



Pragmatism, Process Metaphysics, and Field-Being: Peirce, Santayana, and Whitehead on Animality as Pure Play

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1. Introduction

- ¶1. The central philosophical idea of this essay is that animality is best defined as a field of pure play.^[1] This view emerges prominently in two contexts, one philosophical, the other scientific. In the scientific community, the idea is emerging in the three sciences of chaos theory, complexity theory, and theoretical evolutionary biology. In philosophy, it emerges in pragmatism, process metaphysics, and field-being theory. Although, while the view is emerging, still a complete statement is left wanting. Perhaps the best of these views — best in large part because it crosses the boundaries of philosophy and science — is that of Peter Godfrey-Smith. Godfrey-Smith is both a pragmatist and a philosopher of biology, and he develops one of the most comprehensive views in the literature on philosophy of biology and mind, drawing out a rich spectrum of positions, which may be given as follows:

- ¶2. Externalism here is really “asymmetric,” meaning that the organism adapts to the environment, but does not adapt the environment to itself, putting all of the emphasis on the importance of the environment. Internalism, by contrast, puts all the emphasis on the internal mechanics of the organism. On the internalist view, the organism unfolds of its own logic, with extremely little regard for the environment. Philosophers have (and still do) hold versions of both these positions, internalism and externalism. But Godfrey-Smith rightly draws on the need for a synthesis. This is found in the view of symmetric externalism: here the environment is given more emphasis; and the organism and the environment are both thought to be involved in one another’s transformations. The organism adapts to the environment. And the organism also adapts the environment to itself. Godfrey-Smith’s spectrum is a major contribution to the literature, with many new developments, especially the construction of a specifically pragmatic philosophy of biology. The concern with it, however, is that it does not do sufficient justice to the internalist view — in particular the possibility of the symmetric internalist view. At best, the spectrum seems less than comprehensive, and at worst gives the appearance of a false dichotomy: either internalism or symmetric externalism. Yet, drawing upon this spectrum, perhaps more can be done with symmetric internalism. Indeed, such a view as symmetric internalism — which I believe to be the correct view — would remain a “pragmatic” philosophy of biology, particularly for its emphasis on symmetry. Yet at same time it would also bring contemporary internalist views somewhat closer to a more coherent, a more varied, and internally comprehensive viewpoint. Indeed, on my view, such an account would become a little less Deweyan (on the externalist side as Godfrey-Smith conceives it), and more in line with the philosophy of Alfred North Whitehead, George Santayana, and Charles S. Peirce — developing a full blown symmetric internalist account of mind and nature.

2. Background of the Pragmatic and Process Philosophy of Biology

- ¶3. Before developing this view of symmetric internalism which defines animality as pure play, it will, however, be helpful to provide some historical context. Here we may consider the philosophy of biology as it arises in the Greeks. Many think of evolution arising with Lamarck’s Zoological Philosophy, or Darwin’s Origin of Species. But the discussion goes back as far as the Ancient Greeks.

- ¶4. Aristotle in Physics II.8 criticized Empedocles for developing an evolutionary ontology based on variation and creativity, and survival of the fittest. Plato was more sympathetic to the process view, and developed the theory at length in the Timaeus. But History seems to have listened to Aristotle rather than Plato. After rejecting Empedocles and Plato, Aristotle held that the basics of the animal were held firmly in place by a static ontological essence. And ever since, the history of philosophy has resisted such ideas in most forms.^[2] For example, while Kant could accept a theory of the evolution of society, noumenal ontology still seemed sacred and immune to the forces of play and becoming.
- ¶5. All of that changed, however, with the re-popularization of the evolutionary theory by Darwin. And it was the Classical American pragmatists, particularly Peirce and James, and then later Dewey and Whitehead, who raced to extend Darwin's ideas to ontology and culture. What the Medievals thought of as "beings" became, in fact, fields of pure creativity — and in good Scotistic univocal fashion, Peirce would acknowledge that all living things are similarly packets of creativity, and species largely incidental continua. Or, to use Aristotle's language to make Peirce's point: the biological species "human" is actually a species of the genus "creativity," which is *also* the *highest* genus, i.e., "Creativity" instead of "Being."
- ¶6. Pragmatism and process philosophy had made Theoretical Evolutionary Biology into First Philosophy, just as the Forms were to Plato, and Mind to Descartes. And the paradigm was filling out nicely, up until the middle part of the twentieth century with the World Wars. Logical Positivism came to America from the Vienna Circle, and took root. Of course, as philosophers have found, following W.V.O. Quine, there is a rather large problem with the Verificationist Principle of Meaning espoused by the Logical Positivists: namely, that it is self-referentially incoherent. This would appear to have been sufficient to destroy the spirit of positivism, but even today it is alive and well in philosophy.^[3] Nevertheless, there has been something of a Renaissance in pragmatism and process metaphysics, and in no small part as a response to the problems of positivism. Although to be sure it is somewhat marginalized from mainstream analytic metaphysics and philosophy of mind. But even with this somewhat marginalized position, the discussion is quite active; and pragmatic philosophy of biology, in particular, is in full swing today, developed in large part by Godfrey-Smith.

