn to discuss this internal teleology.

6.3.2. Internal teleologies (Aristotle, Schelling, and a new dynamism)

Schelling regards nature as an organism that strives in its production toward rationality and freedom.¹²⁵ We might consider Schelling's nature as analogous to a human coming to maturity: Imagine that you, a human organism, are the only thing in existence. There was no time before you were; there is no space apart from the space that you occupy. In the early stages of your life (as an embryo, say), you were not aware of anything. Eventually you gained phenomenal awareness, then consciousness, then self-consciousness and rationality.¹²⁶

Such a nature would have a *telos*, that *telos* is a static final form, the form of a mature, rational human. And so the historical progression of nature has an inevitable shape; the endpoint of the progression is fixed. Like an Aristotelian organism, Schelling's nature has its form—the form of a rational, self-conscious nature—within it all along, which is also its *telos*. Just as a tadpole has the form and *telos* of frog, so arational nature has implicit within it the form of a free and rational

¹²⁴ See the Appendix to the "Critique of Teleological Judgment". I discuss this topic in more detail in Chapter 2.

¹²⁵ See Chapter 3; Schelling *Von der Weltseele*, p. 599; *Ideen*, p. 33. It is worth noting that Schelling never *himself* describes his nature as teleological [*teleologisch*]; he seems to only use the term to disparage Kant (*Ideen*, pp. 9-10), and presumably avoids using the term because he does not want to bring in the theological implications of it. I do not think, however, that use of this term distorts his philosophy, as long as we keep this in mind.

¹²⁶ This is just an illustration, and so I am setting aside issues involved in the development of self-consciousness, which might require social interaction, and other complications which might indicate the in principle impossibility of this example.

nature, and in maturing toward that *telos*, it will gradually manifest that form more and more.¹²⁷ Thus, with respect to the functional unity or purposive organization that is all of nature, its *telos* is internal to itself, it is the realization or actuality of its final form. There will be external purposive relations within nature (for instance, between the bee and the flower or the dog and the human), but an organism within nature will also have an internal *telos*, when considered with respect to its own purposive form.

This way of regarding the development of nature is implausible and unacceptable to the modern mind. There is a certain evolutionary challenge to Aristotle's natural philosophy that can also be levied against Schelling's teleological view of the whole of nature. Aristotle's philosophy of biology rests on notions of the fixity and straightforward demarcation of a species,¹²⁸ which are problematized by the continual change of the features of species as well as a problem with demarcating what count as members of a species. For Aristotle, the form acts as a cause of its gradual actualization;¹²⁹ and so divergences from the form must be accidental. Functional divergences that are the result of developmental plasticity are thus difficult to explain. This problem is amplified when we consider that what counts as the features or characteristics of a given species or population of organism is always in flux. If, as Aristotle's account dictates, the form of a species is guiding the development of individual organisms from generation to generation, there is little

¹²⁷ In other words, the form is developing from potentiality to actuality, and so it is present (as potentiality) within the organism (or Schelling's nature) all along. See Lear (1988), pp. 18-20.

¹²⁸ *De Motu Animalium*, I.4 644a-b.

¹²⁹ On form as cause of the animal, see *Physics* II.1.

room for change within species or populations. So we should now, in contrast to Aristotle, adopt a dynamic notion of life-form that would allow for such changes, both in individual developments and in evolutionary developments.

One way to do account for such changes is to subordinate the actualization of the form to the goal of the development and activity of the organism. To put the point succinctly: A frog cannot be said to always act for the actualization of its form, since the form is a malleable thing that will be altered by the frog and its behavior in the context of its environment *in order to achieve its true telos*.¹³⁰ So the final end of the frog cannot be its form, but must be something to which the actualization of that form is always subordinated, and with respect to which that form can be altered. We cannot ignore the constraints on development which the “form” of an organism has traditionally supplied, since, indeed, it would be difficult to explain the maturing of tadpoles into frogs without such constraints. But this fixed species notion should be replaced with a dynamic and malleable notion of *life-form* that will be determined, not just by DNA or other genetic markers, but also by the standard behaviors of a population, the features of its environment and the latent or actualized capabilities of the organism, whether they be behavioral (the ability, for instance, to migrate) or non-behavioral (like the ability to grow a thicker coat of fur in reaction to a

¹³⁰ Aristotle, in his discussion of the parts of animals, makes clear that we specify the parts by considering what is essential for an animal, i.e. “they are necessary conditions for his existence”, or what is best, “or, at any rate, it is good that they should be there” (*De Motu Animalium* I.1, 640a 33-36). This normativity in the specification of parts (which will be operative in the demarcation of the form of an animal) perhaps already contains the resources for the account I propose, since what is “good” or “best” will vary with the conditions of the animal. So there is room here to say that the form of the animal could be subordinated to what is best for that animal, such that the form could change when it is ill-suited to its environment (see also *Physics* II.8 198b16: “nature acts for something and because it [that thing] is better”). This is not Aristotle’s view, since form—as pure actuality—is not subject to change, but it might be interesting to determine what else must shift in Aristotle’s metaphysics to accommodate alteration in form.

particularly harsh winter). Such a “form” would not be a species notion, but could be regarded instead as the constraints on the organism or on a population of organisms. A frog will not sprout wings in response to environmental conditions, but it may develop longer hind legs. Similarly, a species of frog may evolve into something with teeth, but it will not evolve into something with an exoskeleton (at least, not in the near future).

We can see such a *life-form* as a developmental tree, which specifies the developmental history and the possible future developmental pathways of the organism (or population, or species).¹³¹ Over the course of its lifetime, the organism’s life-path is made more determinate, as some options are rejected or ruled out and some are actualized. Thus at some point ($t > 0$) in an individual organism’s development (or the development of a population, or a species, etc.), its life-form is some smaller branch of the life-form it had at $t = 0$. Such a *life-form* could be specified with as much or as little generality as one pleases: one could talk about the life-form of a single organism, or that of the African wolf in Egypt, or wolves in general, or all mammals, and so on.¹³² The life-form will develop (individually, according to the plasticity of the individual organism, or corporately, as a result of such plasticity as well as genotypic evolution) in sensitivity to the environment.

And so this above modification of Aristotle does away with the fixed notion of form while maintaining an internal teleology, according to which the animal is

¹³¹ See Grant Ramsey “What is Human Nature?” I am indebted to him for this idea, although here I make use of it for a different purpose.

¹³² See Chapter 5 for a discussion of Michael Thompson’s life-form as partially fitting the bill here. I argue in that chapter that such a notion is not dynamic enough, and for such a dynamic notion of form, one actually needs normativity, which below is specified as a progression of form with the goal of self-maintenance.

ordered for its own biological ends: survival, self-maintenance, reproduction, and so on. The “form”, as a history of the organism and a tree of possibilities directed into the future, is something that is constantly shifting; nevertheless, it provides a basis for identifying what it being maintained by the organism in its self-maintenance. The organism (or group of organisms) can be specified by its developmental history as well as its future possibilities. If a lightning strike results (implausibly) in a pair of functional frog-wings or (even more implausibly) a biological replica of a human, the results do not count as a flying frog or a human. “Swamp man” is not a human, but a freakish natural event, because he lacks the relevant evolutionary and developmental history; similarly, our flying frog is not a frog at all.

We can apply the objection to a fixed notion of form and its solution above to Schelling as well. His idea of nature’s striving is motivated by the idea that nature produces progressive manifestations of itself, and so, like its products, nature has a *telos*. But as we see above, the organic products of nature do not have a specified, determinate form-as-*telos*.¹³³ The form that guides their development, even as it guides it, can alter for the good of the organism. Thus, for individual life-forms, the “form” is also in service of an end, that end (for plants and animals) being the “good” of that life-form, specified perhaps as the self-maintenance of that population and its progeny, the harmony of the organism with its environment. And so, if we take the

¹³³ Richards (2002) argues that a dynamic, branching view of form is, in fact, Schelling’s considered view of the development of organisms, and even that there could be such morphological changes in species (see pp. 301-304). This is outside the scope of this paper, but since Schelling abandoned the project before working out the details, this treatment here might be seen, in this light, as a continuation of Schelling’s project of the *Naturphilosophie* rather than a reworking of it.

analogy between nature and its products seriously,¹³⁴ nature will also have an end, which we could say is its own self-maintenance and internal harmony (perhaps combined with an internal striving to surmount the given harmony).¹³⁵ And so the “form” of nature, as an evolutionary history as well as a future developmental tree, would be specified in terms of the constraints that serve that end of internal harmony and self-maintenance. The possible developmental pathways of nature, its “form”, might thus inevitably include certain features, such as sensory awareness or even rationality, as a byproduct of its striving to achieve this *telos* of harmony and self-maintenance.¹³⁶

One might object: what could it possibly mean for nature to *fail* to self-maintain? If it has as a *telos* self-maintenance, it must be in some sense possible for nature to fail to achieve that *telos*, and in the case of nature, since it can’t straightforwardly *die*, it’s unclear what it means for nature to have such a *telos*. But consider the example of an individual organism. If one system fails (say, the

¹³⁴ We ought to take this analogy seriously, for a number of reasons, not least of all is that nature is organized like an organism, as discussed above. Also, this way of seeing things provides a nice backdrop for a certain conception of evolutionary theory, as I will argue below.

¹³⁵ I have specified a single *telos* for the sake of simplicity at this stage, but it is worth noting that this is out of step with Schelling in a way that does not do justice to the activity of nature. Schelling, recall, construes natural things as the product of two contradictory forces: an animating productive force and a limiting force (see Chapter 3, §3.2). Here I am taking the *telos* to be specified merely in terms of the limiting force, in terms of the constraints on development. But with respect to the developmental tree, one can imagine that this tree is not only determined by a *telos* of harmony, but also by the productive force pushing against such constraints and opening up new possibilities. And thus there is a driving force to natural development, both in individual organisms and in nature as a whole, which resists constraint and limitation. While the specification of a single *telos* is too quaint to do justice to the activity of nature, I adopt this framework here to avoid complicating an already complicated and philosophically foreign picture. Nevertheless, it is good to keep in mind that a fuller account would characterize nature’s activity in terms of a dual *telos* of equilibrium and harmony on the one hand, and a striving over and against such harmony on the other.

¹³⁶ For an argument that sensory awareness and rationality are indeed inevitable in evolutionary history, see Conway Morris (2003; 2009). I will discuss this more below.

gallbladder), other systems in the organism (here, the digestive system) will try to compensate such that the organism as a whole will survive the crisis and reach a new equilibrium. Similarly with an ecosystem: if a population of trees becomes diseased and dies, the ecosystem will have to reach a new equilibrium, and different dependencies will arise such that the ecosystem will survive (or, the ecosystem may die). This does not only happen in terms of crises; if an organism in an ecosystem gains a particularly adaptive ability which, for example, increases its hunting success, the rest of the ecosystem will adjust to this new ability, perhaps its prey developing an adaptation in response. So it is with nature as a whole: nature acts to achieve a kind of internal harmony, just as in the case of the ecosystem. This is what it means for nature to self-maintain. If there were an ecological catastrophe that wiped out all life on earth, nature would have failed (while striving) to achieve its *telos* of self-maintenance, since its purposive structures would be suddenly dismantled.¹³⁷ The fact that the universe was, at one time, composed of only inorganic matter does not mean that its return to merely inorganic matter would not be a failure, just as the fact that I was once a clump of a few dozen undifferentiated cells does not mean that a return to that state would not be a failure to achieve my *telos*. Such radical discontinuity, a cutting off of all of the future possibilities of nature, would be an end of nature's history; it would be death and failure.

Thus in one sense, the *telos* of an individual animal is fixed: that animal acts for its own good, for self-maintenance and harmony. In another sense, the animal is progressing to develop new capabilities in service of that end, and so there is a

¹³⁷ Assuming that there is no life in the universe apart from that on earth.

dynamic form that is constantly shifting (within certain constraints).¹³⁸ Similarly with nature as a whole: Nature acts for self-maintenance and harmony, and it produces within itself, through particular life-forms, various abilities in service of that end. So although it always is aiming at the same thing (equilibrium), the development within nature is a continual progress in abilities.

One might wonder if I am simply moving words around; if nature does in fact progress over time toward certain advanced abilities, on what basis do I say that this is not its *telos*? Similarly for the individual animal: The tadpole develops into a frog. How is this not a kind of teleology? The answer is simply that in looking at the overall structure of the animal or nature, the parts are organized for the end of self-maintenance, rather than the end of development of abilities or of a certain form, although the animal certainly operates within the constraints of its genetic inheritance and its environment, and nature also operates within the constraints of its current state and capacities.

