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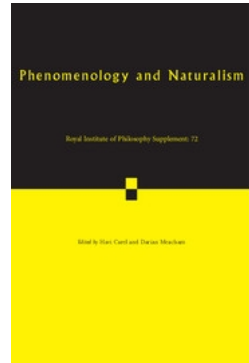
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David Morris

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# From the Nature of Meaning to a Phenomenological Refiguring of Nature

DAVID MORRIS

## Abstract

I argue that reconciling nature with human experience requires a new ontology in which **nature is refigured as being in and of itself meaningful**, thus reconfiguring traditional dualisms and the ‘hard problem of consciousness’. But this refiguring of nature entails a method in which **nature itself can exhibit its conceptual reconfiguration**—otherwise we get caught in various conceptual and methodological problems that surreptitiously reduplicate the problem we are seeking to resolve. I first introduce phenomenology as a methodology fit to this task, then show how life manifests a field in which nature in and of itself exhibits **meaningfulness**, such that this field can serve as a starting point for this phenomenological project. Finally, I take immunogenesis as an example in which living phenomena can guide insights into the ontology in virtue of which meaning arises in nature.

## 1. Introduction

The topic of phenomenology and naturalism raises the question whether human experience can be naturalized, that is, conceptualized as integral with nature as we understand it. A central context for this question is ongoing debates about the relation between mind and nature. My studies lead me to think that debates and problems in this area are deeply informed – and led astray – by an uncritically accepted philosophical and scientific commitment that we can trace back to Descartes at least, namely the concept of nature as a moving material system devoid of inherent meaningfulness. Mindful human experience, as meaningful, is thus at odds with nature and cannot be naturalized – hence the now classic ‘hard problem of consciousness’, the problem of qualia, and so on.<sup>1</sup> If,

<sup>1</sup> An example of an ‘easy problem’ is explaining our ability to react differently, on the level of behaviour, to different colours. The ‘hard problem’ in this case is explaining how it is that over and above such discriminative behaviour there is an experiencing of red that is qualitatively different than the experiencing of blue, and how there is, in the first place, an

on the contrary, we can show that meaning is not just ‘in the head’ but is right there and indeed arises in the very movement of nature, then we can find a way to conceptualize **mindful human experience as integral with nature**. My thought is that showing this entails a new ontology of nature – a new way of conceptualizing **what nature is**.

To further contextualize my claim, let me note that the mind-body and mind-nature debates typically take mind as the sole ontological and conceptual difficulty, as if the obvious problem is fitting a very strange thing, mind, into a body and nature that cannot harbour mind. In recent years, though, various researchers (including some in this volume<sup>2</sup>) have argued that we must rethink our typical – in fact latently Cartesian – concepts of the body. In my terms, this rethinking of the body amounts to the revelation of the body not as a meaningless machine but as a system whose living dynamics and behaviour already exhibit cognitive and meaning generating characteristics. Some, such as the philosopher Renaud Barbaras<sup>3</sup> go further,

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experiencing going on that is felt by and for a subject. The latter is also known as the problem of qualia, the problem of explaining the qualitative aspect of experience. A *locus classicus* of the ‘hard problem’ is David Chalmers, ‘Facing Up to the Problem of Consciousness’, *Journal of Consciousness Studies* 2 (1995), 200–219. J. Shear, *Explaining Consciousness: The “Hard Problem”* (Cambridge, MA: MIT Press, 1997) provides an excellent collection on this issue.

Note, however, that from a phenomenological perspective a lot is already presumed and embedded in this division between the easy and the hard problem. For example, it can be argued that this way of dividing the problem already presupposes and reduplicates the sort of dualism that it seeks to undo, leading to various conceptual, methodological, and explanatory questions or problems. In part what is at stake in this paper is showing how living phenomena (which are surely integral to the evolved mind!) challenge such a division between easy problems (about how natural systems work) and hard problems (about understanding natural systems as having experiential or meaningful aspects). This is in aid of having this challenge reorient our research and inquiry.

<sup>2</sup> E.g. M. Wheeler, *Reconstructing the Cognitive World: The Next Step* (Cambridge, MA: MIT Press, 2005), S. Burwood, P. Gilbert and K. Lennon, *Philosophy of Mind* (Montreal: McGill-Queen’s University Press, 1999).

<sup>3</sup> See, e.g. Renaud Barbaras, ‘The Movement of the Living as the Originary Foundation of Perceptual Intentionality’, in J. Petitot, F.J. Varela, B. Pachoud and J.-M. Roy (eds.) *Naturalizing Phenomenology: Issues in Contemporary Phenomenology and Cognitive Science*, J. (Stanford, CA: Stanford University Press, 1999).

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insisting that resolving the mind-body problem similarly entails a new concept and ontology of *nature*. The moves afoot in effect expand the field of meaning, by noticing how the dynamics of living and natural systems in fact already exhibit a kind of meaningfulness that could harbour mind. But this expansion of meaning entails new and challenging ways of conceptualizing the body and nature. This is the move I pursue here: **the hard problem isn't figuring out mind, but refiguring nature.**

My pursuit of this refiguring of nature hinges on a methodological strategy that stems from *phenomenology*. **Phenomenology is a radically empirical philosophy. It aims to begin with what shows itself in experience, and to have what shows itself educate us into the proper ways to conceptualize things.** In keeping with this radical empiricism, my phenomenological strategy is to **let nature itself**, as empirically manifest phenomenon, **educate us into properly conceiving nature**, the way in which meaning is at work in it, and the ontology that makes this possible. But to do this I first need to show that **experience** makes available a field of nature, or more precisely, of life, that, as an empirically manifest phenomenon, can itself educate us into a new concept of nature. I call this **'life as transcendental field'**: life as manifesting a field of irreducible meaning, that, as meaningful, can orient and educate our understanding of nature. Note that I here use 'empirical' and 'transcendental' in ways that spring from the phenomenological and associated traditions, but may not be typical for all philosophical audiences. I will say more about this usage in the next section.

In saying that life is a transcendental field within experience that can educate us into a new concept of nature, I am saying something provocative vis-à-vis phenomenological method as it is typically construed. In the next section, I trace the methodological issue by briefly introducing phenomenology to those not familiar with it.<sup>4</sup> In section

<sup>4</sup> Perhaps the best, short introduction to the project, method, and problems of phenomenology is the preface of Merleau-Ponty's, *Phenomenology of Perception*. This preface elaborates the challenges of Husserl's phenomenology as a philosophy that aims to go back to the things themselves. See, e.g. E. Husserl, *Cartesian Meditations*, trans. D. Cairns (Dordrecht: Kluwer, 1991). The central challenge is that if phenomenology is radically empirical and guided by continual responsiveness to the things themselves, then even its method cannot be fully settled, and it remains an open research project, vs. a settled technique or doctrine. It is in this spirit that I here pursue phenomenology. John Russon, 'On Human Identity: The Intersubjective Path from Body to Mind', *Dialogue: Canadian Philosophical Review* **45** (2006), 307–14, helpfully articulates phenomenology as a radical empiricism.

