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The Logic of Life: Hegel's Philosophical Defense of Teleological Explanation of Living Beings

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Au: James on Table of Contents? Which do you prefer?

JAMES KREINES

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Hegel accords great philosophical importance to Kant's discussions of teleology and biology in the *Critique of the Power of Judgment*, and yet also disagrees with Kant's central conclusions there.¹ More specifically, Kant argues for a generally skeptical view of teleological explanation

¹ In citing works, the following abbreviations have been used:

HEGEL: Most writings are contained in the *Werke in zwanzig Bände*, ed. by E. Moldenhauer und K. Michel, Frankfurt: Suhrkamp, 1970–1971. The first references to these writings are by volume: page in that edition. The exception is that I cite the Encyclopedia by §§number, with "A" indicating Anmerkung and "Z" indicating the Zusatz; where helpful I also add after a "/" a citation from *Werke*. I indicate individual works using the abbreviations below. Citations from works not contained in the above edition are from the editions listed below. And I add, after a "/", page references to the translations listed below:

Au: please add location.

EL: *Encyclopaedia Logic*, trans. by T. F. Geraets, H. S. Harris, and W. A. Suchting (Hackett Publishing Co., 1991).

Indianapolis

PhG: *Phenomenology of Spirit*, trans. by A.V. Miller (Oxford: Oxford University Press, 1977).

Au: correct or translated/trans.)

PN: Hegel's *Philosophy of Nature*, trans. by W. Wallace and A. V. Miller (New York: Oxford University Press, 1970).

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PP: *The Philosophical Propaedeutic*, ed. by M. George and A. Vincent and trans. by A. V. Miller (Oxford: Blackwell, 1986).

VGP: *Lectures on the History of Philosophy*, 3 vols., trans. by E. S. Haldane and F. H. Simson (Lincoln: University of Nebraska Press, 1995).

Au: change to English—"ed. by" and "trans. by" here and two refs. later?

VL: *Vorlesungen über die Logik*. Berlin 1831. Transcribed by Karl Hegel, ed. by U. Rameil and H.-Chr. Lucas, (Hamburg: Meiner, 2001).

Either German or English is fine for all of them

VN: *Vorlesung über Naturphilosophie 1821/22*. Nachschr. von Boris von Uexküll, hrsg. von Giles Marasse und Thomas Posch (Wien: Lang, 2002).

Au: correct abbrev.

VPA: *Aesthetics: Lectures on Fine Art*, 3 vols., trans. by T. M. Knox, (Oxford: Clarendon Press, 1975).

VPN: *Vorlesungen über die Philosophie der Natur: Berlin 1819/20*, nachgeschr. Von Johann Rudolf Ringier, hHrsg. von Martin Bondeli und Hoo Nam Seelmann. 2002 (Hamburg: Meiner, 2002).

Au: B. D. Sanderson?

VPR: *Lectures on the Philosophy of Religion*, 3 vols., trans. by Rev. E. B. Speirs, B. D. and J. Burdon Sanderson. (New York: Humanities Press, Inc., 1974.)

B.D. refers to Spiers degree, but can be deleted if you prefer

WL: Hegel's *Science of Logic*, trans. by A. V. Miller (London: George Allen & Unwin, 1969).

of living beings; Hegel responds that Kant should instead defend such explanation – and that the defense of teleology should have led Kant to different conclusions throughout his theoretical philosophy.

To be sure, Kant's view is not entirely skeptical. Kant actually argues that we necessarily conceive of living beings in irreducibly teleological terms. But we cannot know that living beings themselves truly satisfy the implications of teleological judgment. We cannot know whether teleology truly explains anything in biological cases. And this skepticism requires Kant to carefully limit his positive claims about teleology: it is subjectively necessary we conceive of living beings in teleological terms, and this conception is legitimate when employed not as an explanation but as a heuristic aid for scientific inquiry.²

Hegel's response in his *Science of Logic* and *Encyclopedia* is by no means entirely critical.³ Hegel frequently praises a distinction central to Kant's analysis of teleology – the distinction between "external" and "inner purposiveness" [*innere Zweckmäßigkeit*]. On the one hand, there is the concept of a complex system, like a pocket watch with many parts, which satisfies the implications of teleological judgment in virtue of the work of a separate or external intelligent designer. Here the parts of the system are means to the external ends or purposes [*Zwecke*] of a designer (e.g., reliable indication of the time). On the other hand, we can conceive of another way in which a system might satisfy the implications of teleological judgment – not in virtue of external design but in virtue of its own inner nature. Here the parts would be means to a system's own *inner* ends or purposes. Kant argues that the latter concept of "inner purposiveness" is logically consistent and meaningful. And that it is understandable and heuristically useful for us to conceive of real living beings in this way. Hegel finds Kant's analysis here to be of great philosophical importance – for philosophy generally and not

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KANT: All references to Kant's writings are given by volume and page number of the Akademie edition of Kant's *Gesammelte Schriften* (Berlin: de Gruyter, 1902–). **KU:** *Critique of the Power of Judgment*, trans. by P. Guyer and E. Mathews (Cambridge, UK: Cambridge University Press, 2000). German text from volume 5 of *Gesammelte Schriften* for the published version of the book, and from volume 20 for the "first introduction."

² For example, Kant aims to justify "a heuristic principle for researching the particular laws of nature, even granted that we would want to make no use of it for explaining nature itself" (*KU*, 5:410). Kant consistently denies that he is justifying teleological explanation; see also *KU*, 5:360 and *KU*, 5:417.

³ My main focus is the argument of the "Life" section in both the book version of the *Wissenschaft der Logik (WL)* and the first part of Hegel's *Encyclopedia (EL)*. I will also draw from other texts, mostly limiting myself to those written after the (1807) *Phenomenology of Spirit*.

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just for philosophical issues concerning life. In Hegel's terms, "with this concept of inner purposiveness, Kant has resuscitated the idea in general and especially the idea of life."⁴ And Hegel will rarely pass up the chance to dismiss and even ridicule the idea of conceiving living beings or nature in terms of external purposiveness, as in an artifact; Hegel sees such claims as a distraction from the important philosophical issues, and an invitation to popular superstitions or to triviality, as in the suggestion that God "has provided cork-trees for bottle stoppers."⁵

But Hegel draws on Kant's concepts to argue against Kant's own skeptical insistence that there are philosophical barriers blocking our knowledge of natural teleology: Hegel argues that living beings do manifest true "internal purposiveness," that their structure and development is explicable in teleological terms, and that we can have objective knowledge of this natural teleology – and of its broader metaphysical implications. So Kant should not, Hegel says, have been satisfied in investigating whether the application of teleology to nature provides "mere maxims of a subjective cognition." Speaking of "the end relation," Hegel says, "on the contrary, it is the absolute truth that judges objectively and determines external objectivity absolutely" (*WL*, 6:444/739).

It is worth noting that subsequent developments in the biological sciences have not resolved the status of teleology in biology. To be sure, it has sometimes been popular to hold that teleological language in modern biology can be only a *façon de parler*, perhaps best replaced by a substitute like "teleonomy." But those not attending to philosophy of biology of the last thirty years or so might not realize that it is now also popular, perhaps more so, to defend teleology. There are skeptics who see these defenses as misunderstanding natural selection, or as covertly replacing rather than defending teleology. But this is to say that debate continues.⁶ Some readers may well side with the skeptics, thinking that

⁴ *EL*, §§204A; see also *EL*, §55A and *WL*, 4:440–1/737.

⁵ *PN*, §§245Z, *PN*, 9:14/6. The cork example is a joke borrowed from Goethe and Schiller's *Xenia*. Hegel returns to the example frequently: *EL*, §§205Zu; *VPR*, 17:520; *VGP*, 20:23. On "superstition" and external purposiveness see *VGP*, 20:88/3:186.

⁶ L. Wright's, *Teleological Explanations: An Etiological Analysis of Goals and Functions* (Berkeley: University of California Press, 1976) and R. G. Millikan's *Language, Thought and other Biological Categories* (Cambridge, MA: MIT Press, 1993), have led to many defenses of teleology within the philosophy of biology. See, for example, K. Neander's, "The Teleological Notion of Function," *Australasian Journal of Philosophy*, 69 (1991), p. 454. Neander comments: "today it is generally accepted" that "the biological notion of a 'proper function' is both teleological and scientifically respectable". And see J. Lennox's short summary of the debate from Plato and Aristotle, through Darwin, and from behaviorism to current defenses of teleology, "Teleology," in *Keywords in Evolutionary Biology*, ed. by Evelyn Fox Keller and Elisabeth Lloyd (Cambridge, MA: MIT Press, 1992). For criticism of the new

any defense of teleology must be somehow scientifically obsolete. It would be fair enough to seek to defend that claim in the contemporary debate, where it would be controversial. But we must not simply assume this claim and then view Hegel through that lens. If we did that, then we will seek to understand him as defending teleology specifically by providing alternatives to contemporary science – perhaps an alternative to the theory of natural selection, or a proposed explanation of the origin of all life. To be sure, by looking in the right places one can find claims in Hegel which conflict with scientific theories we now know to be true. But we must not make assumptions about what role, if any, these claims play in Hegel’s argument against Kant in defense of natural teleology.

Instead of looking through the lens of contemporary biology and assumptions about its philosophical implications, we should simply seek to understand Kant and Hegel’s philosophical arguments in their own terms. We can then try to understand whether and how those arguments – though scientifically uninformed by our standards – might really bear on the underlying philosophical issues of continuing importance and interest. That, in any case, is what I seek to do here. I think that both Kant and Hegel provide compelling arguments whose real philosophical force is easy to miss. So I do not aim here to decide the issue between them, but to uncover and explain the arguments. I begin with a brief look at Kant’s case for his skeptical conclusions, and then consider at greater length Hegel’s response and the conclusions it aims to support. I close with a brief discussion of the importance of this topic within Hegel’s broader metaphysics.