To make clear this distinction between the tendencies or fate of a system and its *telos*, consider an analogy: the house of a lazy homeowner tends toward disintegration. But the house (insofar as it is a house) is still organized for the *telos* of providing shelter to its inhabitants. It would be odd to say that the house has a *telos* of debris, simply because (due to the neglect of its owner) that is where it is headed. Similarly, the house of an industrious homeowner may tend toward expansion. Perhaps the homeowner is constantly adding additions to the house such

¹³⁸ In any particular instance, an organism may *regress*, or lose an ability, or they may simply die out. This happens often, but *generally*, the abilities of an organism (of all organisms, and therefore of nature as a whole) increase over time.

that the house is slowly approaching the property line. But the *telos* of the house is still to provide shelter, and it is getting better at achieving that *telos* through the industry of its owner. It would be a mistake to say that its *telos* is expansion to the property line, since in every addition, the organization of its parts—the roof, the walls, and floors—all still are organized for the goal of providing shelter. Also, each addition is constrained by the current structure of the house; one cannot build a second story if the walls are not built to be load-bearing, for instance. If we could imagine the house building and maintaining itself, working within such constraints, sensitive always to the end of providing shelter, this analogy would be even closer to nature.¹³⁹ The dynamism in form—in nature as a whole, in the evolution of an life-form, and in the development of a particular organism¹⁴⁰—is like this.

This internal teleological framework of nature, modified from Schelling's view in order to remove rationality and freedom as the fixed *telos* of natural history, is the framework I will operate with in what follows. As mentioned above, we need this teleological framework in order to make sense of reason, which is goal-directed, and must arise in a goal-directed context, as a kind of sensitive response aimed at certain ends. The above modified framework introduces this goal-directed context without abandoning the insights of evolutionary theory, and in fact makes sense of various features of evolution (more on this below). And so we are in a good position to explain the emergence of reason from nature. Like Schelling, we can say that

¹³⁹ Although, it is still disanalogous insofar as the *telos* of the house is external.

¹⁴⁰ This is not to say that *every* development in nature is helpful for attaining its end (similarly with the organism): some developments may be ill-suited to the *telos*, just as the industrious homeowner, while aiming at improvement, may accidentally make the home structurally unsound, or less suited for providing shelter.

rationality is implicit in nature; we say that it is there as goal-directed sensitive response.¹⁴¹

This conception of nature as dynamic in form actually fits better with Schelling's overall philosophical picture, and doesn't suffer from the triumphalist end-of-history style vision, typical in the philosophy of his time, which many find repugnant. Below I will argue that this conception of natural history goes hand in hand with Schelling's conception of human history. Then I will show how this teleological framework offers a productive setting for contemporary evolutionary theory that will help explain various features of evolution, such as evolutionary convergence and the trend toward complexity, as well as offer some promising ways to frame the role of developmental plasticity in evolution, given recent trends in the literature.

6.4 Teleology of the Human Spirit

Schelling is often considered triumphalist in his *Naturphilosophie*, perhaps because of his closeness to Hegel at this time. In other words, he is taken to regard human history as having an endpoint which is at least immanent, or perhaps even is attained through his philosophical work. It is worth noting that the picture may be more complicated and pessimistic than this. Consider the following passage:

[Man's] spirit, whose element is *freedom*, strives to make *itself* free, to disentangle itself from the fetters of nature and her guardianship, and must abandon itself to the uncertain fate of its own powers, in order one day to

¹⁴¹ In the following chapter (Chapter 7), I will discuss in detail this emergence of reason and how it becomes more than mere instrumental rationality. I will also detail what sort of implications this story of emergence has for our conceptions of rationality and knowledge. What results will be quite similar to Schelling's epistemology, the compelling features of which were detailed in Chapter 3.

return, as victor and by its own merit, to that position in which, unaware of itself, it spent the childhood of its reason. (*Ideen*, p. 10)

The ultimate unification of “man’s spirit” and nature will, apparently, happen “one day”; moreover, man returns to nature as *victor*, which would imply a certain kind of domination, perhaps through the scientific knowledge of nature. But, this passage is not without its ambiguities; man’s powers are “uncertain”, implying that he may not accomplish this task.

So there is a triumphalist picture here, but it is not one of a necessary progression. There is a *possible* end of human history, but it is not inevitable that we reach it. In his later philosophy, Schelling is even more pessimistic. Once man “separates himself from nature”, nature’s full self-understanding is not immanent; indeed, it is not even possible. Rather, the horizon seems to be receding more quickly than our progress in trying to reach it. Every step we take toward understanding ourselves complicates ourselves, making us less amenable to understanding. And so there is no point in history at which the end of self-understanding can be achieved. In the 1809 *Freedom* essay, this point is explained in terms of an ever-elusive ground, striving against the conscious grasp of the understanding, that makes evil possible.¹⁴² So Schelling’s picture is at once teleological and tragic—we will strive for, but never achieve, full understanding. And there is no guarantee that as we move forward in this striving, that we are growing closer to that ever-distant goal.

This later view of human history fits in with the natural teleology expounded above (nature as having an internal *telos* of equilibrium, modifying its form to attain

¹⁴² Schelling, *Freedom*, pp. 36-42.

this *telos*). Just as in human history, there is *progression* in natural history, but that progression does not bring us closer to a goal. If the goal of nature is equilibrium or stability, “progress” will have the same effect of pushing that goal ever further away, even as nature moves toward that goal. In other words, nature, through an organism, develops a new mode of sensitivity or responsiveness when that organism is confronted with a situation that is frustrating its end of self-maintenance. The victory for that organism in its progression (and, by extension, for nature) produces a situation in which the ecosystem as a whole must adjust to this new capability in the organism, and so this step toward stability has destabilized everything else, and the goal of stability is even more out of reach. In human history knowledge is increasing, but so is the domain of things to know; for nature, stability in one respect increases, but so does the variety and diversity and the capabilities of natural things, thus making nature as a whole more difficult to stabilize. Moreover, in both histories, progress *accelerates*: as the adaptability of organisms is ever increasing, so is the rate of accumulation of human knowledge.

6.5 Evolution and *Naturphilosophie*, Reconceived

6.5.1. *Progression of Form in Individual Organisms*

The remarkable ability of organisms to adjust their own form in response to a variety of circumstances is demonstrated by one such organism, a bipedal goat. This goat, born without forelegs, hopped about on its hind legs with a semi-upright posture. When it died, it was dissected by the Dutch morphologist Slijper and found to have remarkable morphological changes in bone and muscle structure, “including a greatly thickened and elongated gluteal tongue and an innovative arrangement of

small tendons, a modified shape of the thoractic skeleton, and extensive modifications of the pelvis” (West-Eberhard, 2005, p. 6545). West-Eberhard proposes that such developmental plasticity can have a role in evolutionary development and speciation. She states, “Genes are probably more often followers than leaders in evolutionary change. Species differences can originate before reproductive isolation and contribute to the process of speciation itself” (p. 6543). She goes on to explain that as a result its sensitivity to a complex of epigenetic, genetic, environmental, and behavioral changes,¹⁴³ the organism can express radically divergent phenotypes. If these changes are relatively stable, changes in the genome may follow, through natural selection. For example, a population of fish may migrate to an environment where they must adapt to new environment and new types of food. Quite quickly, their developmental plasticity will lead to a phenotype differing radically from that of their fish cousins back home, and yet they remain genetically identical, and there is no species difference. Over time, however, the genome selected for will begin to differ from the original genome and will better accommodate and stabilize the new phenotype. Eventually we will have a new species of fish.¹⁴⁴

In their seminal work *Evolution in Four Dimensions* Eva Jablonka and Marion Lamb build on these developments, and herald a new, more complex picture of evolution that replaces the neo-Darwinian model of random mutation and natural

¹⁴³ These changes may interact and build upon each other: the goat behaved in certain ways, which triggered epigenetic novelties in its development, which led to further altered behaviors, and so on. For the role of behavior in such development, see West-Eberhard (2003), pp. 52-53.

¹⁴⁴ This is a simplified paraphrase of West-Eberhard’s real example; see p. 6546.

selection.¹⁴⁵ These new developments “may mean that there are Lamarckian mechanisms that allow ‘soft inheritance’—the inheritance of genomic changes induced by environmental factors. Until recently, the belief that acquired variations can be inherited was considered to be a grave heresy, one that should have no place in evolutionary theory” (p. 7). While some object to calling these processes “Lamarckian”, most see this environmentally-induced “soft inheritance” as the future of evolutionary biology.¹⁴⁶

These trends in evolutionary biology lend support to the picture explicated above: organisms have the ability, through plasticity in their developmental pathways and their behavior, to alter their form in ways that lead to equilibrium between themselves and their environments. These alterations are operative in evolutionary development, leading to an ever-increasing diversity of form and abilities. And so in nature as a whole, there is an array of abilities always in being produced by the interaction of nature’s parts. Evolutionary progression is not the result of mere chance happenings combined with the mechanism of natural selection; rather, innate in structures of life is a tendency to grow in abilities. Organisms direct evolutionary progress by changing in response to the environment in order to achieve their ends. Nature and evolution are, therefore, irrevocably

¹⁴⁵ It is worth noting that this is a radical change in the mechanism of evolution and speciation: “These molecular insights lead to new concepts of how genomes are organized and reorganized, opening a range of possibilities for thinking about evolution. Rather than being restricted to contemplating a slow process depending on random (i.e. blind) genetic variation and gradual phenotypic change, we are now free to think in realistic molecular ways about rapid genome restructuring guided by biological feedback networks” (Shapiro, 1999, p. 32, quoted in Lamb and Jablonka, 2005, p. 70-71).

¹⁴⁶ See West-Eberhard (2007); Pigliucci (2005).

teleological, in that evolutionary history is guided at every step by the goal-directed activities of organisms.

6.5.2. *Nature: An Ever-Growing Hierarchy of Sensitive Response*

So far, we have discussed “abilities” as what is increasing in nature. The term, however, is vague and requires specification. Recall that we would like to explain the emergence of reason as something *natural* within nature, without going as far as Schelling and claiming that nature aims at reason as its *telos*. To do so, we must identify the ways in which nature tends toward reason without aiming at it; we must show that nature produces reason without trying to. And so whatever is increasing in nature, “complexity” or (our term) “abilities”, must be precursors to reason, or low-level analogs to reason.

Schelling’s natural forms are arranged in a hierarchy according to the degree that they manifest freedom and rationality. These terms, when applied to plants and animals, are not very helpful and can be slightly misleading. But if we look closer at Schelling’s conception of rationality, we see it necessarily involves both activity and passivity:

Only by contrast to a free activity in myself does that which freely acts upon me take on the attributes of reality; only upon the original force of my *self* does the force of an outer world break in [...] [In knowing] activity and passivity are in the fullest interaction. (*Ideen*, p. 174)

And so, according to Schelling, rationality and knowledge are *based* in free activity, both of the self and of the world around the self. This helps to make clear what is meant by natural things manifesting freedom and rationality. An organism is certainly not fully free or fully rational, but it can be active, and it can be acted upon.

It is only in the context of activity of an organism (broadly construed) that the features of the environment are relevant to the organism, and they are relevant *because of its activity, and to its activity.*¹⁴⁷ An animal tries to accomplish something, and it may be thwarted (acted upon) by some element in its environment, and the animal must then turn its attentions or energies toward that element in its environment. Thus the environment, though *its* activity, becomes relevant to the organism, because of the organism's activity and aims. And so such activity can be a precursor to the full-fledged free and rational activity of humans as explained in the quotation above.

The term 'abilities' can be specified to capture both this (passive) taking in of information in the context of activity, and the (active) reaction to that information in a way that is sensitive to that information. I will use the term "sensitive response" to indicate what is increasing in evolutionary history, to indicate what I have heretofore called 'abilities'. In other words, there is a spectrum of degree of sensitivity in response in nature, which is continually growing.

We can thus arrange a hierarchy of responses to circumstances based on degree of sensitivity. At the bottom we have blunt responses, with a low degree of sensitivity. These responses are often not very cost-effective, since they respond to a variety of circumstances in the same way, often because the organism is not sensitive to multiple types of information. Some types of bacteria will, when under

¹⁴⁷ Note that the relevance arises because of the goal-directedness of the activity of the organism. Thus this account differs from typical naturalistic accounts in that the *teleological* activity of the organism is front and center, and so the response differs from a mere causal response in that it is directed at a goal. This becomes especially important when discussing the emergence of reason, not as something impelled or caused, but as coming to be in service of ends.

attack by antibodies, initiate a stress response in which they generate a spate of entirely random mutations throughout the genome. Some of them hit on something adaptive, but most don't. The result of this is highly costly, as most mutations do not survive, but there is a good chance that some strain will be adaptive and survive the attack. This is simply a response to an extremely suppressed rate of growth and reproduction, and the bacteria will respond in the same way whenever and wherever this occurs; and so this is a blunt response. Another kind of response, higher on our spectrum, will take into account that the bacteria are under attack by antibodies which attack the bacteria based on their surface structures, and so their response is to initiate high rates of mutation in parts of the genome that determine the surface structure of the bacterium, and thus evade the host's antibodies.¹⁴⁸

Plasticity in development is high in sensitivity, as are behavioral responses, such as responses that are the result of sight. If an organism can merely sense that a predator is nearby, its defense mechanisms are limited. But if it knows *where* the predator is, it can respond in a more cost-effective way (by running in the opposite direction, for example). Even more so if it recognizes the type of predator, and so it might hide or remain still for one type, climb up a tree for another, and so on. And so responses higher up on this spectrum are high in information intake, and thus are more sensitive to features of the environment.

Multiple sense modalities allow for a combining of information in even more efficient ways. One can hear things that are outside of one's visual field. One can correlate distances with the noise level heard, so that through sighted familiarity

¹⁴⁸ Both of these examples are taken from Lamb and Jablonka, pp. 92-96.

with an object (a car on the highway, for example) one can tell how close it is merely through hearing. Multiple sense modalities in an organism thus are going to substantially increase the sensitivity of responses.