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three I leap into an empirical-critical study of embryogenesis, so as to describe life as a transcendental field that itself institutes irreducible meaning. This makes life phenomenologically available within experience, as a sort of lens into nature that can give us insight into a new ontology. To illustrate this strategy, in which living phenomena are studied to glean ontological insights, in the final section I suggest how immunogenesis can let us glimpse an ontological point about what is involved in there being meaning in nature.

I am giving a condensed report from an ongoing, larger project, aiming to make it accessible to a broad audience.<sup>5</sup> So no doubt puzzles, challenges and worries will remain. A few remarks will help give further context for my efforts here and in my larger project. Descartes's concept of nature as a system of merely moving matter had the great advantage of rendering nature susceptible to mathematical analysis. But this mathematization and his famous dualism entail conceptualizing material movement as in and of itself meaningless. Roughly, in Descartes's philosophy material nature is devoid of meaning because what actively organizes nature – God, God's ideas – is external to it. This dualism of matter and what actively organizes it has a long intellectual legacy that is ever more deeply challenged by results that reveal natural and living systems as actively self-organizing. In recent years, a number of thinkers, most notably Francisco Varela, Evan Thompson, and Susan Oyama, have urged that living systems as active self-organizers are already inherently mindful and meaningful to some degree.<sup>6</sup> What

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S. Gallagher, *Phenomenology* (Basingstoke: Palgrave Macmillan, 2012) gives a clear introduction to the tradition of phenomenology and its recent developments vis-à-vis cognitive science, an introduction especially helpful for readers of this volume.

<sup>5</sup> The larger project draws on the phenomenological results and strategies of Maurice Merleau-Ponty, in particular his ways of studying nature and living systems to gain insight into what he calls the institution of meaning, a process wherein novel meaning is (to put it roughly) developmentally generated within and from a system, vs. from pre-established ideas. These issues are explored in M. Merleau-Ponty, *Institution and Passivity: Course Notes From the Collège de France (1954–55)*, trans. L. Lawlor and H. Massey (Evanston, IL: Northwestern University Press, 2010), *Nature: Course Notes from the Collège de France*, trans. R. Vallier (Evanston, IL: Northwestern University Press, 2003). Unfortunately, these are notes and sketches for lecture courses, not fully developed ideas.

<sup>6</sup> See, e.g., Francisco J. Varela, 'Organism: A Meshwork of Selfless Selves' in A.I. Tauber (ed.) *Organism and the Origins of Self*, (Dordrecht:

I am doing here is drawing on phenomenology and empirical details of embryogenesis and immunogenesis to sketch and deepen complementary conceptual and ontological insights. My results, although developed and presented before reading Terrence Deacon's recent book, *Incomplete Nature*,<sup>7</sup> end up resonating with his claim that boundaries, exclusions, and absences are crucial in conceptualizing nature as meaningful. But I believe that my approach starts opening the way to a more philosophically and conceptually robust program than we find in Deacon's book, which was rightly received with controversy and hesitation.<sup>8</sup> Or, at least my project and approach broaches the *right problems and difficulties*, whereas Deacon, I would argue, even as he tries to turn old paradigms on their head, by emphasizing absences as mattering to things, in the end altogether too much frames his insights in terms of those old paradigms, because he is just turning them on their head, flipping them from positive to negative, in the conceptual space of those traditions, rather than engaging in a more radical rethinking that is educated into a new conceptual space by the phenomena themselves. Finally, the approach taken here and in the self-organization literature somewhat converges with the

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Kluwer, 1991); E. Thompson, *Mind in Life: Biology, Phenomenology, and the Sciences of Mind* (Cambridge, MA: Belknap Press of Harvard University Press, 2007); S. Oyama, *The Ontogeny of Information: Developmental Systems and Evolution* (Durham, NC: Duke University Press, 2000).

<sup>7</sup> T.W. Deacon, *Incomplete Nature: How Mind Emerged from Matter* (New York, NY: W.W. Norton, 2012).

<sup>8</sup> Evan Thompson, 'Philosophy: Life Emergent', *Nature* **480** (2011), but especially Colin McGinn, 'Can Anything Emerge from Nothing', *New York Review of Books*, (2012), challenge Deacon for not acknowledging or sufficiently taking into account the precedents for his view in, e.g. F.G. Varela, H.R. Maturana and R. Uribe, 'Autopoiesis: The Organization of Living Systems, its Characterization and a Model', *BioSystems* **5** (1974), Francisco J. Varela, 'Organism: A Meshwork of Selfless Selves' in A.I. Tauber (ed.) *Organism and the Origins of Self*, (Dordrecht, Netherlands: Kluwer, 1991), 'Neurophenomenology: A Methodological Remedy for the Hard Problem', *Journal of Consciousness Studies* **3** (1996); Susan Oyama, *The Ontogeny of Information: Developmental Systems and Evolution*; and Evan Thompson, *Mind in Life: Biology, Phenomenology, and the Sciences of Mind*. Putting aside issues of attribution, Deacon's book is frustrating to read because it lacks some of the precision and concepts developed in this prior philosophical and scientific work, and also because, as reviewers have pointed out, its writing is just too sprawling and diffuse. Its central point, which has some insight to it, gets lost, scattered and muddled.

panpsychism that Galen Strawson pursues<sup>9</sup>, in that it takes meaningfulness seriously as an irreducible phenomenon pervasively manifest in nature, yet it diverges in conceptualizing meaning as arising in those dynamics themselves, rather than being an irreducibly independent phenomenon.

## **2. Phenomenology as a Radically Empirical Challenge to Scepticism**

Phenomenology is a radically empirical philosophy that seeks to get our conceptual frameworks right by seeking a method for **letting the phenomena tell *it* how to think.**<sup>10</sup> This contrasts with a method that articulates concepts solely, or mostly, by analysis or reflection on what we humans have said or thought about things, which, from a phenomenological perspective, might allow cognitive prejudices, deeply rooted or hidden in our natural attitude, to distort our concepts. Phenomenology, in others words, is a descriptively and empirically driven method for, as Wittgenstein would put it, showing the fly the way out of the fly bottle. But it goes further than methods such as Wittgensteinian linguistic analysis or Kantian critique, since, in showing the way out of the bottle, it trusts neither our existing language nor our reflective activity as immediately obvious. It ends up being a sort of *eversion* of Kantian critique: it seeks concepts manifest *beyond* our own reflections, such that rigorously describing what shows itself also thereby in effect describes and articulates a conceptual critique that has already taken place in things beyond us.

Phenomenology typically pursues this radically empirical method by showing how, prior to philosophical reflection, the flow of our experience, as empirically manifest, descriptively demands and warrants certain concepts. This paper seeks to radicalize this empiricism even further by revealing ‘life as transcendental field’, that is, revealing life as empirically manifesting a pre-experiential field of irreducible meaning, that, as meaningful, likewise demands and warrants certain concepts. Below I introduce this effort as extending phenomenology’s method of radically empirical critique. But to help contextualize and orient my discussion, I first want to say something about the terms ‘empirical’ and ‘transcendental’, because I am using these terms in ways that spring from the phenomenological tradition and

<sup>9</sup> See, Galen Strawson, ‘Real Naturalism’, *Proceedings and Addresses of the American Philosophical Association* (Forthcoming).