3. Godfrey-Smith's Spectrum: Externalism and Internalism

- ¶7. With this background in hand, we may proceed to unpack Godfrey-Smith's spectrum of positions in the philosophy of biology. In "Spencer and Dewey on Life and Mind" and [Complexity and the Function of Mind in Nature](#)[4] Godfrey-Smith develops these two positions as externalism (emphasis on the environment) and internalism (emphasis on the autonomy of the animal).
- ¶8. A. Internalism. For the internalist what is important is autonomous self-organization, not relations with the surrounding ecosystem. The environment does not wholly determine the internal structure of the organism, but the internal dynamics of the organism have patterns of their own. Indeed, for all practical purposes, this view is almost exactly that of Aristotle. The biological particular is a primary substance, which unfolds from within according to very strict codes, given over by the ontologically static secondary substances, which are metaphysically "backstage" of the biological particular. Moreover, organic form is specifically demarcated, by Aristotle, from artificial forms. Organic substances unfold from within, that is, they unfold from inside to out; whereas artificial structures are organized from outside to inside. A clock is constructed not from the inside, but is put together by an external agent. And there are no very strict patterns which govern this construction, which contrasts with organisms. Of course skills of art may be developed, but are also subject to change. And these will also vary from artisan to artisan. Biological unfolding does not do this. And whether one is an evolutionist or not, for a strong internalist, what is important is the static rules for organic unfolding from within. Indeed, the main difference between Aristotle and Lamarck is that for Lamarck the secondary substances, like animality, are simply put in flux, via evolution.
- ¶9. Godfrey-Smith describes (though does not accept) the general internalist view as follows:
- ¶10. Organic structure is strongly constrained ... by internal factors associated with the integrated nature of living systems. The properties of individual development from egg to adult, in particular, have long been thought to direct or constrain evolutionary change in this way.[5]
- ¶11. Rather than embedded in and unified with its ecosystem, the organism is conceived as a self-contained unity, which heals, preserves, and regenerates extensions, e.g., arms, tails, skin, or cells. The organism "emanates" from within, to use a Neoplatonic term, rather than collecting private copies of reality à la Hume. Godfrey-Smith cites Lamarck as the position's pioneer,[6] even if Lamarck was (and he certainly was) excessive in his evolutionary conclusions.[7]

- ¶12. Today, the work of the internalist view continues in chaos theory and complexity theory with Brian Goodwin, Humberto Maturana, and Francisco Varela, and the latter two, using the concept of “autopoiesis”^[8] (self-organization), have, in fact, put the idea of the autonomy of the animal back on the scientific and philosophical map. In their groundbreaking work The Tree of Knowledge: The Biological Roots of Human Understanding they write, “The emergence of autopoietic unities on the face of the Earth is a landmark in the history of our solar system.”^[9] Commenting on this view, Godfrey-Smith correctly notes, “... the focus is on self-production as characteristic of life, and the role of environmental structure is greatly reduced.”^[10] By self-production here is meant the generation of form and the regeneration of form: organisms grow and have immune systems which can repair damage. Lizards can re-grow tails, illnesses are overcome, and trees ooze sap when cut. Ecosystems, too, try to recover when damaged. They have a sense of autonomy and integrity, which they are coded to maintain. This contrasts with rocks, which when broken do not repair themselves, or even try.
- ¶13. Richard Rorty has recognized this work — Maturana in particular — as essential to deconstructing what he calls the “mirror of nature paradigm” in epistemology^[11] — again defined as collecting private copies of reality à la Hume (and also Descartes, and much of the history of philosophy). Rorty firmly aligns with this view of autopoiesis, for its strong anti-representationalist/anti-Cartesian perspective. That is, according to Rorty, the paradigm of correspondence between mind and world, and organism/environment, has been dissolved in large part by advances in chaos theory. Although, in another sense, it is not entirely clear that Cartesian philosophy is really so negatively affected by the chaotician Maturana’s notion of self-organization, as Rorty seems to intimate. One might reasonably claim that the autopoietic view emphasizes a quite autonomous and Cartesian conception of the organism, even if that autonomy did arise from evolution. For to claim that Maturana replaces Cartesianism is, in a certain sense, to trade one Cartesianism for another. Indeed, Maturana’s internalist view — taken to an extreme — simply trades the Copy-Model of Mind for absolute autonomy from the environment. Even if the Mind-Adapts-to-World Model is gone, then certainly the individualism and dualism remain in some form. And thus what is missing in the internalist view, for philosophers like Godfrey-Smith, is precisely a richly filled out concept of feedback.

- ¶14. Moreover, while Rorty derives his own view from Dewey (and aligns it with Maturana's view as well), not every Deweyan sees things like this. Godfrey-Smith finds the two positions of Maturana's internalism and Dewey's anti-representationalism to be at loggerheads, finds the strong internalist view entirely untenable, and critiques individualism and dualism using Dewey's attack on the very idea of an organism in an environment living off "an unrolling push from within."^[12] Moreover, Godfrey-Smith finds internalism to be a veritable Platonism, with all the trappings of the mirror of nature, especially the static ontology: "A strong internalism in biology is also seen in the search for ahistorical 'laws of form' undertaken by the 'rational morphology' tradition ... A contemporary view of this type is the 'structuralism' defended by Brian Goodwin and others ...^[13] Indeed, Godfrey-Smith targets Goodwin, author of How the Leopard Changes Its Spots, as another (like Maturana and Varela) who mistakenly holds the internalist view.
- ¶15. On the other hand, Godfrey-Smith doesn't really give Goodwin a fair shake — something is missing: Goodwin's view simply isn't as internalistic as Godfrey-Smith makes it out to be. Just because Goodwin holds to strong conception of the laws of form, doesn't mean we must jettison the *really important* part of his view, which is that organisms within their environments are fundamentally structures of "pure play." To be sure, "form" on this view arises from play, and could easily be trumped by it, in opposition to Aristotle, who finds play to be eternally trumped by form. (I'll return to this point shortly.) Moreover remarks like the following place Goodwin firmly outside the strong internalist camp: the organism's "... autonomy is not to be understood as independence of the environment."^[14]
- ¶16. B. Asymmetric Externalism. By contrast to the internalistic view, for the externalist the animal is very responsive to the environment, and defined primarily by this adaptive quality. Externalism takes two basic forms, symmetric and asymmetric. Symmetric externalism describes adaptation of the organism/mind to an environment, adjusting and re-equilibrating its biological *tabula rasa* to make a perfect copy of ontology. The organism simply adapts insofar as it collects private representations of this ontological environment. Godfrey-Smith takes Herbert Spencer as an early theorist of this view. According to Spencer, the organism or animal is constituted by a "... continuous adjustment of internal relations to external relations."^[15] Spencer's view was a fairly dominant and influential view of the time.