While Schelling places the *organisms* in a hierarchy, it is more helpful to place the responses themselves in a hierarchy, while keeping in mind that any characterization of a response will necessarily involve the whole organism, its history, and its environment. An organism that has highly sensitive responses to one kind of information may have blunt responses to others. Taking various responses as the relevant property will be an abstraction from the functionally unified organism, for whom these abilities are integrated and in the real world inseparable. Nevertheless, it is helpful to do so, since it isolates what is increasing. If we place two organisms side-by-side (say, *homo habilis* and *homo erectus*), and ask, which one has greater abilities or sensitive responses, the answer will certainly be that both organisms are sensitive to things the other is not sensitive to, and so it would be coarse to place one above the other on a hierarchy. But we can discuss less problematically the degree of information an organism can take in and its ability to respond in a way sensitive to that information. *Homo erectus*, for example, develops a more refined and larger variety of tools.

We can now see how amenable this framework is to evolutionary biology, as it provides an explanation of how organisms change in response to the environment. When confronted with circumstances inimical to their survival or various other ends, animals may begin to rely, for instance, on features of themselves more sensitive to the circumstance that is frustrating their ends. The organism may

change in order to *be more sensitive* to that feature so that its response can be tuned to overcome this obstacle in a way that isn't costly and doesn't interfere to a great degree with their other activities. And so, over time we see a great increase in abilities and diversity of form, all taking place through development in the sensitivity of the organism's response to environmental circumstances. Such an increase in the diversity of natural objects will lead to a diversity of circumstances, as organisms occupy the environments of other organisms and are variously active and responsive to those organisms, fueling the changes to an even greater degree.¹⁴⁹

One might expect that once a certain level of flexibility and sensitivity in adaptive response evolves, there would be a rapid increase in diversity of forms. As the constraints on types of response are loosened and the ability to differentiate various features of the environment grows, organisms will respond and adapt to their environments in a much greater variety of ways. This leads not only to more sensitivity to the complexity of the environment, but also just to more complex environments, as organisms manipulate and occupy places in their mutual environments. Such conditions—the co-emergence of greater sensitivity, complexity, and developmental plasticity—may be a partial explanation of the Cambrian explosion.

Thus developmental and evolutionary adaptability is *itself* a kind of sensitive response. The fact that two fishy genetic clones can grow up to look incredibly different in two disparate environments is itself a demonstration of environmental

¹⁴⁹ It is not impossible, indeed, it happens time and again, for an organism to *simplify*. The response is thus not always an increase in sensitivity: an animal may divert its energies to some other critical system, and thus lose one of its features or abilities. The general trend, however, is toward increase.

sensitivity. Thus evolution appears to be *fueled*, not by chance events, but by the ability of organisms to developmentally adapt to their surroundings *in order to achieve their ends*. So developmental adaptability is itself increasing in evolutionary history, particularly as the abilities of ancestors can remain dormant in an organism, and so a myriad of potential developmental and evolutionary pathways are available to the organism, and they need only the right environmental conditions to come to fruition.

Rational reflection, clearly enough, allows for a type and scope of sensitivity in response that is unprecedented in nature. Through the accumulation of knowledge and advances in technology we can engage in projects that change our relationship to the natural world. Consider the level of sensitivity to information that is required in the development and correct application of various kinds of antibiotics, just to take one example, or the building of dams as a source of energy. Remarkable as such abilities are, one might worry that these rational abilities are just a strange (perhaps miraculous) hiccup in the natural world, either a bizarre (happy?) accident or the intervention of a benevolent God. I will argue below that it is best to see such abilities as an inevitable continuation along this spectrum of nature, as developed first and primarily as a way of responding more sensitively to the environment.

6.5.3. Inevitable Reason: the Skeletal Tree of Life

As far as we know, humans are the only organisms capable of abstract rational thought. One might then justifiably respond with skepticism that it was

likely, or even inevitable, that rational beings come into existence in the course of evolutionary history. Aristotle justifies his idea that the acorns and tadpoles will “always or for the most part” mature into oak trees and frogs, since we see them, over and over again, maturing in similar ways.¹⁵⁰ We cannot similarly justify the idea that nature will eventually produce organisms that are rational and free: We have not seen multiple natures coming to maturity, and so one could argue that we cannot say what about that progression is inevitable and what is accidental.

We can, however, look at evolutionary history and discover how often and under what conditions various characteristics arise. What we find is that many features of organisms have evolved multiple times because of similar constraints. Conway Morris, in *Life's Solution*, surveys the landscape of evolutionary convergence, pointing to a wide variety of systems and morphologies (for instance, the camera eye) which have evolved independently a number of times. Vampire bats and bedbugs both have infrared vision (2009, p. 1129); electric fish and moths both give off signals that are similar in the way they are meant to confuse predators (2003, p. 285). There are far too many examples to enumerate here, but one interesting conclusion is that “complex cognitive worlds have evolved independently many times” on various major branches on the phylogenetic tree, in corvids (such as the crow), primates, and invertebrates. Certain crows can make and use tools; the cognition of the octopus shows striking similarities to that of the vertebrate, in that it demonstrates memory, the capacity to play, and curiosity (2009, p. 1328). The

¹⁵⁰ “The things mentioned, and all things that are due to nature, come to be as they do always or for the most part, and nothing which is the outcome of luck or an automatic outcome does that” *Physics* II.8, 198b.

tree of life, contends Conway Morris, does not branch out equally in all directions—which one might expect if evolutionary change were fueled by chance alterations. Rather, it is skeletal—directed along certain pathways by the developmental restrictions and tendencies of the organisms, restricted to certain trajectories, with various characteristics appearing over and over again because they are inevitable, or at least extremely probable, in an evolutionary pathway.

The adaptive success of a trait (along with its cost-effectiveness) is the main explanation of its convergence. Adaptive arrangements, such as the complex societies of wasps and ants (and humans) have emerged multiple times, and have made extinct various competing groups (2003, p. 205). And many traits must arise together, for instance, complex circulatory systems and the camera eye are preconditions for a large brain. The kiwi, which gives birth to live young, shares many other features with mammals (a certain body temperature, a single egg, flightlessness, among others) which suggests again that evolutionary trajectories are constrained, since these characteristics seem to come as a package. Conway Morris argues that these features of mammals, as well as vocalization, warm-bloodedness, and mammalian dentition, have evolved independently, and so 'mammal-ness' can be regarded as a feature of life rather than a contingent collection of features (p. 328). Because of their adaptive value and their co-dependence, we may expect them to arise anywhere there is life.

The evolutionary progression of mammals to intelligent mammals is still a difficult one to traverse; even if one is willing to grant that mammals are inevitable, why think that anything like reflection is? But, the conditions for a large brain are

convergent: As mentioned above, such conditions are the various chemical requirements of a nervous system (acetylcholine, various neuropeptides), a complex circulatory system with the oxygen-carrying hemoglobin, among others, various mammalian features, for example. It appears that these are inevitable, as they arise multiple times in a variety of circumstances and types of animals (pp. 234-242). Even if some of these ingredients are missing, nature has a remarkable ability to re-purpose elements or molecules for ends other than the ones for which they originally arose.

While big brains are metabolically “expensive”, a large brain has been a stable feature of dolphins for perhaps as long as 20 million years (p. 248). Conway Morris suggests that large brains in dolphins originally arose in response to a dramatically cooled environment, pointing out a similar hypothesis—a radical change in environmental conditions—for the increase of size of the brain of *Homo erectus*. “Large brains may therefore be favoured when the environment offers a special challenge” (p. 249). In other words, circumstances may arise in which thinking about what to do is the best response, even if it is metabolically costly. Once these large brains arrive, they are stabilized by complex social arrangements aided by complex and varied vocalizations, which have as a precondition a certain amount of intelligence, but are also themselves highly adaptive.

The abilities of dolphins to understand human language, in particular, syntax, and the dolphin’s complex system of vocalizations and its similarity to human language, are well-documented and well-known. These convergences must be understood against a backdrop of dissimilarity, as dolphin brains manifest features

particular to their needs as beings who echolocate, who are constantly swimming, and so on. This suggests that “while the routes to adaptive success, of which one is higher intelligence, may be quite strikingly different (as in dolphins and humans) the endpoints converge again and again” (p. 257). If intelligence is a stable adaptive trait in environments as diverse as the ocean and the middle of Africa, it seems unlikely that rationality is an unrepeatably evolutionary fluke.

This is, after all, what we might expect. An ability to take in, synthesize, and reason about large amounts of information will help me to be successful in the projects I undertake, especially when some features of my environment are new to me, and so the hierarchy of sensitive response will expand eventually to include intelligence. Reflective rationality is remarkable in more than this way, and the value of the cultural transmission of information, technology, the ability to self-determine, and so on should not be underestimated.

And so evolutionary development tends inevitably toward rationality. Rationality is (so far) the height of nature’s achievements, implicit in the rest of nature’s organic achievements as sensitive response to the environment, most manifest in other mammals, the great apes and dolphins in particular.

6.6 Conclusion

In this chapter, I have articulated, in outline, a new *Naturphilosophie*, with a modified teleological structure that fits nicely with recent evolutionary biology. In short, we should still think of nature as an organism, but now, that organism is evolving. Internal to nature, new capacities are constantly being developed in order

to maintain the balance and harmony of organisms, ecosystems, and nature as a whole. Thus the *telos* of nature is internal and stable, even if its form is changing; it self-organizes for the goal of its own self-maintenance, and the changes in form can be seen as also in service of that goal. The same can be said of individual organisms, groups, and ecosystems: they self-organize and alter and adapt, all for the goal of self-maintenance and survival. Nevertheless, the progression of nature (and of an organism) takes place along relatively fixed trajectories. We might imagine evolution as taking place on a landscape, with easy footpaths, rocky mountains, and dangerous swamps or foliage. Organisms will take the easy path, when it is available. They will adjust themselves to their environments in efficient ways; their genomes will follow and stabilize their new forms. And we can identify features which will often lie a certain distance along these “easy paths”: the camera eye, olfaction, warm-bloodedness. And, if we have been traversing these paths for quite a while, *rationality*. While neither the organism nor nature as a whole has as its goal rationality, it will, given enough time, eventually find itself there.

In general, we can expect the evolution of various sense modalities—eyes, hearing, olfaction, a central nervous system—because these sense modalities are highly adaptive, and not prohibitively costly. In allowing the organism to respond sensitively to large amounts of information, these modalities increase the efficiency of the organism and its response. And so the time spent on the evolutionary landscape will correlate with the degree of sensitive response in nature, since this is a very effective way of adapting to the environment. Reflection allows for an

unprecedented degree of sensitivity. And so it will emerge, as a feature of the natural activity of organisms.

This is because activity in nature is paradigmatically goal-directed. Animals change and adapt in order to survive, in order to use their energy more efficiently, in order to produce lots of healthy offspring, and they do so in particular ways because those ways tend to work best. We should not shy away from this teleological language, as it is the language that makes the whole picture intelligible to us. When phenomenal awareness arises in nature, it too emerges from the pursuit of and for the sake of some goal. *When reason arises in nature, it too is goal-directed.* This feature of reason, as emerging out of goal-directed animal activity, will have implications for how we think of human knowledge, science, and culture.

This does not mean that reason is just another adaptive response, about as special as echolocation. Rather, reason is unique in that it can emerge as the result of goals which it can then subsequently outstrip and abandon, putting humans outside of the original *telos* of nature. To quote Schelling, prior to the development of reason “man was still at one with himself and the world around him [...] [But] his spirit, whose element is *freedom*, strives to make *itself* free, to disentangle itself from the fetters of Nature and her guardianship” (*Ideen*, 10). This disentangling means that we can do what no other animals can do: We can explore the normative universe and take on goals that go beyond the biological. We can self-shape, reflectively self-determine. We can explore intellectually the mathematical and divine. These abilities, although they are *natural* in origin, go beyond the rest of nature in what they make possible.

In this chapter I discussed what nature is, such reason can emerge from it and continuous with it. In the next and final chapter, I will discuss what reason is, given that it has its origins in nature as I present it above. In short, if rationality is a type of sensitive response, developed in organisms to achieve various biological ends (such as eating, mating, avoiding predators, and so on), we ought to conceive of it as having behavioral underpinnings. In other words, before we ponder various ways to avoid predators, we simply avoid predators. And so in reflecting, we make explicit those structures that are already inherent in our behavior. Reflection comes about as a way of honing our goal-directed activities; thus it makes most sense to see rationality, not as occupying a realm separate from the biological with separate aims, but as emerging in tandem with and for the purpose of attaining the biological goals of an organism. Once it emerges, however, reason's truth-directedness can become an end we value over and above certain biological ends; nevertheless, its ground is and always will be activity.