I. KANT’S ANALYSIS

To begin, we must distinguish two of the endeavors Kant pursues in the *Critique of the Power of Judgment* (hereafter *KU*). Kant seeks to analyze the concept of a complex system which would satisfy the implications of teleological judgment by nature or in virtue of “inner purposiveness,” rather than in virtue of the work of an external designer. He seeks to analyze the concept of a *Naturzweck* [natural end or purpose]. Another goal of Kant’s is to determine what sorts of reasons we might have,

defenses of teleology, see Robert Cummins, “Functional Analysis,” *Journal of Philosophy*, 72 (1975), pp. 741–765 and “Neo-teleology” in *Functions: New Essays on the Philosophy of Psychology and Biology*, ed. by R. Cummins, M. Perlman, and A. R. Ariew (Oxford: Oxford University Press, 2002), pp. 157–173 and Elliot Sober, “Natural Selection and Distributive Explanation: A Reply to Neander,” *British Journal for the Philosophy of Science*, 46 (1995), pp. 384–397.

if any, to conceive of actual living beings as teleological systems by nature.⁷

Kant's analysis consists of two requirements governing the relations, in a complex system, between the parts and the whole. The first condition specifies the conditions under which a complex system will satisfy the implications of teleological judgment, or will be a *Zweck* [end or purpose]. And Kant argues that this will be so only where the parts are means to an overall end realized in the whole. To begin with, this requires that the parts and their organization are such that all this jointly benefits the whole. But it is crucial that mere benefit is not sufficient for teleology. For something might have beneficial consequences for something else merely by coincidence.⁸ So Kant's first requirement requires that the presence of jointly beneficial parts is not merely coincidental; such parts must be present because of the way in which they are beneficial in relation to an overall end or purpose realized in the whole. In Kant's terms, "for a thing as a natural purpose [*Naturzweck*] it is requisite, first, that its parts (as far as their existence and their form are concerned) are possible only through their relation to the whole" (*KU*, 5:373).

When it comes to actual living beings, the question raised by the first requirement is not "do the parts and their organization contribute in complex ways to the survival of the whole?" It is empirically obvious that they do. But the important question concerns explanation, namely: Are such beneficial parts present in a living being specifically for the sake of this benefit, or because of an end or *Zweck*?

When it comes to artifacts, we have an obvious reason to answer in the affirmative. For example, are the parts of a watch present specifically because of purposes, or because of the way each contributes to the

⁷ P. McLaughlin carefully distinguishes Kant's two endeavors here. See his *Kant's Critique of Teleology in Biological Explanation* (Lewiston: Edwin Mellen Press, 1990), pp. 46–47. See also A. Wood, *Kant's Ethical Thought* (Cambridge, UK: Cambridge University Press, 1999), p. 219. I take this to rule out the idea that "*Naturzweck*" is Kant's "expression for biological organisms." See C. Zumbach, *The Transcendent Science. Kant's Conception of Biological Methodology* (The Hague: Nijhoff, 1984), p. 19; J. D. MacFarland, *Kant's Concept of Teleology* (Edinburg: Edinburg University Press, 1970), p. 102; and W. deVries, "The Dialectic of Teleology," *Philosophical Topics*, 19 (1991), pp. 51–53. We must distinguish the concept of a *Naturzweck* from the empirical concepts such of *living being* and *organism* in order to make sense of Kant's denial of the possibility of knowledge that living beings are *Naturzwecke*.

⁸ To take Kant's example, a receding sea might benefit a forest growing on the shore; this need not mean that the sea recedes *for the sake of* the forest, or *because of* any benefit or any end or purpose at all. Note Kant's own emphasis of the "because" (*darum* and *weil*) in discussing this issue. In Kant's terms, such "relative purposiveness" "justifies no absolute teleological judgments" (*KU*, 5:369).

further end of the whole reliably indicating the time? Yes; a designer has selected each part for that very reason. In virtue of the designer's work, such cases satisfy the explanatory implications of teleological judgment – the structure of the whole, and how that structure came about, can be explained by ends or purposes.

Kant wants to argue that there is, at least in principle, room for another kind of “in virtue of” here, another way in which the explanatory implications could be satisfied. There is room for a meaningful concept of a system that is teleological (is a “*Zweck*” or end or purpose) not in virtue of external design but by nature, or in virtue of “inner purposiveness.”⁹ This is the concept of a *Naturzweck*. To complete his analysis of this concept, Kant needs a second requirement which will exclude the merely “external purposiveness” of artifacts, leaving only “inner purposiveness.” The intuition behind Kant's strategy is clear enough: the parts of artifacts are means to an end only insofar as the overall structure or organization has been imposed; a *Naturzweck*, by contrast, would have to “self-organizing” (*KU*, 5:374). Kant seeks to formulate this as a requirement, like the first, governing part-whole relations. Framed in this way, it would have to require that the structure or organization of the whole is determined not by something else but by the parts themselves. But for a part to contribute to the determination of the structure would be to contribute toward determining what other kinds of parts are present and their arrangement. So for a *Naturzweck*, it is required “second, that its parts be combined into a whole by being reciprocally the cause and effect of their form” (*KU*, 5:373).

II. NATURAL TELEOLOGY IS “PROBLEMATIC”

With respect to this concept of a *Naturzweck*, Kant seeks to argue for a complex and balanced conclusion: On the one hand, the concept is logically consistent, and conceiving living beings in these terms is heuristically useful. On the other hand, we can never know that anything real actually satisfies that concept.

Kant will argue against the possibility of knowledge by applying what we now often call the ‘backwards causation problem’ to his own requirement that the existence and form of the parts of a teleological system

⁹ Clearly, then, Kant does not use teleological notions – for example, the term “*Zweck*,” sometimes translated as “purpose” – so that they are supposed *merely by definition* to require external intelligent design. He is interested neither in ordinary usage nor in stipulating here but in the philosophical question of whether parts can be present *for the sake of a whole*, or *because of an end*, without this being due to external intelligent design.

must depend on their relation to the whole.¹⁰ A part of a system can have beneficial consequences for the whole only once it is already present along with the other parts. So these beneficial consequences cannot have any influence over the process, entirely prior in time, by which the part originally came to be present – this would be akin to something reaching back in time and causing its own cause. In Kant’s terms, “it is entirely contrary to the nature of physical-mechanical causes that the whole should be the cause of the possibility of the causality of the parts” (*KU*, 20:236). The only exception would be if the system originates in a prior concept of the whole – a concept dictating the ways in which each part is to contribute along with the others. So Kant’s first condition – the parts depend on their relations to the whole – can only be met where there is “a concept or an idea that must determine a priori everything that is to be contained in it” (*KU*, 5:373).

Interpreters of both Kant and Hegel sometimes miss the strength of Kant’s argument here. Some see Kant as worried about how an end or telos could be an efficient cause, and reply that we should instead entirely distinguish teleology from explanation in terms of efficient causes, so that we can then say that both legitimately and independently explain, perhaps insofar as each addresses distinct explanatory interests or practices of our own.¹¹ As far as I can see, this line of thought does not address the considerations introduced by Kant. True, different kinds of explanation might explain in context of different interests or practices.

¹⁰ See also Kant’s consideration of the house example: in the order of “real causes,” an end or purpose (*Zweck*) cannot precede and thereby influence its own causes, so it can do so only as “ideal,” or as first represented (*KU*, 5:372). MacFarland, *Kant’s Concept of Teleology*, stresses the backwards causation problem (1970, p. 106), but the argument is stronger than he recognizes there. See also R. Zuckert, “Purposiveness Time and Unity: A Reading of the *Critique of Judgment*” (Chicago: Ph.D. dissertation, 2000), ch. 2 and Guyer, “Organisms and the Unity of Science,” in *Kant and the Sciences*, ed. by Eric Watkins (Oxford: Oxford University Press, 2001), p. 265.

¹¹ The first steps of this response are suggested in deVries’s account of Hegel’s response to Kant: The problem with Kant’s “model” – on which teleology requires prior representation of a concept – is that it “reduces final causation to the form of efficient causation.” See his “Dialectic of Teleology,” p. 56. By contrast, “the ancients saw no problem about the status of teleological judgments or explanations. Final causes were one of the four Aristotelian “because,” so questions about teleology were always in order in the Aristotelian system” (p. 52) – and Hegel follows them (p. 54). I argue that Kant’s argument is not so easily dismissed, so that Hegel requires (and seeks in Aristotle) a line of argument which addresses Kant’s argument more directly. Contrast also Zumbach’s claim that Kant can be read as *defending* a kind of teleological explanation, and that Kant does not put the point this way because of his narrow conceptions of *causality* and *explanation*. See his *Transcendent Science*, pp. 95–97, 123.

On the face of it, however, explanation is also constrained by what is really going on in the world. If X plays no role in determining or influencing Y, then no appeal to X can legitimately explain Y, no matter what your interests and practices might be. For example, if the movements of the stars which make up the constellation Sagittarius have no real influence on my current mood, then it is simply a mistake for anyone to explain the later by appeal to the former.¹² But it is hard to comprehend how any kind of determining or influencing (whether we think of this as causal or otherwise) could operate backwards in time. So it certainly seems legitimate for Kant to worry about how an end or a *Zweck* realized in a whole system could possibly play any real role in determining or influencing the entire prior process by which the structure first came to be present in that system.

Other interpreters worry that Kant here seeks to defend teleological explanation of living beings in a scientifically outdated manner.¹³ But, first, the point does not directly concern actual living beings. It is a conceptual point about the very idea of a teleological system (a *Zweck*). And, second, the point is meant as reason to doubt that we can know living beings to be teleological systems. In this case, we can have no knowledge of any originating concept – Kant denies us knowledge of anything like a designer of nature.¹⁴ The argument is similar to the common contemporary claim that a teleological system can only be an artifact – now generally offered as a reason why teleology can have no place in biology at all.¹⁵

¹² When it comes to Hegel's view, compare his limited praise of Bacon's *skepticism* about teleology: Bacon at least helps to counteract the sort of "superstition" which "makes two sensuous things which have no relation operate on one another" (*VGP*, 20:88/3:186). So where an end has no real relation to a process, it would be merely superstitious to apply teleology. Garrett makes this general point in considering early modern considerations of teleology more generally: "a teleological explanation is one that explains a state of affairs by indicating a likely or presumptive consequence (causal, logical, or conventional) of it that is implicated in the state's origin or etiology. . . . No proposed teleological explanation, no matter how appealing or compelling, can be correct unless it cites an actual example of teleology." See his "Teleology in Spinoza and Early Modern Rationalism," in *New Essays on the Rationalists*, ed. by J. Gennaro and C. Huenemann (Oxford: Oxford University Press, 1999), p. 310.

¹³ See MacFarland, *Kant's Critique of Teleology*, p. 106.