- ¶17. Certainly Spencer's view is excessive — and Godfrey-Smith is wise to contrast it with the pragmatist point of view. The pragmatists rejected the view of Spencer, and indeed the whole project of synthesizing Cartesian representationalism with Darwinian adaptationalism. Godfrey-Smith makes this point when he writes as follows: “William James (the most famous pragmatist) published his first essay in philosophy on Spencer's view of mind (1878). John Dewey also used Spencer's talk of correspondence as an illustration of the type of position he was opposed to.”[\[16\]](#) Dewey refers to this position as the “spectator theory of knowledge,” which, according to Dewey and Godfrey-Smith, arises when we think any real distinction exists between inner and outer realms. The criticism is evident when Dewey chides “... the definitions of life and mind given by Herbert Spencer: correspondence of an inner order with an outer order. It implies there is an inner order and an outer order.”[\[17\]](#) No inner, no outer — Dewey's solution is to abolish the distinction completely. And Godfrey-Smith agrees with Dewey.
- ¶18. C. Symmetric Externalism: Godfrey-Smith's Position. So, moving from an asymmetric externalism, closer to the middle of the spectrum, here is the view of symmetric externalism. This is Dewey's view, as Godfrey-Smith interprets it. And it is also Godfrey-Smith's view. In developing this view, Godfrey-Smith takes as a foil the view of Goodwin, which he sees as a contemporary version of internalism. On Godfrey-Smith's view, Goodwin is not pragmatic enough. He does not go all the way in the Deweyan direction to melt completely the line between organism and environment. This is evident when Godfrey-Smith writes,
- ¶19. So in this picture a pragmatist is analogous to the adaptationist biologist who yields to [Roger] Lewontin on the role of the organism in transforming the world, but does not yield to people like Goodwin on the importance of internal developmental principles in determining the course of evolution.[\[18\]](#)
- ¶20. For Godfrey-Smith, Goodwin still hangs onto a dogma of Cartesian Modernity, importing dualism into the philosophy of biology, and not yet fully understanding the very fluid way in which evolution completely overhauls the modern dualistic paradigm, with all of its static rules of form. Indeed, reading Godfrey-Smith one gets a very Heideggerian sense of the animal as a “being-in-the-world.” There simply is no line between the organism and the environment. The organism no more adapts to the environment than it adapts the environment to itself. Indeed, adaptation, the very idea of it, seems to be called entirely into question. So perhaps it is better, on Godfrey-Smith's view, not even to consider the notion of adaptation, in any strong sense anyway. Rather environment and animal are simply co-operating together — not that cooperating means they are different — in creating themselves together.

- ¶21. It is true that this sort of account arises in Dewey. Indeed, perhaps no other Western philosopher to date has so consistently refused to make distinctions of any strong kind. No mind/world division, no nature/art division, and no animal/environment division. Godfrey-Smith credits Dewey on this move when he writes,
- ¶22. When I say that this is a pragmatist idea, I have Dewey in mind more than anyone else.... James, especially in his early work, also showed as much sympathy to internalist lines of dissent (although not “rationalist” ones).... I find Peirce hard to classify.[\[19\]](#)
- ¶23. It is true that Peirce is somewhat more difficult to classify — difficult, yes ... but not impossible. And, in fact, while interpretations of Peirce and Dewey vary, typically most philosophers of pragmatism will agree that there is some division between the two thinkers. Dewey took his basic philosophical system from Peirce, but made several strong alterations, especially in the way of not developing a semiotics, not developing a logic of abduction, not developing a theory of the categories, and melting more fully the division between organism and environment. This last point is essential: Peirce is ultimately more internalistic than Dewey, but less than Maturana. And while difficult classify, Peirce’s view is quite unique, quite interesting (and ultimately serves as the first step for Dewey).
- ¶24. D. Filling out the Spectrum. In developing Peirce’s view, we will also enrich Godfrey-Smith’s spectrum by filling out the middle, which is really the most important region of that spectrum. Ultimately, what is lacking on this spectrum is the view of symmetric internalism, the resources for which I derive from four key thinkers, Peirce, Whitehead, and Santayana (in process philosophy), and Goodwin (in the philosophy of biology and Chaos Theory). In developing this view, what is simultaneously revealed is a weakness in the spectrum, one which requires rectifying, and which can only be rectified with the further explanation of symmetric internalism.
- ¶25. With regard to the weakness of Godfrey-Smith’s spectrum, the concern is two-fold. First, there is a sense in which his spectrum might be made more comprehensive. Second, one gets the sense of a false dichotomy, even while his view is excellent at mediating so many positions. In a word, what is needed from Godfrey-Smith’s spectrum is a better account of symmetry — particularly a fully developed account of symmetric internalism. Godfrey-Smith does not think Spencerian externalism (asymmetric externalism) is a good view — and certainly it is not. He also clearly thinks internalism over-inflates the “unfolding” nature and total autonomy of the organism — and he is right to reject this too. So, his subtle middle path is, in a sense, a good one. But ultimately, he falls in just slightly on the externalist side — with lots of feedback between organism and environment. This view is advanced as the most

reasonable alternative to both asymmetric externalism and internalism. And if the spectrum had to appear this way, then symmetric externalism would be the reasonable choice. But in fact the spectrum as it stands is somewhat unbalanced and less than comprehensive.

