Bergsonian Intuition, Husserlian Variation, Peirceian Abduction: Toward a Relation Between Method, Sense and Nature[1]

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Published in *The Southern Journal of Philosophy* 43 (2005), 267-298.
http://philosophy.memphis.edu/sjp/sjp.htm

Abstract:
Husserlian variation, Bergsonian intuition and Peirceian abduction are contrasted as methodological responses to the traditional philosophical problem of deriving knowledge of universals from singulars. Each method implies a correspondingly different view of the generation of the variations from which knowledge is derived. To make sense of the latter differences, and to distinguish the different sorts of variation sought by philosophers and scientists, a distinction between extensive, intensive, and abductive-intensive variation is introduced. The link between philosophical method and the generation of variation is used to illuminate different philosophical conceptions of nature and nature's relation to meaning and sense.

1) The Problem of Method

Husserl's method of variation and Bergson's method of intuition in effect address a traditional problem of philosophy: that the universal the philosopher seeks appears distant from the singularity with which the philosopher begins. Husserl's and Bergson's methods, however, address the traditional problem only by radically transforming it. The distance between the singular and the universal is no longer conceived as a distance toward an entirely transcendent target, but as a distance already inherent within experience.[2] Indeed, for Bergson the traditional problem is so much transformed that this distance is reversed: the issue is no longer rising from the singular to the universal, but rather having an intuition that descends to a grasp of the singular. Such a grasp involves *sense*, a term of crucial importance for Merleau-Ponty and Deleuze. Sense is meaning that inheres in or stems from singulars, yet, as meaning, sense is general. Where the traditional methodological problem is founding a heuristic that would steer an autonomous thinker toward distant universality, the transformed problem is finding an involvement with the field of experience, an intuition, that opens the philosopher to a sense already within experience. The world and thence nature with its sense are thus participant in philosophical method. So we have to ask how nature makes such a method possible. How is it that nature has a sense?

Contrasting Husserl's and Bergson's methods in light of the traditional problem not only gives us an insight into Bergsonian intuition, it leads to a suggestion about sense and nature. The contrast is framed by the theme of variation. In traditional induction, consciousness arrives at universal judgments by detecting an invariant property within a collection of variant singulars; the singulars and their properties are distributed in an already established space of variation. In contrast, for Husserl, a universal judgement requires variation in which consciousness's generation of overlapping differences reconfigures the space of variation from within so as to point to a new general sense. Induction involves what is here dubbed *extensive variation*, whereas Husserlian judgement involves *intensive variation*, a distinction explained in more detail below. Intensive variation is key to Husserl's discovery of a sense immanent within the flow of consciousness. But so far as intensive variation is generated by consciousness, it can be prejudiced. Heidegger and Merleau-Ponty address this problem of prejudice, as do some interesting new scientific research programs. Overcoming such prejudice requires *abductive-intensive variation*, intensive variation that is driven by singulars and that is inherently productive of new concepts.

This is what we find in Bergsonian intuition. The point about abductive-intensive variation is approached below by drawing a connection between Bergson's intuition and C.S. Peirce's method of abduction. The connection suggests something about nature, namely that Bergsonian intuition leads to an "abductive" concept of nature, a concept of nature as having sense, which concept would help in contesting traditional scientific reductionism.

Before plunging in, another word about sense, nature and science. Touch the topic of sense, and language will nearly always be nigh. For example, Merleau-Ponty, in his earlier work, finds sense most of all in language.[3] In contrast, Bergson insists that intuition has a sense, yet this sense is betrayed when translated into symbols and language.[4] The question at stake here—does sense require language?—pulses in a crucial episode of French philosophy, the Derrida-Levinas 'debate' on phenomena. Levinas is wont to find in Husserlian phenomena a living, intuited sense, prior to reflection and mediation, a position that echoes Bergson's.[5] On the contrary, Derrida argues that sense is always already a differential phenomenon of language.[6] Derrida here converges with Heidegger's insistence on the primacy of language over intuitively given sense, although Derrida's *différance* is rather different than Heidegger's language.[7] Beyond these positions, Merleau-Ponty's later work, while influenced by Heidegger, discovers a different twist of sense, namely sense as indwelling in flesh and natural living bodies that manifest flesh.[8]

Following Merleau-Ponty, this paper is seeking the beginning of a way to the sense of nature. This pursuit is made urgent by our current scientific-philosophical situation. Husserl insisted that the philosophical science of phenomena not be confused with the empirical science of nature.[9] Experience and thinking have an irreducible sense that requires special methods and non-naturalizable concepts. But recent advances, particularly in cognitive and neural science, allow science to reject special methods, non-naturalizable concepts and sense itself. On the contrary, science—at least in its more popular manifestations, if that is not too nice a qualification—claims an increasingly exclusive right to explain experience and thinking. This is not simply another indicator of the crisis remarked by Husserl in his famous book[10], it indicates a problem for philosophy itself. If cognition and concepts are naturalizable, then philosophy is a natural phenomenon to be explained by science, and philosophy, the Kantian queen of the sciences, loses her head. If, on the other hand, the queen wishes an audience with the scientists—and some scientists would wish this too since they still find something important in phenomenology and philosophy—philosophy would have to address its concepts and methods to the court of natural science. In recent phenomenology this problem has been approached by seeking a way to "naturalize" phenomenology. One way to do so is to reduce sense and phenomenological concepts to the senseless entities of traditional nature. Another possibility, well articulated by Renaud Barbaras, is to seek a different sort of nature.[11] This would be a nature with sense. We are seeking a nature with sense, so we put aside questions about language, and related questions that belong to a different study of Husserl and Bergson. We are gleaning insights through Husserl, Bergson, and Peirce; light shed on those philosophers themselves is important but ultimately incidental.

2) The Problem of Finitude

We can get a bearing on Husserl's method of variation and its significance by seeing how it transforms the traditional problem of

philosophical method, which problem stems from finitude. How does a singular, finite philosopher arrive at knowledge of universals?

Descartes solves the problem by discovering mediating terms within rational finitude, namely the natural light and the existence of God, which serve as a ladder to universal truths. Hume solves the problem through the mediating activity of induction, which converts a vertical distance toward the universal into a horizontal distance across singulars—or rather Hume eliminates universals as obligatory fictions. Kant shows that experience is cognizable only if it is constituted through the mediation of categories (and related cognitive structures and operations). In virtue of this ideal constitution, we can make claims about universals. But, notoriously, the Kantian solution leaves the problem of the thing-in-itself, and of ideas that are merely regulative. This problem remains because we finite beings do not have intellectual intuition, because we have to add concepts to intuitions, rather than being given concepts intuitively.[12]

These simplistic sketches of the traditional problem let us situate Husserl, for in effect Husserl shows how the traditional problem is badly put. First, the traditional problem presupposes that the givens of experience are singulars. Even in the Kantian position we are given singulars and must add concepts to them. (If intuitions were not singulars, then synthesis would not be needed and we would have intellectual intuitions.) Second, so far as the given is merely singular, the traditional solutions presuppose either that universals are merely nominal (we never really escape singularity to a genuine universal), or that knowledge of universals already depends on a universal transcending of consciousness, either outside it or prior to it (we escape the singular only in virtue of an already transcendent universal). These errors amount to a third, namely presupposing that the ingredients of thinking are either singular or universal, and not *both* singular and universal.

These substantive errors stem from a deeper methodological error, namely making presuppositions about thinking, rather than analyzing it. Instead of supposing that the problem is getting from singulars to universals, Husserl asks: what is really involved in thinking about universals? Here a basic Husserlian claim takes on immense weight. In the *Cartesian Meditations* Husserl writes: "Objects exist for me, and are for me what they are, only as objects of actual and possible consciousness" (CM §30, 99)—and transcending objects are included in this claim.[13] In other words, the transcendence of universal ideas is a *sense immanent within consciousness*, not a result of consciousness crossing a distance to an outside. As he puts it, "Transcendency in every form is an immanent existential characteristic, constituted within the ego. … If transcendental subjectivity is the universe of possible sense, then an outside is precisely—nonsense. But even nonsense is always a mode of sense and has its nonsensicalness within the sphere of possible insight." (CM §41, 117)[14] For Husserl, the real problem is reconstructing transcendent universals as senses immanent within consciousness.

