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Organism, normativity, plasticity: Canguilhem, Kant, Malabou

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Abstract Some of Catherine Malabou's recent work has developed her conception of plasticity (originally deployed in a reading of Hegelian *Aufhebung*) in relation to neuroscience. This development clarifies and advances her attempt to bring contemporary theory into dialogue with the natural sciences, while indirectly indicating her engagement with the French tradition in philosophy of science and philosophy of medicine, especially the work of Georges Canguilhem. I argue that we can see her development of plasticity as an answer to some specific shortcomings in Canguilhem's conception of organic or biological normativity as advanced in *The Normal and the Pathological*. Such a view of plasticity shows its potential to provide the basis for a powerful critical engagement with contemporary conceptions of selfhood, self-transformation, subjectivation, and the general theory of norms.

Keywords Canguilhem · Malabou · Kant · Hegel · Normativity · Organism · Plastic · Plasticity

1 Introduction

From what we might now call a classical philosophical perspective, the most striking aspect of the understanding of nature promoted by the natural sciences is the apparent lack therein of any room for normativity. The nature discovered by these sciences (so the story goes) is a disenchanted nature, meaning that it is a causally ordered nature, one in which we can discern many laws for how things are, but none for how things ought to be. This apparent lack was felt strongly enough by Kant that he invented transcendental idealism at least in part to make up for it. Kant's first move—to work out an account of the cognitive norms required by but not justifiable

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within any fact-oriented or descriptive practice such as the natural sciences—has remained philosophically popular; his second move—to argue that the supposed lack of room for 'ought's in nature could be made up for by preserving a space for 'ought's beyond or outside nature—has proven less satisfying. Yet endorsing Kant's first move by itself is also unsatisfying, for by affirming both that our scientific practices are bound by conceptual norms and that the natural sciences cannot justify the norms on which they themselves depend, it seems to leave us at a difficult impasse: Either we must insist that there is more to nature than the sciences could possibly reveal, including room for 'ought's, or we must accept Kant's second move after all, and try to find a space beyond nature that might function as a safe haven for normativity.

Georges Canguilhem's best-known philosophical work is occupied with just this dissatisfaction. In *The Normal and the Pathological*,[1] Canguilhem seeks satisfaction by identifying a normativity—a specifically norm-*establishing* normativity, in contrast to merely norm-*following* normativity—located within nature, revealed in biology, and yet not reducible to physico-chemical mechanism.[2] He argues that the biological object as such, the living thing, is only discernable as what it is when it is grasped as essentially norm-establishing. His strategy eventually runs aground on his Kantian commitment to a rigid distinction between the establishment of norms and the following of norms, itself understood in terms of a rigid distinction between form and content. But his basic thesis, according to which the living thing is understood in, and not just by, biology as norm-following and norm-establishing, has been taken up recently in the work of Catherine Malabou on synaptic plasticity. Canguilhem's early work and Malabou's more recent arguments point to a way of understanding nature that can make room for the normativity that often seems to be, but only seems to be, missing from the biological-scientific picture.

Before turning to the argumentative core of this paper, one possible objection is worth forestalling: the objection based in pointing out that Malabou herself mentions Canguilhem only once, in the introduction to her first major work, and does not pursue her connection to his work explicitly elsewhere, or at length anywhere.[3] Such an absence of direct engagement can threaten to make my claim here look implausible from the start. But in fact the lack of direct engagement is not surprising. Malabou tends to describe her own work as Hegelian and deconstructive in inspiration (early in her career, this tendency was even more pronounced), and the

[1] Canguilhem (1991).

[2] "[L]ife is in fact a normative activity. The *normative*, in philosophy, includes every judgment which evaluates or qualifies a fact in relation to a norm, but this mode of judgment is essentially subordinate to that which establishes norms. The normative, in the fullest sense of the word, is that which establishes norms. And it is in that sense that we plan to talk about biological normativity" (Canguilhem 1991, pp. 126–127). Although I talk about "reduction" and "physico-chemical mechanism" here, these are not meant in any precise technical sense that would imply a commitment on Canguilhem's part to any particular view of reduction, mechanism, function, and so on. They are meant to indicate the factual-natural contrast class to norms.

[3] In the introduction to her book on Hegel, Malabou writes that the "viability" of the concept of plasticity as she develops it "depends on the success of an epistemological operation which resembles, in its method, that defined by Georges Canguilhem" as elaborating (*travailler*) a concept (Malabou 2005, p. 7; citing Canguilhem 1970a, p. 206).

dominant view of Canguilhem has it that his most legitimate heir was his student Foucault. According to the usual picture, Foucault actualized the radical potential of Canguilhem's thought by means of his own work on normativity, medicine, power, governmentality, and sexuality.[4] But despite her obvious affinity with deconstructive approaches, Malabou's way of paying attention to the detail of the neurosciences puts her in very close contact with a core strain in Canguilhem's thought. I would argue—though I cannot do so here—that Malabou's work on the brain implicitly differentiates her reception of Canguilhem from Foucault's, and serves to indicate the point of contact and conflict between her conception of plasticity and Foucault's late work on the hermeneutic of the subject.[5] In that sense, the present essay is preparatory to a longer one showing how Malabou's Hegelian-deconstructive orientation allows her to see problems in Canguilhem's work, and solutions to these problems, that advance her beyond Foucault's own too-Kantian position, while avoiding some of the traps of other prominent discussions of biopower and biopolitics.