¹⁴ We cannot have knowledge of "an (intelligent) world cause that acts according to purposes" (*KU*, 5:389; see also *KU*, 5:400 and *KU*, 5:410) Compare especially Descartes' response to Gassendi's first objection to the fourth meditation.

¹⁵ For example, Cummins argues that any notion of function which purports to explain the presence of the parts of a complex system will apply only to artifacts: "it seems to me that the question, 'why is x there?' can be answered by specifying

But what is so interesting and so difficult to grasp here is that Kant's further case also differs crucially from such contemporary skepticism about natural teleology. Kant does not argue that teleological judgment implies that a system is an artifact. He carefully aims to preserve as logically consistent the concept of a system that satisfies teleological judgment, but not in virtue of its being an artifact.

More specifically, Kant argues as follows: A teleological system requires an originating concept. If the purposiveness is to be inner, then the structure of the whole is due to the parts. Putting these requirements together, the parts would have to determine the structure in a manner guided by a concept. But the parts of the real complex systems of which we have empirical knowledge, such as living beings, are ultimately matter. And matter cannot represent concepts or intend to act in accordance with them: "no intention in the strict sense of the term can be attributed to any lifeless matter."¹⁶ So Kant's two requirements have incompatible implications about the origin of a system when applied to a material system: to say that the structure of an exclusively material system is due specifically and entirely to its own parts – to say that it has an origin in "a mechanical kind of generation" – is to deny that any end or purpose [*Zweck*] plays any role in bringing about or originating that structure.¹⁷ This is why Kant says that "one kind of explanation excludes the other" (*KU*, 5:412). So, to know that an apparently teleological material system manifests true inner purposiveness would be to know that it was never really a teleological system at all.

But none of this shows that a real *Naturzweck* is logically impossible. For it is not a logical truth that everything must be such that we can comprehend it and know it. More specifically, problems about backwards causation would not apply to anything nonspatiotemporal. So we cannot rule out on logical grounds the possibility that there is a nonspatiotemporal "supersensible real ground of nature" or a "thing in

x's function only if *x* is or is part of an artifact." See his "Functional Analysis," p. 746.

¹⁶ *KU*, 5:383. This claim about matter has a surprisingly strong status in Kant. For the concept of matter is supposed to be somehow *empirical* and yet also *a priori*. See especially M. Friedman, "Matter and Motion in the Metaphysical Foundations and the First Critique: The Empirical Concept of Matter and the Categories," in Watkins, *Kant and the Sciences*, pp. 53–69. See also *KU*, 5:394, *Lectures on Metaphysics*, 29:275, and *Metaphysical Foundations of Natural Science*, 4:544.

¹⁷ More specifically, "if we consider a material whole, as far as its form is concerned, as a product of the parts and of their forces and their capacity to combine by themselves . . . we represent a mechanical kind of generation. But from this there arises no concept of a whole as a *Zweck*" (*KU*, 5:408). The problem here concerns origins; Kant himself refers to "the whole difficulty surrounding the question about the initial generation of a thing that contains purposes in itself" (*KU*, 5:420).

itself (which is not an appearance) as substratum" which could – unlike matter in space and time – somehow self-organize itself from within, in accordance with a concept, without anything like external design. We cannot comprehend how such self-organization might be possible, but we can conceive of a higher form of intellect – an "intellectual intuition" or an "intuitive understanding" – which might.¹⁸ And this higher intellect might be in a position to say two very different things about real living beings: (i) as material systems in space and time, they are "in accordance with mechanical laws"; and yet (ii) as somehow determined or conditioned by a "supersensible real ground" they are "in accordance with teleological laws" (*KU*, 5:409). We can have neither comprehension here, nor any reason to assert knowledge of any of this. Still, the concept of something that is a teleological system by nature rather than by design is logically consistent. And the possibility that living beings might be such systems "can be conceived without contradiction but cannot be comprehended" (*KU*, 5:371).

In this way Kant opens up the space for positive claims about other uses – aside from the assertion of knowledge or explanation – for the concept of a *Naturzweck*. First, living beings suggest self-organization in various ways: their parts mutually compensate for one another, they incorporate matter in order to grow, and they generate new living beings by reproduction (*KU*, 5:371-2). For this and other reasons, Kant will hold that our experience "exhibits" but nonetheless cannot "prove" the existence of real *Naturzwecke* (*KU*, 20:234). Second, Kant will argue that thinking of living beings in such teleological terms provides us with an indispensable heuristic aid, and that we would have no hope of gaining any scientific understanding of living beings without this aid; Kant even argues that we must for similar reasons judge nature itself as if it were a *Naturzweck*.¹⁹

¹⁸ More specifically, our merely "discursive" understanding is dependent on sensibility, and the forms of all our sensible intuition are space and time. The further knowledge would require an "understanding which is not discursive but intuitive because it goes from the synthetically universal (of the intuition of a whole as such) to the particular, that is, from the whole to the parts" (*KU*, 5:406) Note that, strictly speaking, what is logically possible is that there might be a system which satisfies the implications of teleological judgment *in virtue of its own inner nature*. But if we take "nature" to mean *empirical* reality in space and time, or *material* reality, then Kant has *not* preserved even the logical possibility of an entirely "natural" end or purpose.

¹⁹ With regard to living beings, see Kant's famous denial of the possibility of a Newton for a blade of grass. Note that Kant carefully makes this claim relative to what it is possible for "humans" to "grasp," while leaving *open* the possibility that living beings really originate in "mere mechanism" (*KU*, 5:400). With regard to nature as a whole, see the arguments of the published and unpublished introductions.

But what is most important for our purposes is Kant's skeptical conclusion: we cannot comprehend how both requirements could be jointly met, so we cannot have knowledge that living beings are true *Naturzwecke*, or knowledge that teleology truly explains the structure and development of living beings. In Kant's terms, the concept of a *Naturzweck* is "problematic": when employing it "one does not know whether one is judging about something or nothing" (*KU*, 5:397).²⁰

III. HEGEL'S AIMS

It is worth briefly clarifying Hegel's aims by contrasting some readily apparent routes by which one might seek to challenge Kant's skeptical conclusion. To begin with, Hegel is under no illusions that one can defend teleology in response to Kant merely by pointing out that it is a distinct and different form of explanation – whether different from mechanism, efficient causality, and so forth. Teleology and mechanism cannot be shown to be mutually "indifferent" and equally valid simply by noting that they differ: "if mechanism and purposiveness stand opposed to one another, they cannot for that very reason be taken as indifferent concepts, each of which is correct on its own account, possessing as much validity as they other." Nor does an "equal validity" of both follow "because we have them both" (*WL*, 6:437/735). At issue, then, is not whether we have an interest in explaining living beings in teleological terms, but whether such explanation can be valid. And Hegel recognizes that, at least from the point of view of a philosophical outlook like Kant's, the possibility of real inner purposiveness is "an incomprehensible mystery" (*WL*, 6:473/763). Hegel wants to show that natural teleology is not problematic, and not incomprehensible – not on account of an incompatibility with mechanism, nor for any other reason. But Hegel recognizes the need for an argument that addresses Kant's specific concerns.

Some contemporary readers might be attracted to the idea that the notion of "function" or use in biology carries no implications about origins at all, and so none that could generate any mystery by conflicting with mechanism. But this kind of contemporary approach aims to get rid of teleological notions (and is vulnerable to attacks by contemporary defenses of teleology). To say that something has a "function" in a sense with no implications about origins – for example, to say that it is part of "teleonomic" system – does not imply that its existence and

²⁰ I stress the importance of this conclusion in my more detailed reading of Kant's argument in "The Inexplicability of Kant's *Naturzweck*: Kant on Teleology, Explanation and Biology," *Archiv für Geschichte der Philosophie*, 87 (2005), pp. 270–311.

form is really explained by an end, [*Zweck*], or telos. Kant, by contrast, defends the importance of a concept that does involve teleology in this sense [*Naturzweck*], and Hegel aims to go even further by defending the possibility of knowledge that this concept applies to natural beings.²¹

One might obviously directly refute Kant's case by arguing that matter itself, rather than being constrained or governed by necessary laws, is actually capable of representing concepts and acting in accordance with them. But we will see that this is not Hegel's strategy. Hegel elsewhere takes issue with some of Kant's claims about matter, but he does not defend such panpsychism.²²

So Hegel's basic goal is to show, without arguing that matter can act intentionally, that we can comprehend the possibility of a *Naturzweck*. Hegel will try to meet this goal by showing, first, that we can comprehend how a living being might satisfy the implications of teleological judgment without thinking of it as the product of an agent representing a concept. And, second, that we can know this purposiveness to be truly inner without knowing anything about the capacities of the underlying constituent matter. And so the inability of matter to represent concepts and act in accordance will no longer prevent our comprehending the possibility that living beings might really be teleological systems in virtue of their own nature.

IV. THE ANALYSIS OF LIFE

Hegel argues this in the *Science of Logic* by means of an analysis of a concept of life. It can be difficult to understand what the point of

²¹ It is crucial that Kant's strategy is *not* similar to contemporary attempts to replace teleology, for example, with "teleonomy," contra C. Warnke "Naturmechanismus und Naturzweck: Bemerkungen zu Kants Organismus-Begriff," *Deutsche Zeitschrift für Philosophie*, 40 (1992), pp. 42–52, and Düsing 'Naturteleologie und Metaphysik bei Kant und Hegel' in *Hegel und die Kritik der Urteilskraft*, ed. by H.-F. Fulda and R.-P. Horstmann (Stuttgart: Frommann-Holzboog, 1990), p. 142. In contemporary terms, a truly *teleological* notion of "function" would have to be an "etiologial" notion – one which carries implications about the factors which determine or cause the presence of the parts of a complex system; the point tends to be agreed by those who defend *and* those who criticize the scientific status of such teleological notions. Those who defend teleology argue that nonteleological notions of function, without implications about origins, can be ascribed too broadly (on the basis of any capacity of interest to us, rather than just those for the sake of which a part itself is really present) and yet also not broadly enough (they cannot apply to a part which fails to fulfill its function.)

²² For Hegel's complaints about Kant on matter and mechanics, see *WL*, 5:200ff./178ff, and *PN*, §§262An. See also Beiser's denial that Hegel's defense of teleology is panpsychist, *Hegel* (London: Routledge, 2005), pp. 101–102.

the analysis is. It is not an attempt to give an a priori logical deduction of the features real living beings must have.²³ Nor is it a direct replacement for or competitor to Kant's analysis of the concept of a *Naturzweck*. Nor is Hegel seeking merely to reflect on our conceptual scheme in order to analyze our ordinary concept of life or living being. The analysis must be understood as a theoretical tool, or in terms of what Hegel seeks to do with it – in terms of how he will use it to argue that we can comprehend the possibility of a system with true inner purposiveness. But the best way to follow Hegel is initially to set aside questions about how the larger argument functions, and attend first just to the content of the analysis, or the content of Hegel's concept of life.