<sup>10</sup> See note 4.

are not standard for all audiences, and because so much is methodologically at stake throughout in my concept of the *empirical*.

So, first, I use 'empirical' in a broad, descriptive sense, to designate that which appears and manifests itself, that which can be encountered. This gets back to the original sense and etymology of the term 'empirical'. This descriptive sense needs to be disentangled from a prescriptive sense of the empirical that arises, for example, in a classic philosophical empiricism or scientific tradition that would already theoretically, conceptually or operationally prescribe that the empirical is, for example, what is materially given, what can be measured with instruments, a given that has the form of a self-contained sense-datum, and so on. It also needs to be disentangled from views that would prescribe who or what it is that can do the encountering, such that what is encountered and who encounters it are elided, thus reducing the empirical to, for example, something merely subjective.

What is philosophically at stake in this descriptive usage is preserving the empirical as a pre-theoretical domain in which we encounter something as given (in some broad sense of given), as something whose determinations we do not ourselves constitute or determine. Such a pre-theoretical domain is crucial to phenomenology as a philosophy that seeks to start with and be oriented by what is given, with what insists on its own determinate characteristics, versus something whose characteristics we might be determining through our own conceptual activity, which is perhaps prejudiced. The methodological issue here is keeping us from making mistakes by checking our claims and concepts against the empirical, and this procedure is begged if we start with a theoretically overloaded conception of what the empirical is.

It should be added that such a domain of givenness is methodologically necessary to getting the project of science or philosophy off the ground. For example, for science to end up with some prescriptive specification of what counts as empirical in a scientific sense, the scientist must start with something given on a pre-scientific level, for example, the world that she encounters, that prompts and checks her scientific efforts—and checks her concept of the empirical. And such a domain, as *pre-philosophical*, is also crucial to getting philosophy off the ground. For example, the above noted elision between the empirical and merely subjective experience hinges on various epistemological and ontological presuppositions that, in the phenomenological project pursued here, would need to be justified on the basis of what can be empirically encountered. This twofold point about science and philosophy is a key starting point of Maurice



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Merleau-Ponty's *Phenomenology of Perception*, see the preface especially.

In this respect phenomenology is a *radical* empiricism, in that it turns to what is empirically given in order to be educated into the proper conception of the empirical, experience and so on. Phenomenology is not unempirical, unless one presupposes that what is given to us to experience is 'merely subjective' (mere introspection, etc.) and therefore doesn't count as empirical, according to some standard of the empirical. But that 'mere subjectivity' would need to be proven, and such a proof, it can be argued, would need to start with presuppositions about what subjectivity is, that something 'merely subjective' is possible and cogent, and such presuppositions might be betrayed by the phenomena. But, we cannot test this if we already decide in advance that the empirical and empirically manifest phenomena are merely subjective. What is radical about phenomenology is that it seeks to root the standard of the empirical in what is empirically given, it seeks to go back to the empirical as starting point. Here the terminology of phenomenology as radical plays on the connotation of 'root' in 'radical', via the Latin '*radix*'.

Second, I use the term 'transcendental' to designate determinate characteristics of a domain that, in terms of that domain itself, turn out to be unsurpassable and thence irreducible: that without which a given domain could not be the domain that it is. A classic illustration is to be found in Kant's argument that a pure intuition of space is a transcendental condition of there being a domain of spatial experience. The *transcendental* is not to be confused with the *transcendent*, which, in my usage, is something conceptualized as existing over and above, beyond, a given domain, for example, Platonist ideas conceived as being beyond the domain of appearances of which they are ideas.

As discussed at the end, to say that life is a transcendental field is to say that in life we find a domain in which meaning is manifest, and that we cannot surpass or escape finding that this is so, or reduce the terms of this meaning-manifestation to some other domain over, above or beyond the terms of the domain of life itself. To say that life manifests this empirically is to say that our encounter with living phenomena, if oriented by and to those phenomena themselves, is such that life itself in our very encounter with it manifests meaning-structure: it is not we who determine that life is meaningful, life itself in its very living determines itself that way, and that is an unsurpassable characteristic of life. Note that the scientific empiricist, in the typical, current views of scientific empiricism, might precisely deny that meaning is empirically manifest in living

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phenomena, because meaning is not quantifiable or given in a manner that is empirically satisfactory for the scientist, except insofar say, as meaning is equated with information (where information, however, is in fact neutral to meaning). But the larger issue at stake here and in phenomenology is precisely what scientific knowing is, and what experience and the empirical are, how meaning fits with these, and so on. And the view developed here is that meaning is an irreducible element of living phenomena, even if the traditional scientist can abstract from this in certain kinds of inquiries.

With these terms in mind, let me now introduce my approach to showing that meaning is an irreducible element of living phenomena, and that life thence demands and warrants certain concepts. My approach extends traditional phenomenology's strategy of describing the flow of empirically manifest experience so as to reveal it as having a meaningful structure that demands certain concepts. Let me illustrate this extension and what is methodologically behind it in terms of issues of conceptual critique, by drawing on Husserl, the founder of modern phenomenology. He discovered that the flow of cognitive experience itself manifests what he calls a 'horizon structure'.<sup>11</sup> For example, a table appears as such in virtue of its present aspect inherently indicating a determinate yet open-ended horizon of other as yet indeterminate aspects that are revealable as I move around. The condition of possibility for the appearance of a table, as empirically manifest in experience thus challenges (as we'll see below) clear-cut conceptual oppositions between actuality and potentiality. Describing this horizon structure, as it is itself manifest, thus amounts to the articulation of a *descriptive, empirical* critique of classic conceptions of actuality and potentiality. The field of experience thus offers a critical lens into conceptual and ontological points.

In developing this descriptive, empirical critique, phenomenology challenges what I call our *anthropocentric prejudice*: a tendency to take what is obvious to us as human beings in our everyday lives as a model for grasping things in their own terms. Husserl's horizons provide an example: actuality and potentiality are easy to conceptualize on the model of a storehouse of possibilities, where actuality 'takes out' and activates a possibility already determinately there in the storehouse. But Husserl shows that horizontal phenomena themselves challenge our human storehouse model, since actualities and potentialities dynamically reshape one another in open-ended ways. There is no fixed storehouse given in advance, the basis of the actuality-potentiality dynamic is itself dynamic. This phenomenological structure is

<sup>11</sup> See, e.g. Edmund Husserl, *Cartesian Meditations*.