CHAPTER 7
MAKING IT IMPLICIT:
RATIONALITY BASED IN ACTIVITY

7.1 Introduction

Basic theorizing about animals both informs and is informed by basic theorizing about ourselves as humans. Descartes, for instance, thought animals were machines.¹⁵¹ By this he means that animals are not aware of anything; like robots, they are complex systems of merely material processes. Of course, if one thinks this of animals, it is quite natural to think the same of human bodies: they are also machines, but machines integrated with and commanded by a thinking thing. This is a minority position, surely, but that human organisms are *organisms* is ignored or thought unimportant by most people working in philosophy today. But this fact is not irrelevant to our theorizing about humans. Our understanding of animals will affect how we understand humans—and vice versa—as we see with Descartes. So let us take a different starting point. If animals are not machines, but are rather beings which strive for various ends, and who do so with increasingly advanced forms of sensitivity to their surroundings, then it is natural to think that human

¹⁵¹ See Descartes, pp. 364-366, where he claims that animals are self-moving machines, and if humans did not exhibit linguistic capacities, we could also conclude the same of humans.

beings are also animals, perhaps a very special kind of animal, but no different in fundamental constitution.

It is this latter conception of organisms that I argue for in the previous chapter. In this account, rationality is a more advanced form of other natural abilities to react purposively to the environment in ways that are sensitive to the information in that environment. Animals act in nature with a certain set of principles implicit in their activity as they strive to achieve their *telos*. When something goes wrong, they must alter their behavior and thereby alter the ways in which these implicit principles are put to use. So in their activity, animals are sensitive to various elements in their environments, and can learn or modify their responses on the basis of such information. Animals cannot be reflective or systematic about such changes, but humans can be.

This is an improvement over the Kantian picture because nature exhibits precursors to rationality in the goal-directed sensitive responsiveness of organisms, as I argued in the previous chapter. And it improves on a typical scientific or reductive picture of human rationality and freedom because it places reason within an already teleological natural picture, and so there is no mystery of how rationality is normative or action-guiding, since it makes explicit the norms of natural activity, which is goal-directed from its simplest forms.

In this chapter, I will discuss the conception of rationality that emerges from the account of nature and organisms presented in the previous chapter. This picture of rationality will be very much in line with the interpretation of Schelling's conception of rationality I present in Chapter 3. According to this conception,

rationality most basically involves making explicit the principles implicit in one's organic activity.

In what follows, I will lay out once more the epistemological framework of Schelling's *Naturphilosophie*, as the conception of reason that will emerge from nature. Secondly, I will discuss why we can expect instrumental reason, reason in service of ends, to be truth-conducive. I will then discuss the cognitive development of individual humans. This conception of rationality offers a way of seeing the *evolutionary* process of reason emerging out of goal-directed animal behavior as mirrored in the developmental *maturing* process of reason emerging out of goal-directed behavior in infants and young toddlers. Finally, and most importantly, I will offer an explanation of how hypothetical reason becomes reason *tout court*. That is, I will indicate how this way of thinking offers an approach to the question of how we become the kinds of beings who can reason, not just about means, but about ends; how we become *ethical* beings. Here I take my cue from Schelling, for whom rationality allows humans to take themselves, not just the world around them, as an object of knowledge. We become *self-producers*, and in doing so, enact and are constrained by ethical principles.

7.2 Schelling's Practical Epistemology¹⁵²

In his 1799 Introduction to his *First Outline for a System of the Philosophy of Nature*, Schelling develops a conception of knowledge, according to which knowledge is developed through one's productive interaction with nature. Schelling

¹⁵² For a more detailed discussion of Schelling's epistemology and its implications, see Chapter 3.

is primarily concerned with science here, and he frames this productivity in terms of experimentation:

Now, it would certainly be impossible to get a glimpse of the internal construction of Nature if an invasion of Nature were not possible through freedom. It is true that Nature acts openly and freely; its acts however are never isolated, but performed under the concurrence of a host of causes which must first be excluded if we are to obtain a pure result. Nature must therefore be compelled to act under certain definite conditions, which either do not exist in it at all, or else exist only as modified by others.—such an invasion we call an experiment. Every experiment is a question put to Nature, to which it is compelled to give a reply. (*Entwurf*, 196–7)

In the context of experimentation, we approach nature with a set of principles (which, in this case, might be our current scientific theoretical framework), and interfere with its activity in order to produce some phenomena. We do this with an idea of how the experiment will turn out, based on our set of principles. So far, this sounds like basic scientific procedure. What is unique about this presentation is the framing in terms of nature's activity and internal construction. Nature is acting according to a set of principles, making manifest its internal construction, and we have access to it through the process of experimentation as described above. We can make nature act under certain definite conditions to get confirmation or disconfirmation that our principles and nature's principles are matching.

Schelling calls our principles 'a priori', meaning not that these principles are *known* a priori, but that they play the role of the a priori in structuring nature, both in terms of how we know nature and how nature in fact is. Our conception of nature is structured by these principles, and our production of phenomena guided by them in the way laid out above. Additionally, nature structures itself according to a priori principles, and they become *our* a priori principles when we build a theoretical

framework on the basis of them in the way described above. Schelling claims that a judgment that is originally “merely historical” *becomes* a priori when we become conscious of its necessity (*Entwurf* p. 198; I/3 278), meaning that things we know through experience can take on this role when we understand them as nature’s own principles. And we accordingly take them as guides in our own activity, so that our activity is in sync with nature’s.¹⁵³

Thus activity is both the foundation from which knowledge emerges, and the endpoint at which knowledge is put to use. The theoretical framework of principles mediates such activity. One can test this theoretical framework through activity, and modify it if that activity fails in some way. But oftentimes our activity is *not* so mediated, we simply perceive and act, not to test what we know, but merely to accomplish some other end. If asked to justify behavior, one might make explicit those principles implicit in one’s activity: e.g. “Why are you drinking that water?” “Because I am thirsty, and drinking water quenches thirst.” This does not mean that one reasoned that such activity would be best, or reflectively endorsed the behavior prior to engaging in it. Rather, these are simply the principles of one’s activity, which may be made explicit or may remain implicit in the activity. Such principles may have been communicated in an explicit form through some form of education, or they may have been learned through activity.

Most interestingly, there are many cases of principles implicit in activity that *cannot* be made explicit, because the activity is highly skillful and learned through physical repetition. Skillfully playing a musical instrument or excelling at a sport are

¹⁵³ Although I have so far discussed only scientific knowledge, this framework can easily be expanded to encompass any body of theoretical knowledge; see Chapter 3.

two such examples. In this case, attempting to formulate the principles of the action and make them mediate one's action will have disastrous results. Once the soccer player starts thinking about the way she is moving her body, at what angle she must lean in order to pass the defender, she may fall or cease to move in a skillful way. Once the piano player starts thinking about where her fingers must be and when, she has ceased to engage in the activity, and will stumble through the music. Here, and in many other more mundane cases (driving, eating, bathing, and so on), people simply act without thinking about that activity. And our actions in these cases are highly coherent, even rational, but they are not performed thoughtfully or with reflection. So while principles may be made explicit, they may also remain merely implicit; moreover, learning does not require abstract thought or modification of principles, although the building of a theoretical framework of knowledge certainly does.

7.3 Hypothetical Reason and Truth

As explained in the previous chapter, organic activity takes place along a spectrum of sensitivity to the environment that is implicit in the response of the organism. Plants are sensitive to their environments in their responses to environmental conditions; cognitively aware animals are more sensitive to their environments. In the case of animals, it is important to note that there is not a two-step process here, in which the organism becomes aware of its environment as having various objective features and then bases its actions on such awareness. Rather, the awareness is embodied in the action, or reaction, rather, of the organism

to its surroundings. The sensitivity is primarily present in the action of the animal, in the fleeing, the eating, the mating, and so on, rather than in the cognition of the object that produces such a response. Advancing in sensitivity of response means (most basically) honing one's goal-directed activities by making responses more precise and appropriate to a given environmental situation. Thus the *perceptions* of the organism are perceptions, not of third-personal objects with properties, rather, the object is categorized in terms of its suitability for an end. The perception calls forth an action from the organism. The organism's environment is thus teleologically coded: an animal might perceive that-which-to-flee-from, that-which-to-eat, that-which-to-mate-with.¹⁵⁴ And so the *goal-directed action* is primary in this picture.

Thus far I am following an account of animal perception given by Christine Korsgaard. But according to Korsgaard, this account does not apply to beings with rational capacities. On her view, the teleological world picture crumbles to pieces with the advent of rationality, and self-constitution involves re-constituting this fallen picture freely and rationally, through reflective endorsement of the desires and reasons to engage in certain actions on certain objects.¹⁵⁵ But this seems unnecessarily complicated, and it gives too pervasive a role to reason in human action. We should, rather, extend Korsgaard's picture for animals to humans, with the caveat that humans can reflect on their teleologically coded environment.

On this picture, an animal would have what we might call teleological categories of perception. Thus, they would categorize their world primarily in terms

¹⁵⁴ This may very well be different in certain mammals with more advanced cognitive capacities, who perhaps can begin to separate objects and actions.

¹⁵⁵ Korsgaard, 2008, pp. 31-33. For a full discussion of Korsgaard's views and my response, see Chapter 4.

of ends. And so looking around, an animal would not see an objective world unconnected to its ends, but rather, would perceive a teleologically coded world which is categorized in terms of the type of response called forth in the organism. Thus if an animal mistakes something (a dog might mistake a stuffed animal for prey, for instance) we should characterize this mistake in terms of the activity, rather than the properties of the object. The dog does not think that the stuffed animal is made of flesh and blood, but rather makes the more basic and superficial mistake that the stuffed animal is for eating. The dog might learn that the stuffed animal is not for eating and avoid eating such things in the future, but it would be wrong to say that the dog learns the stuffed animal is made of cotton. Thus the change in the cognitive life of the dog is an adjustment of these teleological categories to more truly match the suitability of the dog's environment for its various ends.

Humans might also perceive the world in this way, both originally as infants and also in more basic forms of unreflective perception. However, we can also dissect the teleological perception into its components: the object and its properties, and the end. A perception, on this picture, is an action-guiding norm: eat this; avoid that. Rationality enables humans to reflect on this perception, and distill an objective concept from its teleological context. And so we can reason about the object in isolation from any given end or action, and ask what it is about the object that makes it something to be avoided. Once we discover these objective properties of the object, we can apply them in other contexts. For example, that which makes a particular kind of wood a good roofing material might make it bad for constructing

indoor furniture. We can thus reason about the ways in which objects are suitable for other ends, and the connection of ends to each other.

Nevertheless, we are still left with various features of the teleologically perceived world of the animal. One can dissect such teleologically coded perceptions into components (objects and their suitability for particular ends), but one need not. In other words, I might unreflectively act, or I might pause, think about what I am doing, and wonder if there might be a better way to do it. This might mean taking a third-personal view toward my actions, especially if the question is a technological one: “Is this really the best way to grind the grain? What could one do to make this more efficient?” The teleological perception is the primary mode of perception, reason *can, but does not always*, pull these things—the object and its suitability for a given end—apart.

And so *goal-directed activity* is the foundation of rationality. When we make the structures implicit in such activity explicit, that is, when we separate the object, name it, and explore its objective relations, we begin to build theoretical systems of knowledge. The principles of such knowledge may be entirely objective in the sense that they are descriptions of a thing (e.g. wood is a porous material), or they may involve an application to ends (wood is good for building). In the previous chapter, I argue that we can arrange natural capacities along a hierarchy of the sensitivity they exhibit in their goal-directed activity, and that reason emerges as a natural development in the context of this goal-directed activity. Bacteria exhibit goal-directed activity, but the sensitivity to environmental information in the activity of that bacteria is low. When I act, the sensitivity of my activity to information is high.

This explicit structure of principles that results from rational capacities increases such sensitivity significantly. My knowledge now extends far into the domain of things of which I have no immediate experience. Based on what I know of wood and its objective properties, I can know that wood is not good for building skyscrapers, although I have no experience designing or building skyscrapers. Nevertheless, such a theoretical structure is always sensitive to the results of human activity, and is constantly being tested by such activity.

This structure, as it is comprehended, is aimed at describing and informing my activity. I might build a bridge with an alloy I take to have a high tensile strength and which can absorb vibrations, when in reality the alloy has a low tensile strength, and the bridge collapses. The falseness of the principles results in a falseness of the characterization of my activity, and *that* it is a characterization of my activity is what makes it sensitive: It is what makes possible a failure and reassessment of those principles.

One could object that this view falls into the trap of determining truth in terms of practical success. Truth, on this view, would be whatever furthers various ends that we have; it would be that which is expedient to believe in the context of a given project. But this is a misunderstanding: procedurally, the justification of a principle is in terms of its success, but the overall framework allows for a practically successful principle to be wrong. When experiments do what we thought they would do, when they “work”, we are justified in taking our principles to be correct. But it is possible for things to work and for us to still be wrong. There are principles at work in my activity, and so it is *these principles* I am seeking to know. So I can get them

wrong. Even if they have worked *so far*, it's possible that they are nevertheless not right, which is why it is important to test them in a wide variety of conditions.

It will be helpful at this point to look at a couple of examples. First, consider a change in an animal due to failures of its activity. A rodent may rely on a particular kind of bug for sustenance. This bug may develop a visual camouflage, and the rodent, who had heretofore relied on sight, then has difficulty finding the bug, causing the animal to go hungry. In response, the rodent develops a stronger sense of smell and no longer struggles to find its food.