- ¶26. Indeed, unlike externalism (as Godfrey-Smith discusses it) internalism does not similarly appear in two parts, i.e., symmetric and asymmetric. Internalism is developed mainly as a singular position. And this seems just as one-sided as asymmetric externalism. The difference between asymmetric externalism and asymmetric internalism is that rather than environment pushing in on organism (Spencer), internalism's one-sidedness has the internal structure of the organism emanating outward, with far less regard for the environment. So, if "asymmetric" means to negate feedback between organism and environment, then both asymmetric externalism and internalism would be equally lacking. Hence, it is unclear in Godfrey-Smith's account what a more environmentally interactive version of internalism would look like. The dichotomy seems to be, either symmetric externalism or internalism, and both seem unlikely. So, a new position is required between symmetric externalism and the Maturana/Varela position,[\[20\]](#) and this is precisely "symmetric internalism."

4. Process/Field Theory of Animality: Whitehead, Santayana, Peirce, Goodwin[\[21\]](#)

- ¶27. Now that a need for this position has been established — in light of the spectrum's lack of comprehensiveness, and the apparent false dichotomy between symmetric externalism and (asymmetric) internalism — here we may begin to unpack the content of that position. In many ways this position is similar to symmetric externalism, i.e., containing traits such as emergent complexity, organism-environment feedback, resistance to substance dualism, and resistance to the spectator definition of organisms. But, in contrast, symmetric internalism highlights a stronger internal/external distinction, which, with increasing complexity, becomes more important over evolutionary time.
- ¶28. A. Complexity as Ontology. Peirce, Santayana, and Whitehead all develop rich views of process metaphysics, in contrast to the traditional substance metaphysics of Aristotle. The basics of this view are sketched out early on in a series of essays by Peirce, published from 1891-1893 in the journal The Monist. Here Peirce develops the view that reality is thoroughly evolutionary. In the beginning of time there was a great field of chaos, which spontaneously began to take on order. Patterns began to emerge, and became laws, i.e., the laws of physics were first, and these set the cosmological parameters for all future laws to evolve on the continuum (what Peirce calls the "synechism"). The laws of chemistry followed, and then biology, zoology, and so on, gradually culminating in the human mind. As evolution proceeds along this continuum, several universal patterns also emerged and proceeded to govern its movement. Perhaps the most important pattern of the evolutionary continuum is the

gradual increase of complexity (which Peirce conceives as organized diversity). Peirce makes this point when he writes,

- ¶29. Question any science which deals with the course of time. Consider the life of an individual animal or plant, or of a mind ... of states, of institutions, of language, of ideas.... paleontology ... geology ... stellar systems. Everywhere the main fact is growth and increasing complexity.[\[22\]](#)
- ¶30. For Peirce, the universe is a field of evolving complexity, which proceeds by way of the transformation of chaotic fields of energy (what he called “tychism”) into plastically organized diversity. Placing the movement of complexity firmly at the center of what was later to become known as process metaphysics and “complexity theory” (which as Nicholas Rescher has pointed out was virtually created by Peirce [\[23\]](#)), Peirce ushered in a new way of thinking. And this new process metaphysics gradually developed into the theories of nature developed by James, Santayana, Dewey, and Whitehead.
- ¶31. B. Animal-Environment Interaction. In addition to this fundamental pattern of increasing complexity, the second most important pattern of evolution — and which is a product of complexification — is increasing self-organization. This point emerges prominently in the work of Goodwin in How the Leopard Changed Its Spots. Following Whitehead very closely, Goodwin revitalizes process metaphysics from within theoretical evolutionary biology. According to Goodwin, organisms are nonlinear dynamic structures, which settle dynamically at the “edge of chaos,” between two poles: one, an attractor in the region of chaos, and the other more “frozen.” The environment is precisely this creative realm of complexification between the two poles. This applies to any organism structure: “... a developing organism, a brain, an insect colony, or an ecosystem, will tend to settle dynamically at the edge of chaos.”[\[24\]](#) These two poles are at once ontologically determinate and relative to the organism. Some organisms are more habit-laden — their field of chaos (as ontological pole of randomness) is farther away. Yet regardless of the nature of the organism, each one has its own unique field of teleological tension, where its creativity is maximized and materialized. Moreover, on either side of the optimal field of tension, there are also two corresponding extremes: one is destruction, and the other is stagnation. As Goodwin puts it,
- ¶32. If it [the organism] moves into the chaotic regime, it will come out again of its own accord; if it strays too far into the ordered regime, it will tend to ‘melt’ back into dynamic fluidity where there is rich but labile order.[\[25\]](#)