To follow Husserl, let us return to the phenomenological reduction, which is what leads Husserl to a sense immanent within consciousness. Another result of Husserl's reduction is that experience is shot through, top to bottom, with a horizonal structure. No object of consciousness, nor any part of it, is ever entirely present or finished. The objective sense of a cogitatum is "never present to actual consciousness as a finished datum; it becomes "clarified" only through

explication of the given horizon and the new horizons continuously awakened. The predelineation itself, to be sure, is at all times imperfect; yet, with its indeterminateness, it has a determinate structure." (CM §19, 82-83) The basic 'unit' of thinking is neither a universal nor a singular, it is not even a unit, but is an always incomplete flow. A cogitatum lacks the presence, independence and already given determinacy that define the traditional singular. The Husserlian cogitatum, the basic given of consciousness, already and in advance of active synthesis appears as encircled by what the traditional position would call a universal. But this universal too is no longer traditional, for it is not given as complete, perfect, and abstract, it is indeterminately determinate and never fully present. This is because the universal aspect is manifest as an *invariance* in a flow of variations.[15]

The natural attitude inclines us to the view that thinking is given singular units and must scrabble them together as building blocks toward something further. In this case, if you are Hume, crossing the distance to the universal is building the tower of Babel in a Godless world, or if you are Descartes or Kant, such construction presupposes a transcendental Lego system that would already snap blocks together so as to expose universal structure. Husserl's reduction shows that each block is already a stretch, a tension between the singular and the universal. Something as seemingly singular as a block of Lego already churns with universals, for the block is never entirely given, and the sense of it *as* Lego is present through a rule foreshadowed in the faces it presents. The face and the rule can neither be split from one another nor fused together, the terms sustain one another through their mutual repulsion. This unsurpassable tension is what Renaud Barbaras suggests we call distance.[16] The distance between the singular and the universal is, for Husserl, neither a vertical distance toward transcendence nor a horizontal distance of induction or association, but a *horizonal* distance at work in every flow of experience. Husserl is not the first to discover this sort of distance: the flowing tension between the singular and the universal is the underlying theme of Hegel's study of consciousness in the first part *Phenomenology of Spirit*, and is the basis of Hegel's turn to desire and life. Given that Hegel's project is in a sense to show how experience as a whole supplies what Kant would have called intellectual intuition, it is appropriate to observe here that in the Husserlian flow of distances, especially since it involves Husserl's other great discovery, passive synthesis, we have something like a Kantian intellectual intuition—a given that arises together with its rule.[17]

The Husserlian problem is not figuring out how thinking ever leaps to universals from singulars. This a false problem since every moment of thinking is exemplary of a kind of incomplete, mediated universality. The problem is reconstructing the sense of traditional universals within this structural framework.[18] To look ahead, in pursuing this new problem we will see how Barbaras is right to say that Husserl has the wrong kind of distance, a distance within consciousness rather than a distance within life or nature. Husserl seeks Kantian intellectual intuition by freeing consciousness from the actual in free variation; but this variation can be prejudiced; Bergsonian intuition helps address this problem by going in the opposite direction, by sinking consciousness into a distance that arises within singular becomings.[19] To get to this point we first need to study Husserlian variation. As is well known, variation plays a crucial role across Husserl's philosophy, indeed

variation is what allows for the intuition of essences (*Wesensschau*) and thence for eidetic reduction; yet variation is such a pervasive theme that it rarely gets central treatment as a problem.[20] So rather than beating the thickets of the Husserlian corpus we will strike at the core of variation by drawing on passages in *Formal and Transcendental Logic* (FTL[21]), and in the Husserl authorized manuscript *Experience and Judgement* (EJ[22]), compiled by Landgrebe, passages in the midst of relatively extended discussions of variation.

3) Variation

In George Cukor's film *Gaslight* (1944), the exceptionally malicious Gregory manipulates his wife Paula into believing she has lost things she has not lost and hidden things she has not hidden. At night Gregory secretly forages in the attic for the jewels of Paula's murdered aunt; this dims the gaslight in the house and fills it with ghostly footsteps, effects unnoticed by Paula's aging or insouciant maids. Paula, cut off from society, lacking confirmation that lights are really dimming, and so on, believes she is going mad. At the turning point, Paula, played by Ingrid Bergman, finally confronted with Gregory's perfidy, realizes that these events have not been madness but deception. Marvellously, she conveys her judgement to Gregory by playing its opposite, by pretending she is mad and that the knife she has just found, which could free Gregory from the ropes that bind him, is a hallucination. She says:

> Are you suggesting this is a knife I hold in my hand? Have you gone mad, my husband, or is it I who am mad? Yes of course, that's it, I am mad, I am always losing things and hiding things, and I can never find them, I don't know where I put them. That was a knife, wasn't it, and I have lost it, and I must look for it…[23]

In pretending to search for the 'lost' knife, Paula uncovers more evidence of deceit, namely the lost and hidden things that Gregory has secreted in a drawer, which further confirm her judgement.

This scenario nicely illustrates a crucial point in Husserl's account of judgements of generality. It is not as if Paula already had before her a set of instances *S*, *S'*, *S''* that each already have the property *p*, deceit, neatly attached. In that case we would have to ask why she has not noticed that the property deceit is *already* there in all the instances (or in even one of them); and her judgement would amount to the statistical claim: "Hey, all these *S*'s have property *p*." Rather, her judgement arrives at something *new*. Her judgement is the *discovery* both that each household incident has been a case of deceit, and that the deceit and its motive is one and the same in all the instances; she discovers the one by way of the other, the property in the instances by the sameness of deceit and motive through variations, and *vice versa*. According to Husserl, *all* cases of general judgement arrive at something new. Suppose we are already given an *S* that is *p* and an *S*' that is *p*', etc.; and suppose it is also given that the *S*'s are like one another, and the *p*'s are like one another. We can judge that these *S*'s that are like all have the like property *p*. But according to Husserl, in this judgement *p* still designates individual moments belonging to each *S* is *p*. It is still not a judgement in which *p* designates a universal. ("The judgment *S* is *p* in which *p* designates the *individual moment* in the individual object *S* is completely different from the judgement *S* is *p* in which *p* designates the *universal*, the *eidos*…" (EJ §81, 325, 390.))[24] Universal judgement requires something more, says Husserl, namely a judgement that *p* is one and the same everywhere. This, Husserl says, requires a new form of judging, a "new

core" of generality that modifies the form of synthesis found in individual moments such as "*S* is *p*," by pointing *to the individual moments as a new kind of complex*.

In terms of *Gaslight*, Paula's judgement is special because she discovers the general property of deceit, which had not yet been apparent, through an act that must at the same time discover the cases as belonging to a new kind of variational complex that points to the general property. Put otherwise, for Paula, the cases have not the slightest tinge of deceit until they, of a sudden, point to deceit as that which brings them together in a variational complex, until the cases newly illuminate a general form of deceit that in turn illuminate deceit within the cases. Paula's shift from judging herself mad to judging that she has been deceived is rather like a Gestalt shift in which what had previously appeared as a rabbit now appears as a duck. This is key to the film: we are not watching someone statistically accumulating evidence already available but are rather immersed in Paula's struggle to reshape her overall world view in face of an evil manipulator. (In the first version of the film (1940, directed by Thorold Dickinson), we are instead placed in an omniscient perspective. The film is hardly worth watching and one is amazed that the 1940 makers did not realize that the later treatment is what is wanted.)

Husserl's profound point, as noted above, is that all cases of general judgement as it were discover something new, namely *the sense of the property as a general (or universal).*[25] Returning to Paula's judgement, we can explore the formal modification involved in discovering this sense. In running through varying instances of her experience, Paula notices a ""coincidence in conflict"," ("*"Deckung im Widerstreit*"" FTL §98, 219) something common across different cases, something that, to engage Husserl's double ray metaphor, at once lights up the instances and is lit up by them. She notices "the *invariant*, the indissolubly identical in the different and ever-again different" instances; and this invariant is "the universal essence" by which the variants are restricted (FTL §98, 218).[26] Husserl claims that any constituted objectivity "*points back, according to its* ***essential sort****…*to a *correlative* ***essential form*** *of* manifold, actual and possible *intentionality…which is constitutive for that objectivity*." (FTL §98, 217) The sense of the universal is a particular case of this pointing-back structure; its essential form involves invariance in variation, a style manifest in variation. While the universal is not part of the varying instances, it is inseparable from them, since the invariant appears only in relation to the variation.[27]

Notice here how the traditional view is being challenged. The natural attitude takes grammar, predicate logic, etc., as given, which inclines us to think that judging "the rose is red" amounts to coupling a general property, redness, to this singular rose. On this traditional view we are given a plurality of roses that each have a property that in each instance *already* has a general structure; the problem of generals and universals is how we detach or abstract that general property. Husserl transforms the problem by suspending the natural attitude and asking how we ever come to deploy "red" as a general in the first place—and here he insists that this requires the creation of a new core of generality, much as Paula's judgement in *Gaslight* involves a discovery.[28] More, this creation is bound to a field of variation. In a word, for Husserl universals are not beyond consciousness but are immanent in its flow. Universals are manifest as an invariant constraint within a performance of variation.[29]

Bergson's contrast between the extensive and the intensive helps draw out an important point from Husserl's account.