Here the organism strives to achieve its *telos* and is often frustrated in that striving by nature. Its sensitivity to the surrounding objects are counteracted by the surrounding objects' sensitivities to it, and these elements are in constant play. The play of these networks of striving organisms gives rise to an ever-increasing array of abilities, developed by organisms in order to achieve their ends in an environment in which they must constantly overcome similar such developments in other organisms. But organisms don't have beliefs, let alone false ones. So their failures are purely practical. When their activity is frustrated, they adapt with new forms of activity.

As an organism, I embody the rational structures within nature; they are implicit in my activities. Unlike most other organisms, I can try to give explicit expression to the structures of my activity in nature. And so like the organisms, my activity can fail pragmatically. But, in addition, we can fail in our formulation of the principles that guide our action. We can fail to accurately describe what we are in fact doing.

Consider a different example, this time of human failure. An 18th century doctor treats several patients and comes to the conclusion that a certain disease is caused by an excess of black bile, which is to be relieved by an increased intake of hot water. This is explained by the claim that the water heats and moistens the cold, dry black bile. He spreads the word, and doctors treat this disease, and several like it, in this way for decades.

In this example, the doctor has failed to accurately describe what he is in fact doing. Perhaps the water has a beneficial effect and most of the patients get better. This is confirmation for his medical principles, but we know that although in this case such principles were effective, in other contexts they would be disastrous. So when he prescribes blood-letting, he thinks he is restoring a proper balance of humours, but he is weakening the patient to the point that she might not survive. Certain principles are at work in his activity, and he is mischaracterizing them, which leads to a mismatch between the activity he performs and the activity he ought to perform in these circumstances, in order to achieve his goal of helping the patient. But nature will push back against these actions: his patients will not fare better than those who are not treated, and perhaps may fare worse. The practical failure of his activity thus indicates a failure in his characterization of the principles. After several iterations of modifying principles and having them fail in certain contexts, the doctor may arrive at principles that are closer to nature's own. He correctly characterizes what he is doing, and so can engage in the activity that will be most suited to that end, and help, rather than harm, his patients.

The true principles are always there, implicit in my activity, and I have to engage in such activity in a variety of ways in order to uncover that truth. As an organism, I am using nature's principles long before I characterize them correctly. Animals also modify their activities when their ends are frustrated, but they cannot systematize and reason about the principles underlying their activity. Rational organisms are the only organisms who are able to engage in activity for no other reason than to uncover that truth, that is, in experimentation. An experiment is a question: Is my characterization of what I am doing correct? (Unfortunately, the answer is often just "no" and so figuring out where we've gone wrong is difficult).

This picture, which is inspired by Schelling's *Naturphilosophie*, bears certain similarities to an Kantian view in that in order to know certain principles, I must be in some way the *source* of these principles. But it alters this idea significantly: I do not impose these principles on nature, from the outside; quite the opposite, I am fully *within* nature, which is why the principles implicit in my actions and the principles of the natural world are identical.

With respect to a typical naturalistic picture, we can be in agreement insofar as humans are natural beings, and their capacities develop within and from the natural world. But this picture departs from typical naturalisms in that it considers nature to be normatively structured in its organic products.¹⁵⁶ On the standard story, a substantive teleology either must be reduced to some other mechanical property

¹⁵⁶ There are notable exceptions: Michael Thompson (see a discussion of Thompson's views in Chapter 5), Judith Jarvis Thompson, Philippa Foot, and Thomas Nagel are all naturalists who are committed to the idea that organic nature is normative (or at least, that we are warranted in our normative assertions about organisms). I would count these three as philosophical allies, since we agree that our idea of *nature* must shift to something with purpose and normativity if one is going to commit oneself to naturalism.

of natural things—a reduction that is difficult, if not impossible to accomplish—or it is an illusion which extends to our understanding of ourselves. One such eliminative naturalist is Alex Rosenberg, who expresses the typical view: “the most notable thing about naturalism is the way its philosophers have employed Darwin’s theory of natural selection to tame purpose.” If purpose in nature is an “illusion” produced “by physical processes alone” (Rosenberg, 2011)—(by physical processes Rosenberg means those processes described by physics)—there can be no norms in nature. Without purposes, the norms which guide one in achieving these illusory and merely apparent purposes must also be mere illusions.

But on the contrary, according to the picture endorsed here, nature is fully teleological, both in its overall structure as well as in its individual organisms. And so there *are* normative principles in nature, nature is rationally ordered to ends, which is *why* rationality is at home in and can emerge from nature. What is radical about this (Schelling-inspired) “naturalism” is that there are normative principles in nature that we can come to know, which belong to nature independently, apart from human subjectivity.

We can also frame this solution in McDowell’s terms.¹⁵⁷ If we adopt a dualism between mind and nature, McDowell’s claim is that we cannot explain how rational forms of thought come to legitimately operate with the natural world. Either we adopt a coherentism, a “frictionless spinning” of rational forms of thought with no story about how they are constrained by or sensitive to nature, or we fall into the “Myth of the Given” believing that non-conceptual experience is the foundation

¹⁵⁷ See Chapter 4 for a full account of McDowell’s views and my response to them.

which serves to orient and justify our epistemological activities (1996, p. 8). The problem with the latter, claims McDowell, is that the non-normative content of non-conceptual experience cannot serve to justify beliefs or actions.¹⁵⁸ So here we depart from McDowell, because we can say that experience need not be conceptual to be normative. Purposive activity, which nature is rife with, always involves normativity, since if there are purposes, there will be norms which describe how best to achieve those purposes. And so normativity is already there in all organic activity. Our concepts function in a “space of reasons” *because* they are the categories by which we make explicit the norms of our already normative activity. The “reasons” we cite in the space of reasons are just the explicit form of natural norms, and so nature is *already* structured by normative principles, which our concepts (since they are distilled from such norms) track. If one is being pithy, one might say that McDowell’s “realm of law” *is* a “space of reasons”.

In the realm of nature, instances of interaction with nature justify other instances of interaction with nature. If I eat a berry and it makes me sick, this justifies my avoiding that type of berry in the future. Whether I am an insect, a bear or a human being, some activities, such as the berry eating and resultant illness, “justify” (in a non-propositional sense) other forms of activity, such as avoiding this kind of berry. Rationality can mediate this justification; activity still justifies activity, but such justification can be mediated by conceptual thought, and can, but need not,

¹⁵⁸ I argue in Chapter 4 that McDowell’s solution, which he sees as a rejection of the dualism, simply reintroduces that dualism under a different name, because he wants to hold onto a kind of naturalism. Briefly, regarding the world as already conceptualized is in tension with his idea of first and second nature, since there is no story about how second nature emerges from first nature in such a way that it, and then conceptual schemes, etc. that come along with it, are sensitive to the non-conceptual.

take a propositional form. An animal S performs action φ for end τ . τ is not achieved, and so S performs a different action ψ aimed at that same end τ . If S is not a mere animal, but is a human, what occurs may (but need not) be altered in that the activities can be mediated by principles. S , relying on her formulation of the principles of nature, $P_1, P_2, \dots P_n$, reasons about how to best achieve τ . She comes to the conclusion that φ is how one should go about achieving τ . Something goes wrong, and τ is not achieved. S realizes there must be some error in her characterization of the principles or reasoning, modifies the principles accordingly and, on the basis of these new formulations, $P_1', P_2', \dots P_n'$, performs a different action ψ for the same end τ .

And so this story above explains how bodies of theoretical knowledge are formed and maintained with sensitivity to the non-conceptual. Our natural, organic activity provides a normative basis for the principles and concepts of rationality to track. So it is no mystery that reason is normative: nature is normative, and reason is natural.

So far, we have been talking primarily about how we come to know nature's principles, what might more colloquially be termed natural science. But that we can come to know the principles of nature is not the *only* thing that changes with the advent of rationality. As rational beings, we are not merely in the business of making implicit principles explicit—we also modify these principles and put them to use.¹⁵⁹ Knowledge of principles is the intermediary between ourselves and our actions, they

¹⁵⁹ We also have the ability to make explicit principles implicit: music theory, for instance, is learned with the hopes that it one day will forgotten in its explicit form, and replaced with an implicit understanding of music learned through skillful repetition.

mediate what is in animals immediate; they guide action. So instead of just having goal-directed action, we can dissect this into goals and ideas about how to achieve these goals. Instead of mere reaction, we can stop, think about the principles, modify them, and set about things in new, perhaps better, ways. This makes possible all kinds of things: tools, technology, medicine, science, engineering, and so on.

Several questions remain. First, what are the implications of this framework for individual development in humans? Secondly, what about *culture, beauty, ethics, morality*? Is there room in such a picture for explanations of these things, or are they mere byproducts in the struggle to survive, and we no more than animals who can achieve the biological goals of survival and reproduction in more efficient ways?

I cannot do justice to these questions in the dissertation but I nevertheless will give, in the sections below, an indication of how to approach these questions and a sketch of how they might be resolved. Immediately below (§7.4) I will say more about how this picture of the development of rationality, as taking place within the paradigm of goal-directed activity, can provide a way of thinking about the individual development of infants and young toddlers. And in the following section (§7.5), I will introduce a way of thinking about ethics that emerges from this paradigm.

7.4 Development of Reason in Children

When my son was one, he would sometimes point at the moon and say “ball”. On some level, he was right. The moon, like a ball, is more or less spherical. But then he would demand that we bring it “down” so he could “kick” it. There is some kind of

mistake my son is making, but it's not about the size or weight of the moon or its distance from the surface of the earth. He's not mistaken about these things because he doesn't have any thoughts about how big the moon is, or how high up it is. Rather, his mistake is much more fundamental, and in some ways superficial (in that it doesn't get to the scientific properties of the thing): he thinks the moon is to-be-kicked. He perceives it as relevantly similar to other to-be-kicked objects in his world, and wants to kick it. It would thus be somewhat tangential to respond "The moon is hundreds of thousands of miles away!" A more direct response would be "We don't kick the moon" or "The moon is not for kicking."

That humans originally perceive the world in this teleological way is supported by recent work in developmental psychology. Young toddlers (just over one year old) understand what it is about the actions of others that is intentional and unintentional, and when imitating such actions, will only imitate what was intended in that action (Carpenter and Tomasello, 1998). This is just what we should expect, as babies and toddlers are already engaged in goal-directed actions before their rational capacities are in full swing. They reach for objects, they try to eat when hungry (as much as it is in their power), they push away what they do not want, and so on. Thus as they begin to understand the world around them, it would be in the context of what already matters to them. They would be making explicit the way the world is such that one action works and another doesn't.

Another way to support this idea of teleological perception being basic involves the learning of language. If teleological perceptions develop into perceptions that separate out an object from its teleological context, we can expect

“words” to originally manifest as behaviors called forth by particular perceptions, and later to attach to a mere object as that behavior is honed to the environment. For example, my son’s “first words” were “ahhhh-DO!” or “I love you” which he would giggle back at me when I made the declaration to him. Of course, it’s a bit of a misnomer to call these “words” at all: my son wasn’t communicating anything, but playing a game with noises, imitating the sounds I made to him. Similarly, when children learn a particular word, for example, “duck”, they will call *everything* “duck” in hopes of getting a rewarding response from their caretaker. It is only through this testing out of the behavior that the child learns only to call one particular sort of thing “duck”, and the objective concept begins to emerge. The line between this sort of behavior and linguistic communication is fuzzy, as the child develops an internal cognitive world based on the external results of signs and babbles. As the signs and babbles increase in specificity, the internal cognitive world develops a specificity and complexity of its own, eventually resulting in the capacity for abstract thought.

Tomasello (2000) argues that children first learn words by understanding the intentional force of utterances—the intended use of the utterance—without already understanding the abstract relations in which the name of that object stands.¹⁶⁰ This suggests that linguistic categories (such as noun, verb, and more complicated syntactic categories) are themselves the product of experiential learning; this is corroborated by Lany and Gómez (2008). On this view, grammar is not a

¹⁶⁰ Tomasello’s “usage-based” account of language (Abbot-Smith and Tomasello (2006); Carpenter and Tomasello (1998); Tomasello (2003; 2012); Tomasello and Haberl (2003)), is inspired in part by Wittgenstein. He endorses the idea that “meaning is use”, additionally claiming that structure emerges from use, and that children’s ability to read this structure is based in part on their ability to read the *intentions* and *goals* of the language users around them. And so normativity is involved in language acquisition, even in the imitative behaviors of infants and children.

precondition to language learning; rather, coming to have a grammar is an important step in language learning, which develops through use. So on this view children need not have a grammar before learning words. Nevertheless, they must learn the names of object in a context in which the naming of the object has practical significance for them.¹⁶¹

One expectation we might have, given this usage-based approach, is that the responsiveness of the environment will matter more to the cognitive development of the child than the perceptual richness of the environment, and there is reason to believe that this is the case. For instance, caregiver responsiveness is correlated with positive social behaviors; an infant who is regularly not responded to when crying is stunted in their social and cognitive development (Narvaez, 2012). In addition, perceptual richness in isolation from responsiveness (for instance, a television screen) does not contribute to learning at all until a child is over two years old (Kirkorian et al., 2008). This indicates that the basic structures of cognition must be learned by testing out linguistic and other behaviors,¹⁶² and only once these cognitive structures are established can a child learn from an environment that is not sensitive to their activity.