- ¶33. The organism is always already caught in a tension between chaos and order, and it is precisely here where it tends to equilibrate. Yet part of this equilibration entails ensuring the organism's openness to further complexification and self-organization, ensuring its own openness to what Whitehead thought of as the "lure for feeling."[\[26\]](#)
- ¶34. Peirce means the same when he writes that it is "... the operation of the environment, which goes to break up habits destined to be broken up and so to render the mind lively."[\[27\]](#) The organism wanders, exploring its chaotic environment, seeking novelty and surprise and, as Peirce writes, the "... succession of surprises wonderfully brightens the ideas."[\[28\]](#) In fact, Peirce conceives this interplay of chaos and order as fundamental to all mental growth and complexification in the sciences: "Where there is a motion, where history is a-making, there is the focus of mental activity, and it has been said that the arts and sciences reside within the temple of Janus, waking when that is open, but slumbering when it is closed."[\[29\]](#) On the one hand, there is environment,[\[30\]](#) which, as an external factor, is capable of triggering the organism's adaptation capabilities, which includes creative responses to the environment. And on the other hand, there is also the internal life of the organism. And this internal life is precisely the locus of creative play which demarcates the distinct position of symmetric internalism.
- ¶35. C. Internal-External Distinction. This internal/external distinction is largely absent at the early stages of evolution, say physics. But gradually it comes to play the primary role in the development of complexity and self-organization. Indeed, primarily it is the higher organisms — in contrast to, say, jellyfish and slimes — which so far transcend the complexity of the external environment that it seems necessary to maintain at least a minimal conception of the internal/external distinction. The inner world remains plastic and flexible, and the outer world remains less flexible, more habituated. Yet important as the distinction is, it is certainly not a Cartesian ontological dualism. The division is one of two worlds, but both are material and intimately linked. As Peirce puts it, "The main distinction between the Inner and the Outer Worlds is that inner objects promptly take any modifications we wish, while outer objects are hard facts that no man can make to be other than they are. Yet tremendous as this distinction is, it is after all only relative."[\[31\]](#) Or, as Peirce puts it elsewhere, "Viewing a thing from the outside, considering its relations of action and reaction with other things, it appears as matter. Viewing it from the inside, looking at its immediate character as feeling, it appears as consciousness."[\[32\]](#) William James also comments on Peirce's account of the internality of the organism: "To an observer standing outside of its generating cause, novelty can appear only as so much 'chance,' while to one who stands inside it is the expression of 'free creative energy.'" [\[33\]](#) Or, to put the distinction another way, viewing an organism from the outside it appears as habit; while viewing it from the inside, it appears as "pure play"[\[34\]](#) — a more organized form of chaos.

- ¶36. D. The Internal as Pure Play. This view of symmetric internalism, defined in terms of the inner life of the organism as pure play, moreover, does not backslide into Rorty's mirror of nature paradigm, for its relative division of inner and outer worlds. Indeed, it is fair to say that it more fully dismantles the mirror of nature paradigm than symmetric externalism. For on the view of symmetric internalism, adaptation to the external environment is considered less important. At its highest levels of complexity, the mind detaches from the adaptation-epistemological-photocopy machine model. And what emerges on the continuum over time is a release from the environment, and the gradual ascension into higher order levels of creativity.
- ¶37. i. Goodwin on Play. This view of internal play is central to Goodwin's view of biology. And it is clear that he views his own position as of a kind with the internalists. Goodwin argues the autopoietic point that "... the capacity of active self-maintenance and self-generation that underlies regeneration, reproduction, and healing ... are all ways organisms become coherent wholes."[\[35\]](#) Although, as noted above, Goodwin's view is not a version of asymmetric internalism: there is still a key role for the environment. Goodwin writes that the "... mixing of the gene pool results in an effective search through the potential space of morphogenetic trajectories, an exploration of the possible forms in some of which the living state can be expressed as robust and viable species in a suitable habitat."[\[36\]](#) The environment is important because it contributes to the morphospace — the space of possible morphings — of the organism. It is the context which supports the organism, even as the organism over the course of evolution increasingly attempts to free itself from that context into greater levels of creativity. So, this habitat is more groundwork than *telos*, more of a "condition for the possibility" than the endgame. Overall, and put simply, compared to the Maturana/Varela view, in Goodwin (as in Peirce and Whitehead) there is a decreased emphasis on immunology, or autopoietic *reconstruction*, in defining the organism, and a far greater emphasis on internal creativity. Certainly autopoietic reconstructing of the autonomous unit is important, but it is for the sake of the aesthetic expression of the animal. This aesthetic expression of the animal — manifest particularly in play — is its defining trait. Goodwin puts the point clearly when he writes,
- ¶38. It is in play that we see the richest, most varied, and unpredictable set of motions of which an animal is capable. Compared with most goal-directed behavior, which tends to have strong elements of repetition that give it a somewhat stereotyped, even mechanical, quality, play is extraordinarily fluid. Walking, digging, hunting, eating, coursing, and mating all involve well-defined sequences of repetitive movement, whereas play consists of all possible motions unpredictably emerging from one another.[\[37\]](#)

¶39. Goodwin also writes, “Instead of the image of organisms struggling up peaks in fitness landscapes, doing ‘better than’ — which is a very Calvinist work ethic — there is the image of a creative dance.”^[38] No longer is there such a focus on aggressive struggle and survival of the fittest: “There’s still struggle, in the sense that if you’re going to be creative you have to believe in your ideas and struggle for them.... But because there is as much cooperation among species as there is competition, the struggle is to express your being, your nature.”^[39] This new notion of *aesthetic* struggle, Goodwin thinks, is a far better description of nature. Animals struggle for beauty and enjoyment, and this is precisely where Goodwin’s creative environmental ontology, as in Peirce again, links up with human endeavor: “These are the metaphors whereby science can begin to connect with the arts: people being creative and playing.”^[40] Humans are not distinct from other animals in having “reason.” They are continuous with all animals in being creations of the will to play. As Goodwin puts it, “Play is the most fundamental of all human activities, and culture can be seen as play.”^[41]