In the traditional view, induction and the formation of general concepts involves what is here called *extensive* variation. The varying instances are taken as given whole and entire, one outside the other, within an already extant space of variation, and thus are an extensive multiplicity. Induction or concept formation amounts to a statistical abstraction of or quantification or association over elements already given in the instances. On Husserl's view, judgements of generality involve what is here called *intensive* variation. The instances are not laid out in a space of variation that already contains the universal property that the instances are judged to possess; instead, the differential overlapping of instances reconfigures their overall variational relation so as to point to a new sort of unity itself created by the variational overlapping, and without this intensive Gestalt shift there would be no new core of generality. To put it another way, the work of scientific or forensic discovery is not so much totting up regularities in an existing space of extensive variation, it is seeing existing variations as knitting together a space with a novel intensive structure. Darwin's genius is not so much extracting evidence from an existing data set that encompasses geology, earthworm activity, pigeon breeding, and so on; his genius is first of all seeing this motley as a unified space of variation from which we can learn something about the origin of species.[30]

Our contrast between intensive and extensive variation invites spatial-mathematical concepts invoked by Delanda in his recent work on Deleuze, *Intensive Science and Virtual Philosophy*.[31] Where extensive variation points to a commonality that could already be located in the space of extensive variation, intensive variation is a dynamic complex that curves the space of variation from within, giving it a new metric, which is cognate to what Husserl calls a restriction within variation specifying a new general core.

Taking this classification of variation back to Husserl, the difference between levels of generality, from empirical generalities to genuinely eidetic universals, has to do with the kind of intensive variation involved. Consider a block of Lego. It is a singular thing, but its horizon lays out a field of variation, and the rule that restricts this variation is already a template for an universal. But the horizon of variation is passively given, and therein lies the Lego-block's tendency to the singular. Contrast this with Paula's judgement, or scientific induction. Consciousness gathers together and runs through an increasing plurality of singulars, thus creating an increasingly variable field that is knit together by an intensive variation, and the internal restriction on this variation holds the cases together in a complex. And so we move from a finite empirical generality, to a comprehensive empirical generality. Eidetic universals are arrived at by freeing variation from the actual, in a free play that starts from an example in order to range over all possibility.[32]

Descartes's *cogito* serves as an example. *Gaslight* is of course a critique of Cartesianism, for it is neither an infinite God nor solipsistic reflection that helps Paula escape her malicious deceiver, but an other person, namely a detective played by the nicely finite Joseph Cotten. But consider Paula's judgement that these empirical variations of experience have *all* been deceptive. Descartes's meditations precisely start from a generality of this sort. This serves as an example that leads to further variation, using imagination to free Descartes from the actual, pushing the field of variation even further, eventually replacing a finite deceiver like Gregory with an invented all-powerful malicious deceiver, which invention adds even more variation to

the field. And then in this free field of variation Descartes finds "the *invariant*, the indissolubly identical in the different and ever-again different" variations, "the universal essence by which all "imaginable" variants of the example, and all variants of any such variant are restricted" (FTL §98, 219)—namely the *cogito*. The *cogito* points back to a field of free variation that encompasses all possible variants, and thus we arrive at a universal *eidos* proper.[33]

In sum, for Husserl ideas are neither the result of consciousness contacting a self-standing universal that entirely transcends consciousness, nor of adding an exotic ingredient to consciousness. They are the amplification, by the work of free conscious variation, of a fundamental structure of consciousness.

Husserlian variation thus abandons traditional universals in pursuit of something the structure of which is much more like what Hegel, in the *Science of Logic*, would call concept.[34] Briefly, Hegel contrasts concept with essence. One way to put the contrast is that the content specified by an essence is (supposedly) detached from the singularity of a thing, whereas the content of a concept is specified only by grasping it through singularity. In its least complex form, an essence is imposed on a thing by our reflecting identifications; essence is thus detached from the thing. But in thinking this way, we implicitly attach a thing to the essence that it reflects, and so we are led to a more complex form of essence, in which essence is taken as internal to the thing. We take the thing itself as doubled, as reflecting upon itself; we do so by distinguishing the appearance of the thing from the essence of which it is the appearance, or in a more complex stance we construe the thing's present appearance as actualizing what essentially has been and will be possible. Either way, for essentialism, singular variations are mere appearance. So essentialism tends to detach the visible singular from the invisible universal that it reflects—even as essentialism appeals to increasingly complex forms of attachment between thing and essence, visible and invisible.

Hegel shows how the contradiction of essentialism transforms into a demand for conceptual thinking, in which the content of the concept is inseparable from a process intrinsic to what the concept is about. To illustrate: When Paula judges that Gregory has been deceiving her, her criterion is not the conformity of singular household happenings to an already specified universal essence of deceit; her judgement must first of all grasp singular happenings as a process the very happening of which institutes a uniquely 'Gregorian' pattern of deceit, which pattern then serves as the conceptual criterion of her judgement. As when a professor twigs to a plagiarised passage in an essay, the crucial thing is not judging the unfolding phenomenon against an already existing universal standard, it is grasping that unfolding as instituting its own standard; the passage stands out as plagiarised when grasped as not fitting with the unfolding essay's concept of itself. Essentialism has a problem grasping such Gestalt shifts, or discoveries that resolve the Meno paradox, for according to essentialism, each thing either is or is not essentially X, which leaves no room for an X that itself unfolds its criterion, a visible that has its *own* invisible.[35] Put in terms of the above, Hegelian concepts let us grasp universals through a sort of internal curvature within the field of variation—as opposed to essences that impose universals on the field of variation from the outside. Concepts are a structural feature of the processual field of singular variation. (Since this field runs through all variations, for Hegel in the end there is one concept generative of all concepts.)

Hegel may seem a detour. But what we approach below is not unrelated to Deleuze's theme of concept creation,[36] and as mentioned at the outset we are also stalking the theme of sense. Both Merleau-Ponty and Deleuze learn from Hyppolite, and in *Logique et existence* (Hyppolite's study of Hegel's *Logic*), Hyppolite translates Hegel's "concept" as "sense [*sens*]". Likely this has some impact on the theme of sense in Merleau-Ponty and Deleuze,[37] and on Deleuze's theme of concept creation. More important, the points drawn from Hegel help us venture a broad formula for sense, one that anticipates the points about sense that follow. With Husserlian variation we are no longer pursuing transcendent universals, but concepts, structures of processual fields of singular variation. Ultimately, for Hegel, conceptual structure would have to be generated from within the field of singular variations itself, else the reflective logic of essentialism would sneak back in. When we grasp concepts as generated by singulars, or when our grasp of the world of singulars itself presses us to new concepts, we encounter sense.[38]

To illustrate: Grammar is not a universal essence fixed in advance of the usage of singular terms, nor are singular terms fixed in advance of and opposed to grammar. A native speaker of a language neither learns grammar in advance of words nor words in advance of usage and grammar, but learns both through each other, gaining an ever more comprehensive grasp of the web of syntax and semantics[39] that defines the language. Similarly, the chess player gains what Bergson calls a "dynamic schema" of chess through long play in which general rules and singular situations are deeply entangled.[40] Very often native speakers or chess savants cannot formulate the universal rules, but they certainly have a sense for the language or the game, a sense of how words and pieces fit together in good or bad plays that make sense or do not. Sense is there in the language or the game, not in transcendent universals.

Our next task is to see how Husserl's method of variation falls short of sense.

3) The Problem of Prejudice

The Husserlian position immediately runs into a problem of prejudice: generality is reached through the variational work of consciousness, but when consciousness frees itself of the actual, how does it proceed, might it not be going on prejudice? The problem is approached here by noting how Husserl's theme of variation appears in, yet is challenged by, recent science and Husserl's phenomenological successors.

Science obviously depends on variation, for the first step in experiment is the production or collection of a field of varying instances that will serve as the basis for some general conclusion. The methodological problems that immediately arise are twofold: 1) How to produce a field of variation—collect examples, or generate variants on an example—that can stand as exemplary for a general conclusion. This problem is addressed by procedures of experimental design (control groups, etc.) or data collection (random sampling, etc.) 2) How to conceptualize the field of variable instances as a unitary whole that can serve as the basis of a general conclusion. This problem is addressed by (a) theories of measurement that order instances in an already unified space of variation; (b) statistical theories that aggregate a plurality of instances in such a space. In recent science, though, the usual methods of producing and conceptualizing variation are being challenged. Two examples:

Robert Full and Claire Farley, who study animal locomotion, realize that "direct experimental perturbations pushed too far in search of significant difference" disrupt the "finely integrated system[s]" they are studying.[41] Full and Farley, like Merleau-

Ponty, Kurt Goldstein and J.J. Gibson, realize that experimental variations in the lab give insights into invariants of an artificially perturbed organism in an artificial environment. But Full and Farley want insights into "functional properties that emerge only when they interact with one another and the [natural] environment."[42] Yet scientific generalization requires a field of variation. The problem is how to get one that is not an artefact. Instead of putting animals into artificial frameworks of experimental variation, Full and Farley look to evolution as generating variation. Evolution in effect designs "natural experiments," by producing a space of variant legs, e.g., the rather different sorts of legs that we find in humans, dogs, lizards, cockroaches and crabs. By taking this space of intensive variation as their field, Full and Farley gain insight into the way *all* Earthly legs work.