Schelling's model as I have presented it, according to which activity forms the basis for rational and linguistic behavior, thus contributes to an already established

¹⁶¹ C. f. Wittgenstein, *Philosophical Investigations* §31: "only someone who already knows how to do something with [an object] can significantly ask a name." See also §1 and §6; explanations of the meanings of words bottom out at actions.

¹⁶² Gopnik (2010) gives a summary of her work according to which children learn experimentally, exhibiting the same structures of explicit rational reflection in their behavior (for instance, they act with sensitivity to exhibited probabilities, and so their implicit thought processes have effects akin to statistical reasoning).

way of thinking about cognitive development. While there are alternative ways of thinking about cognitive development (see e.g. Pinker (1994), Fisher (2002)), this framework is a promising one. Children learn to use utterances for various ends, and as these utterances are specified in application, children learn to attach words and concepts and words to particular objects, and can eventually begin to reflect on their activity.

7.5 Rational Ends, Normativity and Self-Productivity

As mentioned above, one could object to this picture as presented that the conception of reason so far presented is limited to the instrumental, and thus I have forever subordinated human rationality to already given biological ends such as reproductive fitness or self-maintenance. But although rationality may emerge in service of various biological ends, this capacity for abstract thought brings humans across a threshold. Beyond this threshold is the capacity for *self-knowledge*, for abstract reasoning about the self, which makes possible the conscious self-shaping which is required for culture, ethics, good, and (unfortunately) evil.

Schelling presents such a “break” with nature in his *Ideen*. According to Schelling, the advent of rationality is a kind of fall from unity with the natural world. He states that prior to reflection, “man was still at one with himself and the world around him [...] [But] his spirit, whose element is *freedom*, strives to make *itself* free, to disentangle itself from the fetters of Nature and her guardianship” (*Ideen*, 10). This “fall” is tragic, insofar as it distances us from the world we live in, but also makes possible objective knowledge, culture, and ethics. Nature is no longer

immediate, but we take it as an object of knowledge, and can formulate the principles that govern the natural world, through a process of testing the principles I take to be the principles governing my activity. Through manipulating the world, with an expectation of what the product will be, I am (implicitly or explicitly) committed to certain principles. When these principles are correct, my ideas accord with what is produced, the production is successful, nature answers my experiment with a 'yes'.

How does this picture change when what we are coming to know, what we are manipulating, is not the world around us, but ourselves? In this framework, self-knowledge does not just mean that I think or have beliefs about myself. Taking myself as an object means taking myself as an object of action, of productivity. I self-produce, and it is this self-production and self-shaping that makes possible the taking on of ends beyond the biological.

If we stop here, it may seem that this self-shaping has no constraints or norms, that I am completely free in my self-shaping. This would be self-construction in an existentialist vein: *I decide who I am*, and I am only constrained in that it must be *me* who decides, rather than external forces operating on me, and so the only norm is the norm of authenticity.

But to endorse such a picture would be to miss that we do not fully decide who we are. There are elements of ourselves that are already given. These may be biological, or learned, or they may simply be situations in which we find ourselves, or relationships we take on (for instance, parenthood) that are constituted

according to certain natural norms.¹⁶³ So I am not completely free in my self-production, or at least, even if I am completely free, I can get it wrong.¹⁶⁴ If I am a parent (e.g. I have adopted a child), and I act as if I am not, that is, I violate the norms of the relationship of parenthood, then my self-production is a failure.

There are various ways to get this wrong, as we must add into the picture the fact that norms are promulgated by societies and power structures that are not themselves flawless. So there are three sets of norms here, what I call above the natural norms, which are the same for all humans, the societal norms, which are often flawed and are unique to particular societies, and then there are the individual norms (we might more colloquially call them habits) which people exhibit in their behaviors.¹⁶⁵

So one way we can fail is if we have societal norms which are in violation of the natural norms. The “City in Speech” requires that all children be held in common; this would violate natural norms of parent/child relationships. Some more

¹⁶³ This use of “natural” may cause some confusion. By “natural” I do not mean “mere animal”. The norms of human relationships are going to be natural, but they are also going to be unique to humans. For instance, one such norm is that parents or caretakers ought to educate their children into these norms, making them explicit to the children verbally. This is something only humans can do, and yet I would contend that it is part of the natural parent/child relationship. I also do not mean to say that parent/child relationships are defined entirely in terms of natural norms. There are cultural differences as well as elements of freedom; the extent to which such relationships are freely constituted, culturally constituted, or constrained by nature is not something I mean to take a stand on here.

¹⁶⁴ C.f. Taylor, 1995, especially “IV: Inescapable Horizons”. Taylor here endorses an ideal of authenticity while rejecting forms of authenticity according to which meaning is derived from the self. According to Taylor, authentic self-constitution can only happen against a backdrop of things which “already matter”. What I endorse here could be seen as an extension of this idea, according to which one *cannot* authentically self-constitute unless one does so with respect to the relationships and culture one finds oneself in (i.e. rebellion and assimilation are both modes of self-constitution defined in terms of the backdrop).

¹⁶⁵ This is also a simplification, as there are various sets of norms in different societal levels; one may live in a small community with norms that are opposed to the norms of the larger society, and so on.

obvious examples include slavery in America and the society of Nazi Germany, which both violate natural norms of the relationship of one human to another, among others. In these situations, it is not possible for oppressor or oppressed to constitute themselves authentically according to the norms of the society. Thus one may often reach outside to natural norms in order to constitute themselves; such action makes possible societal change.

Another way to fail is for the individual norms or habits to fail to match the societal or natural norms. Such a person might know what is good and simply fail to do it, or refuse to act in that way. Perhaps he is tragically aware that he is falling short, but is addicted to certain behaviors, or accustomed to acting in certain ways. Or, it is possible that the societal norms he has been taught are in some ways self-contradictory, or a bundle of confusions, and so this person might not know how best to act. Nevertheless, his behaviors exhibit a set of norms that may or may not cohere with societal or natural norms.

One result of this picture is that one need not be *rational* to be *ethical*. There are ethical principles embedded already in my activity whether or not I have knowledge of them. But reflective self-shaping, which might be a requirement for moral culpability, is something only a rational being can do. Still, cognitively disabled humans are ethical, and it is all the more important that those who are so disabled undergo ethical education, in which they are encouraged to do good and avoid what is bad. It is important that good habits are inculcated, so that they can flourish. All people are dependent on others for their ethical education, the cognitively impaired even more so.

Nevertheless, one does need to be *human* to be ethical. No matter how much I care for an animal, a pet, for instance, such an animal is not a part of the human ethical community. No animal (as far as we know) can self-produce, so natural norms are either met or not met, a frog is either a good frog or a bad frog, but these are not *ethical* but rather *biological* ends that are failing to be achieved. Thus the description of frog behavior is not ethical but biological. Human societies, on the other hand, are self-producing wholes. Like an individual human, a culture constitutes itself on the biological basis of natural norms, and can do so truly or not. Since the basis is biological, the community is the biologically human community, the community of organisms who share a common biological history and future possibilities. And since the culture is constituting itself with various aims, the result of that constitution is normative (that is, it can fail or succeed in those aims) and ethical (in that it can facilitate or hinder the flourishing of humans).

Activity, especially human relational activity, provides access to natural norms. One makes explicit the norms that are embodied in healthy human relationships. By acting out the roles and relationships, one constitutes oneself according to these norms. And so they are implicit in behavior already. Just as there are principles already at work in my physical activity, there are principles already at work in my ethical activity. I might pre-reflectively be a good friend and a bad mother, a so-so spouse and a horrible citizen. And one comes to know these principles by acting them out.

Of course, self-knowledge is less than infallible, and I might think that I am a fantastic mother when I am in reality quite a bad one. For instance, through my

activity, I discover that I do not attend to my children as often as other parents. In reality, I am neglectful. My self-conception may be that of an exciting and independent mother, one who is teaching her children to be independent and adventurous. But recall, that the principles of my activity are the principles of human ethical activity generally. And so self-knowledge, if it is knowledge, must include knowledge of the natural norms that govern human relationships. And so I can be mistaken in my self-conception in two ways: I might believe that I act in ways that I do not—I may believe I am attentive when in fact I am neglectful—or I might believe that the ways I act are virtuous when they are not—I may believe it is good to, for instance, discipline my children by shouting at them when it is not.

We learn these natural norms in a number of ways. In a good culture, we might absorb them culturally. With a good upbringing, we will learn them from our caretakers. We may be inspired to adopt such norms by religious organizations or individuals. Perhaps most interestingly, we can learn them through our activity. Certain activities will build virtue. This can happen in two ways. I might consciously adopt the norm in question, which is opposed to my current behavior. I may be inspired by a friend, for instance, to stop telling lies. In this case, the self I have constructed or habituated, the lying self, is at odds with the natural norms of my behavior. And so I recognize the true norm, and see that I am falling short of it. I modify my behavior (which may be very difficult at first) to break the habit of lying, and over time, become a truth-telling person, which is a more “true” self, since it is in line with the norms of my activity; my habits and my norms are now one and the same.

We can also learn these norms from our activity simply by living out our relationships, and building virtue through the things we must do. A parent may learn the generosity that parenting requires by engaging in care for her children even when the requisite virtue is not there. Similarly, a nurse, by the emotionally and physically taxing work of caring for the bodily needs of the sick, may develop a virtue of respect and care for all persons. The nurse will change bed pans, lift patients into bed, clean unpleasant messes and so on. Almost certainly, some of the time, she will resent having to do these things, but may perform these actions in a respectful way merely because it is part of her job. Nevertheless, by acting out care for the sick, she acts *as if* the people she is caring for are dignified and worthy of respect. After acting in this way for a while, she begins to recognize the truth embodied in her activity, that all people deserve dignified treatment and care.

Thus she will begin to understand herself not as acting to please her superiors or in her own self-interest, but will rather begin to interpret her actions as serving what is good and best, as she begins to love the good that is accomplished through and in her activity.¹⁶⁶ And so our nurse has discovered a good that was not accessible to her in her prior state, and may now be able to articulate the truths that ground the goodness aimed at in her action.

Such a nurse is not merely constituting herself freely; rather, she is constituting herself *truly* and *authentically*. Implicit in her activity as a good nurse are principles about human relationships that are true of her relationships. If she is

¹⁶⁶ See MacIntyre (2001), p. 84, for a similar account of how children become independent practical reasoners, escaping the tutelage and desire to please their parents. What I offer here could be seen as an extension of this idea to any kind of ethical learning, in which one moves from acting in an instrumentally rational way to acting for the goods served by such action.

a bad nurse, if she gossips about patients with other staff or if she gags and complains when she cleans up the mess of an embarrassed patient, she will be dumb to a truth about humans, which is, by extension, a truth about herself and her relationship to other humans.

And so, when the self-productivity is successful, I constitute myself to be *what I already am*: a mother, a friend, a sister, a fellow human being. These roles come with natural norms, and the natural norms match the norms embodied in my activity. The self-productivity is not successful when there is a mismatch between who I am (as determined by these natural norms) and who I act out, the principles at work in my behavior. My productivity of my self is, when unethical, false; I construct, with my activity, a false self.¹⁶⁷

Another implication of this account is that our ethical guides should not be ethicists, but rather, *good human beings*, who can abstract the principles of good ethical activity from their own activity. Reflection can aid one in becoming a good human being, but it is not required. I might reflect on my relationships with friends, and come to find out that I treat certain people better, I am a better friend to Manuel than I am to Mike (perhaps because Mike is irritating at times, or maybe I am jealous of his success), and so I might resolve to be a better friend to Mike. Thus recognizing

¹⁶⁷ C.f. MacIntyre (2014): “If I fail to be heedful of relevant others, I fail to be heedful of myself.” One could object that the picture I’ve presented is very self-focused, but if one regards the self as containing within it these relations to other humans (indeed, *all* other humans) than it is anything but individualistic, since one’s self-construction is only authentic when one fully enacts the norms of the relationships that one is in. In the terms of MacIntyre’s lecture, we can say that one must regard oneself as a contributor to common goods—indeed, one must simply contribute to these common goods—in order to have a true conception of the self and its good as bound up with those common goods.

inconsistencies in my activity, in the ways I act out friendship, can be a way that rationality can help me to live well.

But intelligence is certainly not required for virtue; moreover, history is rife with very intelligent, evil people, whose intelligence made them even worse, so intelligence is not sufficient for virtue either, and can perhaps be an occasion for vice. For example, intelligence is useful in justifying all kinds of abhorrent behavior to oneself. Philosophers may be particularly good at explaining to themselves why they are a good person despite doing something typically considered wrong (abusing a particular kind of relationship, for example). Indeed, very skilled philosophers might be able to convince themselves that the behavior in question is morally praiseworthy, as in the above example of the mother who believes that she is a better mother *because* she does not attend to her children. So we should not expect intelligence be always correlated with the ethical virtues.

This account of ethical theory draws on Kant in that it is the reflexive and autonomous nature of rationality that gives rise to ethical normativity. But there are several ways this differs. First, an ethical mistake is not primarily a mistake in rationality. Although bad ethical behavior can go hand-in-hand with a lack of knowledge in the way described above, there is nothing contradictory in bad behavior, and so ethical normativity is not reducible to rational normativity. Rather, the normativity here is *more than* rational normativity, since an authentic self-constitution is the goal of ethical behavior, not just because it is accurate and results in true knowledge, but because it results in *actions* that manifest the true nature of myself and my relationships.