¶40. ii. Peirce on Play. Indeed, what Goodwin develops today finds its richer logical and metaphysical underpinnings in the work of Peirce. Play is not only the chaos which underpins all reality, it is equally the chaos which underpins thought in general. As Peirce puts it, “A pretty wild play of the imagination is, it cannot be doubted, an inevitable, and probably even a useful, prelude to science proper.”^[42] Peirce called this epistemological dimension of creative play “musement,” and placed it at the center of his theory of mind. This notion serves a quite distinct role in his conception of the logic of abduction. Abduction is the process of forming guesses, and it operates at a fundamental level in all knowledge. From our basic ideas about physics to our speculations about religion, knowledge for Peirce arises first from guesswork. And musement is the contemplative and meditative field which generates these guesses. It serves to provide all the mind’s knowledge, although, to be sure, at first only in rough form (untested deductively, unverified inductively). This process of musement takes place in the isolated mind: one must be alone, in quiet, free from external disturbance. The mind must be able to quiet itself, after detaching from the natural environment. It looks inward, deep into itself, to examine the well of possibilities, and the content of the unconscious. In this region of the mind, musement plays freely — and in its higher phases it puts abduction and creativity to work far less as a matter of mere adaptation to an external environment; and far more as aesthetic refinement and enjoyment, the pleasures of its own art. Peirce makes this point when he writes:

- ¶41. Now play, as we all know, is a lively exercise of one's powers. Pure Play has no rules, except this very law of liberty.... It has no purpose, unless recreation.... It may take either the form of esthetic contemplation, or that of distant castle-building (whether in Spain or within one's own moral training). [\[43\]](#)
- ¶42. This is the apex of Peirce's aesthetics, and the entire Peircean process system. Although, unfortunately, it was developed only in his very late years (1908), and close to the time of his death (1914). And while it received at least an initial statement, Peirce never quite developed it into a full-blown formal aesthetics. Although such a view was, in fact, developed at some length by another, later American process thinker, who took up where Peirce left off — this was Santayana.
- ¶43. iii. Santayana on Play. Santayana also puts pure play at the very center of his process metaphysics, conceiving the entire history of evolution as so many creative dimensions of the urge to play with the material of the environment. And in this he strongly — perhaps even more than Peirce or Whitehead — prefigures the work of Goodwin. For it is precisely Santayana's point that Darwin (for all his great advances) had (mistakenly) inverted the relationship between tool use and play. Darwin had made labor, work, and competition to be the engine of evolution, and then made the aesthetic life of the organism to be a mere by-product of useless energy. But like Goodwin after him, Santayana saw the need to re-invert that relationship: according to Santayana, it is not competition but play and creativity — these are at the center of evolutionary history. As a consequence of this view, the animal is actually nothing other than a field of dynamic play. Indeed, insofar as it is a "being," it is a being of emergent play and creativity. And to the extent that it may be defined as a being of labor or competition, these are in fact by-products from the urge to play and novelty. Santayana develops this view of the history of evolutionary play in Dominations and Powers. Here he contrasts his own view with that of Karl Marx:
- ¶44. ... in politics we might imagine such a formless raw material of society, a proletariat, all children of both sexes swarming in one immense orphan-asylum, left to invent, if they could, a new language, a new morality, and a new religion. But would they ever be anything but a troop of monkeys screeching together? The tentative discrete arts of man were not born in this way. They leapt separately here and there in different directions like streams down the hillsides, liberal and bold before they could be useful. But the forms they assumed in play found uses in actions; these uses then deepened their channels, as embankments and bridges formalize rivers and the incidental glory of their maturity, as cascades and music made of their rustic youth.[\[44\]](#)

- ¶45. As an evolutionary account, this is somewhat opposite the traditional Darwinian story of evolution, and opposite the traditional Marxist story as well. Moreover, in claiming that play is the motor of evolution, Santayana also recognizes the spontaneity of this field which gives rise to technology. We do not labor before we play, we play before we labor, and we labor because we first begin to play. Santayana puts the point this way:
- ¶46. But what is ‘work’? When the first man or boy made his first tool he did so in play, out of curiosity at seeing the way in which long grasses or pliable stems could be woven together to make a basket that would hold pebbles or nuts or berries, and enable him to carry them about.... These amusements were voluntary; they were entertaining; yet they were the beginnings of mechanical industry. They were also, however, the beginnings of liberal arts. This ‘work’ might well be a free, happy, and enlightening occupation, its own reward, and the product of it might be good, not for being useful but for being beautiful.[\[45\]](#)
- ¶47. Modernity has brought forth an excessively technical way of looking at the world, and which is now the dominant form of the human animal (Heidegger called this *Gestell*, or Enframing, which subordinates Being to Man). But for Santayana, this worldview wrongly elevates the values of Labor, Technology, and Modern Efficiency — these are mere “means to an end,” not “ends in themselves.” In contrast to this worldview, Santayana holds that it is Aristotelian happiness and inner peace through aesthetic contemplation (as it is articulated in Aristotle’s *Nicomachean Ethics*, Book 10) that is the true goal of the human animal. We must shake off what Dewey conceives as the crust of convention, and return to the playful impulse within humankind, and from which humankind originally springs. This is the origin of the higher arts of civilization, now freed from the compulsive crafts of industry and labor — freed into play for the sake of Aristotelian happiness. In The Sense of Beauty: Being the Outlines of Æsthetic Theory Santayana writes that “... there is an undeniable propriety in calling all the liberal and imaginative activities of man play, because they are spontaneous, and not carried on under pressure of external necessity or danger.”[\[46\]](#) Similarly, Santayana writes in The Sense of Beauty,
- ¶48. ... we may measure the degree of happiness and civilisation which any race has attained by the proportion of its energy which is devoted to free and generous pursuits, to the adornment of life and the culture of the imagination. For it is in the spontaneous play of his faculties that man finds himself and his happiness.[\[47\]](#)

¶49. And similarly for Aristotle, the highest reaches of play are specifically contemplative (without, of course, the metaphysics of secondary substances). Finally, for Santayana it is essential to point out that this play is specifically *internal*. Santayana did not, nor did Peirce, hold to the same symmetrical externalist view as Dewey. It was, perhaps, important at the time that Dewey melted away absolutely all semblance of animal/organism distinction because Modernity had made the division into an ontological absolute. But Dewey may have gone a little too far. While he was right to blur the absoluteness of the distinction, there is still something to the inner life, which other pragmatists (who do not make the Cartesian ontological division) admit as well. Nature produces this division for the sake of the achievement of novelty and creativity — all things aim at novelty. Nature wraps her field-beings of chaotic play in thick layers of habits, in order to protect the dynamic openness of the chaotic field, and this in order to achieve new and higher experiences of novelty. And as nature proceeds upward on the evolutionary continuum, the external environment does not become anymore playful, but the inner world of the primates continues to ascend in its impulse to creativity. The sea and air are not more chaotic and creative than they were at the birth of the primates. But the primates have progressively become more internally creative and playful. This division, which ascends through time, is something with which the Deweyan view must necessarily struggle.