The second example comes from a psychologist who takes a dynamic systems theory approach to her investigations, Esther Thelen.[43] In a way, Thelen's investigation repeats Full and Farley's methodological point, but on an accelerated time scale. If you want to give a proper account of something like the development of reaching in infants, do not try to organize the field of variation according to a pre-established extensive space of measurement, or by grouping infants in pre-established stages of development, or by taking the field of varying infant behaviour as a topic for statistical aggregation. Instead: Study the evolving behaviours of individual infants in cases of reaching. Notice how the problem of reaching for things collapses extensive spaces of variation into new internal patterns (conceived as attractors); track differences in these attractors in multiple instances of an individual infant of reaching, and then track the same infant longitudinally through development. Only then compare across different infants. The upshot is that Thelen's conclusion points back to a variational field that infants themselves have generated, which leads to better insights than what happens when you put infants through the paces of a pre-established field of variation.

In both these cases experimenters turn to a field of intensive variation, since evolution and developing infant movement are conceiving as building up variational possibilities, rather than occupying points in an already extant space of variation. But the principle of intensive variation is not generated by the conscious activity of the experimenter, as in Husserl's variation, it is generated by the world. And seeking to grasp this intensive variation within the world presses the experimenter to new organizing concepts. This sort of intensive variation, in which intensive variation is inherently generative of new concepts, is here called *abductive*-intensive variation. The discussion of Peirce in the final section of the paper will give the reasons for this name.

The difference between intensive variation and abductive-intensive variation is crucial to the difference between Husserl and his phenomenological successors. Heidegger repeatedly criticises Husserl for failing to raise the question of existence. This cannot really be disentangled from a methodological criticism: Husserl's quest for essences is insulated within conscious variation, without ever getting down to the variational field of existence. Where Husserl conceptually delineates structures of experience through the free variation of consciousness, Heidegger asks us to imagine hammers breaking. Where Husserl uses free variation to arrive at the *eidos* of intentionality, Heidegger reconceives intentionality by having us subside into *angst* and boredom, variations that spontaneously seize us within the flow of

existence. Where Husserl traces invariant structures within all possible *imaginings* of a phenomenon, Heidegger opens us to existence by having us attend to variational perturbations that spontaneously arise in the flow of existence in advance of philosophical reflection. In this way Heidegger aims to free us from the conceptual prejudices of the tradition.[44]

So too with Merleau-Ponty. Phenomenology, says Merleau-Ponty, wants insight into essences within existence. What is required for this is a slackening of the intentional threads, a spontaneous variation that exposes us to something beyond our everyday prejudiced view.[45] Thus Merleau-Ponty turns for insight to illnesses, illusions, or to the dialectical unmasking of bad assumptions about experience, which unmasking points us to previously unnoticed variational structures within experience. The insight we gain is not into universals beyond us, but to a sense already immanent within experience.

In short, for Husserl, the analysis of universals amounts to reconstructing already accepted universals, by an act of free conscious variation. But substantive and methodological problems encountered by the above scientists and philosophers turn them to a field of variation that is not generated by consciousness, or from the internal constraints of consciousness. And this field involves a new sort of variation: abductive-intensive variation, a radical variation in which production of variation *is inherently productive of new concepts* that comprehend the field of variation—in which variation exposes a sense already immanent within the field.

We began with a traditional problem of philosophy: how can a philosopher arrive at universality, beginning from singularity? The point of the above is to show that the philosopher is rather seeking sense, and the path to sense is complicit with a varying existence, a nature, that itself presses the philosopher to new concepts. In other words, it is not possible to do philosophy without doing a philosophy of nature. We have thus arrived at a version of Barbaras's criticism of Husserl, namely that Husserl is missing the way that life is generative of the distance between singulars and universals. And so we now turn to Bergson as a philosopher who holds that "*theory of knowledge* and *theory of life* seem to us inseparable," as he puts it in the beginning of *Creative Evolution*.[46] Having put Bergson in context of a perennial and ongoing philosophical and scientific problem brought out through Husserl's concept of variation, we are now prepared to see how Bergson's intuition responds to this problem, and how the response arises in the link between knowledge and life.

4) Intuition

Like Husserlian variation, Bergson's method of intuition so permeates his philosophy that it seeps up everywhere. One of the sharper discussions is found in the opening of the fourth chapter of *Matter and Memory*, in the famous passage about the turn of experience. According to Bergson, pure intuition, what is given us in inner or outer experience, is an undivided continuity. But our practical interests tend to break up this continuity into elements laid out side by side. Beginning with this fractionated field, empiricism and dogmatic rationalism set themselves the task of reconstructing the bonds that holds things together. Because the initial fractionation is driven by practical concerns, rather than following the internal lines of things, the traditional philosophical enterprise is doomed. Bergson writes:

> …we start from what we take to be experience, we attempt various possible arrangements of the fragments which apparently compose it, and when at last we feel bound to acknowledge the

> fragility of every edifice that we have built, we end by giving up all effort to build. But there is a last enterprise that might be undertaken. It would be to seek experience at its source, or rather above that decisive *turn* where, taking a bias in the direction of our utility, it becomes properly *human* experience. (*MM* 184)

The last enterprise is the method of intuition. The context we have been building lets us remark several things about it right away. First, what we are seeking, concepts that let us make sense of articulations of a continuity, are not found by contacting a transcendent beyond, or by adding a magic dash of universals to experience; what we are seeking is *within* experience, but at its source, past our usual fragmentation of it. We are seeking sense. Second, seeking sense within a continuous experience means finding coherent cores in an intensive rather than an extensive variation. Third, the sense we are seeking will overturn existing conceptual prejudices and lead to new concepts, and so will involve abductive-intensive variation. Fourth, in the sentence immediately following the ones just quoted, Bergson notes that what Kant has demonstrated is the impotence of speculative reason. Bergson, like Hegel, is not satisfied with this impotence. Bergson attributes it to service to practical necessities, whereas for Kant, as noted above, this impotence is due to the fact that speculative reason is not intellectual intuition. By freeing reason from utility and by thus moving beyond the turn of experience, Bergsonian intuition seeks precisely what Kant would have called intellectual intuition: an intuitively given experience that already contains the concepts that make sense of it. This sort of concept, as suggested, will grasp a structure of invariance within an intensively variant experiential continuity. So far as this concept is generated by the given, it is sense. Sense is nature as intellectual intuition.

The remaining problem is: What is the method of intuition? How is it possible? How is it that concepts are generated and exposed within the flow of experience? How is it that nature has a sense, that there is an intuition within nature? The passage I have cited, and complementary sorts of passages, e.g., in chapter one of *Creative Evolution*, or in the lecture "Philosophical Intuition," are somewhat curious as statements of method, because they really amount to metaphysical claims that at once motivate the method and result from the method. Not that this circularity is a disaster, rather it is a sign of real philosophical thinking, it is the sort of circle that we find in those spots where Plato or Kant, Aristotle or Hegel set out their method. More, these passages do not give an algorithm for having intuition—but on the other hand the very thing that intuition is rules out an algorithm. Still, we need a methodological indication of what intuition is like.

So we now dip into the very beginning of *Matter and Memory*, where it is widely agreed that Bergson takes up the method of intuition. There Bergson asks us to give up our traditional empiricist-rationalist distinctions between sensations and ideas, etc., and to return to the field of experience. Doing so, we intuit a flow of images; images are at once sensuous and sensible, i.e., intelligible. But this variable flux of images is not indeterminate, invariant patterns stand out. The most important invariant is what we call our body. In intuition the body stands out in a new way: where we find an invariant centre of indeterminate action within the image system, there we find a body. Bergson thus arrives at a new and important concept of the body. The body as centre of action is not a block of well hinged matter given in advance of interaction, not a

terminus of input action that then sends output to the outside. Intuition shows us that action is always interaction, a circle between interactants. A living body is that material locus in which circles of interaction intersect in a nexus complex enough to afford indeterminate action and yet persist. Bergson's concept of body not only anticipates Merleau-Ponty's insights, but also current efforts to think of bodies as dynamic or autopoietic systems.

The example from *Matter and Memory* illustrates how intuition leads to new concepts: the invariant dynamic that we call body follows the internal line of things, thus marking a concept that points to a field of variation given in advance of the bias of utility. This concept is what Bergson, as noted above, might call a "dynamic schema."