My more modest, local aim in this essay is to sketch the outlines of Canguilhem's early proposal, indicate the Kantian trap to avoid in it, and show how Malabou's conception of plasticity can be understood as continuing Canguilhem's project in a non-Kantian direction informed by, but not limited to, Hegelian and deconstructive concerns. In order to do so, I will first give a short account of Canguilhem's conception of biological normativity (Sect. 2), then argue that it has a basically Kantian structure and hence also Kantian problems (Sect. 3), next presenting Malabou's conception of plasticity (Sect. 4), and finally proposing a "plastic" understanding of organic or biological normativity (Sect. 5).

2 Canguilhem on biological normativity

In *The Normal and the Pathological*, Canguilhem advances a series of claims about biological or organic normativity in the course of a historical study of the distinction between physiology and pathology in the late nineteenth century. He begins with the claim that this distinction must always be made on the basis of a conception of what is good for the organism, or on the basis of a valuation or valorization, and thus cannot be made through strictly descriptive (i.e., "scientific") judgments alone.[6] Although there may be various statistical methods, for instance, that could let us settle on one or another quantity as average (or median, or mode, etc.) for a given

[4] So, for instance, the major translations of Canguilhem's work into English bear prefaces by Foucault (Canguilhem 1991) and Paul Rabinow, a prominent Foucault scholar (Canguilhem 1994); a recent collection of essays on Canguilhem is entitled *De Canguilhem à Foucault: La force des normes* (Machery 2009).

[5] Arguably, Malabou is close to a train of Canguilhem's thought that Canguilhem himself allowed to atrophy under the influence of Foucault; see note 32 below.

[6] Hence Canguilhem describes *The Normal and the Pathological* as conducting a "critical examination" of "the thesis according to which pathological phenomena are identical to corresponding normal phenomena, save for quantitative variations" (Canguilhem 1991, p. 35), a thesis meant to reduce the normative distinction between physiology and pathology to a descriptive one.

physical constant, no such method is sufficient to identify an outlying physical quantity as *pathological* in the proper sense.[7] What is pathological, strictly speaking, is not simply what is uncommon or what lies outside the statistical norm, but that which involves *pathos* or suffering for the organism, that which has a negative value for the organism as such.[8] As a result, what is normal is also not determined by averages, but consists in what maintains the good for the organism or what has positive value for the organism as such.

But if a distinction between physiology and pathology can only be made on the basis of a judgment of what is good for an organism, and if that good is not reducible to just whatever the other organisms are doing, then we are left with the question of how such goods are established for the organism. On this question Canguilhem's view is clear—the organism itself is the only available authority for the establishment of its biological norm.[9] The pathological is not to be thought of as logically posterior to the physiological, but as that through which the physiological (as normal function) first announces itself; the normal only becomes distinct from the pathological when the functioning or activity of the organism orients itself toward leaving a current devalued state and achieving a valued different state. The name for an organic functioning or activity that is not normal, and that has normalcy as its goal (even if this goal is not achieved), is "pathology."

In the case of medical science as a human practice, the identification of a function or state as pathological will be bound up with speaking (or some other kind of value-expressing gesture), either by the patient or the doctor or both. But we should not let this obscure the fact that the positing or establishment of organic value can happen in other ways. Life itself, says Canguilhem, "is in fact a normative activity," in that it is "an unconscious positing of value" through which the living thing struggles against that which obstructs its preservation and development.[10] This activity of positing value is not spontaneous in the sense of being absolutely original; it is rather always a "react[ion] to a lesion, infection, a disease." It is the disease, as reaction, that first establishes the very normality or normative activity of the healthy state from which it is the departure. In this sense, "disease is not merely the disappearance of a physiological order but the appearance of a new vital order," the establishment of a new norm.[11] The organism's activity in response to disease is just the establishment of that order. Thus, says Canguilhem, "it is life itself" in its spontaneity "and not medical judgment which makes the biological normal a concept of value and not a concept of statistical reality;"[12] the value-ladenness of

[7] The same point holds for, e.g., any method we might use to specify the *common* or *usual* configuration for a biological mechanism or other arrangement.

[8] "Pathological implies *pathos*, the direct and concrete feeling of suffering and impotence, the feeling of life gone wrong" (Canguilhem 1991, p. 137).

[9] In terms of the human organism, Canguilhem writes: "We think that medicine exists as the art of life because the living human being himself calls certain dreaded states or behaviors pathological (hence requiring avoidance or correction) relative to the dynamic polarity of life, in the form of a negative value" (Canguilhem 1991 p. 126).

[10] Canguilhem (1991, p. 126).

[11] Canguilhem (1991, p. 193).

[12] Canguilhem (1991, p. 131).

biological normality is built into the concept of the living as such. The upshot is that biology, insofar as it has the living as its object, cannot but trade in norms, or discover the ways and means by which its objects actualize their inherent normativity.