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appropriately dubbed a ‘horizon’, precisely because horizons out there in the world are ontologically strange vis-à-vis our deep anthropocentric prejudice which seeks to grasp all phenomena as ‘stuff’, ‘solid things’ or ‘all there’.<sup>12</sup>

Now science also identifies and challenges anthropocentric prejudices. For example, it makes a great deal of sense to us to conceptualize things as having and reflecting essential and fixed identities, but Darwin famously shows that such thinking is challenged by living things and muddles our conception of them. Indeed, the life sciences typically conceptualize living systems in terms of the latest human technology, but then find that life challenges such concepts. Yet science typically solves such conceptual problems by discarding one human model for another. Evelyn Fox Keller’s studies of shifting concepts of ‘the gene’ gives nice examples of this, for example, with the conception of the gene in terms of information technology, as ‘information’ or ‘program’.<sup>13</sup> Let me be clear: such models let science do productive, predictive work. But in the end, even a predictive model could very well betray the phenomena – and to address this we might need new concepts altogether (versus merely correcting muddled concepts).

To rule out this betrayal of phenomena, and to get our concepts right, we would need a rigorous, principled way to show that natural phenomena, in their own terms, fit with our concepts, that they are not merely anthropocentric projections. With this observation, we move from the work of science to the worries of philosophy. Methodologically, we would beg such worries if we tried to

<sup>12</sup> H. Bergson, *Creative Evolution* (Mineola, NY: Dover, 1998) alerts us to a similar issue in showing that durational phenomena challenge our ‘logic of solids’.

<sup>13</sup> E. Fox Keller, *Making Sense of Life: Explaining Biological Development with Models, Metaphors and Machines* (Cambridge, MA: Harvard University Press, 2002), *The Century of the Gene* (Cambridge, MA: Harvard University Press, 2000), *Refiguring Life: Metaphors of Twentieth-Century Biology* (New York, NY: Columbia University Press, 1995) are particularly good at tracing such issues. One issue here is that human-made machines are designed to leverage simplifications that we can make with regard to natural systems. For example, when we arrange gears or circuits to do something, we focus on certain kinds of isolated interactions only. So when we produce a machine whose circuitry has a function similar to that of a natural system, we can think that the natural system’s function is reducible to the clear-cut circuitry we have produced, losing sight of the very messy way that natural systems actually work and develop.

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resolve them through anthropocentric means or perspectives. This is where phenomenology comes in as rigorously seeking to let phenomena lead us to our conception of them. It tries to cut short our worry about being stuck in a merely anthropocentric position – which is precisely the sceptical worry that meaningful experience is cut off from nature – by leaping out of that worry altogether. It does this by an empirical demonstration that *in fact* what is given in experience is already something more than just our anthropocentric position merely. In other words, phenomenology is radically empirical to the extent of saying it is an *empirical question* whether we are in fact stuck in an anthropocentric view split from nature. And, by the way, the very idea of an ‘anthropocentric view’ precisely buys into a human manufactured concepts of self-enclosed views and of what human beings are – which all need phenomenological critique.

In slightly more technical terms, we would seem to run into a methodological difficulty deploying phenomenology to address our problem about experience and nature. This is because phenomenology aims to start from what we call ‘experience’. So it would seem that any of its conceptual results about nature would be merely subjective, as they spring from *our* experience. My claim, though, is that this view gets both phenomenology and experience wrong. In fact, it begs the question of what experience is, it *presumes* that experience is just ‘in the head’. Indeed, I would argue that Husserl, the founder of phenomenology, understands that we must be radically empirical in letting thinking and experience *themselves* empirically show *us* what they are. He thereby discovers that thinking is not really a Cartesian ‘I think’ that could be detached from the body and nature, but in fact inherently involves a bodily-kinaesthetic ‘I can’. Bit by bit, living movements beyond us are revealed as integral to experience. Husserl thus suggests a way in which living and natural movements, beyond the anthropocentric, are integral to the experiential field, such that they could give us an educating lens into a new concept of nature itself. This is the phenomenological strategy I want to pursue.

Now I have to confess that this strategy leaves thorny scholarly and methodological difficulties. Some of these prolong the above worry that phenomenology cannot rightly integrate nature and experience, and some prolong the sceptical worry that phenomenology can never get beyond subjective experience. You can see that these methodological worries in fact coincide with our very question about the relation of experience and nature. I also have to confess that in beating my head over these worries, I find that the response boils down to insisting, as above, that the answers to these worries are

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*empirical*: the worries start with *unempirical* presumptions about the cogency of a scepticism that posits a merely subjective experience that stands outside of nature as object of scepticism, and presumptions as to what experience, nature and phenomenology are. It is an *empirical question* whether phenomenology is possible and whether experience makes nature available as a meaningful field for phenomenological study. The phenomenologist insists that her conceptual results are empirically descriptive: what will convince you she's got the concepts that *truly* lead us out of the bottle is the way things themselves are, not an argument she contains within herself. The sceptic will respond that we can't get anywhere through mere description, that is all too naïve. But in saying that, the sceptic *presumes* that we must first of all run our claims through our own autonomous critique and reflection. But that presumption is the very thing that leads to, invites and demands scepticism. In a word, phenomenology begins with a radically empirical critique of what I shall call 'the sceptical complex' of philosophy. This is why, for example, phenomenology must begin with what Merleau-Ponty calls 'perceptual faith', and interrogation as a 'hyper-reflection' that begins from reflection's installation in being, versus the claimed autonomy of classical reflection and critique.<sup>14</sup> Put otherwise, if we autonomously and reflectively prescribe what counts as the empirical, which is what Descartes in effect does in order to get past radical doubt and to an indubitably empirical science, then we shoo ourselves into the flybottle of the sceptical complex. And in shooing itself into this complex, reflection eschews any resource for getting out.

Now the sceptical complex is symmetrical with the very experience-nature divide that is our concern. Getting out of it, I contend,

<sup>14</sup> Here I should say that in pursuing my strategy I am more informed by Merleau-Ponty's phenomenology than Husserl's, since Merleau-Ponty is always alert, from the start, to the way that phenomenology operates from within the domain that it itself is studying. This is already noted in the *Phenomenology of Perception's* preface and its concepts of radical reflection and the phenomenal field as not only the topic of phenomenology, but the transcendental condition of phenomenological analysis. This immanence of phenomenological philosophy in its object of study becomes thematic in his later ontology, e.g., in the concept of reversibility. Put otherwise, Merleau-Ponty's phenomenology is much more radical in its critique of a Cartesian cogito whose reflections could operate independently of the object of phenomenological reflection. And his critique of what I call the sceptical complex precisely leads him to a study of nature as not outside phenomenology, but as its condition.

entails an *empirically* driven demonstration that experience already manifests resources for a critique of this divide, namely: it manifests life as a transcendental, irreducible, field of meaning that manifests a lens into an ontology that undoes the experience-nature divide.