5. Return to Godfrey-Smith's Spectrum

¶50. Now, returning to Godfrey-Smith's spectrum, it may be filled out somewhat.  The notion of symmetric internalism is already germinal in Godfrey-Smith's account, and here it is enhanced to place in greater dialogue with Godfrey-Smith's own account of symmetric externalism. The two are not very far apart. Indeed, several animals on the spectrum of evolution will in fact fall into symmetric externalism. Jellyfish appear to fall into externalism — they float along with the current. Although, on the other hand, they can sting, so, maybe they are more on the symmetrical side of externalism; and on this count they would contrast markedly with slimes, which are far more passive. Slimes and flowers have almost nothing of this power to alter the external environment. In contrast, beavers and spiders may be conceived in terms of symmetric externalism. Yet questions arise with those animals in which there are high levels of play and creativity. Godfrey-Smith includes them on the side of symmetric externalism. But there is a sense in which, to paraphrase Kant's famous revolution in epistemology, there is far more content going out than there is coming in. What is primary is that the organism is creating its world out of the material given over from the environment. There is an environment, to be sure, and it does in high degree constrain the evolution of the organism. But to the extent that both animal and environment are fields of tension existing between chaos and order, the animal is in much higher degree organized and in much higher degree a field of creativity. It is a field of pure play.

- ¶51. Where the line exists between some animals which fall into symmetric externalism and others which appear to cross the threshold into symmetric internalism — certainly it is difficult to say. And the present discussion cannot go as far as to articulate that line. Yet, certainly human beings are highly playful and creative of their environments. Indeed, the whole category of primates, while not unique in this respect, is highly playful.

6. Conclusion

- ¶52. In conclusion, Godfrey-Smith's spectrum is an excellent framework for understanding philosophical views of the organism/environment relationship. And it is also excellent for demonstrating where and how pragmatist philosophies of biology fall into that spectrum, specifically with regard to the issue of symmetry. And my critique is not an attempt to undercut the spectrum, but to further fill it out. My direct concern is the dichotomy between asymmetric externalism and asymmetric internalism. Godfrey-Smith's own synthesis opts for a symmetric form of externalism. But this is put forward in large part as a pragmatic antidote to the excesses of internalism. These began with Lamarck, were eclipsed by Darwin, and reappear today in some chaos theory and complexity theory. Godfrey-Smith is right to split the difference. But there is sufficient room for an alternative and more internalist-oriented view, the one developed here. And while one can hardly claim that it applies as well as the Deweyan/Godfrey-Smith symmetric externalism at lower levels of complexity, it certainly must be taken into account at the higher levels of complexity, especially with primates.

END NOTES

1. I am very grateful to the Editor, Lik Kuen Tong and an anonymous referee for comments and discussion on an earlier version of this essay. I am also grateful to Elizabeth F. Cooke, Richard J. Blackwell, William C. Charron, and Theodore Vitali for many helpful discussions of the process metaphysics of Peirce, Whitehead, and Santayana. Of course, any mistakes which remain are my own.
2. Aristotle, Physics, Book II, Chapter 8, collected in Aristotle, *The Basic Works of Aristotle*, R. McKeon (Ed.), New York: Random House (1941). The scholastics, following Aristotle's lead, turned an equally blind eye to Plato's very aesthetic and evolutionary conception of ontology in the Timaeus.
3. I am grateful to an anonymous referee for discussion on this point.

4. Godfrey-Smith develops this position in Peter Godfrey-Smith, [Spencer and Dewey on Life and Mind](#) in M. Boden (Ed.), *Complexity and the Function of Mind in Nature* New York: Oxford University Press (1996). This view is further developed in his book, Peter Godfrey-Smith, *Complexity and the Function of Mind in Nature*, Cambridge: Cambridge University Press (1996).
5. Peter Godfrey-Smith, *Complexity and the Function of Mind in Nature*, Cambridge: Cambridge University Press (1996), 37.
6. Godfrey-Smith writes, “Lamarck saw life as dependent on the actions of fluids that pervade all living things.... [with] [t]he result [of] the creation of new organs, and a steady increase in complexity of organization over time Some of these fluids exist in the environment as well as in organisms, and in the simplest animals (such as jellyfish) the fluids act on the organism from outside But once we reach moderately complex organisms the fluids are largely internally produced and maintained. They are what gives rise to the ‘inner feeling’ which directs behavior in the more complex organisms.” *ibid.*, 39.
7. *ibid.*, 44.
8. Peter Godfrey-Smith, [Spencer and Dewey on Life and Mind](#) in M. Boden (Ed.), *Complexity and the Function of Mind in Nature* New York: Oxford University Press (1996), 318.
9. Humberto R. Maturana and Francisco J. Varela, *The Tree of Knowledge: The Biological Roots of Human Understanding*, Boston: New Science Library (1987), 51.
10. Peter Godfrey-Smith, [Spencer and Dewey on Life and Mind](#) in M. Boden (Ed.), *Complexity and the Function of Mind in Nature* New York: Oxford University Press (1996), 318.