In the Preface to the second edition of *The Normal and the Pathological*, Canguilhem writes that this dissertation in medicine was also intended to "lay the groundwork for a future thesis in philosophy,"[13] and the philosophical force and intent of his argument here is obvious. The point is not, or not merely, the relatively traditional one according to which we must understand the living thing in light of its function, and that such a function must in turn be understood as its proper function. While he clearly endorses such a claim, he complicates it considerably by arguing that this "proper" or "normal" functioning itself emerges only as the goal of an order established in response to threat, failure, and suffering. In this way, proper functioning, as the norm of living activity itself, never describes the actual functioning of the organism, but only fixes the horizon within which that functioning must be grasped. Furthermore, Canguilhem does *not* claim that there is some original healthy state the re-achievement of which, or the return to which, is the true stable goal of the organism's activity. The aim of the activity of the living is not the restitution of an original state, but "repairs which are really physiological innovations."[14] It is in this sense that "there is no disorder, there is the substitution for an expected or loved order of another order which either makes no difference or from which one suffers."[15] Thus every organic functioning is an ordering, and it is in this sense that the living thing is norm-establishing, simply *qua* living thing. And insofar as each order is understood as a reaction to the previous one, there is a "fundamental biological fact" at work here. "Life does not recognize reversibility," and thus cannot consist in a quest for an original state: "In biology, the normal is not so much the old as the new form."[16]

At the same time, of course, no norm can be said to have been established for the organism unless such following is possible. Canguilhem therefore looks to understand norm-establishing normativity alongside what he calls the "essentially subordinate" mode of norm-following normativity, in which the organism's activity is directed toward some already-established value or good.[17] But this subordinate variety of normativity can also look like a potential basis for a reduction of all organic normativity to norm-following normativity alone. On such a reductive approach, the alleged norm-establishing capacity of an organism is really just an ability to change the *means* it employs to achieve an *end* not itself selected by the organism; the various norms the organism is capable of establishing would thus all be subordinate technical tools for conforming to some ultimately authoritative norm established for the organism from the start.

[13] Canguilhem (1991, p. 32).

[14] Canguilhem (1991, p. 198).

[15] Canguilhem (1991, p. 194).

[16] Canguilhem (1991, p. 196, 144).

[17] Canguilhem (1991, p. 125).

The attraction of this reductive proposal lies in the way it promises to organize the unity of an individual organic life around a single, original, authoritative, unchanging norm. But Canguilhem's detailed studies of the history of medical conceptions of normality and pathology—studies making up the bulk of *The Normal and the Pathological*—lead him to conclude that no such ultimate concrete norm, no original *contentful* norm, can be established for any species or individual. So the reductive path is not available to him. Yet something similar to it is, for it remains open to him to invoke an ultimately universal *formal* norm at which organic activity in general—and most importantly, its norm-establishing activity—aims. And this is in fact what he does. In claiming that there is an "original normative character of life"[18] and that "life is a normative activity,"[19] Canguilhem is claiming that the norm-guided and norm-establishing activity of the organism indeed aims at a supreme, fixed good: the preservation and expansion of the organism's norm-establishing capacity as such.

As I will argue in the next section, it is this formal conception of organic normativity that constitutes Canguilhem's Kantianism. He is, of course, not *simply* a Kantian. But once we have identified his key Kantian commitment, it becomes possible to see the Kantian and post-Kantian logic structuring a range of responses to, and appropriations of, Canguilhem's work.[20]

3 Canguilhem's Kantianism

The parallel between Canguilhem's account of the structure of biological normativity and Kant's account of the structure of moral normativity is straightforward.[21] In the *Groundwork for the Metaphysics of Morals*, the Formula of Humanity—at least on one well-known reading[22]—has it that in order to count as practically autonomous, the thing we must value above all in other humans is their humanity, meaning their autonomy, meaning their ability to value things at all. The Kantian demand that I treat every other human always also as an end and never merely as a means is a demand that I recognize in them their autonomy or their

[18] Canguilhem (1991, p. 178).

[19] Canguilhem (1991, p. 126).

[20] These responses and appropriations themselves offer criticisms, modifications, expansions, and endorsement involving many other aspects of Canguilhem's thought, and in any case do not exhaust the list of fruitful engagements with his arguments or influences. Particularly important here are recent phenomenological investigations of normativity and the life sciences. See, for instance, (Steinbock 1995) for a helpful discussion of connections between Husserl and Canguilhem on organism normativity (especially chapters 9 and 10 on normality).

[21] I omit here the institutional and historical role of Kant and Kantianism in Canguilhem's development, focusing only on the conceptual parallels between Canguilhem's biological normativity and Kant's moral normativity; see later in this section and note 24 below for explicit references to Kant in *The Normal and the Pathological*. It is surely the case that Canguilhem himself would have resisted the Kantian label (see, e.g., Canguilhem 1988, p. 10). Yet given the context of his early development (including the institutional influence of Brunschvig's neo-Kantianism and the personal influence of Alain and Bachelard), it is not surprising that certain Kantian strategies suggested themselves to him from time to time.

[22] See Korsgaard (1996).

norm-establishing normativity—their ability to set goods for themselves. The advantages of an analogous position for Canguilhem's theory of biological normativity are clear. He must block the possibility of a supreme given contentful organic or vital value, since such a supreme given value would render the living organism incapable of establishing some other value and would thus eliminate its original normativity. Yet to admit no value-orientedness in organic activity would be to deny the normative character of life in general. A contentless good, however, would secure the norm-following normativity that we can now see must characterize biological norm-establishment itself, while allowing Canguilhem to avoid committing himself to any *particular* good-for-organisms that might abrogate their fundamental norm-establishing, autonomous capacity.[23]