Two important points emerge. First, for intuition to yield concepts, we must, as Bergson famously put it with the example of sugar dissolving, wait. We must wait for the field of variation to expose an invariant that gives us an intuitive encounter with a concept. Both Husserl and Bergson view concepts as melodic invariants of intensive variations of intuition, but Husserl has us grasp these by having consciousness whistle its own tune until it hits restrictions in the whistling. Bergson instead has us tune into an intuitively given melodics of becoming. Husserlian concepts are given in the time of free variation, Bergsonian concepts are given in the duration-variation of things themselves. And so we are led to a complication in the concept of invariance: at the ideal level, Husserlian invariants become static, whereas Bergsonian invariants are always varying. This point resonates with the current scientific concept of attractors, and with conceptual analysis of invariants as manifest in variation. It also affords another way of defining sense: where we have to wait for concepts, where concept formation plunges us into a time beyond us, there we find sense.

Second, the body as conceived in *Matter and Memory* is what enables Bergson's account of intuition. That is, if we ask how Bergsonian intuition is possible, we will have to discuss the body as opening us to a field of variation in which the body stands as an invariant yet indeterminate centre of action. The practical demands of the body evolving and living require that the body artificially cut up the world in a way that prejudices experience; yet the body as invariant is not independent of the variation in which it lives and moves and has its being. The body is tuned to the variational continuity of experience, by contracting the duration-variation of things into an intuited duration. So the distance linking singulars and universals is *opened by life*—this distance *is* the body—*contra* Husserl's failure to see this, as Barbaras notes. The body, then, is tremendously ambiguous in Bergson's philosophy,[47] it is the requisite link between the theory of knowledge and the theory of life, which link and its ramifications make Bergson's method of intuition possible. The body not only has sense, it is our opening onto sense. Indeed the body is our opening onto the sense of the body; in intuition we use our bodies to grasp the concept of the body, and the dynamic schema through which we thinkers conceive the body is that very schema which is the body; the lines of thinking follow the lines of the body. The body is—for us—the first sense of nature, it grants what Kant would have called intellectual intuition.

And so Bergson needs to write *Creative Evolution*, for it is evolution as creative that makes possible a body open to a field of intuitive variation that itself has a creative sense. But rather than following Bergson down this path (or is it up this path?), let us once again have him activate some thoughts worth thinking again, namely

some points from Peirce and Bateson about abduction.

5) Abduction

Concepts are neither a novel ingredient of thinking nor consciousness's contact with a beyond, they are invariants within variant thinking, they are, in a word, a kind of *process* of thinking. But concepts are not fixed cognitive *ingredients* of a process. They are *process through and through. Concepts are a kind of reasoning process.*

For Husserl this reasoning process requires variation, and in *Experience and Judgement* he distinguishes variation from alteration. Alteration already possesses an essence for something given, and maintaining its identity, alters it. In contrast, variation involves differential leaps from one singular to another so as to manifest the kind of "coincidence in conflict" that first exposes the intensive variational field in which an essence can appear. Variation and alteration (*Variation und Veränderung*) are different sorts of difference. (EJ §87.f, 347, 419)[48] (Derrida's *différance* is perhaps another name for Husserlian variation.) Bergson's intuition involves yet a different kind of difference. As is well known, Deleuze will come to call this repetition. If the field of variation given in intuition is intensive, if the field cannot be fractionated into "elements laid side by side," if the variation of intuition involves the sort of becoming that Bergson discusses in the "Possible and the Real" and in chapter four of *Matter and Memory*, then elements and moments of this field cannot be understood as organized in an already established space of variation. The elements and moments instead are singularities utterly different than one another in their happening. They exhibit a pattern and invariance in the peculiar ways that repetitions do: it is the same thing happening, yet utterly different because it is a repeat. Where Husserlian variation freely plays with an example so as to draw out neighbouring but different possibilities, in Bergson's intuition we are given a field of variation in which different things show an affinity in virtue of repeating a common generative point. Manuel Delanda's Deleuze calls this a singularity, and this is what the scientists Full, Farley and Thelen are noticing: Bergson notes that octopus and human eyes in their similarity are utterly different yet point back to a common generative procedure that does not exist independently of evolving eyes (beat matter with sunlight for millions of years and you get eyes); likewise Full and Farley notice that biped and quadruped legs point back to a common generative procedure in virtue of which very different leggy bodies have an affinity (have motile creatures run into hurdles and eventually you get legs to hurdle over them). For Bergson the differential, variational process that enables concepts and intuition is also the differential, variational process of life. For Bergson, concepts are a kind of reasoning *in things*, a reasoning *in life*, and this reasoning in life is what we have been calling sense.

This sort of differential process is at work in the reasoning that Peirce calls abduction. Peirce on abduction is even more thorny than Husserl on variation; both philosophers have the characteristic of writing the same blessed book over and over again—repeating the same idea—so with neither is there an authoritative text; and, as with variation, abduction is so central it is hard to get it square in view, although Peirce does have texts that focus on it.[49] To pierce to the quick, here are some of the things Peirce says: 1) Abduction is a procedure of rational inquiry. 2) It is a kind of inference that is insightful. 3) Abduction is neither deduction nor induction. 4) In contrast to deduction or induction, abduction adds something *new* to thought, namely hypotheses—and "hypothesis" is Peirce's

other name for abduction. As Peirce puts it, "the essence of an induction is that it infers from one set of facts to another set of similar facts, whereas hypothesis infers from facts of one kind to facts of another." (2.642)[50] Peirce's repeated example is of beans in a bag. From the fact that all the beans in the blue bag are white, and that this handful of beans is from the blue bag, we can deduce that the beans in this handful are white; the deduction is certain because it adds nothing new to the facts, just puts them a different way. If it is the case that beans taken from the blue bag keep turning up white, we conclude by induction that all beans in the blue bag are white. Here too the induction does not give us a new *sort* of fact, for it quantifies in a probabilistic way over facts already given about colours of beans in a bag. Abduction is different: it starts from the facts that one of the bags of beans in the room, say the blue bag, contains only white beans, and that this handful of beans, which was taken from a single bag, contains all white beans; the inference by abduction is that *this handful of beans is from the blue bag*. Put another way, in its context, this hypothesis is the best possible explanation for the fact the beans are white in colour. Notice that the abduction yields another kind of fact: from facts about colours of beans, to a hypothesis about which bag the beans are from. Sherlock Holmes uses abductive reasoning all the time, which is what astonishes Watson: it is not surprising that someone studying the colour of swans might claim all swans are white, but it is surprising that someone given facts about dogs not barking in the night can confidently claim that so and so is the culprit. The 1940 version of *Gaslight* invites mere induction, which is why it is such a miserable film, whereas Cukor's 1944 version demands abduction of us and of Paula: what if Gregory isn't the swanky swain he appears to be, but a swine? Would that explain things?

We can now draw out a differential-variation structure underlying abductive reasoning processes. Here is a true story; put yourself in it. In class a student is friendly with you, but in the coffee shop the same student repeatedly does not recognize you at all; your greeting gestures go right through him and you feel a fool. This is, as Peirce, would put it, a surprising fact. Eventually, abduction strikes: "If the student has a twin, all is explained!" The facts are no longer surprising. In your abduction, remarking unique difference ("It's not one student, but two!") is inseparable from linking that unique difference to its singular generative point ("They're twinned from birth!"). That is, the appearance or expansion of a field of variation is coincident with the appearance of a concept that links variations as appearing within one field. Singular elements already apparent in the experiential field all of a sudden stand out as in fact being variations in virtue of expressing a concept that for the first time grasps them *as variations*. (Compare Paula grasping that the dimming of the gaslight and the lost jewellery are in fact events 'twinned from birth'.) Contrast this with Husserl, in which conscious free variation plays new variants from an example *via* an existing link, and thence adds them to the field. In the sort of variation we are studying here, which is here dubbed *abductive-intensive variation*, variation arises by a sort of twist from within, in which a novel grasp of the variation as variation is simultaneous with a novel grasp of the concept that links the variations as constituting a variational field. This twist is sense. Now in the case of the twins, we are not formulating an utterly novel concept; what is novel is grasping that the concept "twinning" is expressed in (it now turns out) these twins. But consider how the world

around us, when we investigate it, constantly twins, manifests abductive-intensive variation. As Darwin puts it: "How inexplicable is the similar pattern of the hand of a man, the foot of a dog, the wing of a bat, the flipper of a seal, on the doctrine of independent acts of creation! how simply explained on the principle of the natural selection of successive slight variations in the diverging descendants from a single progenitor!"[51]

In his book *Mind and Nature: A Necessary Unity*, Gregory Bateson makes some insightful yet maddeningly obscure remarks about this abductive aspect of nature. He begins with the remark that: "We are so accustomed to the universe in which we live and to our puny methods of thinking about it that we can hardly see that it is, for example, surprising that abduction is possible."[52] Why is it that concepts that apply in one case apply in another, that the anatomy of a seal flipper is echoed in some other thing? On the one hand, the possibility of abduction is a liability, for it reinforces prejudiced patterning; the fact that we *can* map both gender roles and sexual biology using the concept of activity vs. passivity leads to bad social and biological concepts that are hard to shake, precisely because they are mutually reinforcing. But, on the other hand, as Bateson puts it, "all thought would be totally impossible in a universe in which abduction was not expectable."[53] In other words, if concepts are not items given, but a process of reasoning in things, reasoning in life; and if concepts express abductive-intensive variation, the encounter of remarkably different variants that are nonetheless repeats of a pattern; then concepts are only possible if nature is expectably abductive.