Hegel's analysis, and the crux of his philosophical response to Kant on teleology and biology, is found in a section called "Life" in both versions of the *Logic*. The analysis also provides the structure for Hegel's discussions of plant and animal biology in the *Philosophy of Nature* and elsewhere. In all of Hegel's treatments, the analysis has three requirements.

The first requirement mirrors Kant's analysis in terms of the relations between part and whole: "all the members are reciprocally momentary means as well as momentary ends."²⁴ Hegel puts the point more directly elsewhere: "the organs are the means of life, and these very means, the organs themselves, are also the element in which life realizes and maintains itself . . . this is self-preservation."²⁵

But Hegel's concept of life also demands that a complex system itself requires some kind of assimilation from the outside environment in order to grow and preserve itself. In Hegel's terms: "in and through this process against an inorganic nature, it maintains itself, develops itself and objectifies itself" (*EL*, §219). Alternatively, it must be engaged in a "struggle with the outer world" (*PN*, §365Z).

Third, Hegel's concept of life also requires that individuals must be mortal, and must aim for the reproduction (e.g., sexual reproduction) by which a species endures.²⁶ So anything satisfying Hegel's concept must also pursue self-preservation in an additional sense: it must aim to

²³ For example, "it is quite improper" to try to "deduce" the "contingent products of nature" (*PN*, §§250).

²⁴ *EL*, §§216. See Kant's similar formulation at *KU*, 5:375, to which Hegel refers at *EL*, §§57. In Hegel, see also *WL*, 2:420/766–767; *PN*, §§352; *PN*, §356.

²⁵ Similarly, "the one exists only through the other and for the other, and all the members and component parts of men are simply means for the self-preservation of the individual which is here the end" (*VPR*, 17:503/330).

²⁶ On mortality specifically, see *EL*, §221, *WL*, 6:486/774, *PN*, §§375f., *VL*, 213, and *VPN*, 184.

reproduce itself – it “produces itself as another individual of the same species” (*PP*, 4:32/142). And survival of the species requires that self-preservation in this latter sense dominates: “the end of the animal in itself as an individual is its own self-preservation; but its true end in itself is the species.”²⁷ In Hegel’s terms, the third requirement demands the “process of the *Gattung*” [genus, kind or species] or the *Gattungprozess*.²⁸ (Hegel’s term *Gattung* – usually translated as “genus” – can seem to suggest the idea that there is a perfect hierarchical classification system defined by clear necessary and sufficient conditions for different categories; Hegel’s analysis does not require that claim, and he elsewhere denies it.²⁹ The requirements of the analysis alone fix the meaning of *Gattung* here: it refers to a general kind within which individuals reproduce, generating more individuals of the same kind. I will generally use “species” to refer to this idea.)³⁰

Hegel’s three requirements are interrelated in several ways. For example, the first governs internal structure. But combining this with the second and third requirements will generate additional demands on structure: if the parts are to be mutually beneficial, then they will have to be organized in a manner that realizes the capacities, or makes possible the activities, required for assimilation and reproduction.³¹ It makes sense, then, for Hegel to say elsewhere that life requires a “system of activities which is actualized into a system of organs through which those activities proceed” so that “in this way the living thing is articulated purposefully; all its members serve only as means to the one end of self-preservation” (*VPA*, 13:193/1:145).

Finally, note that the structure of Hegel’s analysis of the concept of life differs greatly from Kant’s analysis of the concept of a *Naturzweck*. Kant’s analysis itself consists entirely of two requirements governing

²⁷ *VGP*, 20:87; *VGP*, 3:185. Also on the way in which the end of preservation of the species trumps preservation of the individual, see *EL*, §§221 and *WL*, 6:484/773–774.

²⁸ For example, *WL*, 6:486/774; *EL* §221; *PN* §367ff; *VL*, 213.

²⁹ Biology does not allow “an independent, rational system of organization” (*PN*, §§370) Life “in its differentiating process does not actually possess any rational ordering and arrangement of parts, and is not an immanently grounded system of shapes” (*PhG*, 178–179, 224–225). See also *VN*, 199. And “naturally there are also animals which are intermediate forms” (*PN*, §368Z).

³⁰ “Species” is the best translation, for example, where Hegel refers to the propagation of the “species” or “*die Fortpflanzung der Gattung*” (*PN*, §§365Z/9:492). I will continue to also use “kind” and *Gattung* because it is important that Hegel uses the same term for natural kinds, as in chemical kinds: for example, “the universal essence, the real kind (*Gattung*) of the particular object” (*WL*, 6:430/728).

³¹ On these capacities, see *EL*, §218Z; *PN*, §344Z, §§354–358).

specifically part-whole relations within a complex system.³² He recognizes assimilation and reproduction. But he argues that the general philosophical problem concerning natural teleology is independent of these specific ways in which our experience of real living beings happens to suggest the self-organization of a *Naturzweck*. Hegel's analysis of life is more complex: It also demands a specific relationship between the whole and the outside environment and between the whole and other wholes of the same general kind or species. In itself, simplicity would be a philosophical advantage – unless Hegel can show that these additional features are relevant to, and in fact resolve, Kant's general philosophical problem concerning natural teleology.

V. COMPREHENDING THE ORIGIN OF A NATURZWECK

This being Hegel, it is too much to hope for an immediately and easily transparent statement of how the argument of the "Life" section in the *Logic* is supposed to work. But I think we can see the answer clearly enough by considering how Hegel's analysis specifically relates to Kant's argument, and then working our way toward progressively better understandings of Hegel's initially opaque terminology. To begin with, it is the origin or genesis of a *Naturzweck* – we cannot comprehend how any origin could satisfy both of Kant's requirements. And Hegel's analysis of life does conspicuously address the topic of origins: the analysis requires reproduction, or "the generation of individuality" (*WL*, 6:486/774). The first question is, then, why should it be possible for a complex system to satisfy the implications of teleological judgment in virtue of this kind of origin, without requiring an originating representation of the whole?

To begin with, Hegel's analysis adds a distinction between something particular and something general or universal – between individuals and their general species or kind. Distinct individuals – parent(s) and offspring – are (though in many ways different) identical in one respect: they are the same in species or kind (*Gattung*). So there is a sense in which, in reproducing, an individual produces not something else but rather "produces itself as another individual of the same species" (*PP*, 4:32/142). Furthermore, the general structure of the offspring will generally be identical and determined by the parent(s); for example, "through the male and female natures, there emerges a determination of the entire structure" (*PN*, §365Z, 9:459/377). And now we can see

³² "All determinations of the concept of natural purpose that Kant introduces have to do with the relation of part and whole." See McLaughlin, "Kant's Critique of Teleology," p. 50.

how the general structure of a new organism precedes its development – not in the form or an intelligent designer’s representation, but in the structure shared by the parent(s) and previous generations of the same species.

How does this help with teleology? Consider the question in terms of parts and whole, following Kant’s analysis. Take as an example a tiger – I will call him Hobbes – and his claws. On Kant’s account, the problem is this: how can the beneficial consequences of Hobbes’s claws, once present in Hobbes, have any influence over the process, entirely prior in time, by which these very claws first came to be present in Hobbes? That is indeed problematic. But Hegel’s analysis reconceives the problem. If different individuals are the same in structure, then they will have the same general kinds of parts or features – or “members,” in the Hegelian terms we will come to below. The general kinds of parts of living beings – for example, claws, heart, lungs – have beneficial consequences for wholes of the species generally. For example, “the teeth, claws, and the like . . . it is through these that the animal establishes and preserves itself as an independent existence” (*PN*, §368A). Kant’s problem will now look very different; the question is now: how can the beneficial consequences of a general kind of part possibly have influence over how a new instance of that same general kind of part came to exist within this new individual? This is no longer so problematic. Hobbes’s claws will be a benefit to him. And, crucially, this is no coincidence: this general feature or “member” contributes to assimilation and so to the survival of tigers generally; and this general benefit has already helped to make possible the survival of previous tigers, and so also the production of Hobbes and his claws. More generally, a new individual and its new parts are possible only insofar as parts of that general kind are beneficial in relation to wholes of the same general kind. So the new individual meets Kant’s demand that, in a teleological system the “parts (as far as their existence and their form are concerned) are possible only through their relation to the whole” (*KU*, 5:373). And we can comprehend in this way how a complex system might be throughout all its parts, “means and the instrument of the end” (*WL*, 6:476/766) Or, more specifically, might be such that “all its members serve only as means to the one end of self-preservation” (*VPA*, 13:193/1:145).

Some may feel that true teleology is somehow eliminated or reduced in an account of this sort. To be sure, intelligent design (as with artifact) is missing; but it is clearly Hegel’s goal to show that Kant’s analysis of teleology can be met without this, or without external purposiveness. More generally, Hegel specifically seeks to do without the requirement for an originating representation (whether this is supposed to be on

the part of a separate designer, or whether matter itself is imagined to represent a goal and organize itself in accordance).³³

And this is no defense of teleological explanation of the historical development of a species. But the *Logic* analysis of "life" makes no special requirements about how or even whether a biological species originates or develops in time at all. It does not rule in or out any stand on this topic. By not mentioning any of this, it treats the topic as an empirical matter not relevant to the resolution of the general philosophical problem concerning how teleology might explain the structure and development of a complex system such as an individual organism.³⁴ (Of course, Hegel elsewhere insists that "spirit" (*Geist*), or sometimes "self-consciousness," does develop progressively over time; but this is a distinct topic.)

One might certainly worry that the account sketched so far cannot render comprehensible genuine self-organization or true inner purposiveness. For Hegel's account does nothing to explain how we could get from mere matter alone to an organized living being, capable of assimilation and reproduction. But this is not itself the precise problem at issue between Kant and Hegel. To begin with, Kant does not hold that we cannot have knowledge of the existence of anything which we cannot explain in terms of matter and its laws; Kant allows knowledge of the existence of living beings which assimilate and reproduce, even though he thinks we lack such explanatory insight here.³⁵ Kant's problem is focused more directly on the concept of a *Naturzweck*. For the inner purposiveness of a *Naturzweck*, the structure of the whole would have to be due to the parts. This is why Kant sees questions about matter as relevant: to know that the structure of a material system is due to its parts we would have to know how its structure can and does emerge entirely from the law-governed behavior of the underlying matter. But to know this would be to know that this system does not have the kind of origin required for a teleological system at all.