In calling such a norm "contentless," of course, we are simply calling it formal. If the content of the animal's activity itself is not to identify it as good-directed, exercises of the organism's norm-establishing capacity must be understood as directed toward some good no matter what their content, just insofar as they are exercises of that capacity. That is, it must be the *form* of an organism's activity that identifies it as norm-establishing. Organic normativity must therefore be its own good, an end-in-itself, and therefore a purely formal principle of that activity, just as my autonomy in the ethical sphere is an end-in-itself for me *qua* human.[24]

The difficulties faced by Kant's formal ethics are well-known, if still disputed. The most prominent post-Kantian line of objection to Kant's formal ethics was Hegel's, according to which the formal principles of Kant's moral philosophy are empty of any action-guiding content whatsoever. Hegel claims that the formal principle can in fact ground nothing, and can only function given the essential embeddedness of the moral agent in a fabric of contentful moral commitments. Hegel thus demands an account of the agent-constituting social relations between individuals.[25] On the biological side, the way to make Hegel's point is to say that organisms do not and could not establish functional or biological norms in a natural vacuum, any more than humans do or could establish ethical norms in a social vacuum. Organisms in general are just as dependent on and entangled in their natural environments as moral agents are with respect to their socio-cultural (and natural) ones. The Hegelian impulse, then, when faced with Canguilhem's apparent

[23] To put it precisely, we could say that Canguilhem has an account of biological normative autonomy. His conception of norm-establishing normativity echoes Kant's definition of autonomy in the *Groundwork of the Metaphysics of Morals*, where something is autonomous if it "gives the law to itself and precisely thereby [is] subject to the law (of which it can regard itself as the original author) in the first place" (Kant 1997, p. 4:431).

[24] Kant's name appears infrequently in *The Normal and the Pathological*, but each time it does appear, it is connected to just these themes. In the first edition, Canguilhem invokes "the Kantian concept of finality" (Canguilhem 1991, p. 217) in order to indicate that he seeks an integration of (efficient) causality into any adequate account of organisms as goods-oriented beings. In the second edition (20 years later), he invokes a more important Kantian parallel, including a passage in which Kant expresses a view close to Canguilhem's regarding the role of pathology and patient complaints in medicine (Canguilhem 1991, pp. 233–234). As we will see below, Canguilhem also draws, with reference to Kant, a direct connection between ethical goods and biological goods (Canguilhem 1991, p. 243).

[25] See especially Hegel's treatment of ethical formalism under the heading "Reason as testing laws" (Hegel 1977, 428–436).

Kantianism, will be to say that the empty formalism of organic normativity as an end-in-itself must be transformed analogously to the transformation of Kantian formalism in post-Kantian idealism: by means of an account of the relation between the individual organism and its environment.

Canguilhem implicitly recognizes the validity of the Hegelian critique. This recognition takes the form of an argument that although organisms are norm-establishing, we cannot regard their norm-establishing capacity as *purely* formal in the sense of its being *wholly* unlimited by any content. Organisms operate within contingently varying environments and with contingently varying anatomies that restrict the range of possibilities open to them, but which can also be changed by the activity of the organism itself. In that sense, organic normativity is always operating upon some given content or other; the norm it establishes is always one for *this* organism, changing itself or not, in *this* environment, changed by it or not. Allowing for such given content, we can claim what Canguilhem calls a "functional plasticity" for organisms, but we cannot claim "a total and instantaneous malleability or a purely individual one" for them.[26]

Thus Canguilhem's radical formal conception of biological normativity is tempered through his attempt to block a Hegelian criticism by admitting a given natural content to the organism's activity. And here again Canguilhem's stress on the idea that all norms are established by the organism in reaction to a failure plays an important role. The role it plays is that of blocking this given content from itself functioning as an externally given norm and thus as an abrogation of biological autonomy. Because it always acts in response to some given bodily or environmental content, the organism cannot be said to have a first-ever self-founding act whereby it both begins to act for the first time, and establishes its first norm; rather, organisms as such are always-already reactive. It is thus the given but non-authoritative status of the animal's body and environment that drives Canguilhem to claim that each norm-establishment in the organism is a norm-replacement, and hence a norm-violation, or that each activity that establishes a new norm is equally one that marks the failure of a previous norm. Thus, although norm-following and norm-establishing normativity are supposed to be rigidly distinguished, Canguilhem's attempt to address the problems raised by his use of the form/content distinction leads him to unify these two kind of normativity through the concept of failure. On the one hand, norm-following can only count as such if the organism must act to keep itself in conformity with the norm; but it only needs to do so if it is violating it. Similarly, norm-establishing occurs precisely in reaction to the failure of the organism to maintain the already-established norm.[27] Thus both norm-following and norm-establishing are activities in response to violations of given conditions.

[26] Canguilhem (1991, p. 174). For the purposes of this paper I pass over potential difficulties with the post-Kantian critique of Kant's formal concept of autonomy. Canguilhem himself is clearly aware of this critique and attempts to formulate his position in a way that avoids it.

[27] To anticipate a connection to deconstructive analyses of normative legitimacy and force that I will not have space to discuss fully in what follows, we might note the parallels between this way of understanding Canguilhem on biological autonomy and Derrida's analysis of legality and right in (Derrida 2002b).