What does this mean? Bateson writes "that there are, in nature and correspondingly reflected in our processes of thought, great regions within which abductive systems obtain. For example, the anatomy and physiology of the body can be considered as one vast abductive system with its own coherence within itself at any given time."[54] There is something obviously right about this. Much as students may be twinned, one's hands have irreducibly different senses, yet point back in that very difference to a singular origin; and one's heart and liver likewise are twinned in a different way.[55] If this were not the case, then one's body could not be the sort of centre of action that it is; further, if one's hands did not prolong into a universe that twinned out like one's body does, then there would be no possibility of bodily action. What is here called twinning is as it were the condition through which alone dynamic schema, concepts and sense are possible.

And so from variation, through intuition and abduction, we are led round by a different route to Bergson's point about creative evolution. If philosophy can begin with singularity and arrive at concepts, or rather create concepts that grasp the singular, it is because nature has already made this sort of movement between the singular and the conceptual, or rather it is because nature *is* this movement of abduction, in which singular beginnings twin, repeat, spread out and vary in ways that point back to singularity, thus manifesting the structure of invariance in variance that is called concept. Reductionism, reducing nature to a roster of already given, extensively variant elements is misguided. If scientific and philosophical method and thinking are possible, it is because nature is abductive, because nature has inflated itself as conceptual, because nature has a sense. To do philosophy we need a philosophy of nature that does not seek to reduce nature to what is most thinkable for us, with our practical prejudices; we need to grasp nature as

abducting itself into what is thinkable in itself. And abduction will not be the expansion of a formula already packed into a beginning point, but the coming into being of new, radical differences that at once point back to—or perhaps we should say *express*—a singular conceptual origin, a sense.

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[1] This paper was provoked by late night discussions of Bergsonian and Husserlian method with Rocco Gangle, Heath Massey, and Joshua Ramey, at the *Collegium Phaenomenologicum XXVI: Thinking through the Difference between Immanence and Transcendence: Levinas, Bergson, and Deleuze*. My thanks to them for their provocations, and to Leonard Lawlor for setting up the context in which such discussions were possible. An earlier version of this paper was presented at *Bergson in Context*, the annual conference of the British Society for Phenomenology, March 2003, St. Hilda's College. I would like to thank members of the audience for their questions, and especially John Mullarkey and Valentine Moulard for their astute criticisms.

[2] For this concept of distance, see Renaud Barbaras, "Life and Perceptual Intentionality," *Research in Phenomenology* 33 (2003) and Renaud Barbaras, *Le désir et la distance: Introduction à une phénoménologie de la perception* (Paris: J. Vrin, 1999).

[3] See especially Maurice Merleau-Ponty, *Phenomenology of Perception*, trans. Colin Smith (New Jersey: The Humanities Press, 1962); Maurice Merleau-Ponty, *Phénoménologie de la perception* (Paris: Galimard, 1945). But the special role of language is already apparent in Maurice Merleau-Ponty, *The Structure of Behaviour*, trans. Alden L. Fisher (London: Methuen, 1965); Maurice Merleau-Ponty, *La structure du comportement* (Paris: Quadrige/Presses Universitaires de France, 1942), e.g. it is central to his discussion of the human order.

[4] See the "Introduction to Metaphysics," in Henri Bergson, *The Creative Mind: An Introduction to Metaphysics*, trans. Mabelle L. Andison (New York: Citadel Press, 2002); for the French, see Henri Bergson, Édition du Centenaire (Paris: Presses Universitaires de France, Oeuvres), pp. 1392-1432. Because the ambition of philosophy is to gain an intuition that would connect us with the inner mobility of things, "*Metaphysics is therefore the science which claims to dispense with symbols*" (162, 1396 in the French; Bergson's emphasis). In Bergson's usage, concepts are the fruit of analysis; they immobilise things and generalise, thereby betraying their object. In this paper a different usage of concept is developed.

[5] This is point about intuition is apparent in Emmanuel Levinas, *The Theory of Intuition in Husserl's Phenomenology*, trans. André Orianne, second ed. (Evanston, Illinois: Northwestern University Press, 1995), esp. at the end of chapter 6 and in the final chapter; the point also surely anticipates Levinas's later emphasis on a non-relational relation to the Other. My thanks to the anonymous reviewer of this paper for pointing out the connection between Levinas and Bergson.

[6] See "Violence and Metaphysics" in Jacques Derrida, *Writing and Difference*, trans. Alan Bass (Chicago: University of Chicago Press, 1978) and Jacques Derrida, *Speech and Phenomena*, trans. David B. Allison (Evanston, Illinois: Northwestern University Press, 1973). For a detailed study of this issue and its relevance to French philosophy, see Leonard Lawlor, *Thinking Through French Philosophy: The Being of the Question* (Bloomington &

Indianapolis: Indiana University Press, 2003), esp. chapter 2, and Leonard Lawlor, *Derrida and Husserl: The Basic Problem of Phenomenology* (Bloomington & Indianpolis: Indiana University Press, 2002), esp. part three.

[7] This position is already evident in Martin Heidegger, *Being and Time*, trans. John Macquarrie and Edward Robinson (New York: Harper and Row, 1962); Martin Heidegger, *Sein und Zeit* (Tübingen: Max Niemeyer Verlag, 1963). It becomes ever more apparent in the increasing emphasis on language in his later work.

[8] See Maurice Merleau-Ponty, *The Visible and the Invisible*, trans. Alphonso Lingis (Evanston, IL: Northwestern University Press, 1968); Maurice Merleau-Ponty, *Le visible et l'invisible* (Paris: Galimard, 1979). In Merleau-Ponty's earliest monograph (Merleau-Ponty, *La structure du comportement*) he cites with approval Hegel (via Jean Hyppolite) on "the hidden mind of nature." If in his later thinking Heidegger's influence turns Merleau-Ponty to finding a sense, a *logos*, already at work in being, for Merleau-Ponty this would also have to be a sense of the being of nature. As is well known, Merleau-Ponty can never tear himself away nature; he is entranced by the organization of natural bodies and behaviours as anticipating symbol and logos. (See e.g., Maurice Merleau-Ponty, ***check *La nature: notes, cours du Collége de France*, *Traces écrites* (Paris: Seuil, 1995).)

[9] Husserl's division is nicely elucidated in Joseph J. Kockelmans, *Edmund Husserl's Phenomenology* (West Lafayette, Indiana: Purdue University Press, 1994), and Levinas, *The Theory of Intuition in Husserl's Phenomenology* .

[10] Edmund Husserl, *The Crisis of the European Sciences and Transcendental Phenomenology*, trans. David Carr (Evanston, Illinois: Northwestern University Press, 1970).

[11] For a survey of the issue, see Jean Petitot et al., eds., *Naturalizing Phenomenology: Issues in Contemporary Phenomenology and Cognitive Science* (Stanford: Stanford University Press, 1999). This collection includes Barbaras's "The Movement of the Living as the Originary Foundation of Perceptual Intentionality," which contests the effort to reduce phenomena to the nature of the usual scientific tradition.

[12] Immanuel Kant, *Critique of Pure Reason*, trans. Norman Kemp Smith (London: Macmillan Education, 1929), and Immanuel Kant, *Critique of Judgment*, trans. Werner Pluhar (Indiana: Hackett, 1987), esp. the dialectic of teleological judgement and §77 therein.

[13] Edmund Husserl, *Cartesian Meditations*, trans. Dorion Cairns (Dordrecht: Kluwer, 1991) and Edmund Husserl, *Cartesianische meditationen und Pariser vortrage* (Haag: Martinus Nijhoff, 1963), hereinafter CM, with references by section number and page # in the German; these page #s are also given in the margin of the English edition. Compare Edmund Husserl, *Formal and Transcendental Logic*, trans. Dorion Cairns (The Hague: Martinus Nijhoff, 1978) and Edmund Husserl, *Formale und transzendentale logik* (Den Haag: Martinus Nijhoff, 1974), hereinafter FTL, with references by section number and the page # given in the margins in both the German and English editions: "…*absolutely everything* of which an Ego can think is related to [the Ego's] life of consciousness." (FTL §97, 216)

[14] On this issue, also cf. CM §28, 97. Scholars of sense in Merleau-Ponty should take note of this remark.