One way to challenge Kant's conclusion here would be to offer an explanation of how matter alone might generate a genuinely

³³ And this leads Hegel to limited praise of the most famous *critics* of natural teleology: with the Stoics, "all external, teleological superstition is taken under their protection and justified," and Epicurianism (though wrong about natural teleology) at least "proceeds towards the liberation of men from this superstition" (*VGP*, 19:267/2:248). Hegel also compares the way in which Bacon's criticisms of natural teleology at least help to counter modern superstitions (*VGP*, 20:87/3:185).

³⁴ Compare: Kant's analysis treats the phenomena of assimilation and reproduction as real but irrelevant to the general problem concerning the concept of a *Naturzweck*. This is obviously not to say that Kant denies the reality of those phenomena.

³⁵ See, for example, the famous blade of grass claim is at *KU*, 5:400.

teleological system. If we think that this is Hegel's way, then we will try to understand him as responding to Kant on grounds of some scientific theory of epigenesis, or vital forces, or something of the like. But the "Life" section of the *Logic* proposes nothing of the sort. Instead, Hegel argues that whether or not the structure of the whole depends on the parts, in the sense required for inner purposiveness, need not have anything at all to do directly with the capacities specific to the lowest-level underlying constituent stuff or matter. The key here is again the connection between the particular and the general or universal, so that parent(s) and offspring are the same in species and in structure. The general idea is just that a new individual is self-organizing insofar as its structure is due to its own nature, in the sense of its species [*Gattung*]. To see the point, consider again the general kinds of parts or "members" present in parent(s) and offspring. It is the contribution of such parts in previous generations which makes possible the generation of a new individual with the same structure. So the structure of the new organism is not determined by something else or something other – the structure of the whole is due to the parts, in the sense of the general kinds of parts present within it.³⁶ In Hegel's terms (to which I will return below) living beings satisfy the requirements of inner purposiveness not in virtue of the relation between the whole and the mutually external material "parts" in space, but in virtue of the relation between the whole and the general kinds of parts or "members" (*WL*, 6:476/766). In this way, Hegel's analysis suggests that the specific nature of the lowest-level underlying material is irrelevant to the general question of whether or not something manifests true inner purposiveness.

Strictly speaking, it remains for Hegel to argue in the *Philosophy of Nature* that our empirical knowledge of plant and animal biology fits the analysis of life. But the main point here will be uncontroversial – after all, there are living beings, and they do assimilate and reproduce. The philosophical heavy lifting comes in the *Logic* argument for a conceptual conclusion: the concept of something that is a teleological system by nature or by virtue of inner purposiveness is not problematic; if we know something to satisfy Hegel's analysis, then we know it to be a *Naturzweck*.

³⁶ Or consider Kant's official formulation – the demand that the "parts be combined into a whole by being reciprocally the cause and effect of their form" (*KU*, 5:373). Take the tiger for example: one feature (like the claws) contributes toward making possible the generation of a new tiger with many different features (like lungs, legs, etc.); all those other features also contribute toward making possible the generation of a new tiger with claws. So the claws as a general feature of tigers contributes to causing all the parts of our new tiger; and the other general features of tigers also contribute to causing the claws in our new tiger.

VI. IMMEDIACY, THE CONCEPT, AND ARISTOTLE'S
INFLUENCE

I turn now to consider some of the distinctive ways in which Hegel presents his case and his conclusions. To begin with, we must attend to the way in which Hegel presents the three parts of the "Life" section of the Logic not as an articulation of three merely stipulated requirements of a concept of life, but as three steps of a unified course of argument. To do so, we must follow his use of the term "immediate" there. Initially, Hegel's analysis governs only part-whole relations or "the process of the living being inside itself" (*EL*, §217). Here Hegel is arguing that an analysis governing only part-whole relations within a system, such as Kant's, would indeed make the genesis or origin of inner purposiveness into a mystery. In Hegel's terms, there can be here no mediation through which we could either comprehend this possibility; the first step concerns only a "first, immediate individuality" (*WL*, 6:437/764). Or, at this point, an assertion that there is something that is a teleological system by nature could only be an immediate "presupposition" which is impossible to make good. But this begins to change once we move toward Hegel's analysis of what he calls "the universal concept of life." So once Hegel concludes his second step, and begins to introduce the third, he looks back on the first step and says that "the living individual, at first disengaged from the universal concept of life, is a presupposition that is not as yet authenticated by the living individual itself." But now, given Hegel's account, "its genesis, which was an act of presupposing, now becomes its production" (*WL*, 6:484/772–773). The conclusion of the argument is this: only by focusing on assimilation and reproduction can we comprehend the possibility of the origin of something that would be a teleological system by nature. In Hegel's terms, the significance of the third requirement and the completed analysis is that "the living individual, which was at first presupposed as immediate, is now seen to be mediated and generated" (*EL*, §221).

And we cannot understand Hegel's presentation of his conclusions about teleology and biology without attending to his use of the term "the concept" [*der Begriff*]. Hegel argues that there can be a teleological system without need of an originating representation the whole. So Hegel naturally seems to be challenging Kant's claim that there can be a teleological system only where there is an originating concept of the whole. But part of the reason that Hegel accords such broad philosophical significance to the topic of teleology and biology is that he sees his argument differently here. Hegel takes himself to be accepting Kant's demand for an originating concept, while showing that this demand can be met by something unlike a "concept" in any ordinary sense of

that term. It can be met by what Hegel calls “the concept” [*der Begriff*]. More specifically, in biological cases “the concept” is the kind or species [*Gattung*]. It makes sense to use the term “concept” here insofar as the *Gattung* is something general or universal – insofar as there are multiple instances of one and the same kind. But “the concept” in this sense is in no way dependent on its being represented by an agent. Nor is it dependent on its somehow containing representations of necessary and sufficient conditions of its application, or (as in Kant’s account of concepts) containing “marks.” Individuals of a given kind distinguish themselves from everything else in their struggle to survive: “the animal establishes and preserves itself as an independent existence, that is, distinguishes itself from others” (*PN*, §368A). And such individuals bind themselves together as instances of one and the same general kind by relations of reproduction, so that the “product” of this process is “the realized species (*Gattung*), which has posited itself identical with the concept (*der Begriff*)” (*WL*, 6:486/774). Clearly the *Gattung* here is not a “concept” in any ordinary sense, or any sense in which one might say that it is “only a concept” of ours; it is rather what Hegel sometimes calls an “objective concept.”³⁷

The general question at issue here is this: Are concepts of the different biological species only abstractions of ours, or are the species themselves independently real and explanatorily important features of the world? This is still debated in today’s extremely complex disputes about the nature of a biological species, so we must not assume without further investigation that Hegel’s answer is scientifically obsolete.³⁸

³⁷ On “only a concept,” see, for example, *WL*, 6:258/587. On “objective concept,” see, for example, *WL*, 6:271/597.

³⁸ On the contemporary debate, see especially E. Sober, “Evolution, Population Thinking, and Essentialism,” *Philosophy of Science*, 47 (1980), pp. 350–383. He takes issue with Mayr’s claim that “only the individuals of which the population are composed have reality” (pp. 351–352). Sober also points out that neither temporal changes nor diversity of individuals nor vague boundaries suffice to refute “essentialism” – though Sober thinks that there is something else wrong with that view. But issues concerning “essentialism” are complicated, in part because there is no agreement about what that view involves. And the issues concerning the biological species are complex, in part because it is also popular to hold that a species is an *individual*. But this does not necessarily rule out something like Millikan’s treatment of biological species as “real kinds” as opposed to “nominal kinds.” See R. G. Millikan, “Historical Kinds and the Special Sciences,” *Philosophical Studies*, 95 (1999) pp. 45–65. Finally, contemporary defenses of teleology generally require treating the general *traits* of a general *species* as real and explanatorily important features of the world; for example, Millikan’s definition of function refers to “traits having been causally efficacious.” See “White Queen Psychology and Other Essays for Alice,” (Cambridge, MA: MIT Press, 1993), p. 41.

Furthermore, Hegel's defense of natural teleology does not rest on the mere assumption of a sweeping metaphysical claim – such as the claim that there is a perfectly knowable “absolute” of some kind, or that reality must somehow be completely transparent to or identical with thinking, and so forth.³⁹ On the contrary, further consideration of Kant's analysis of inner purposiveness is so important because it is supposed to provide philosophical support for Hegel's metaphysics. To begin with, attention to self-preservation and reproduction is supposed to demonstrate something about “the concept,” or show us a philosophically interesting way in which something general or universal – a species or kind [*Gattung*] – can have an effective impact within the world without being represented.

And it is easy to see that Hegel's general claim about “the concept” is indeed essential to his defense of natural teleology. The basic ideas are these: the structure of a new individual is prior in time, not in a representation but in the general species or “the concept”; and the new organism is not the product of something entirely other or external because it is determined by this general nature, species, or “concept” shared with previous generations. Hegel puts the point directly: “since the concept (*der Begriff*) is immanent in it, the purposiveness of the living being is to be grasped as inner” (*WL*, 6:476/766). Similarly, a philosophical view like Kant's must see the possibility of real inner purposiveness as an “incomprehensible mystery” specifically “because it does not grasp the concept, and the concept as the substance of life.”⁴⁰

Hegel's presentation is also influenced by his view that his basic ideas are present in Aristotle.⁴¹ First of all, on Hegel's account, Aristotle recognizes and resolves the backwards causation problem. It is at least easy to see how one could read Aristotle in this way. Aristotle says that final, formal, and efficient causes can be “one and the same” in natural cases. How can the efficient cause which begins a process of

³⁹ At least when it comes to the topic of inner purposiveness, Hegel's criticism of Kant does not fail to be “immanent” by requiring some such assumption. Contrast K. Düsing, “Das Problem der Subjektivität in Hegels Logik,” *Hegel-Studien. Beiheft* 15 (Bonn: Meiner, 1976), p. 119 and P. Guyer, “Thought and Being: Hegel's Critique of Kant's Theoretical Philosophy,” in *The Cambridge Companion to Hegel*, ed. by Frederick Beiser (Cambridge, UK: Cambridge University Press, 1993).