### 3. Meaning, Sense, and Life as Transcendental Field

The demonstration that experience already manifests resources for a critique of the experience-nature divide first requires a phenomenological description of meaning. As a first step, I urge us to describe meaning through the term 'sense'. Here I draw on Merleau-Ponty, who discovers that *human* meaning is at root a bodily phenomenon that emerges from the way the body fits into and is oriented by a situation beyond and prior to what is meant. This issue nicely resonates in the French word for meaning, '*sens*', which also connotes direction and sensation. It also lurks in the English 'sense', as when we speak of mirror images having different senses, or things not making sense when we can't fit them together. The shift from 'meaning' to 'sense' helps challenge our anthropocentric prejudice of thinking meaning is 'in the head', since sense emerges in a fit with something beyond 'the head'. The sceptical worry is that this fit with something beyond is merely our projection, in which case experience and nature remain divided.

Fits between things entail differences between them. But not all differences manifest fit or sense. Descriptively, sense involves something showing itself as this, not that, such that the difference between this and that is itself at issue in and makes a difference in and to that very showing. Consider a familiar case in human life: grasping the sense of love entails encountering it as emphatically *not* being hate (etc.), and moreover encountering the difference between love and hate (etc.) as salient, as making a difference, in that very encounter. Someone pre-pubescently oriented to erotic behaviour, but who does not yet grasp that/how such behaviour makes a difference (is salient) to the erotic as such, does not (yet) quite grasp the erotic.<sup>15</sup> Sense entails differences that make a difference (a phrasing that

<sup>15</sup> We might see the erotic in this pre-pubescent behaviour. But the pre-pubescent person her/himself isn't quite involved in *that* as such. This is why we can discover and be initiated into the erotic. Behind this example is Merleau-Ponty, *Institution and Passivity: Course Notes From the Collège de France (1954–55)*, 21–25.

echoes but pushes farther Gregory Bateson's discussion of information as a difference that makes a difference<sup>16</sup>).

On this description, we can detect sense in a broader field of life. For example, in bacteria, the difference between the distant presence of glucose, versus the presence of something else, makes a difference to the swimming behaviour of the bacterium. Moreover this is a difference the detection of which the bacterium itself works to maintain. It is thus a difference that makes a difference to a bacterium. If you don't find that difference making a difference, you have a dead bacterium (or one not sensitive to glucose). And distant gold doesn't make a difference in this way to the bacterium. To this extent we can say that glucose is meaningful to the bacterium, but gold isn't. This point echoes in Varela's enactive approach to cognition, which grants bacteria a kind of cognition in such behaviour.<sup>17</sup>

But I want to turn to embryos, through biologist Eric Davidson's remarkable 2006 book, *The Regulatory Genome*<sup>18</sup>, which shows, in astounding detail, how bilateran animal embryogenesis can be explained in terms of a 'regulatory genome'. The central problem for Davidson and embryology is explaining how one totipotent cell develops into a highly differentiated and species-typical body, even in face of perturbations. Development to type, despite perturbations, is said to be *regulatory*. Davidson focuses on the genome as the enabler of regulatory development, hence his concept of the *regulatory genome*. His central claim is that the regulatory genome amounts to a computer composed of hardwired genetic elements. The genomic computer's complex information processing capacity is what explains

<sup>16</sup> See G. Bateson, *Mind and Nature: A Necessary Unity* (New York, NY: E.P. Dutton, 1979). Bateson's formula is in the background of both Evan Thompson's *Mind in Life* and Terrence Deacon's *Incomplete Nature*.

<sup>17</sup> See D. Bray, *Wetware: A Computer in Every Living Cell* (New Haven, CT: Yale University Press, 2009) for a detailed discussion of the biochemical basis of such chemotaxis. Bray conceptualizes the process in terms of computation, but see Varela's work for a critique of such an account. Varela insists that the self-organization and maintenance of the living system allows difference detection. My contention is that it is the manifestation of active self-organization that distinguishes between the difference detection that we might find in a machine context, and differences that making a difference. They make a difference in the relevant sense because these differences sustain the operation of a self-organizing system that actively works to maintain its self-organization as difference making.

<sup>18</sup> E.H. Davidson, *The Regulatory Genome: Gene Regulatory Networks in Development and Evolution* (Burlington, MA: Academic Press, 2006); hereafter abbreviated as *RG*.

development. Information processing, then, determines where, say, legs versus antennae are to grow. It is because this processing is inherently flexible in responding to changing inputs that development can be regulatory.

In our terms, such processing would in fact generate *sense*. Proper positioning of organs within the organism's layout is crucial to the viability and thence salience of the organs and organism: that this organ is to be a leg, *not* an antenna, and that the leg is to go here, *not* there, is a difference that makes a difference in and to the living organism. Sense thus appears in embryos. But the skeptic urges sense is not really there *in nature itself*, it is just our projection of meaning into nature. Science would typically endorse this claim, because science can show how differences are produced, say by information processing, without granting they are differences that make a difference for or to something beyond consciousness. The issue is this: can the production of differences be reduced to informational processes that can, thereby, be abstracted from any fit, orientation, or embeddedness in nature and living systems beyond their informational formula or algorithm? Or do we need to describe and conceptualize sense as inseparably generated right there in living, natural movement itself?

Let's go back to Davidson. He argues that each regulatory DNA sequence of the regulatory genome 'amounts essentially to a hardwired biological computational device'.<sup>19</sup> The regulatory genome is 'a vast delocalized computer'<sup>20</sup> and its operation 'can be symbolized, as in a computer program, by a series of conditional logic statements'.<sup>21</sup> While Davidson acknowledges differences between the regulatory genome and a digital computer, he nonetheless conceptualizes it as executing an information processing task that can be analyzed and operates as a series of modular information processing subtasks. This implies that generated differences are conceptually reducible to an abstractable, idealized algorithm.<sup>22</sup> So embryogenesis doesn't

<sup>19</sup> *RG* 48.

<sup>20</sup> *RG* 188.

<sup>21</sup> *RG* 54.

<sup>22</sup> See Sorin Istrail and Eric H. Davidson, 'Logic functions of the genomic cis-regulatory code', *Proceedings of the National Academy of Sciences* **102** (2005), and Sorin Istrail, Smadar Ben-Tabou De-Leon and Eric H. Davidson, 'The Regulatory Genome and the Computer', *Developmental Biology* **310** (2007), for notes on how this system is not entirely like a digital compute. This is also noted in *RG*. Nonetheless, in *RG* the emphasis on information processing is clear in the preface (x) and conclusion (239–40), and is central in many sections of the book, especially



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involve what I am calling sense or differences that make a difference. Is this right?

But not even Davidson is so simple on the matter, and what my phenomenological strategy demands is looking at how the regulatory genome actually manifests itself and operates. This will show, I contend, that the genome's modular operation as an 'information processor' in fact depends on a complex embeddedness in its environment. This environment is first of all the internal milieu of the growing body, which is in turn embedded in and open to a broader environmental surround. I argue that the bodily environment of the regulatory genome in fact plays a key role in orchestrating development: the operation of the regulatory genome as information processor and the growth of the body are reciprocal and ontologically *internal* to one another. In effect, I am arguing for something like embedded, extended, and enactive cognition on a micro-scale, where not cognitive, but developmental discriminations, are at issue. And because of this embeddedness, we find sense, not just information.