Here we might think we have gotten far from Kantian autonomy—or at least far from the usual picture of Kant. Yet it is precisely within his discussion of these issues that Canguilhem invokes Kant by name, as he identifies the activity in which norms are established, followed, and violated as an activity in which the norm is experienced:

> [T]he value of regulation, the value of valorization must be subjected to the test of dispute. It is not just the exception which proves the rule as rule, it is the infraction which provides it with the occasion to be rule by making rules…. To use a Kantian expression, we would propose that the condition of the possibility of rules is but one with the condition of the possibility of the experience of rules.[28]

Canguilhem's invocation of Kant here indicates the ontological commitment Canguilhem takes on in order to make sense of his position. He has claimed that life is originally normative, and that the individual organism must be regarded as biologically autonomous in some sense. He has articulated that sense of autonomy as a norm-establishing one, and furthermore as a formal one. Yet to avoid problems arising as a result of this formalism, he has allowed that the organism's activity occurs upon and through a given content. In relation to this content, the form of the organism's activity is always a negative, reactive one tied to the violation of some previous norm. He now develops this articulation of his view with the deeper claim that not only a given value, but "the value of valorization" in general "must be subjected to the test of dispute." In other words, it is not just one or another norm that is subject to violation, but the animal's norm-establishing itself that can be tested. Thus, whatever positive character we might have been inclined to attribute to norm-establishing normativity is now wholly eliminated by Canguilhem, in favor of a conception of normativity on which the condition of possibility for organic normativity in general is the possibility of failure.

But the Kantianism expressed here goes beyond talk of a "condition of possibility" to the ontology of normativity that goes along with the transcendental philosophy, when Canguilhem writes that "strictly speaking, the norm does not exist."[29] Once Canguilhem has conceived of the normativity of the organism as a negative formative action in relation to what is—the naturally given "content" of its body and environment—he must also conceive of the organism as being constituted by something that is *not* real, does *not* exist naturally: the norm. The norm is negative or unreal because it is *only* posited, not actualized, only a goal *to be* brought into existence, only a *violated* law lacking "force." The norm does not, *qua* norm, have a natural existence as an object; its own 'is' is merely an 'ought.' But it is just this non-existence of the norm that makes it "formal" in relation to a given natural "content" and thus saves the organism's biological autonomy. This

[28] Canguilhem (1991, p. 242). A similar claim, formulated without reference to experience, can be found earlier ("the biologically normal is revealed only through infractions of the norm" [Canguilhem 1991, p. 118]) and is followed a few pages later by a specific repudiation of anthropomorphism ("we think that we are as careful as anyone as far as the tendency to fall into anthropomorphism is concerned[; w]e do not ascribe a human content to vital norms" [Canguilhem 1991, p. 127]).

[29] Canguilhem (1991, p. 77).

autonomy consists in its essential relation to what is not, what does not have a natural existence. In Canguilhem's terms, the "finality" of the norm—its unifying function in relation to the organism and organism's activity—is not a "real ontological finality" that would replace the 'ought' of the norm with an 'is' and convert Canguilhem's position into a traditional teleological metaphysics; it is rather only "a possible, operative finality."[30] It is thus a normativity that can serve its organism-constituting function only by being removed from natural existence. And in fact, this removal of normativity from the natural realm—in the midst of an effort to demonstrate precisely an "original normative character of life"—is not just (and perhaps only metaphorically) spatial, but temporal as well.

Canguilhem's distinction between norm-establishment and norm-following at first seems to imply a straightforward conception of their temporal ordering in which norm-establishing activity is, by definition, temporally antecedent to norm-following; it appears to make little sense to talk of a norm being followed or violated before it has been established. Yet such a straightforward ordering is incompatible with Canguilhem's central claim about normativity and failure and the way this claim is integrated with his use of the form/content distinction. Canguilhem's characterization of all norm-establishment as occurring in reaction to a failure requires that a norm be already in force, against which the organism can react. But this means that the given "content" of the organism—its contingent natural reality—itself must function as a norm, at least for the organism's first norm-establishing act. Yet that content cannot be norm-setting, both because that would violate the organism's biological autonomy, and because norms do not have natural existence, while this content does. Thus, a straightforward temporal analysis of Canguilhem's position would lead to a contradiction.

His response—remarkable for, among other things, its anticipation of some aspects of Derrida's analysis of the temporality of normativity in *Force of Law*[31]—is to offer a future-anterior analysis of the temporality of normativity, rather than the straightforward one just mentioned. Ontologically speaking, the norm that is violated does not exist at all, on Canguilhem's view, and so certainly does not pre-exist its violation; at best it is only retroactively established by the organism itself as having-been-in-force just when it is violated, that is, when the organism establishes a new norm in its place. In other words, Canguilhem's recourse to a conception of the norm or rule as essentially non-real, non-actual, non-present allows him to claim that the norm violated *will have been* in effect just in case another, different norm is established later. Thus, the norm-establishing activity of the organism establishes both which norm was violated and which norm is in force now; such temporally non-natural ordering can be attributed to the autonomy of the organism only to the extent that it is itself essentially constituted by a relation to the non-natural.

Given that the organism is what it is only in virtue of the relationship in which it stands to norms, and given that those norms cannot have the natural existence of the organism whose unity and nature they make possible, we can say that the organism, on Canguilhem's view, is what it is by standing in a relation to something that not

[30] Canguilhem (1991, p. 281).