⁴⁰ Or, more specifically still, because such views treat concepts as *representations* – as “the formal concept” (*WL*, 6:472–473/763), or what Hegel elsewhere calls “the subjective or formal concept” (*EL*, §§162).

⁴¹ Kant's advance in conceptualizing inner purposiveness is really supposed to be a “resuscitation” of Aristotle's insights (*EL*, §§204A), better developed by Aristotle insofar as they are free of Kant's limitation of teleology to a merely subjective status (*VGP*, 19:177/160).

development be the same as the form of the developed organism which is the end of that process? Because the same form was already present in the parents: "That from which the change originates is the same in form as these. Thus a man gives birth to a man."⁴² Note Hegel's gloss on this point from his lectures on Aristotle:

That which is produced is as such in the ground, that is, it is an end (*Zweck*), kind (*Gattung*) in itself, it is by the same token prior, before it becomes actual, as potentiality. Man generates men; what the product is, is also the producer. (*VGP*, 19:176)

And Hegel follows the view he sees in Aristotle: Hegel insists that, when considering teleology, "we must not merely think of the form of the end as it is in us, in conscious beings." We must distinguish the manifestation of "the end" in living beings, where "beginning and end are alike. Self-preservation is a continual production by which nothing new, but always the old, arises" (*VGP*, 18:384/1:333).

As this last passage suggests, Hegel also sees Aristotle as connecting natural teleology closely with the end of self-preservation. Hegel uses as an example the development of a seed "directed solely to self-preservation." This, Hegel says, is Aristotle's "concept of the end as immanent" (*PN*, §245Z/9:14/6). Again, it is not hard to see what Hegel is thinking of in Aristotle. Aristotle identifies (in some sense needing interpretation) "soul" with the characteristic activities for which something is organized. For example, "if the eye were an animal, sight would be its soul."⁴³ Hegel praises Aristotle for treating "the soul" not "as a thing" but rather in terms of "activity"; but the similarities and differences here are complex and in need of separate discussion.⁴⁴ What is important for us is Aristotle's claim that specifically the "nutritive soul" is that "in virtue of which all are said to have life." And the activities of the nutritive soul are assimilation and also self-preservation in the sense of reproduction: "the acts in which it manifests itself are reproduction and the use of food."⁴⁵ Furthermore, Aristotle appeals to the natural

**Au: 18:333,
383 meant?
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be 18:384 in
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and 1:333 in
the English.**

This is correct now
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**Au: 9:6, 14
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/ is probably more
consistent but ,
is fine if you
prefer

⁴² *Physics*, 2.7, 198a. Contrast deVries' account of Hegel: "the ancients saw no problem about the status of teleological judgments or explanations. Final causes were one of the four Aristotelian 'because,' so questions about teleology were always in order in the Aristotelian system." See his "The Dialectic of Teleology," *Philosophical Topics*, 19 (1991), pp. 51-70.

⁴³ *De Anima*, 2.1 412b.

⁴⁴ *VGP*, 19:199; *VGP2*:181. For more on Hegel on "the soul" and Aristotle's influence here, see especially deVries, *Hegel's Theory of Mental Activity* (Ithaca: Cornell University Press, 1988) and M. Wolff, *Das Koerper-Seele-Problem: Kommentar zu Hegel, Enzyklopadie* (1830), §389. (Frankfurt: Klostertmann, 1992).

⁴⁵ *De Anima*, 415a.

end of self-preservation, common to all life, in explaining more specific biological capacities. For example, he explains in these terms why self-moving beings have the capacity of sensation: "Every body capable of forward movement would, if unendowed with sensation, perish and fail to reach its end, which is the aim of nature; for how could it obtain nutriment?"⁴⁶

Hegel's basic approach to natural teleology combines this last idea with the idea that parent and offspring are the same in form. To elaborate on Aristotle's last example: Why does an individual self-moving animal have the power of sensation? Because the power of sensation is required by the natural or immanent end (or *telos*) of self-preservation. If this general kind of animal did not have the power of sensation, then it could not assimilate and survive. In that case, previous generations would not have reproduced. So only insofar as sensation allows self-preservation can there come to be a new individual of the same kind with the same power.⁴⁷

VII. TELEOLOGY AND MECHANISM

Hegel also seeks to follow Aristotle in another respect. Hegel sees Aristotle as defending natural teleology while also holding that matter is governed by necessity, or that "necessity" is also present or active "in natural things." Hegel praises Aristotle's philosophy of nature for defending "two determinations: the conception of end and the conception of necessity" (*VGP*, 19:173/2:156).

To be sure, Hegel does not hold that living beings can be explained in two different ways; they can only be explained in teleological terms. The basic reason is that a living being has by its own nature an intrinsic end or purpose. And it has parts or "members" which are themselves means to the intrinsic end. Neither matter nor chemical substances fit the analysis of life, and neither have intrinsic ends in this sense. So the nature of living beings and their "members" is neither mechanical nor chemical. To be a living being or the "member" of a living being, then, is not

⁴⁶ *De Anima*, 434a-b. I am borrowing this passage, and this way of making the case for the importance of self-preservation in Aristotle, from Richardson (unpublished, p. 71).

⁴⁷ I make no argument as to whether this combination of ideas really is already present in Aristotle. Recent philosophical defenses of elements of Aristotle's account of natural teleology see this combination as present in Aristotle himself. See, for example, Lennox, "Teleology," p. 327; D. J. Furley, 'What kind of cause is Aristotle's final cause?' in *Rationality in Greek Thought* ed. by M. Frede and G. Striker (Oxford: Oxford University Press, 1996), p. 73, and also Richardson's comments on this kind of reading (unpublished, 104f.).

to have a certain material or chemical composition; it rather involves having an intrinsic end. In Hegel's terms, the living being as such does not have, strictly speaking, mutually external "parts" in space; it has "members" present because they are means to an end: "the objectivity of the living being is the organism; it is the means and instrument of the end . . . in respect of its externality the organism is a manifold, not of parts but of members."⁴⁸ And such "members" "are what they are only by and in relation to their unity" – only insofar as they are means to the end of the whole.⁴⁹

This is not to deny the applicability of lower-level forms of mechanical and chemical explanation within the spatiotemporal bounds of a living being. So long as we have no teleological ends or purposes in view, what we explain by this means will not itself be living being as such – nor will it be the "member" of a living beings as such. So Hegel says of the living being that "the mechanical or chemical relationship does not attach to it." He adds, however, that "as externality it is indeed capable of such relationships, but to that extent it is not a living being." Hegel then puts the point in terms of two distinct ways we can "take" or "grasp" an object under investigation: "When the living thing is taken (*genommen*) as a whole consisting of parts, or as anything operated on by mechanical or chemical causes . . . it is taken (*genommen*) as a dead thing." But we can also "grasp" (*fassen*) it as "living being" in terms of a "purposiveness" that is genuinely "inner" (*WL*, 2:419/766).

Hegel's favorite example is the process by which assimilated external elements make their way into the blood – afterward, these elements have taken on the intrinsic end of the whole, or become something which is whatever it is only in relation to the whole. This transition cannot be understood in terms of necessitating causes (*WL*, 6:228/562). But Hegel does not deny that we can apply mechanistic and chemical explanation within the blood stream; what he denies is that this can ever explain blood as such: "blood which has been analyzed into these constituents is no longer living blood" (*PN*, §365Z; see also *EL*, §219Z). For to be blood is not to have a certain chemical constitution, but to be a means to mediate ends and thereby to the intrinsic end of self-preservation (e.g. we might say that it is to be a means to the end of distributing oxygen throughout the body, and thereby to self-preservation). More broadly, we can explain the behavior of the substances and reactions found along the way of the broader process of assimilation in "inorganic" terms, in which case their interconnection or organization will be "superfluous." But this does not conflict with the claim that all of these things are

⁴⁸ *WL*, 6:476/766. See also *VL*, pp. 210–211.

⁴⁹ *EL*, §§216Z; see also *WL*, 2:419–420/766; *PN* §350Z.

present, in this particular arrangement, all for the sake of an end: “but still the course of organic being in itself occurs for its own sake, in order to be movement and thus actuality” (*PN*, §365Z/9:485).

Some may worry that the applicability of lower-level explanations to all matter should exclude the possibility of teleological explanation of anything. This topic is important, but I will not pursue it further here. For unlike Kant’s worries arising from the backwards causation problem, such exclusion problems do not specifically concern the problem of teleology without design. If exclusion is a problem, then it will also threaten design. If exclusion is a problem, then it will threaten all higher-level teleological explanation of our actions in terms of our representations of ends or goals.⁵⁰

Finally, Hegel’s stance on the compatibility of teleology and mechanism has important consequences concerning how we understand his claims about “the concept” [*der Begriff*]. For example, Hegel claims that the goal-directed development of a seed into a plant reveals clearly the reality and explanatory import of “the concept”: The seed is “visible evidence to ordinary perception of what the concept is.” And the seed is “the entire living being in the inner form of the concept” (*WL*, 6:486/774). But we must not take this to mean that “the concept” is supposed to be like an additional thing bumping up against the other elements here. Nor that “the concept” is a kind of additional force – perhaps a kind of vital force – somehow overpowering gravity or other forces at work here. Nor is anything else, like “the soul,” supposed to play the role of such a special thing or force. The point is rather, first,

⁵⁰ That is, the presence of a prior representation of an end prevents the backwards causation problem from applying to consideration of purposive action. But this will not make any difference if exclusion is a problem: if lower-level explanations can explain the movements of our physical bodies in terms which make no appeal to the representation of an end *as such* (even if some of the physical states involved happen to be token-identical with mental representations of ends), then this can seem to threaten to exclude teleological explanation appealing to the representation of an end *as such*. The possible vulnerability of functionalism and anomalous monism to such problems has been a huge topic of recent discussion (e.g., in J. Heil and A. Mele *Mental Causation* (Oxford: Clarendon Press, 1993). The connections between teleology applied to biology and teleological explanation of action in terms of mental representations has played an important role recently as well – for example, in both L. Wright, *Teleological Explanations: An Etiological Analysis of Goals and Functions*. (Berkeley: University of California Press, 1976) and R. G. Milliken *Language, Thought and Other Biological Categories* (Cambridge, MA: MIT Press, 1984). The connection is important for Kant’s purposes, insofar as he compares the problem of *Naturzwecke* to the problem of freedom: in both cases the idea of the supersensible allows a “possibility which cannot of course be understood, although the objection that there is an alleged contradiction in it can be adequately refuted” (*KU*, 5:195).

that whatever is going on with the lower-level stuff, all of it is present specifically on account of the way in which it contributes to the end of the development of a mature organism capable of self-preservation and reproduction. And, second, the end of the process of development can explain that very process specifically insofar as there is an explanatory role here for something general – for the species or kind [*Gattung*] or “the concept” [*der Begriff*] in this sense: each stage of development occurs here as it does specifically because of the general species, and more specifically because of the way in which this general kind of stage has consequences which benefit the end of the development of organisms of the same general kind or species.