We need some technical precision to make this claim and its conceptual implications regarding meaning clear and compelling, and I am afraid I have to be all too terse, since it would not be possible here to cover the details of the biochemical workings of the developmental systems that Davidson studies.<sup>23</sup> My claim is that the

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chapter 1. Also see *RG* 59–68 and 135–144. As Fox Keller astutely observes, when Davidson specifies the 'program' that a specific regulatory network would compute 'as it would be written for simulation on an actual computer' (which Davidson also specifies in *RG* 50) 'this is not a program written to simulate the behavior of a model that has been elsewhere specified', as when we use a computer program to simulate a set of equations that describe a physical system. The program that Davidson claims to have traced in the operation of the genetics, '*is itself the model*'. I.e., Davidson's claim is not that the algorithm he has elucidated specifies how to *emulate* the behavioural effects of the genetic network he is studying. Rather, the genetic network *itself* computes that algorithm. See Evelyn Fox Keller, 'Models Of and Models For: Theory and Practice in Contemporary Biology', *Philosophy of Science* 67 (Proceedings) (2000), which is commenting on an earlier article by Chiou-Hwa Yuh, Hamid Bolourie and Eric H. Davidson, 'Genomic Cis-Regulatory Logic: Experimental and Computational Analysis of Sea-Urchin Gene', *Science* 279 (1998).

<sup>23</sup> For some of these details and for some a more detailed argument for some of my points here, from within the phenomenological context, see my article 'Merleau-Ponty, Passivity and Science: From Structure, Sense and Expression, to Life as Phenomenal Field, via the Regulatory Genome,'

regulatory genome ought not be conceptualized as a classic computer, a finite state automaton – an anthropocentric strategy.<sup>24</sup> Instead, the operation of the regulatory genome involves something much stranger and harder to think about, namely the organism as what I call a ‘finite state structure’, or better, a ‘self-articulating structure’. This structure encompasses *both* the regulatory genome and the growing body (in its broader environment), as ontologically internal to one another.<sup>25</sup> Here I draw on Merleau-Ponty’s early concept of structure, e.g., his description of the soap bubble as shaping itself through its overall dynamic in its environment, such that we cannot separate a formula or idea of the bubble’s shape from the bubble’s existence or vice versa.<sup>26</sup> In other words, what is responsible for the bubble’s shape, which *we* might conceptualize as a function in information processing terms, is inseparably embedded in the very dynamics of the bubble. The developing organism is like this bubble structure, but the regulatory genome gives the organism as structure a dynamic and recursively complex articulatory and responsiveness that the bubble lacks, what I call its self-articulating character, which enables regulatory development. Without the regulatory genome, the organism would not have this self-articulatory, but, crucially, *it is not the genome on its own, as information processor, that does the articulating*: what does that is the organism *with* its genome.

To support and deepen this point, let me note that the regulatory genome does not specify an already fully fixed, overall growth process, as if development merely reads out steps of a fixed plan.<sup>27</sup> The frog egg, for example, doesn’t grow directly into a frog, it first

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*Chiasmi International: Trilingual Studies Concerning Merleau-Ponty’s Thought* 14 (in press).

<sup>24</sup> This includes analogue computers, i.e. it should also not be conceptualized as an analogue computer.

<sup>25</sup> On the importance of the environment to development, see C. van der Weele, *Images of Development: Environmental Causes in Ontogeny* (Albany: State University of New York Press, 1999), but also M.W. Kirschner and J.C. Gerhart, *The Plausibility of Life: Resolving Darwin’s Dilemma* (New Haven: Yale University Press, 2005).

<sup>26</sup> M. Merleau-Ponty, *The Structure of Behaviour*, trans. A. Fisher (London: Methuen, 1965), 129–160.

<sup>27</sup> Cf. the point in Kirschner and Gerhart, *The Plausibility of Life: Resolving Darwin’s Dilemma* that what evolves in evolution are not so much organisms or blueprints for organisms, but ways of making organisms; correlatively, what the genome specifies are ways of making organisms, and nothing is fully specified by such specifications absent the making.

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grows into a tadpole that *only then* can grow into a frog. The tadpole-body is thus imbricate in whatever we might call the 'frog-plan'. It's not the genome itself that pulls off the trick of being a frog-plan; to have a frog-plan that can actually make a frog requires the genome operating in a tadpole body, because it is only as spread out and rhythmized in a growing tadpole body that the genome is able to affect and enable frog development. The regulatory genome is not building and assembling parts according to an algorithmic plan, but complexly modulating the dynamics of the growing body. Development operates *recursively*, by modulating prior bodily-stages to develop *new* plans. It's more like London building on and through its imbricate past than Brasilia rolling out over an empty plane according to a master-plan. The operation of the regulatory genome is thus always internally related to 'its' body.<sup>28</sup> Again, while we can (rightly) construe the regulatory genome as exhibiting informational processing characteristics *analogous* to those of our machines, that does not mean the regulatory genome as it is itself manifest operates as or actually is a mere information processor or program for differences. This is an abstraction conducted by our anthropocentric models.<sup>29</sup>

To put it another way, the regulatory genome works by recursively responding to genetic signals in ways that modulate these signals but also modulate the very way the genome responds to these signals. To this degree, the regulatory genome approximates to a classic finite state automaton, which has computational power precisely in recursively switching itself from state to state, based on inputs – where each state has different sets of responses to inputs. Now classic finite state automata depend, for their operation, on their program *and* fixed mechanics, which classically involve a clock or other coordination system to orchestrate and sequence computations. But, given the regulatory genome's internal relation to the body the genomic 'computer' not only grows, what orchestrates its 'computation' is *the very body whose development it is regulating*. We can't really conceptualize the regulatory genome as an information processor that

<sup>28</sup> Points such as these are also at stake in the argument in E. Jablonka and M.J. Lamb, *Evolution in Four Dimensions: Genetic, Epigenetic, Behavioral, and Symbolic Variation in the History of Life* (Cambridge, MA: MIT Press, 2005) that living material dynamics of parent organisms are inherited by and shape the development of animal eggs.

<sup>29</sup> See note 22 above, on Fox Keller. But I am going farther than Fox Keller here.

in and of itself generates developmental differences; the regulatory genome's 'processing' is as much regulated and orchestrated by the body that it regulates as it regulates that body. To demonstrate another way: any program that runs on a classic Turing machine can be specified in abstraction and run on any other Turing machine. But you can't do that with the regulatory genome. As cloning shows, you can't simply take the genome from one organism and stick it in just *any* organism, expecting it to be viable: you have to stick it in the right sort of organism, and in an organism in the right state. In other words, the regulatory genome's operation is open to and embedded in further dynamics beyond it. Indeed, we find that cellular dynamics and states can be epigenetically inherited, and modulate development.<sup>30</sup>

It is this embeddedness in something beyond information and the genome, in bodies and environments, that I think warrants my claim that embryogenesis manifests *sense*, something more than differences produced by an abstractable or idealizable information processing system. We find differences that make a difference to and in the organism, insofar as the generation of these differences is inseparable from the very life, body and environment in which these differences arise. And all of these differences are being generated – I would say instituted – on a level far below that of movement or perception, on a kind of pre-perceptual-kinaesthetic level, in which the organism is pre-affectively feeling itself out, in a way that will eventually enable it to feel the world.