[15] As Levinas puts it in his important study of Husserlian intuition, for Husserl essences are inexact and are not to be confused with Platonic essences. Essences arise from ideation, not idealization, and thus (Levinas suggests) would not fall to Bergson's criticism that essences falsify the meaning of concrete reality. (Levinas, *The Theory of Intuition in Husserl's Phenomenology* , chap. 6, esp. pp. 115-119.) Levinas's point about ideation cannot be disentangled from his insistence that the distinctive character of Husserlian intuition is that its object is "given in person," and that Husserlian consciousness is already open to the presence of the world. So the object of an essence has an intimate role in the intuition of essence.

Kockelmans, *Edmund Husserl's Phenomenology* likewise argues that for Husserl essences are not Platonic because they are given in an intuition that links consciousness to its object. Put even more emphatically, for Husserl the intuition of essences depends on singular objects that stand as exemplars, as shown in Burt C. Hopkins, "Phenomenological Cognition of the A Priori: Husserl's Method of "Seeing Essences" (*Wesenserschauung*)," in *Husserl in Contemporary Context: Prospects and Projects for Phenomenology*, ed. Burt C. Hopkins (Dordrecht: Kluwer, 1997). But Hopkins—who unlike Levinas and Kockelmans is at ease equating Husserl's *eidos* with Plato's idea—also rightly notes that for Husserl such an exemplary singular "*is not in the proper sense an intuited individuum as such*" (p. 165; Hopkins is here quoting from Husserl's *Experience and Judgment*). On the one hand, Husserl's insistence that we arrive at essences and categories through intuitions enables the connection drawn below to Bergson on singulars. On the other hand, Hopkins's point that in such intuitions the object is not an intuited individual as such indicates a central point: it is the process of variation, as driven by consciousness, not singulars, that are at the heart of Husserl's account. Bergson diverges from Husserl because for Bergson variation will come back to a movement within the singular thing itself. For Husserl, philosophy cannot be driven by singulars, and this point is at the crux of Husserl's emphasis on an absolute division between natural science and philosophy. In contrast, the task of Bergsonian philosophy is to descend to the singular, and so Bergson opens a possibility of drawing science and philosophy closer together. This difference is vital to Deleuze's appropriation of Bergson for a transcendental *empiricism* (vs. a Husserlian transcendental phenomenology).

On the issue of variation in Husserl and in science, also see Maxine Sheets-Johnstone, *The Primacy of Movement* (Amsterdam: John Benjamins Publishing Company, 1999), esp. chapter 4.

[16] Barbaras, "Life and Perceptual Intentionality," and Barbaras, *Le désir et la distance: Introduction à une phénoménologie de la perception*.

[17] For this point in Hegel, cf. G.W.F. Hegel, *Phenomenology of Spirit*, trans. A.V. Miller (New York: Oxford University Press, 1977). On this issue, it is also worth referring to the discussion of the problem of the given in John McDowell, *Mind and World* (Cambridge, Mass.: Harvard University Press, 1996), which is in some way inspired by Hegel.

[18] We need to reconstruct this sense, according to Husserl, because the universality that belongs to general thought is the *telos* of logical activity and philosophy and is not to be found in rules of experience. On this point, see Edmund Husserl, *Experience and Judgment: Investigations in*

a Genealogy of Logic, trans. James S. Churchill and Karl Ameriks (Evanston: Northwestern University Press, 1973) and Edmund Husserl, *Erfahrung und urteil: unterzuchungen zur gealogie der logik* (Hamburg: Claasen verlag, 1964), hereinafter EJ, with references to section number, page # in the English edition, page # in the German: EJ §80, 319, 384.

[19] The connection between intuition in Bergson and in Kant is suggested by Nathan Rotenstreich, "Bergson and the Transformation of the Notion of Intuition," *Journal of the History of Philosophy* 10 (1972); the approach here is from a direction different than Rotenstreich's, since it takes bearings from Hegel's critical relation to Kant.

[20] Cf. Richard M. Zaner, "Examples and Possibles: A Criticism of Husserl's Theory of Free-Phantasy Variation," *Research in Phenomenology* 3 (1973), which remarks the peculiar tension between the centrality of variation and the lack of thematic discussions of it. Zaner's remark, though part of an earlier phase of Husserl research, remains true. Research into the literature reveals that variation is a topic that comes up in discussions of Husserl, but hardly ever gets thematic or extended treatment, e.g., it only rarely appears in article or chapter titles or as a keyword in abstracts or indices. More important, variation is not treated as a *problem*. While the topic of variation comes up, especially in discussions of *Wesensschau* (since free variation is crucial to insights into essences), the question how variation is possible does not seem to arise.

Zaner's article criticises the account of variation in David Michael Levin, "Induction and Husserl's Theory of Eidetic Variation," *Philosophy and Phenomenological Research* 29 (1968), which argues that eidetic variation is continuous with induction. Zaner rightly points out that Levin is muting Husserl's sharp distinction (emphasized by Levinas in his study of intuition, see note 33; also see Kockelmans, *Edmund Husserl's Phenomenology* and Klaus Held, "Husserl's Phenomenological Method," in *The New Husserl: A Critical Reader*, ed. Donn Welton (Bloomington & Indianapolis: Indiana University Press, 2003)) between a priori and empirical sciences, and is also muting the difference between free variation and alteration (see note 48), which difference is key to *Wesensschau*. On the other hand, Husserl's commitment to *intuition* of essences does put intuition of essences proper and thence eidetic variation into continuity with other sorts of intuitions (such as might lead to induction), which again is why it is possible to draw connections between Husserl and Bergson, yet contrast them. The key difference, as argued below, is that in Husserl consciousness drives variation, whereas for Bergson intuition opens us to variation within singulars themselves (cf. note 15). For more on the relation between induction and *Wesensschau*, see the discussion below on the different levels of generality and universality in Husserl. Elisabeth Ströker, *The Husserlian Foundations of Science* (Dordrecht: Kluwer, 1997) should especially be consulted on the matter of Husserl and science; chapter II of this work, esp. pp 71-73, begins to problematize variation in a discussions of problems concerning evidence of essences, i.e., the theme of *Wessensschau*.

Kockelmans, *Edmund Husserl's Phenomenology*, chapter five, gives a compact and masterful synopsis of the theme of variation as part of a survey of Husserl. Levinas, *The Theory of Intuition in Husserl's Phenomenology* is another important monograph that takes up variation amongst other themes. Hopkins, "Phenomenological Cognition of the A

Priori: Husserl's Method of "Seeing Essences" (*Wesenserschauung*)," gives a relatively extended treatment of the theme of variation, which is also discussed in Held, "Husserl's Phenomenological Method."

Further writings that focus on variation, are Nebojsa Kujundzic, "Thought Experiments: Architecture and Economy of Thought," *Journal of the British Society for Phenomenology* 26 (1995), which draws a link between Husserl and Mach on variation; and Sheets-Johnstone, *The Primacy of Movement*, esp. chapter 4.

[21] See note 13 for details of the convention for citing FTL.

[22] See note 18 for details of the convention for citing EJ.

[23] Transcription by author from DVD edition, Warner Home Video, 2004.

[24] The account of structure of universal judgements given here is extracted from EJ §87 ff.

[25] Strictly speaking we should distinguish judgements of generals (which hold of multiple instances) and judgements of universals (which holds of all instances). But this distinction is not quite thematic in the materials under discussion, and so the distinction will be blurred in the treatment given here. This does not have an impact on the point being made, which concerns the structure of judgements of both generality and universality.

[26] The quote from which this material is taken in fact specifies the conditions in which this universal essence would be an ideal. But any structure of empirical generalities would also have this form in Husserl—empirical generalities are just detected in a different sort of variation.

[27] The interpretation of judgement and variation in Husserl given here is in its broad outlines confirmed by Hopkins, "Phenomenological Cognition of the A Priori: Husserl's Method of "Seeing Essences" (*Wesenserschauung*)," and Kockelmans, *Edmund Husserl's Phenomenology*.

[28] On Husserl's divergence from traditional empiricist appeal to abstraction, cf. Hopkins, "Phenomenological Cognition of the A Priori: Husserl's Method of "Seeing Essences" (*Wesenserschauung*)."

[29] "[T]he variation of the necessary initial example is the *performance* in which the "eidos" should emerge and by means of which the evidence of the indissoluble eidetic correlation between constitution and constituted should also emerge" (FTL §98, 219, emphasis mine). Husserl says this of eidetic variation, but other sorts of generals/universals would also be manifest in the performance of variation.

[30] For support of this view of Darwin, see Stephen Jay Gould, *The Structure of Evolutionary Theory* (Cambridge, Mass.: The Belknap Press of Harvard University Press, 2002).