VIII. A KANTIAN REJOINDER AND A CONTEMPORARY
 COMPARISON

How might Kant or a Kantian rebut Hegel’s argument? Kant refers at one point to “the whole difficulty surrounding the question about the initial generation of a thing that contains purposes in itself” (*KU*, 5:420). This certainly suggests a line of attack. Hegel argues that the structure and development of a living being can be explained in teleological terms in virtue of its place in the larger process of reproduction within a species. A Kantian might well respond as follows: This approach just shifts the philosophical difficulties away from the origin of the individual living being to rest on the question of the initial generation of the species. If there is an origin in a concept, then whatever follows is only external design. If not, then the results will not include any teleological systems.⁵¹

Granted, if the demand here is for an explanation of how one might get from mere matter alone to complex living beings and the different species we know today, then Hegel is indeed in no position to explain. True, one can find relevant comments in the *Philosophy of Nature*. Some of them are false – for example, Hegel denies the possibility of the different species emerging from a common ancestor. And Hegel continues from here to a claim that is simply inconclusive: “even if the

⁵¹ Compare Kant’s own argument against the proposal that nature might “initially bear creatures of less purposive form, which in turn bear others that are formed more suitably,” eventually producing the living beings we know from our experience. The possibility of a real *Naturzweck* is not *explained* thereby; rather, we have “merely put off the explanation.” In other words, *if* we are to take the creatures generated by such a process to be genuine ends or *Zwecke*, then we would have to find at the beginning of the process “an organization purposively aimed at all these creatures, for otherwise the possibility the purposive form of the products of the animal and vegetable kingdoms cannot be conceived at all” (*KU*, 5:419–420).

earth was once in a state where it had no living things but only the chemical process, and so on, yet the moment the lightning of life strikes into matter, at once there is present a determinate, complete creature" (*PN*, §339Z/9:349/284). Neither the hypothetical nor the comparison to a lightning strike suggests any positive explanation of anything. Perhaps this is one of those cases in which, as Hegel says elsewhere, "there is plenty that cannot be comprehended yet" (*PN*, §268Z).

But why should any of this have anything to do with Hegel's rejoinder to Kant in "Life" from the *Logic*? Hegel does not there undertake to explain how to get from matter to living beings. He provides an explanation, in response to Kant's specific problem, of how a complex system (e.g., an organism) produced by reproduction might satisfy the requirements of inner purposiveness. As noted in Section 5), satisfaction of these requirements (on Hegel's account) simply has nothing to do with the lowest-level underlying matter. In Hegel's terms, living beings satisfy the analysis of inner purposiveness not in virtue of the relation between the whole and the mutually external material "parts" in space, but in virtue of the relation between the whole and the "members" (*WL*, 6:476/766). If this argument works, then it is only important that there are assimilating and reproducing organisms – and who could doubt this?

A contemporary Kantian might want to force the issue by insisting on a thought experiment: Imagine that some heap of matter were, by incredible coincidence (perhaps literally involving a lightning strike), to rearrange itself into a simple one-celled organism. This would not be a teleological system, no matter how effectively its parts might benefit the whole; *ex hypothesi*, the parts are present not because of an end or purpose but merely by coincidence. So if this organism reproduces and assimilates, then it would satisfy Hegel's analysis without being a truly teleological system. Such a thought experiment is entirely alien to Hegel's procedure. But if a contemporary Kantian were to insist on the experiment, then a contemporary Hegelian could respond: An individual of a future generation is a teleological system. For it exists on account of the general species or "concept" it shares with previous generations. Or, it exists only insofar as its parts are "members" – insofar as these kinds of parts are a benefit in relation to this kind of whole. So it will be a teleological system by Kant's own standard: "its parts (as far as their existence and their form are concerned) are possible only through their relation to the whole" (*KU*, 5:373).⁵²

⁵² Perhaps a contemporary Kantian would propose as well that we might create by *design* a reproducing creature. We could give the same response: The first creature will be a means only to *our external* end. But – as above – the parts of *future* generations will *also* be present on account of the intrinsic end of self-preservation.

Recall as well that Hegel is not defending teleological explanation of the historical development of the species. On my view, Hegel actually denies the possibility of such explanation of biological species. (He does of course say that “spirit” (*Geist*), or sometimes “self-consciousness,” does make progress through history.)⁵³ But my point here is that change through historical development is a separate topic. Obviously, contemporary biology is vastly superior to everything Hegel says or knows about when it comes to scientific explanation of the changes over time in a biological species. But if Hegel’s argument in the “Life” section of the *Logic* works at all, then none of this will matter to the resolution of Kant’s specific problem concerning teleological explanation of the structure and development of a living being.

Finally, it is interesting to compare the most popular contemporary defenses of teleological explanation in biology. These differ immensely from Hegel’s, for they defend natural teleology by drawing on the theory of natural selection; so they hold that the status of teleological explanation of the structure and development of individual organisms depends on the nature of the process by which a species itself historically develops. And critics attack precisely here, arguing that the theory of natural selection, properly understood, can do nothing to support such teleological explanation.⁵⁴ It seems to me worth considering whether there

Note here that Kant’s concept of a *Naturzweck* aims to articulate the conditions under which something would satisfy the implications of teleological judgment in virtue of inner purposiveness. That need not itself rule out the possibility that this same something might *also* be designed. Finally, Kant himself might actually have something like this in mind. After all, he argues that we have reason to believe (though lack knowledge) that there is an “author of the world” who creates nature for the sake of a “highest good” (*KU*, 5:450). So when we are conceiving of a living being as a *Naturzweck* with an inner end or purpose, it seems we are also to consider it as designed by the for the sake of another purpose. Of course, Kant denies the possibility of *knowledge* of any of this.

⁵³ Hegel contrasts a biological species with the kind of which all thinking beings are instances, which he calls *Geist*: “The world of *Geist* and the world of nature continue to have this distinction, that the latter moves only in a recurring cycle, while the former certainly also makes progress” (*EL*, §§234Z). Alternatively, “the fate (*Schicksal*) of the living being is in general the *Gattung*, which manifests itself through the perishableness of the living individuals.” And this means that there is no reason (teleological or otherwise) which necessitates a broader course of development: “what befalls them is a contingency” (*WL*, 6:421/720). Hegel there contrasts the “fate” of “self-consciousness.” See also *VPN*, 184–185. Furthermore, a species can go extinct, without a purpose or an end explaining why (*VGP*, 19:175/2:158; and *PN*, §§339Z/280). This is one example of Hegel’s general point that “even the species (*Gattungen*) are completely subject to the changes of the external, universal life of Nature” (*PN*, §§368A).

⁵⁴ For defenses, see Millikan, *Language, Thought and Other Biological Categories* and White Queen Psychology and Neander, “Teleological Notion.” For criticisms,

is room for another approach, one that would be impervious to such attacks. In particular, we might consider looking to Hegel for inspiration, and trying to articulate a defense of teleological explanation in biology which requires only the struggle for survival and reproduction of structure, thus neither conflicting with natural selection, nor requiring support from any particular interpretation of natural selection at all.⁵⁵

IX. THE BROADER PHILOSOPHICAL SIGNIFICANCE

The interpretation of the general themes of Hegel's philosophy as a whole is, of course, an enormous undertaking in its own right. But it is worth briefly noting some of the broader implications of Hegel's defense of natural teleology.

To begin with, Hegel's defense of the possibility of our having knowledge of natural teleology is connected to a much broader contrast between Kant and Hegel. Especially when it comes to explanatory knowledge of nature, Kant has a much more restrictive understanding of our epistemic limits. Kant does argue in the *Metaphysical Foundations of Natural Science* that we can have a special kind of a priori insight into the universal laws governing matter specifically. But elsewhere, as in the *KU*, Kant portrays our pursuit of explanatory knowledge of natural laws and kinds in terms of the idea that we can only make progress toward a goal that cannot in principle be achieved by a finite intellect such as our own.⁵⁶ By contrast, Hegel sees Kant as overly beholden to empiricist ideas about in principle limitations on what sorts of objects of knowledge are accessible to us (*EL*, §50). So Hegel is more

see Sober, "Natural Selection and Distributive Explanation" and Cummins, and "Neo-Teleology."

⁵⁵ See Buller's case that contemporary philosophy of biology has largely failed to clearly distinguish this kind of approach from those which require a section-history. He defends an approach of the former kind: "A current 'token' of a trait *T* in an organism *O* has the function of producing an effect of type *E* just in case past tokens of *T* contributed to the fitness of *O*'s ancestors by producing *E*, and thereby causally contributed to the reproduction of *T*s in *O*'s lineage" (1998, p. 507). See D. J. Buller, "Etiological Theories of Function: A Geographical Survey," *Biology and Philosophy* 13 (1998), pp. 505–527. esp. p. 507. J. Richardson in "Aristotle's Teleologies," carefully distinguishes this kind of view, and considers the possible evidence for interpreting Aristotle as holding it, but he finds philosophical disadvantages insofar as the view cannot provide "explanation of why just these species exist" (p. 107); I would ask: why shouldn't it be better for a philosophical defense of natural teleology to leave that question to empirical science?

⁵⁶ See the unpublished and published introductions to the *KU*, and the "Appendix to the Transcendental Dialectic" in the first *Critique*.

optimistic about the prospects for our achieving explanatory knowledge generally of “universal determinations” such as natural laws and kinds (*Gattungen*), and about our doing so in cases (e.g., biology) well beyond the laws of matter.⁵⁷ My own view is that both approaches here have their philosophical costs and benefits throughout theoretical philosophy; an attempt at a final weighing of these would be a huge undertaking.