To recap: The scientific move I am challenging would say that the ordered production of developmental differences can be boiled down to abstract informational processes that can be analyzed without reference to anything like a point of view or meaning. The differences are meaningful to us, but not in themselves. Against this, my effort was to return to the phenomena themselves, as revealed by science, and have the phenomena challenge the anthropocentric conceptual models, in this case computational, that enable the above claim. What we find when we do this is that the ordered production differences are oriented by and inseparably embedded in the dynamics of the living body. The differences are not specified by an algorithm abstractly coded and inherited in genetic material; there is no code apart from the full fledged differential development of the living body. This is why we must speak here of sense, oriented by life and environmental embeddedness, versus abstract information decoded by an

<sup>30</sup> See Jablonka and Lamb, *Evolution in Four Dimensions*.

abstract standard.<sup>31</sup> And this allows me to argue that the sense we find manifest in human experience is also manifest in life more generally.

For Merleau-Pontians, the point can be put in terms of expression. Primary expression creatively figures out what is expressed, through a gestural process inherent in and open to the body. The genome is not a fully determinate program, but a modulator of a development that becomes determinate only through developmental movement. The organism thus figures itself out in developmental movement, which is thus proto-gestural, in that its unfolding is inseparable from developmental movement. To this degree development is expressive and needs to be conceptualized in terms of sense.

This lets me speak of life as a *transcendental field of sense*. A full account of this term would take more room than I have, but here's the basic thought: In the *Cartesian Meditations* Husserl engages us in a transcendental reduction that suspends all already given or presupposed claims of meaning. He shows us that in the midst of this suspension, in 'my pure living', cognitive experience appears as having a self-evidently meaningful determinacy.<sup>32</sup> For Husserl, this institutes an irreducible and thus transcendental field of sense, which, as sensible, is an empirically manifest platform for justifying philosophical claims (contra the sceptic who can anchor justification only in purely internal criteria). My point is that once we have scientific access to nature, we find that life in fact also institutes a transcendental field of sense – but beyond ourselves merely. Strategically and methodologically this is important, because nature thus shows itself as a platform for making claims about it. This means that there is a sense, a meaning, beyond human experience as anthropocentric. This can give us a non-anthropocentric lens into such meaning.

<sup>31</sup> On this point, also see Henri Atlan and Irun R. Cohen, 'Immune Information, Self-Organization and Meaning' *International Immunology* **10** (1998) on information versus meaning in the immune system. E.M. Neumann-Held and C. Rehmann-Sutter, *Genes in Development: Re-Reading the Molecular Paradigm* (Durham, NC: Duke University Press, 2006) contains many chapters urging that there are no genes or genetic codes apart from the living body and development; this also contains a helpful chapter by Fox Keller that complicates discussion of the body and the environment.

<sup>32</sup> Husserl, *Cartesian Meditations*, 60.

### 4. Sketch of an Ontology of Sense Within Nature

Philosophy, though, remains tangled in the hall of mirrors and shadow boxing inaugurated by its sceptical complex. Mightn't all of the above remain our own projection? It might show the way in which *we can* grasp sense as in nature, but *how* is it really there in nature? We find it easy to grasp *that* there is sense in us because sense is so self-evident in self-reflection. This is precisely what Descartes reveals in the *cogito*. Further, the *cogito* reveals sense as appearing within our own *activity*, so if we have to say *how* sense appears, to give an account of its ontology, we'd say: it is constituted by our activity. That doesn't quite go all the way in accounting for sense, but it is at least cogent and compelling. Yet, recent work on the body and Merleau-Ponty says: we don't wholly or wholly actively constitute sense, we are passive to the body, life and so on in our *own* experience of sense.<sup>33</sup> And above, I argued that there is sense in nature. So, once, again: *how* is there sense in nature and the body beyond our own experience?

Here we're running into an ontological problem. For underneath the above worry is, I think, an issue about what philosophers call *negation* and the *negative*. Negation is manifest in the *cogito's* activity. Recall Descartes's argument that grasping the ever changing wax entails an idea that entirely surpasses any positively given

<sup>33</sup> That is, our experience of sense draws on various layers of sense that are already in operation well before we ourselves try to make sense of things. So we cannot *make* sense happen (except perhaps in highly specific linguistic or symbolic realms, and even then we are drawing on a given language or symbol system); rather we have to wait for, be oriented by and leverage what already makes sense. This claim stems from Merleau-Ponty's key point across his lectures on *Institution and Passivity*, which is that we find in experience a sense that is not bestowed by a wholly active and sovereign constituting consciousness, but is rather instituted through a living process, in which what operates as implicitly meaningful in that process becomes more explicit, articulate and durable, such that the process ends up articulating new dimensions of meaning, even if that new meaning was not already contained in the process at the start. As an example, one could think of accounts wherein deaf children institute their own system of sign language: their spontaneous gestural efforts of communication (which are in play prior to their language) latch onto each, and only thereby do the gestures firm up into stable expressions, engendering a language whose meaning repertoire could not have been envisioned at the start. They are certainly active in instituting this language, but only by also being passive to prior institutions of bodily movement and spontaneous gesture.

presentation or imaginary image of wax. Only such an idea could let us comprehend wax as such, so as to judge this-here is wax, *not* something else. Similarly, Socrates urges that grasping two sticks as equal entails an idea of equality that surpasses any positive givens we look at. Ideas are not given positively, they are negative.

Now sense, as we have described it, entails negation: love is *not* hate. But it looks like this sort of negation would have to involve a sort of activity that surpasses givens. Sartre is the most vociferous advocate of this position: he argues that the origin of negation and thence meaning is our nothingness as freeing us from any sort of positivity.<sup>34</sup> So, we have an ontological problem here: how can the negative be *within* positively given material nature? Drawing on Merleau-Ponty, I call this the problem of 'the negative-in-being'.<sup>35</sup> My position troubles the skeptic precisely because I claim that negation arises in nature, is tainted by life. Indeed the thought that negation is tainted by life is precisely what prompts sceptical worries that our cognitive activity might be muddled and mistaken, taken in by a world to which it is passive.

In response to this sceptical complex, I am going to double down on phenomenological empiricism. I am going to let life itself educate us out of this ontological worry and problem by showing us how there can be a negative-in-being, albeit one that is ontologically peculiar vis-à-vis our anthropocentric concepts. To do this I briefly turn to the acquired immune system. There too we find sense being generated, and in a most remarkable way, precisely because we mammals can acquire immunity to pathogens never previously encountered. How does this work? The usual answers amount to a selectional shuffling of ontologically positive terms. The immune system hinges on protein receptors that latch onto antigens, in the manner of locks fitting to keys. But, the very process of generating receptors randomly reshuffles the 'locks', and the body destroys 'locks' that would latch onto self antigens. The result is locks keyed only to pathogens. Scientists and philosophers like Irun Cohen and Henri Atlan have challenged this essentially informational processing model, arguing that meaning is actually at stake in the immune

<sup>34</sup> See J.-Paul Sartre, *Being and Nothingness*, trans. H.E. Barnes (New York, NY: Washington Square Press, 1956).