This is, of course, too large a topic to be dealt with in the space of a few pages. My purpose in laying out this ethical framework is to convince the reader that such a framework is a fruitful one. I mean to deflect an objection that the account of rationality I've presented leaves no room for a substantive ethical theory. I hope to have shown that this account of rationality leaves does not leave one in a worse position when it comes to discussions of ethics and morality; indeed, it seems to leave one in a better position than typical starting points. And so I will let the matter rest, and save more in-depth discussion for a future project.

7.6 Conclusion

Rationality develops from organic activity, both in evolutionary history and in individual humans. Goal-directed organic activity is normative: there are norms of all end-directed activity, and so reason comes to be as a normative enterprise: Once it emerges, rationality is the capacity of a human to discover principles of natural activity (whether normative or not) which will help that human to achieve her ends. These ends extend beyond the biological, since human activity is directed to ethical behavior, behavior that manifests the true nature of the human, both individually, in the specific situatedness of that individual and their own ethical activity, and corporately, in that the community should aim at constituting itself according to norms which allow for the ethical flourishing of its members.

The framework I've presented in this chapter and the previous Chapter 6 are a distance removed from Schelling's *Naturphilosophie*. But I hope to have stayed close to the spirit, if not the letter, of the *Naturphilosophie*. Schelling insists on

activity as a foundation of knowledge, and he insists that nature necessarily expresses and realizes “the laws of our mind” (*Ideen*, pp. 41-42) because our mind is fully natural. These ideas, which I have taken as inspiration, are fully at home in the contemporary philosophical world, and can be a live alternative to the dominant modes of doing philosophy. This conception of rationality as discovering nature’s principles through the rational agent’s organic activity solves problems inherent in Kantian and reductive frameworks, or any framework which attempts to see reason as natural and nature as non-normative.

As discussed in Chapter 5, not everyone operates with this dichotomy, and various attempts to reach outside have resulted in some of the most interesting and controversial philosophical work in recent years: that of Michael Thompson, Thomas Nagel, and Tyler Burge, among others. These attempts bring with them their own problems, and I would contend that this is because these philosophers had not given due consideration to Schelling, or perhaps did not have the resources to re-create his work. What these attempts are ultimately reaching for, I contend, is this framework, which takes seriously the animality of humans as evolved animals without endorsing, in the words of Thomas Nagel, “the materialist neo-Darwinian conception of nature.” We could see the practitioners of philosophy as caught in a dilemma, forced to choose between the dead-end naturalism of a disenchanted nature, or a quasi-supernatural conception of rationality and phenomenal experience, which rejects the physical and organic aspects of the human. Here I hope to have presented a way out: the naturalism of a normative nature.

REFERENCES

- Abbot-Smith, Kirsten and Michael Tomasello. "Exemplar-learning and schematization in a usage based account of syntactic acquisition" in *The Linguistic Review* 23, 2006, pp. 275-290.
- Allais, Lucy. "Kant, Non-Conceptual Content and the Representation of Space" in *Journal of the History of Philosophy* 47:3, 2009, pp. 383-413.
- Allison, Henry. "Kant's Antinomy of Teleological Judgment" in *Southern Journal of Philosophy*, v. 30 supplement, 1991, pp. 25-42.
- _____. *Kant's Theory of Freedom*. Cambridge: Cambridge University Press, 1990.
- _____. *Kant's Transcendental Idealism: An Interpretation and Defense*. New Haven: Yale University Press, second edition, 2004.
- Ameriks, Karl. *Interpreting Kant's Critiques*. Oxford: Oxford University Press, 2003.
- _____. *Kant and the Fate of Autonomy*. Cambridge: Cambridge University Press, 2000a.
- _____. *Kant's Elliptical Path*. Oxford: Oxford University Press, 2012.
- _____. *Kant's Theory of Mind: An Analysis of the Paralogisms of Pure Reason*. Oxford: Oxford University Press, 1982.
- _____. *Kant's Theory of Mind: An Analysis of the Paralogisms of Pure Reason* (new and expanded edition). Oxford: Oxford University Press, 2000b.
- _____. "History, Idealism, and Schelling" in *Internationales Jahrbuch des deutschen Idealismus / International Yearbook of German Idealism* 10, 2012, pp. 123-142.
- Aquinas, Thomas. *Summa Theologica* (trans. English Dominican Fathers). New York: Benzinger Brothers. <<http://www.newadvent.org/summa>>, accessed January 2015.

- Aristotle. *De Motu Animalium* (trans. M. Nussbaum). Princeton: Princeton University Press, 1986.
- _____. *Physics* (trans. W. Charlton), Oxford: Oxford University Press, 1992.
- Bakhurst, David. *The Formation of Reasons*. West Sussex: Wiley-Blackwell, 2011.
- Bateson, Patrick and Peter Gluckman. *Plasticity, Robustness, Development and Evolution*. Cambridge: Cambridge University Press, 2011.
- Beiser, Frederick. *German Idealism: The Struggle Against Subjectivism 1781-1801*. Cambridge, MA: Harvard University Press, 2002.
- Birch, Jonathan. "Punishment, Coordination, and the Psychology of Norms" given at University of Notre Dame, Philosophy Department Colloquium, January 29, 2014.
- Bird, Graham, "The Neglected Alternative: Trendelenburg, Fischer, and Kant" in Bird, *A Companion to Kant* (ed.), Oxford: Blackwell Publishing, 2010.
- Bowie, Andrew. *Schelling and Modern European Philosophy*. Routledge: 1993.
- Boyle, Matthew. "Additive theories of rationality: a critique" Forthcoming. *European Journal of Philosophy*. Accessed: August 2014.
- Burge, Tyler. *The Origins of Objectivity*. Oxford: Oxford University Press, 2010.
- _____. "Perceptual Objectivity" in *Philosophical Review* 118:3, 2009, pp. 285-324.
- _____. "Reflections on Two Kinds of Consciousness" in *Foundations of Mind: Philosophical Essays, Volume 2*. Oxford: Clarendon Press, 2007, pp. 392-419.
- Carpenter, M., Akhtar, N., and Michael Tomasello. "14- through 18-month-old infants differentially imitate intentional and accidental actions." in *Infant Behavior and Development* 21, 1998, pp. 315-330.
- Conway Morris, Simon. *Life's Solution: Inevitable Humans in a Lonely Universe*. Cambridge: Cambridge University Press, 2003.
- _____. "The predictability of evolution: glimpses into a post-Darwinian world" in *Naturwissenschaften* 96(11), 2009, pp. 1313-1337.
- Davidson, Donald. "On the very Idea of a Conceptual Scheme" in *Proceedings and Addresses of the APA* 47, 1974, pp. 5-20.
- _____. *Subjective, Intersubjective, Objective*. Oxford: Oxford University Press, 2001.

- Descartes, Rene. *The Philosophical Writings of Descartes Vol. III: The Correspondence* (trans. J. Cottingham et al.). Cambridge: Cambridge University Press, 1991.
- “Dogged Persistence” in *The Economist*. March 9, 2013.
- Fichte, J. G. *Introductions to the Wissenschaftslehre* (trans. D. Breazeale). Indianapolis: Hackett Publishing, 1994.
- Fisher, Cynthia. The Role of Abstract Syntactic Structure in Language Acquisition: A Reply to Tomasello (2000) in *Cognition* 82 (3), 2002, pp. 259-278.
- Förster, Eckart. *Die 25 Jahre der Philosophie*. Klostermann, 2011.
- _____. *The Twenty-five Years of Philosophy: A Systematic Reconstruction* (trans. Brady Bowman). Cambridge, MA: Harvard University Press, 2012.
- Frank, Manfred. *Eine Einführung in Schellings Philosophie*. Suhrkamp, 1995.
- Frankfurt, Harry. “Freedom of the Will and the Concept of a Person” in *Journal of Philosophy* 68:1, 1971, pp. 5-20.
- Friedman, Michael. *Dynamics of Reason*. Stanford: CSLI Publications, 2001.
- _____. “Philosophy of natural science in Idealism and neo-Kantianism” in *The Impact of Idealism: the Legacy of Post-Kantian German Thought, vol.1. Philosophy and the Natural Sciences* (ed. K. Ameriks). Cambridge: Cambridge University Press, 2013, pp. 72-104.
- Geuss, Raymond. “Morality and Identity” in Korsgaard (1996), pp. 189-199.
- Ginsborg, Hannah. “Kant and the Problem of Experience” in *Philosophical Topics* 34 (1&2), 2006, pp. 59-106.
- _____. “Kant on Understanding Organisms as Natural Purposes,” in Eric Watkins (ed.), *Kant and the Sciences*, Oxford: Oxford University Press, 2001, pp. 231-258.
- _____. “Kant’s Biological Teleology and its Philosophical Significance,” in Graham Bird (ed.), *The Blackwell Companion to Kant*. Oxford: Blackwell Publishing, 2006.
- _____. “Perception, Generality and Reasons” in Reisner and Steglich-Petersen (eds.), *Reasons for Belief*. Springer Press, 2009, pp. 131-157.
- Gopnik, Adam. “Dog Story: How did the dog become our master?” in *The New Yorker*, August 8, 2011.
- Gopnik, Alison. “How Babies Think” in *Scientific American* 303:1, 2010, pp. 76-81.

- Grant, Iain Hamilton. *Philosophies of Nature After Schelling*. Continuum, 2006.
- Guyer, Paul. "Kant's ambitions in the third Critique" in *The Cambridge Companion to Kant and Modern Philosophy* (ed. P. Guyer). Cambridge: Cambridge University Press, 2006
- _____. *Kant's System of Nature and Freedom: Selected Essays*. Oxford: Oxford University Press, 2005.
- Heckmann, Reinhard. "Natur – Geist – Identität: Die Aktualität von Schellings Naturphilosophie im Hinblick auf das modern evolutionäre Weltbild" in Heckman, Krings, Meyer (eds.): *Natur und Subjectivität*. Frommann-Holzboog, 1983, pp. 291-344.
- Hegel, G. W. F. *Difference Between Fichte's and Schelling's System of Philosophy*. Trans. H. S. Harris and W. Cerf. New York: State University of New York Press, 1977 (Cited as *DSF*).
- _____. *Hegel's Philosophy of Nature* (trans. Nicolin, Pöggeler and A. V. Miller). Oxford: Oxford University Press, 1970.
- Heuser-Kessler, Marie-Luise. *Die Produktivität der Natur: Schellings Naturphilosophie und das neue Paradigma der Selbstorganisation in den Naturwissenschaften*, Duncker & Humblot, 1986.
- Höffe, Otfried (ed.) *Immanuel Kant: Kritik der Urteilskraft*. Oldenbourg Akademieverlag, 2008.
- Kant, Immanuel. *Anthropology from a pragmatic point of view* (trans. R. Louden) in *Anthropology, History and Education*. Cambridge: Cambridge University Press, 2008, pp. 227-429. (Cited as *Anth.*).
- _____. *Correspondence* (trans. A. Zweig). Cambridge: Cambridge University Press, 2007.
- _____. *Critique of Pure Reason* (trans. P. Guyer & A. Wood). Cambridge: Cambridge University Press, 1999 (Cited as *CPR*).
- _____. *Critique of the Power of Judgment* (trans. P. Guyer and E. Matthews). Cambridge: Cambridge University Press, 2000. (Cited as *CPJ*).
- _____. "Idea for a universal history with a cosmopolitan aim" (trans. A. Wood) in *Anthropology, History and Education*. Cambridge: Cambridge University Press, 2008, pp. 121-142. (Cited as "Univ. History").

- _____. *Lectures on Anthropology* (trans. R. Clewis, R. Loudon, G. F. Munzel, A. Wood). Cambridge: Cambridge University Press, 2012.
- _____. *Lectures on Logic* (trans. J. M. Young). Cambridge: Cambridge University Press, 2004.
- _____. *Lectures on Metaphysics* (trans. K. Ameriks and S. Naragon). Cambridge: Cambridge University Press, 2001. (Cited as *LM*).
- _____. *Metaphysical Foundations of Natural Science* (trans. M. Friedman). Cambridge: Cambridge University Press, 2004.
- _____. "On the use of teleological principles in philosophy" (trans. G. Zöllner) in: *Anthropology, History and Education*. Cambridge: Cambridge University Press, 2008, pp. 192-218.
- Kirkorian, Heather, Ellen Wartella, and Daniel Anderson. "Media and Young Children's Learning" in *The Future of Children* 18(1), 2008, pp. 39-61.
- Kneller, Jane. *Kant and the Power of Imagination*. Cambridge: Cambridge University Press, 2008.
- Korsgaard, Christine. "The Activity of Reason" in *Proceedings and Addresses of the APA* 83:2, 2008, pp. 23-43.
- _____. "Fellow Creatures: Kantian ethics and our duties to animals." *Tanner Lectures on Human Values* 24, 2004, pp. 77-110
- _____. "Motivation, Metaphysics and the Value of the Self: A Reply to Ginsborg, Guyer and Schneewind" in *Ethics* 109:1, 1998, pp. 49-66.
- _____. "The Normativity of Instrumental Reason" in *The Constitution of Agency*. Oxford: Oxford University Press, 2008, pp. 27-68.
- _____. "Reply" in Korsgaard (1996), pp. 219-258.
- _____. *The Sources of Normativity* (ed). Cambridge: Cambridge University Press, 1996.
- Krings, Hermann. "Natur als Subject. Ein Grundzug der spekulativen Physik Schellings" in Heckman, Krings, Meyer (eds.): *Natur und Subjectivität*. Frommann-Holzboog, 1983, pp. 111-128.
- Laland, Kevin, et al. "Does evolutionary theory need a rethink?" in *Nature* 514, pp. 161-164.