[31] Derrida (2002b).

only does not, but *cannot* exist. Furthermore, organic autonomy seems to involve a temporal ordering unlike anything in nature. Thus, Canguilhem grounds his account of natural life and normativity "in the fullest sense" in the organism's essential relation to what is non-existent, that which is beyond nature, that which cannot be confronted as an object *within* that experience, that which cannot be observed. The natural organism is essentially normative if and only if the normative is essentially non-natural. And while he may in this way have accomplished Kant's first goal—to show that the life sciences have so far depended on values and norms they themselves tried to exclude from their ken—he has taken the rest of the Kantian path as well—in agreeing that norms as such cannot be found within nature—and so does not present a genuine alternative to its transcendental picture.[32]

4 Malabou's conception of plasticity

Catherine Malabou's recent work on synaptic plasticity implicitly develops Canguilhem's discussion of "the original normative character of life," bringing it into a contemporary philosophical and scientific context while avoiding his Kantian commitments.[33] She pursues her philosophical treatment of the specifically neuroscientific concept of plasticity on the basis of her previous development of plasticity as a conceptual schema from the history of philosophy. This development emerges from the interpretation of Hegel she first presented in *The Future of Hegel*, centered on Hegel's accounts of mindedness or spirit in the *Phenomenology of Spirit* and in the *Philosophy of Spirit*.[34] She understands 'plasticity' as designating a threefold capacity: the ability to receive form (as in the plasticity of clay), the ability to give form (as in the plasticity of the plastic arts), and the ability to destroy form (as in the French verb '*plastiquer*,' meaning 'to blow up').[35] Taking her cue from

[32] This tendency in Canguilhem's work comes out very strongly later in his career, for example in the essay "Le cerveau et la pensée" (Canguilhem 1993). In that essay Canguilhem reserves a role for the "I" in the brain that exempts it from all mechanism or organic determinism of any kind, and yet reserves for it an actually efficacious role in determining the brain. Given his history with Foucault it bears mentioning that this role is one of *surveillance*.

[33] As noted in the first section above, Malabou does not explicitly discuss Canguilhem in this context, though she does characterize her own project in Canguilhemian terms in her earliest work (see note 3 above). Of course, that project goes beyond a mere modification of Canguilhem, and also has antecedents elsewhere, as I argue in this section and the next.

[34] Malabou (2005).

[35] Malabou (2005, pp. 8–9; 2009a, b, c, p. 5). Malabou's development of the "explosive" aspect of plasticity in reference to the terms '*plastique*' and 'plastic explosive' has been the occasion of some unfortunate misunderstandings; see, e.g., Mandik (2009). As Mandik points out, the reason a certain class of explosives are called "plastic" is that they are highly malleable prior to their being detonated. Having made this correct observation, he charges Malabou with attributing an "explosive" character to synaptic plasticity on the basis of word-association (he calls it "poetic"). But Malabou's point doesn't rest on word association or poetry; it rests on a philosophical reflection concerning the concept of form as it appears in the concept of plasticity. Insofar as plasticity designates both form-receiving and form-giving, it must be thought of as destructive. In receiving form, it destroys its old form, and in giving form it destroys the form of the thing to which it gives a new form. What is plastic thus destroys form generally, both its own and others'. Malabou's idea is that this generalized destruction of form is a kind of explosion, and in that sense, what is plastic is, as such explosive. The French verb '*plastiquer*,' then, nicely expresses this aspect

some uses of the term 'plastic' and 'plasticity' in the early pages of the *Phenomenology of Spirit*, Malabou argues that Hegel's conception of *Aufhebung* or sublation exhibits precisely this threefold capacity with respect to form. She then uses this reading of Hegelian *Aufhebung* to develop an alternative understanding of his philosophy of mind, particularly on the issue of habit and habituation, and to present a new interpretation of Hegel's concept of time.

Malabou's approach yields a number of productive results, but the most important one in relation to Canguilhem and the organism is the understanding of normativity it implies. If we view Hegel's philosophy broadly as oriented toward presenting a general theory of norms, then we can see his conception of *Aufhebung* or "sublation" as capturing his view of the self-transformative structure of "the Idea," his name for our overall system of norms. But given the lessons he drew from Kant's transcendental turn, if *Aufhebung* picks out the structure of conceptual normativity, it must also pick out the structure of being as such. As a result, a plastic reading of *Aufhebung* implies a plastic ontology; if we understand *Aufhebung* as possible only on the presupposition of a basic plasticity of norms, and we understand the general theory of norms as itself delivering fundamental ontology, then we will understand this fundamental ontology as a plastic ontology. From the perspective of Malabou's "plastic" Hegelianism, therefore, anything that is, is what it is only through an ongoing self-transformative activity that involves all three of the formal features of plasticity.

Yet while she develops the concept in relation to Hegel, Malabou argues that the importance of plasticity for contemporary philosophy is not to be found only in a reading of his idealism; we can also see plasticity as a concept at work in the central efforts we make to understand our contemporary life. She calls such central conceptual elements "motor schemas" for the activity of thought, and she argues that plasticity is the primary motor schema operative today. She attributes this primacy in part to recent developments in neurobiological discourse, through which concepts of writing, programming, and encoding ("writing" being, on Malabou's view, a previous prominent motor schema) are being replaced by concepts of plasticity and transformation, while that neurobiological discourse itself enjoys ever-increasing cultural and philosophical prominence.[36]

The specific development of her thinking about plasticity in relation to neurobiology emerges from a series of reflections on the role played by the concept of synaptic plasticity in neuroscientific theory and practice. In broad terms, she emphasizes the tendency of prominent neuroscientists to appeal, implicitly or explicitly, to all three aspects of plasticity in describing and explaining the biological reality of the brain.[37] But she also notes their inability or unwillingness to

Footnote 35 continued
of the relation between plasticity and form, despite its semantic origins in (the French equivalent of) the term 'plastic explosive,' where it designates the "first" capacity (that is, the being-malleable of the explosive material).