Furthermore, one reason Hegel takes teleology and biology specifically to be of such broad importance is that he wants to argue that biological phenomena are more completely intelligible or explicable than matter and other natural phenomena.⁵⁸ This is, in part, what Hegel means by saying that “the highest level to which nature attains is life” (*PN*, §248A). And we can at least anticipate the general outlines of Hegel’s argument here. Lower-level phenomena can be explained in terms of universal laws (e.g., gravity) and general natural kinds (e.g., chemical kinds).⁵⁹ But here there can be no further explanation of the connection between the particular and the universal, or of how the universal governs the particular. The point is not that there is a more complete explanation of, for example, gravity, to which we lack access; rather, mechanistic phenomena themselves are only incompletely intelligible or explicable.⁶⁰ In biological cases, by contrast, there is explanation to be had concerning the relations between the particular or concrete and the universal or general. For example, reproduction by individuals explains the how the general kind [*Gattung*] is realized and effective in the world;

⁵⁷ For example, “The empirical sciences do not stop at the perception of single instances of appearance; but through thinking they have prepared the material for philosophy by finding universal determinations, kinds, and laws” (*EL*, §12A).

⁵⁸ Also on Hegel’s case for the superior intelligibility of teleology, see Forster *Hegel’s Idea of a Phenomenology of Spirit* (Chicago: University of Chicago Press, 1998), p. 64f, and my own “Hegel’s Critique of Pure Mechanism and the Philosophical Appeal of the Logic Project,” in *European Journal of Philosophy*, 12 (2004), pp. 38–74.

⁵⁹ See, for example, Hegel on chemical kinds: “the universal essence, the real kind (*Gattung*) of the particular object” (*WL*, 6:430/728).

⁶⁰ Hegel argues against the idea that our difficulties here are at root epistemological. He sees this as inevitably suggesting a version of the idea that either forces or universals are unknowable and absolutely fundamental *things*, residing in a kind of immaterial higher *realm* inaccessible to us; and he thinks that problems concerning the interaction between realms would make things *less* intelligible or explicable rather than more so. See, for example, Hegel on Plato in the *Lectures on the History of Philosophy*, and the “Force and the Understanding” in the *Phenomenology*.

and the kind reciprocally explains how new individuals have the capacities required to survive and reproduce. Here Hegel will argue that the concrete and the universal are two sides of one system, which he calls "concrete universality." This is why Hegel takes biology to be relevant in a book about logic. For example, a judgment "S is P" will be of very different significance depending on whether we have an ordinary case (e.g., "the sun is hot") or whether we are dealing with a case of "concrete universality" (e.g., "Hobbes is a tiger"). In the latter kind of case,

Subject and predicate correspond to each other and have the same content, and this content is itself the posited *concrete universality*; it contains, namely, the two moments, the objective universal or the *kind (Gattung)*, and the *individualized* universal. Here, therefore, we have the universal which is *itself* and continues itself through *its opposite* and is a universal only as *unity* with this opposite.⁶¹

Obviously, all this raises more questions than it resolves. I think that the most important and general questions concern how Hegel's claims about the greater intelligibility of biological phenomena are supposed to fit into an overall metaphysical account of what truly or absolutely exists.

One easily accessible approach to this question would be to read Hegel, and perhaps some of his post-Kantian contemporaries as well, as defending a view that I will call "organic monism." The basic idea is that (following Spinoza) everything real must be "in" one single "substance"; but that substance is an organism. Or, more precisely, that substance must manifest the inner purposiveness of a *Naturzweck*: its structure and development over time are explicable in terms of an intrinsic end.

But I think that this approach to Hegel's metaphysics faces interpretive difficulties when it comes to Hegel's actual defense of natural teleology against Kant. As McTaggart notes in his commentary, Hegel's analysis in the "Life" section of the *Logic* cannot possibly apply to "the universe," or the whole of everything, or "substance" in the above sense (1910, p. 275). For substance could not depend on or have need

⁶¹ WL, 6:349/662. Hegel is speaking of concrete universality in general here, not of biology in particular. But biological examples certainly help to illuminate the point. See also Hegel's connection between the concrete universal and Kant's analysis of inner purposiveness (WL, 6:443/739). On this issue, see M. Thompson, "The Representation of Life," in *Virtues and Reasons: Phillipa Foot and Moral Theory*, ed. by R. Hursthouse, G. Lawrence, W. Quinn (Oxford: Oxford University Press, 1995), pp. 247–296.

of assimilation from an outside environment – it will have no outside, and nothing with which it could be said to struggle. And substance could not be said to be mortal and to reproduce new individuals of the same kind – for all individuals would have to be “in” the same single substance itself. Furthermore, insofar as Hegel’s analysis cannot possibly apply to the universe as a whole, Hegel’s argument in “Life” does not even attempt to defend (against Kant) the idea that we could possibly know the universe to be a *Naturzweck* – nor even the idea that we could comprehend how the universe could possibly be a *Naturzweck*.

I see two possible basic reactions here. One is to say (with McTaggart) that Hegel advocates “organic monism,” and sees Kant’s analysis of inner purposiveness as crucial for that reason, but that Hegel does not defend organic monism where he specifically responds to Kant’s worries about the inner purposiveness of living beings. My own preference is for the alternative: to hold that the *Logic* and the *Encyclopedia* offer philosophical arguments in favor of a different metaphysical account of reality – one that contrasts with “organic monism”.⁶²

There can be no question of explaining and defending here any particular alternative approach to the whole of Hegel’s metaphysics. But the broad issues at stake might at least be clarified by contrasting a brief sketch.⁶³ One could read Hegel not as defending “organic monism,” but as arguing that the whole of reality is structured into different “levels” or *Stufen*.⁶⁴ Mechanistic phenomena form the lowest level, and biological phenomena form a much higher level. Furthermore, the higher levels are more completely intelligible than the lower levels. This is not to say that everything is an organism or part of an organism. So when we explain, for example, the rotation of planets in terms of the necessary laws governing matter, we are not making a mistake or accepting a merely subjective appearance of something that is in truth or most

⁶² My own sense is that Kant is right to hold that comprehending how the universes could be a *Naturzweck*, and having knowledge of this, would require a higher form of intellect – something along the lines of Kant’s descriptions of “intellectual intuition” and “intuitive understanding.” And although there are some complex issues here concerning Hegel’s early work and his development, in the *Logic* and the *Encyclopedia* Hegel lays a tremendous amount of stress on his criticisms of appeals by his contemporaries to “intellectual intuition” and other forms of supposedly “immediate knowledge” (*WL*, 5:65/67; *EL*, §61–§78). So my view is that these criticisms provide Hegel with good reason to prefer something else to organic monism. But this case would require much more defense.

⁶³ Yet another alternative would be the one attributed to Hegel by R.-P. Horstmann *Ontologie und Relationen* (Koenigstein: Athenaum, 1984), p. 70ff.

⁶⁴ On Hegel on “levels” or *Stufen* specifically of nature, see the opening sections of the *Philosophy of Nature* and deVries, *Hegel’s Theory of Mental Activity*, ch. 3.

fundamentally an organic or teleological phenomenon. Rather, mechanistic phenomena are perfectly real but only imperfectly intelligible. Living beings are more completely intelligible. And, ultimately, the only thing that is perfectly intelligible is us – or, more precisely, the general kind or *Gattung* whose instances are thinking and self-conscious beings. Hegel calls this kind *Geist* [mind or spirit]. In Hegel's terms, there is a standard of complete intelligibility – “the idea.” And although everything is intelligible to some degree, most everything falls far short of the standard. The standard of “the idea” is met to some degree by living beings, and completely only by *Geist*.⁶⁵ On this view, insofar as reality itself is organized or structured, it is comparable to an organism in this respect.⁶⁶ But it is crucial that reality as a whole would not have a structure because it is really an organism, organic, or a *Naturzweck*. The point would be precisely the opposite: reality has a differentiated structure insofar as there are many different kinds or levels of phenomena which differ in real and important ways from biological phenomena and from one another.⁶⁷ In summary, then, there are ways of interpreting Hegel's metaphysical ambitions, and the importance of his defense of natural teleology, without reading him as an “organic monist” at all.

My topic here has not been Hegel's broader metaphysics, however, but his response to Kant concerning the status of teleological explanation of the structure and development of living beings. I have tried to show that Kant provides a forceful argument in support of his skeptical conclusion – his denial of the possibility of our having knowledge that teleology truly explains the structure and development of a living being. And I have tried to show that Hegel recognizes this argument and meets

⁶⁵ “Life” is the first subsection under the heading “The Idea” in the *Logic*. But Hegel argues, as he puts it, that the “truly absolute concept” is the “idea of infinite mind” (*WL*, 6:279/605). Also, Hegel famously says “substance is essentially subject” (*PhG*, 3:28/14). On the current reading, this will mean that there *is* something completely or ideally intelligible, something which meets Spinoza's definition of substance: it “is in itself, and is conceived through itself” (*Ethics*, 1D3). But Hegel argues “God or substance” in this sense cannot be everything or a whole of everything; it can only be *Geist*. We ourselves are both living beings and also *geistig* beings; see especially *VPN*, 184–185.

⁶⁶ On this organization see, for example, *PN*, §§246. Similarly, Hegel compares the earth to an organism, while emphasizing that it is not really alive (*PN*, §§339 and *Zusatz*).

⁶⁷ K. H. Ilting stresses a similar claim in discussing the broader importance of Hegel's account of life: “Hegel beabsichtigt nicht etwa, in allen Gestaltungen der Nature und des Geistes nur immer wieder dieselbe logische Struktur aufzuweisen.” See “Hegels Philosophie des Organischen,” in *Hegel und die Naturwissenschaften*, ed. by M. J. Petry (Stuttgart: Frommann-Holzboog, 1987), p. 367.

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it with an argument of his own in defense of teleological explanation in biology. It would of course be very difficult to attempt any sort of final or definitive weighing of the philosophical advantages and disadvantages of each view of teleology and biology – let alone the costs and benefits of the broader approaches to theoretical philosophy with which each view is closely connected. But we can at least see that, when it comes to the topic of teleology and biology, Kant and Hegel provide arguments that bear on underlying philosophical issues of continuing interest and importance.⁶⁸

⁶⁸ For helpful comments on this material, and other assistance, I would like to thank: Michael Della Rocca, Michael Forster, Dean Moyar, David McNeill, Robert Pippin, Candace Vogler, and Rachel Zuckert. As usual, any errors are my own.