- Lamb, Marion and Eva Jablonka. *Evolution in Four Dimensions: Genetic, Epigenetic, Behavioral, and Symbolic Variation in the History of Life*. Cambridge, MA: MIT Press, 2005.
- Lany, Jill; Rebecca Gómez. "Twelve month old infants benefit from prior experience in statistical learning" in *Psychological Science* 19 (2), 2008, pp. 1247-1252.
- Lear, Jonathan. *Aristotle: The Desire to Understand*. Cambridge: Cambridge University Press, 1988.
- Leslie, Sarah-Jane. "Generics", *Routledge Encyclopedia of Philosophy*, 2011.
- Lineweaver Charles H., Paul C. W. Davies, and Michael Ruse (eds.). *Complexity and the Arrow of Time*. Cambridge: Cambridge University Press, 2013.
- Lovejoy, Arthur. "The Argument for Organic Evolution Before *The Origin of the Species*, 1830-1858" in Glass, Temkin and Straus (eds.): *Forerunners to Darwin: 1745-1859*. Baltimore: Johns Hopkins Press, 1968, pp. 356-414.
- _____. *The Great Chain of Being*. Cambridge, MA: Harvard University Press, 1936.
- _____. "Schopenhauer as an Evolutionist" in Glass, Temkin and Straus (eds.): *Forerunners to Darwin: 1745-1859*. Baltimore: Johns Hopkins Press, 1968, pp. 415-437.
- Lovibond, Sabina. *Ethical Formation*. Cambridge, MA: Harvard University Press, 2002.
- MacDonald, George and MacDonald, Cynthia (eds.). *McDowell and his Critics*. Oxford: Wiley-Blackwell, 2006.
- MacIntyre, Alastair. *Dependent Rational Animals*. Chicago: Open Court, 2001.
- _____. "Heedlessness". Lecture given at *Notre Dame Center for Ethics and Culture* Fall Conference: October 31, 2014.
- Marx. *The Economic and Philosophic Manuscripts of 1844* (trans. M. Mulligan, modified M. Carmody). <<https://www.marxists.org/archive/marx/works/1844/manuscripts/hegel.htm>>, accessed February 2015.
- McDowell, John. *Mind and World*. Cambridge, MA: Harvard University Press, 1996.
- _____. "Singular Thought and the Extent of 'Inner Space'" in McDowell and Pettit (eds.), *Subject, Thought, and Context*. Oxford: Clarendon Press, 1986.

- ____. "Two Sorts of Naturalism" in Hursthouse, Lawrence, and Quinn (eds.), *Virtues and Reasons: Philippa Foot and Moral Theory*. Oxford: Clarendon Press, 1996, pp. 149-179.
- McLaughlin, Peter. *Kant's Critique of Teleology in Biological Explanation: Antinomy and Teleology*. Lewiston, NY: Edwin Mellon Press, 1990.
- McLear, Colin. "Kant on Animal Consciousness" in *Philosopher's Imprint*, 11:15, 2011.
- McShea, Daniel & Brandon, Robert. *Biology's First Law: The Tendency for Diversity and Complexity to Increase in Evolutionary Systems*, Chicago: University of Chicago Press, 2010.
- Millikan, Ruth. "Accidents", John Dewey Lecture given at Central APA, 2012.
- ____. *Language, Thought, and Other Biological Categories: New Foundations for Realism*. Cambridge, MA: MIT Press, 1987.
- Nagel, Thomas. *Mind and Cosmos: Why the Materialist Neo-Darwinian Conception of Nature is Almost Certainly False*. New York: Oxford University Press, 2012.
- Naragon, Steven. "Kant on Descartes and the Brutes" in *Kant-Studien* 81:1, 1990.
- Narvaez, Darcia. "Dangers of 'Crying it Out': Damaging Children and Their Relationships for the Long-term" in *Clinical Lactation* 3(1), 2012, pp. 32-35.
- Nassar, Dalia. "From a Philosophy of Self to a Philosophy of Nature: Goethe and the Development of Schelling's *Naturphilosophie*" in *Archiv für Geschichte der Philosophie* 92, 2010, pp. 304-321.
- ____. "Pure versus Empirical Forms of Thought: Schelling's Critique of Kant's Categories and the Beginnings of *Naturphilosophie*" in *Journal of the History of Philosophy* 52:1, 2014, pp. 113-134.
- Ostarcic, Lara. *Between Insight and Judgment: Kant's Conception of Genius and its Fate in Early Schelling* (Dissertation). University of Notre Dame, July 2006.
- Owens, Joseph, C. Ss. R. "Aristotle and Aquinas" in *The Cambridge Companion to Aquinas*, Cambridge: Cambridge University Press, 1993, pp. 38-59.
- Pigliucci, Massimo. "Expanding Evolution", Review of Lamb and Jablonka, 2005 in *Nature* 435, pp. 565-566.
- Pinkard, Terry. *German Philosophy 1760-1860: The Legacy of Idealism*. Cambridge Cambridge University Press: 2002.

- _____. *Hegel's Naturalism: Mind, Nature, and the Final Ends of Life*. Oxford: Oxford University Press, 2012.
- Pinker, Steven. *The Language Instinct: How the Mind Creates Language*. New York: William Morrow and Company, 1994.
- Pippin, Robert. *Hegel's Idealism: the Satisfactions of Self-Consciousness*. Cambridge: Cambridge University Press, 1989.
- _____. "Natural and Normative" in *Daedalus* 138:3, 2009, pp. 35-43.
- Plantinga, Alvin. *Warrant and Proper Function*. Oxford: Oxford University Press, 1993.
- _____. *Where the Conflict Really Lies: Science, Religion, and Naturalism*. Oxford: Oxford University Press, 2011.
- Ramsey, Grant. "What is Human Nature?" Seminar given at Notre Dame Institute for Advanced Study, October 15, 2014.
- Reichenbach, Hans. *The Theory of Relativity and A Priori Knowledge*. Berkeley: University of California Press, 1965.
- Richards, Robert. *The Romantic Conception of Life: Science and Philosophy in the Age of Goethe*. Chicago: University of Chicago Press, 2002.
- Rosenberg, Alex. "Why I Am a Naturalist" in *The New York Times*, September 17, 2011. Retrieved from opinionator.blogs.nytimes.com/2011/09/17/why-i-am-a-naturalist
- Rush, Fred. "Reason and Regulation in Kant" in *The Review of Metaphysics* 53:4, 2000, pp. 837-862.
- _____. "Schelling's Critique of Hegel" in Ostaric (ed.): *Interpreting Schelling: Critical Essays*. Cambridge: Cambridge University Press, 2014, pp. 216-237.
- Schapiro, Tamar. "The Nature of Inclination" in *Ethics* 119, 2009, pp. 229-256.
- Schelling, F. W. J. *First Outline of a System of the Philosophy of Nature* (trans. K. R. Peterson). New York: State University of New York Press, 2004 (Cited as *Entwurf*).
- _____. *Ideas for a Philosophy of Nature* (trans. E. E. Harris and Heath). Cambridge: Cambridge University Press, 1988 (Cited as *Ideen*).

- _____. *Of the I as the Principle of Philosophy in The Unconditional in Human Knowledge: Four Early Essays (1794-1796)* (trans. F. Marti). Lewisburg, PA: Bucknell University Press, 1980.
- _____. *Philosophical Investigations into the Essence of Human Freedom* (trans. J. Love and J. Schmidt). New York: State University of New York Press, 2006 (Cited as *Freedom*).
- _____. *Philosophical Letters on Dogmatism and Criticism in The Unconditional in Human Knowledge: Four Early Essays (1794-1796)* (trans. F. Marti). Lewisburg, PA: Bucknell University Press, 1980.
- _____. *The Philosophy of Art* (trans. D. Simpson). Minneapolis: University of Minnesota Press, 2008.
- _____. *System of Transcendental Idealism* (trans. Heath). Charlottesville: University of Virginia Press, 1993.
- _____. *Timaeus (1794)* (trans. A. Arola, J. Jolissaint, and Warnek) in *Epoché* 12:2, 2008, pp. 205-248.
- _____. *Von der Weltseele in Schellings Werke, Auswahl in drei Bänden* (ed. Otto von Weiß), Bd. 1, Leipzig Meiner, 1911, pp. 444-680 (Cited as *Weltseele*).
- Schulz, Walter (ed.). *Fichte-Schelling: Briefwechsel*. Suhrkamp: 1968.
- Sellars, Wilfrid. "Empiricism and the Philosophy of Mind" in *Science, Perception, and Reality*. Routledge and Kegan Paul, 1963, pp. 127-196.
- Shapiro, J. A. "Genome system architecture and natural genetic engineering in evolution" in *Annals of the New York Academy of Sciences* 870, 1999, pp. 23-35.
- Speaks, Jeff. "Is There a Problem about Nonconceptual Content?" in *Philosophical Review* 114:3, 2005, pp. 359-398.
- _____. *Transparency and Availability*. Forthcoming.
- Sturma, Dieter. "The Nature of Subjectivity: the Critical and Systematic Function of Schelling's Philosophy of Nature" in Sedgwick (ed.): *The Reception of Kant's Critical Philosophy: Fichte, Schelling and Hegel*. Cambridge: Cambridge University Press, 2000, pp. 216-231.
- Taylor, Charles. *The Ethics of Authenticity*. Cambridge, MA: Harvard University Press, 1995.

- _____. *Hegel*. Cambridge: Cambridge University Press, 1975.
- Thompson, Michael. "Apprehending Human Form." *Royal Institute of Philosophy Supplement* 54, 2004, pp. 47-74.
- _____. *Life and Action: Elementary Structures of Practice and Practical Thought*. Cambridge, MA: Harvard University Press, 2008.
- _____. "The Representation of Life" in Hursthouse, Lawrence, and Quinn (eds.), *Virtues and Reasons: Philippa Foot and Moral Theory*. Oxford: Clarendon Press, 1996, pp. 247-296.
- Tomasello, Michael and Katharina Haberl. "Understanding Attention: 12- and 18-Month-Olds Know What Is New for Other Persons." in *Developmental Psychology* 39 (5), 2003, pp. 906-912.
- Tomasello, Michael. *Constructing a Language: A Usage-Based Theory of Language Acquisition*. Cambridge, MA: Harvard University Press, 2003.
- _____. "Do young children have adult syntactic competence?" in *Cognition* 74, 2000, pp. 209-253.
- _____. "The usage-based theory of language acquisition" in Bavid (ed.): *The Cambridge Handbook of Child Language*. Cambridge: Cambridge University Press, 2012, pp. 69-87.
- Toner, Christopher. "Sorts of Naturalism: Requirements for a Successful Theory" in *Metaphilosophy* 39:2, 2008, pp. 220-250.
- Velleman, J. David. "The Possibility of Practical Reason" in *Ethics* 106, 1996, pp. 694-726.
- Watkins, Eric. "Die Antinomie der teleologischen Urteilskraft und Kants Ablehnung alternativer Teleologien §§69-71 & 72-73", in *Kooperativer Kommentar zu Kants Kritik der Urteilskraft* (ed. O. Höffe & I. Goy). Berlin: Akademie Verlag, 2008, pp. 241-258.
- _____. "The Antinomy of Teleological Judgment," *Kantian Yearbook* 2009/1, 2009, pp. 197-221.
- _____. "Nature in General as a System of Ends" in *Kant's Theory of Biology* (ed. I. Goy & E. Watkins). Berlin: de Gruyter, 2014, pp. 117-130.
- West-Eberhard, Mary Jane. "Dancing with DNA and flirting with the ghost of Lamarck", Review of Lamb and Jablonka, 2005 in *Biology & Philosophy* 22(3), 2007, pp. 439-451.

- _____. *Developmental Plasticity and Evolution*. Oxford: Oxford University Press, 2003.
- _____. "Developmental Plasticity and the Origin of Species Differences" in *Proceedings of the National Academy of Sciences*. Vol. 102, suppl. 1, 2005, pp. 6543-6549.
- Uexküll, Jakob von. *A Foray into the Worlds of Humans and Animals* (trans. J. D. O'Neil). Minneapolis: University of Minnesota Press, 2010.
- Wittgenstein, Ludwig. *Philosophical Investigations* (trans. G. E. M. Anscombe). West Sussex: Wiley-Blackwell, 2009.
- Wood, Allen. *Kantian Ethics*. Cambridge: Cambridge University Press, 2007.
- Zuckert, Rachel. *Kant on Beauty and Biology*. Cambridge: Cambridge University Press, 2007.