[31] Manuel DeLanda, *Intensive Science and Virtual Philosophy* (London: Continuum, 2002).

[32] Levinas remarks that Husserl's own writing leads to questions about how we are to distinguish between different levels of generality (Levinas, *The Theory of Intuition in Husserl's Phenomenology* , pp. 107-9). The suggestion made here is that the difference is not so much in the structure of the ideas as in the process of variation. Hopkins, "Phenomenological Cognition of the A Priori: Husserl's Method of "Seeing Essences" (*Wesenserschauung*)," gives a fine grained analysis of the difference between levels, without yet taking up variation as a problem.

[33] It is must be emphasized that for Husserl there is an crucial difference between such philosophical ideas and ideas arrived at by induction, and this is why for Husserl there is a tension between a science of nature and a science of experience. On this tension, see Levinas, *The Theory of Intuition in Husserl's Phenomenology* , chapters 4-6 and esp. pp. 112-116; also see notes 15 and 20 above.

[34] G.W.F. Hegel, *Science of Logic*, trans. A.V. Miller (Atlantic Highlands, NJ: Humanities Press International, 1969).

[35] The suggestion being made here is that perhaps the Merleau-Ponteian theme of institution (see Maurice Merleau-Ponty, *L'institution dans l'histoire personnelle et publique: le probléme de la passivité, le sommeil, l'inconscient, la mémoire: notes de cours au Collége de France, 1954-1955* (Paris: Belin, 2003)), which is related to the theme of sense, might be understood in terms of the implication of the visible and the invisible that we find in Hegel's concept, which term Hyppolite translates as "sense" (see note 37). The connection drawn between Hegel's concept and Merleau-Ponty's theme of the entwining of the visible and the invisible is warranted by Hegel's constant play, in his analysis of essence, on the word *Schein*—which is played out as show, appearance, the shining forth of essence. Hegel's problem with the logic of essence, as noted above, is that it involves terms that either show up or do not, and that it cannot grasp the relation between what shows and what is being shown. The logic of institution—which is what we find in the concept that mediates its own instituion—is precisely the logic of something making itself visible for the first time, of an invisible institution that needs its visible to be what it is. Borges's lottery of Babylon appears enigmatic as institution precisely because Borges's articulation of it plays on a logic of essence, whereas a logic of concept is what is needed; the working of a language's grammar is not viewed as a hidden institution behind the scenes, which is why grammar is not a mystery (see the discussion of grammar below), but the workings of Borges lottery keep receding behind the visible even whilst being identical with the visible as its reflection.

[36] Gilles Deleuze and Felix Guattari, *What is philosophy?*, trans. Hugh Tomlinson and Graham Burchell (New York: Columbia University Press, 1994).

[37] See Leonard Lawlor, "The End of Phenomenology: Expressionism in Deleuze and Merleau-Ponty," *Continental Philosophy Review* 31 (1998) and the editorial introduction and Deleuze's review of *Logique et existence* in Jean Hyppolite, *Logic and Existence*, trans. Leonard Lawlor and Amit Sen (Albany: State University of New York Press, 1997).

[38] This essay cannot provide the argument that Hegelian concept is already sense, but likely it is.

[39] Strikingly, Robert Rosen's argument for a new scientific formalism for biology repeatedly criticizes traditional scientific formalism for reducing everything to syntax; he argues for a reciprocal relation between syntax and semantics (Robert Rosen, *Life itself : a comprehensive inquiry into the nature, origin, and fabrication of life, Complexity in ecological systems series* (New York: Columbia University Press, 1991)).

[40] The reference here is to Bergson's essay "Intellectual Effort," in Henri Bergson, *Mind-energy: Lectures and Essays*, trans. H. Wildon Carr (Westport, Conn.: Greenwood Press, 1975). Leonard Lawlor, *The Challenge of Bergsonism* (London: Continuum, 2003), pp 70-79 explores

Bergon's essay and dynamic schema in detail, and draws a connection to the theme of sense; the connection is arguably resonant with the account of sense suggested here.

[41] Robert J. Full and Claire T. Farley, "Musculoskeletal Dynamics in Rhythmic Systems: A Comparative Approach to Legged Locomotion," in *Biomechanics and Neural Control of Posture and Movement*, ed. Jack M. Winters and Patrick E. Crago (New York: Springer Verlag, 2000). On this sort of issue about the organism, also see Gerald L. Geison and Manfred D. Laubichler, "The Varied Lives of Organisms: Variation in the Historiography of the Biological Sciences," *Studies in History and Philosophy of Biological and Biomedical Sciences* 32, no. 1 (2001) and Manfred D. Laubichler, "The Organism is Dead. Long Live the Organism," *Perspectives on Science* 8, no. 3 (2000).

[42] Michael H. Dickinson et al., "How Animals Move: An Integrative View," *Science* 288 (2000).

[43] Esther Thelen, "Motor Development: A New Synthesis," *American Psychologist* 50, no. 2 (1995), Esther Thelen and L.B. Smith, *A Dynamic Systems Approach to the Development of Cognition and Action*, ed. Stephen Palmer, *MIT Press/Bradford Books Series in Cognitive Psychology* (Cambridge, MA: MIT Press/Bradford Books, 1994).

[44] What is at stake here and in Merleau-Ponty is well captured in Levinas's insightful analysis of the tension between Husserl the intellectualist philosopher and Husserl the phenomenologist who turns us to life. Levinas's analysis culminates in the questions at the end of his chapter on the intuition of essences: "Is our main attitude toward reality that of theoretical contemplation? Is not the world presented in its very being as a center of action, as a field of activity or of *care*—to speak the language of Martin Heidegger?" (Levinas, *The Theory of Intuition in Husserl's Phenomenology*, p. 119). For this sort of point in Heidegger, see, e.g., *Being and Time*, where he writes of "being-in" that "we cannot indeed consent to nullify the primordial character of this phenomenon by deriving it from others—that is to say by an inappropriate analysis, in the sense of a dissolving or breaking up." (Heidegger, *Being and Time*, §28, p. 131 in the German.) Analysis cannot proceed from theoretical contemplation, and Heidegger's criticism of Husserl would be that despite Husserl's beginning in variation, so long as consciousness is driving the variation, Husserlian variation is an analysis that starts from the wrong point.

[45] See the preface to Merleau-Ponty, *Phenomenology of Perception*.

[46] Henri Bergson, *Creative Evolution*, trans. Arthur Mitchell (Mineola, N.Y.: Dover, 1998), p xiii.

[47] This ambiguity could also be tracked by looking at Bergson's discussion in *Matter and Memory* of the quality of the colour red vs. the quantification of it as light with frequency X, taking some guidance from Deleuze's comments in Gilles Deleuze, *Bergsonism*, trans. Hugh Tomlinson and Barbara Habberjam (New York, N. Y.: Zone Books, 1988). The ambiguity here is that the body, as just mentioned, serves to contract one order of time into another, yet belongs to both.

[48] On alteration vs. variation, cf. Kockelmans, *Edmund Husserl's Phenomenology* , 141. Also see Thomas M. Seebohm, "Individuals, Identity, Names: Phenomenological Considerations," in *Husserl in Contemporary Context: Prospects and Projects for Phenomenology*, ed. Burt C. Hopkins (Dordrecht: Kluwer, 1997), 141-142, which makes the point that the variation that gives empirical universals

"is not "free" variation" since the former has not yet prescinded from predicates, i.e., un-free variation is a bit too much like alteration; Seebohm's point about free variation is related to our point about intensive variation.

[49] Douglas R. Anderson, "The Evolution of Peirce's Concept of Abduction," *Transactions of the Charles S. Peirce Society* 22 (1986) gives a clear overview of abduction in Peirce, and his position is compelling. Also see C.J. Misak, *Truth and the End of Inquiry* (Oxford: Clarendon Press, 1991).

[50] "Deduction, Induction, Hypothesis" in Charles S. Peirce, *Collected Papers of Charles Sanders Peirce*, vol. 1/2 (Cambridge: Belknap Press of Harvard University Press, 1960); as per established practice, the first number in the reference is the volume number, and the number after the decimal point is the paragraph number in that volume.

[51] Charles Darwin, *The Variation of Animals and Plants Under Domestication*, 2 vols., vol. 1 (Baltimore: The Johns Hopkins University Press, 1998), p. 12.

[52] Gregory Bateson, *Mind and Nature: A Necessary Unity* (New York: E.P. Dutton, 1979), p 142.

[53] Bateson, *Mind and Nature: A Necessary Unity*, p 143.

[54] Bateson, *Mind and Nature: A Necessary Unity*, p 143.

[55] Cf. John Russon, *The Self and its Body in Hegel's Phenomenology of Spirit* (Toronto: University of Toronto Press, 1997).

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