<sup>35</sup> Although he himself does not use this term as such, Merleau-Ponty's studies of embryology are what alerted me to this issue and to the project I pursue here. See his lecture notes on *Nature* and *Institution and Passivity*. What I am doing is updating and deepening Merleau-Ponty's effort by engaging scientific advances since Merleau-Ponty's time.

process.<sup>36</sup> Further, Cohen contests the anthropocentric lock-and-key model by focusing on the chemistry of protein receptors, which reveals that receptors are quite dynamic systems that would never univocally lock onto *just one* key. They are sloppy, in biochemical lingo, 'degenerate'. To explain how degenerate receptors nonetheless discriminately identify pathogens, Cohen shows how immune identification arises when receptors come together in a complex, such that receptors respond to one another's degenerate responses, in a process that Cohen calls 'co-respondence'.<sup>37</sup> In this process, we find a determinate difference or negation arising, without that negation being reducible to some already given positive locks. (The conceptual target here is analogous to the view that development is specified by an already given genetic algorithm.) Negation thus arises as a sort of surpassing of positive givens from within their own dynamic. In my view this process opens an insight into the negative-in-being.

What interests me here is the way this hinges on what *we* call degenerate receptors. For Cohen, this degeneracy is positively given, there in the receptor itself. But this, I think, is an all too anthropocentric view and concept. When we say receptors are degenerate, we are saying: they fit with more than just the one antigen that *we'd* expect them to fit. But imagine a receptor that *we* chemists see *can* fit A, B, or C. Yet, in *its* environment it only ever encounters B. It doesn't then actually exhibit what *we* call degeneracy. This leads me to realize that degeneracy is a phenomenon manifest relative to, and enabled by, what the bounds of the cell and body let in (where these bounds are themselves modulated by the immune system within). There would be neither degeneracy nor immunological sense if everything always interacted with everything else at once (simultaneously).

In my view, the immune system thus yields an insight into what is ontologically at stake in the negative-in-being. The insight is that if sense is ever to sneak into being, being has to 'leave room' for ruptures, boundaries, spacings and distances between things, for non-connection or incongruence, such that the places where things happen matters, as do the boundaries and distributions of material that allow places to stand out as distinct. At bottom, there could not be sense in an isotropic universe that would not let things spread out differentially (a principle that echoes Darwin's realization

<sup>36</sup> Henri Atlan and Irun R. Cohen, 'Immune Information, Self-Organization and Meaning', *International Immunology* **10** (1998).

<sup>37</sup> I.R. Cohen, *Tending Adam's Garden: Evolving the Cognitive Immune Self* (San Diego, CA: Academic Press, 2000).



that geographical isolation and regions facilitate species differentiation). Here we start getting into ontological concepts that are hard to articulate because they challenge our deepest anthropocentric prejudices and the deepest commitments of the sceptical complex, namely, the need to find some 'smallest possible' unit of analysis (in some sense of 'small') that is already given and all at once with absolute certainty (such a unit would be self-contained as to its determinacy; classically it is the 'atom'), in some sort of system where the relations of all parts can be simultaneously given as determinate (classically, this would be, for example, by way of laws that govern relations of the atomic units). What's really at stake underneath these commitments is the view that something needs to already be fully and determinately given, in and of itself, if we are to grasp and explain things, otherwise there is no starting point or foundation from which our explanations can proceed. And what's at stake behind this is the view that if anything is to be certain, then something must at some point already be given as certain. On the contrary, we are seeing that the condition of sense is a being that is not given as already all connected but rather operates as it does through a sort of operation of figuring itself out, connecting itself up, refiguring itself, through a distribution across places that is always already underway. This point that I making, which emphasizes a distribution that ruptures a would-be all-given *simultaneity* mirrors a point about *time* made by philosophers like Henri Bergson and scientists like Ilya Prigogine. They argue that time is real and makes a difference to being as 'successive'. Time is not a dimension given in advance, but 'figures itself out' through duration. I am saying that a sort of distribution that ruptures being is real and makes a difference to being as 'simultaneous'. Put otherwise, for Bergson, being is not really 'successive' because the notion of succession puts succeedents spatially alongside one another, as if succeedents are already lined up, ready to go. But I am saying being is not 'simultaneous' either: parts are not really simultaneously alongside one another, you have to get from one to the other through a distribution that is always already underway, that ruptures being, and that takes place across places. This is what's at stake in speaking of being as 'figuring itself out' (in the sense of giving itself a figure—not of deliberate problem solving). Being and space do not have an already given figure, space is not a given figure, being is a 'figuring out', and only in virtue of that does being have a determinate endurance and distribution. Indeed, at this point we find a conceptual analogy between a developing organism and being itself: just as an organism develops in situ, via inherited dynamics already underway, we would have to think of being/the

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cosmos as distributing itself not through abstract laws, but through differences endogenous and unique to it as a historical phenomenon. The difference is that the organism's development takes place in a larger environment and dynamic, whereas the coming-to-be of the cosmos takes place as a making place in the first place, and it is its own dynamic.

All this leads me to the difficult thought that if there is a sense in being, this is because being is a sort of non-coincidence, such that being is never purely identical or equal with itself, it is marked by a kind of difference that is nonetheless yet to be shown. Being thus always surpasses itself, but from within, not because of some already given ideal independent of being. This would almost say: being *is* sense; it is oriented by its own being as differing, or dislocated from itself. Earlier I said that the sceptical complex worries that its point of view, which is the locus of cognitive activity, might be dislocated from itself, from the safe-harbour of the cogito; the worry is that cognition might be embedded in a body or nature that would thereby taint, disrupt or subject thinking to doubt. Here I am led to the thought that perhaps the fundamental dynamic of being just is a sort of non-unitary dislocation that challenges any effort to find anything, let alone a point of view, that is what it is in some purely localized or unitary fashion. Being is itself embedded in something further, but that something further is its own dislocation. Put in terms closer to contemporary science, I could say: being is uncertainty itself. It is not positively given (not even as an already established probability pattern), but neither is it a purely negative ideal that could be grasped as pure information. Rather, as uncertainty, it does not coincide with itself in its givenness. And, as uncertainty, being itself would be the standard in virtue of which information, understood as determinate distributions of probability actualizations, becomes information. Information would thus not be abstract, but immanent in being. Being as uncertainty would thus be sense. I know these thoughts are hard to follow, but they might help us grasp how meaning is an institution older than human experience, such that experience and nature are not at odds.

*Concordia University*  
*David.Morris@Concordia.ca*