[36] On the earlier prominence of writing as a motor schema, the concept of the motor schema generally, and the transformation of writing (along with correlate concepts of difference, trace, and so on) into plasticity, see Malabou (2007a, b, 2009c).

[37] See especially Malabou (2008, pp. 55–77).

follow out rigorously the consequences of the two central claims to which they commit themselves: first, that the brain is essentially synaptic; second, that synapses are essentially—*qua* the natural objects they are discovered to be in neuroscientific practice—plastic in all three senses. Her argument is that such neuroscientists (e.g., Damasio and Changeux) conceive of the brain as made up of synapses, and conceive of the synapse as always and only plastic, but then impose unjustified, and unjustifiable, explanatory limits that block appeal to plasticity as itself designating a deep ontological reality. They deny that plasticity names the essential ontological reality of the synapse and of the brain generally, and instead try to limit plasticity to the role of a structure overlaid atop a mechanistic, and thus flatly non-plastic, explanatory model—even though these very neuroscientists have themselves abandoned such mechanistic explanations of the synapse itself (for which they offer only explanations that make irreducible appeal to plasticity).[38] Thus Malabou's criticism of contemporary neuroscience amounts to showing that the limits self-imposed on this discourse are arbitrary and inconsistent; they themselves evince a commitment to unreconstructed metaphysical positions about the nature of being, commitments that render them unable to allow for the important conceptual advances made by the science itself. If these neuroscientists are right about the plasticity of the synapse, then there is no discernable reason for them to retreat to a mechanistic model appropriate, if at all, only to a different domain of objects. The concepts they use to capture neurobiological reality are thus at odds with the concepts to which they appeal in their metascientific reflections on these results and their consequences.[39]

Malabou's interpretation of contemporary neuroscience is thus oriented not toward a criticism of scientific practice, either in experiment or in theory-building—she is no Carnap or Popper—but toward a criticism of the dominant metascientific ideological discourse surrounding neuroscience, whether that discourse is pronounced by neuroscientists, philosophers, journalists, or others. The criticism she mounts involves an embrace of the results of the neurosciences and the descriptive achievements of neurobiological theories of synaptic plasticity. This embrace consists in arguing that the concept of plasticity is deployed in those results in a way that corresponds to the schema of plasticity she develops out of Hegel and deconstruction, and the criticism consists in arguing that the ideological discourse surrounding the neurosciences is inconsistent insofar as it denies the ontological commitments present in those results.

Methodologically, it is at this point that Malabou's project most clearly resembles Canguilhem's. Canguilhem's method involves showing that the metascientific constructions put upon the concepts of normality and pathology are at odds with both the results of physiological research and the clinical practice of physicians. He develops on the basis of this criticism the general theory of organic normativity we have seen in the second and third sections above. Malabou, in turn,

[38] See especially Malabou (2008, pp. 62–68).

[39] In Malabou (2007b, 2009b) she argues that this internal tension is due to a failure of neuroscientific discourse to fully develop the third, "explosive" or destructive sense of plasticity.

uses a similar approach to plasticity in neuroscience to further develop and transform the general theory of norms.[40]

5 Plasticity and normativity

Her proximity to Canguilhem on these point invites us to understand Malabou's conception of plasticity as implying a theory of organic normativity that could appropriate Canguilhem's insights without falling into the Kantian transcendental position on norms as non-existent and non-natural. Key to this process is her move to bring the negativity of failure or norm-violation—the basic element in Canguilhem's overall theory of organic normativity—into her conception of natural being itself, by assigning its function to the third, or "destructive" aspect of plasticity. Her strategy is best seen by starting from an expression of her position in relatively traditional terms. In a general discussion of the relation of her thought to deconstruction, Malabou has defined plasticity as "the systematic law of the deconstructed real, an organizing mode of the real that comes after metaphysics"[41] and implies a "necessary split and the search for an equilibrium between the *preservation of constancy*… and the *exposure of this constancy to accidents*."[42] Her claim here can be understood as one about the nature of being and transformation. She begins by endorsing, in a preliminary way, a traditional understanding of change as an alteration or change in accidents, conceived against a background of the stability or constancy of substance. Hence a "necessary split" is involved in thinking about change, a split between constancy and accidentality. Yet insofar as being or the real is to be thought in its unity through this split, we have to look for "an equilibrium" of sorts between the two, such that being is neither only the one nor only the other. We can find such an equilibrium by noting that accidentality itself indicates constancy; the character of a given accident itself does not change, but only the fact of its inherence in the substance changes. Similarly, substantiality indicates alteration; substance itself has no determinations and hence exists in a way wholly determined by its accidents, whatever they may be and however they may change. Thus, substantiality amounts to determinability by accidents or changeability, so that constancy itself is just "exposure" to accidentality. With this formulation, then, and the appropriate substitutions of "form" for "substance" and "content" for "accidents," Malabou succinctly expresses the way the first two aspects of plasticity—receiving and giving form—function in thinking about the transformation of form itself, rather than mere transformation of some content or other.

Understood as "plastic" in this sense, an organism is capable of giving form to the content of its body and environment, just as Canguilhem's organism is. But

[40] Here we might see a reason to regard Foucault as developing Canguilhem's critical *results* in the pursuit of his own project concerning institutions and discourses of medicine and disciplinary power, while regarding Malabou as developing Canguilhem's critical *method* in the pursuit of her project concerning concepts and images of change and persistence.

[41] Malabou (2007a, p. 439).

[42] Malabou (2008, p. 71).

while Canguilhem's organism is capable of receiving content (that is, natural changes in its bodily state and the environment), it is not capable of receiving a new *form*—it is defined as that which manifests itself as extra-natural norm-establishing form in the face of any and all received natural content. Conceived of as "plastic," by contrast, the organism not only gives form to a content, but can give itself form and receive form in a way that changes what it is: it subjects itself as norm-establishing to the possibility of transformation of its normativity, at its own hands or at the hands of something outside it. Thus, plastic normativity goes beyond Canguilhem's organic normativity (and beyond his Kantian antecedents) by insisting on the capacity to have its own form destroyed.

Put ontologically, Malabou has used destructive plasticity, the exposure of the organism to constancy-changing or form-changing accident, to bring organic normativity back within the realm of nature. Rather than seeing this exposure to destruction or deformation or transformation as a threat to the biological autonomy of the organism, as Canguilhem does, Malabou integrates this possibility into the concept of being as such. To be open to genuine change in form, and thus to destruction, is not to display a lack of autonomy and constancy, but rather to display one's plasticity. Something like this is what Canguilhem was after: a conception of the organism as having its very being in its alterability. But he saw this alterability as ultimately a self-transformability, rather than a susceptibility to an outside influence or force, and thus conceived of it as a sovereignty of extra-natural form over natural content. Malabou's conception of plasticity, by contrast, allows her to think of organic being as a not merely passive but active exposure of both form and content to the outside. The formal norm-establishing normativity of Canguilhem is thus in Malabou a form that exposes itself to transformation both by itself and by other form and other content.[43]

Thus according to a plastic ontology of the organism, its valuing and value-oriented activity is open to alteration, not just in terms of what content is valued and what means are used to obtain a valued state, but in terms of whether valuation is itself valued. Canguilhem hinted at such a position when he wrote that "the value of valorization itself must be subjected to the test of dispute,"[44] but he lacked the ontological concepts needed to understand this test as a fully natural one. He was thus driven to various transcendental measures, including the development of his future-anterior temporality of norms, none of which are required if we conceive of organic normativity as plasticity. As long as we try to grasp the relation between normativity and nature in a way that holds to the simple substantial conception of natural being and places normativity on a distinct level, we will be driven to similar measures. What Malabou's conception of plasticity offers us regarding these problems is a way to move beyond simply thinking the aporia to working through it. Her engagement with the neurosciences is part of this offer.

In the neuroscientific context, plasticity names three aspects of the synaptic brain: the developmental plasticity of its formation, the modulational plasticity of its

[43] See Malabou and Butler (2010) for a discussion of the connection between plasticity and bodily autonomy.

[44] Canguilhem (1991, p. 242).

development, and the reparative plasticity of the post-lesional brain.[45] Such plasticity—according to which neuronal cells strengthen and weaken their connections with each other by growing and shrinking themselves in efficacy, transfer their functional role from one to another, and grow together into a unified but open functional whole—is not a conformity to a norm that, as non-existent, must lie temporally beyond the brain, but an organic activity in which the new norm is contained as the self-confrontation of the new norm with the old, through the outer exposure of the brain to its environment and its inner exposure to itself. The brain develops through its exposure to the world and its exposure to itself, but this exposure is just its material self-transformation according to its own plasticity, and not the imposition or influence of an extramaterial, "non-existent" form or norm. Plasticity in this neurobiological sense is thus not a conceptual schema, not a transcendental or quasi-transcendental condition of possibility of experience, not an object of human philosophico-normative cognition beyond nature, but precisely what an intranatural consciousness—that is, a brain—finds when it examines itself. Plasticity is the substance of the neuronal as such, characterizes the materiality of the brain, and is fully within the realm of the natural.

6 Conclusion

In her growing body of work, Malabou has argued that plasticity can be glimpsed variously in Derridean *différance*, Heideggerian *Zeitlichkeit*, Hegelian dialectics, Levinasian ethics, Foucault's hermeneutic of the subject, Freud's death drive, and contemporary theories of gender.[46] Whether she can vindicate these claims and establish for plasticity the scope of interpretive and pragmatic influence associated with her primary philosophical interlocutors will be settled, if at all, in decades and books, not months and articles. Without pretending to have settled anything here, we can at least say that *if* Malabou is right that the core of modern neuroscience lies in its observation and theorization of plasticity, then Canguilhem's project of developing a biological normativity is still alive. But this biological normativity demands a conception of the living thing plastic all the way down. Such a conception has a great deal to offer philosophy today if it can be practically and carefully developed and articulated. At the very least, it affords a view onto a philosophical terrain no longer defined by an allegiance to Kant's push to identify nature with what can be brought under a descriptive regime embedded in a non-natural normative realm. And that is a view that should be welcome to everyone.

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[45] On this last, see Malabou (2007b). These three plasticities are recognized in prototype by Canguilhem as three varieties of normativity (see Canguilhem 1991, p. 261).

[46] See, respectively, Malabou (2004a, b, 2007a, 2009a), among others.

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