11. Richard Rorty, *Philosophy and the Mirror of Nature*, Princeton: Princeton University Press (1979). See also Jerold J. Abrams, *Philosophy After the Mirror of Nature: Philosophy After the Mirror of Nature: Rorty, Dewey, and Peirce on Pragmatism and Metaphor*, *Metaphor and Symbol*, 17(3) 2002, 227-242 for a discussion of the role of metaphor in the pragmatic and process traditions of philosophy—these emphasize the importance of new metaphors, such as the stream of consciousness, in order to capture the futuristic, biological, and semeiotic dimensions of flow and time in process thought.
12. John Dewey, *The Need for a Recovery of Philosophy* in J. J. McDermott (Ed.), *The Philosophy of John Dewey* Chicago: University of Chicago Press (1981), 62. Godfrey-Smith calls attention to this Deweyan remark in Peter Godfrey-Smith, *Spencer and Dewey on Life and Mind* in M. Boden (Ed.), *Complexity and the Function of Mind in Nature* New York: Oxford University Press (1996), 329.
13. Peter Godfrey-Smith, *Complexity and the Function of Mind in Nature*, Cambridge: Cambridge University Press (1996), 37.
14. Brian C. Goodwin, *How the Leopard Changed Its Spots: The Evolution of Complexity*, New York: Simon and Schuster (1996), 175.
15. Herbert Spencer, *Principles of Psychology*, London: Longman, Brown and Green (1855), 374. See also Herbert Spencer, *Principles of Biology*, New York: Appleton (1866), 80.
16. Peter Godfrey-Smith, *Spencer and Dewey on Life and Mind* in M. Boden (Ed.), *Complexity and the Function of Mind in Nature* New York: Oxford University Press (1996), 318.
17. John Dewey, *Experience and Nature*, J. Boydston (Ed.), Carbondale: Southern Illinois University Press (1988), 215-16.
18. Peter Godfrey-Smith, *Complexity and the Function of Mind in Nature*, Cambridge: Cambridge University Press (1996), 138.
19. *ibid.*, 138.
20. Richard Rorty, *Philosophy and Social Hope*, New York: Penguin Books (1999), xxiii.

- [21.](#) In drawing upon Peirce's theory of mind/biology, it is important, first, to point out that some of his early (and more famous work) is somewhat problematic. Peirce was mistaken to think that evolution had a foreordained goal, but somewhat ironically living just across the border of the nineteenth/twentieth century divide he gave up his nineteenth century faith in absolute progress, and was among the first to announce the open-ended and endlessly playful and creative dimensions of evolution (in the early 1890s), in all its forms, cosmological, biological, and cultural.
- [22.](#) Charles S. Peirce, *The Essential Peirce: Selected Philosophical Writings, Vol. I, (1867-1893)*, N. Houser and C.Kloesel (Eds.), Bloomington: Indiana University Press (1992), 308.
- [23.](#) Nicholas Rescher, *Complexity: A Philosophical Overview*, New Brunswick, NJ: Transaction Publishers (1998), 3-10.
- [24.](#) Brian C. Goodwin, *How the Leopard Changed Its Spots: The Evolution of Complexity*, New York: Simon and Schuster (1996), 182.
- [25.](#) *ibid.*
- [26.](#) Alfred N. Whitehead, *Process and Reality: An Essay in Cosmology*, translated by David N. Griffin and Donald N. Sherburne, New York: The Free Press (1978), especially 25, 85-8, 184-6, 224, and 259.
- [27.](#) Charles S. Peirce, *The Essential Peirce: Selected Philosophical Writings, Vol. I, (1867-1893)*, N. Houser and C.Kloesel (Eds.), Bloomington: Indiana University Press (1992), 361.
- [28.](#) *ibid.*, 361.
- [29.](#) *ibid.*, 361.
- [30.](#) *ibid.*, 361.
- [31.](#) Charles S. Peirce, *The Essential Peirce: Selected Philosophical Writings, Vol. II (1893-1894)*, N. Housner and C.Kloesel (Eds.), Bloomington: Indiana University Press (1992), 151.

- [32.](#) Charles S. Peirce, *The Essential Peirce: Selected Philosophical Writings, Vol. I, (1867-1893)*, N. Houser and C. Kloesel (Eds.), Bloomington: Indiana University Press (1992), 349-50.
- [33.](#) William James, *William James: Writings 1902-1910*, Library of America (1987), 816.
- [34.](#) While my focus here is not on the semiotics, further work is required to link it to field-being theory in the future. Here it may be pointed out that Peirce developed a Kantian theory of the categories in terms of signs. Peirce's categories of signs factor in here prominently. Peirce was a Kantian philosopher in a certain sense: he too wanted a theory of only a few categories, three actually. These are Firstness, Secondness, and Thirdness. They are phenomenological, and this phenomenology is situated at the interface of the organism and the environment. Firstness is bare spontaneity and bare feeling. Secondness is the brute force of reaction. And Thirdness is continuity. One finds these categories everywhere intermingled. There is a dynamical field of Secondness within the organism. Yet there is also a dynamical field between the organism and the environment. All organisms have this second form of reaction against the environment. Yet the evolutionary continuum which proceeds toward higher order levels of complexity and self-organization, gradually forms the internal world encased in an autopoietic envelope of order — this is the somatic form. Higher order complex organisms are capable of higher order fields of creativity and play. There is a real sense in which the organism removes itself from the environment, that is, detaches — and the generation of creativity and the movement into novelty are relocated from the interface reaction of organism grinding against its external world, and into the internal world. And at the same moment of transference of this field of intensity from internal to external, the organism develops the capacities to proactively reduce the Secondness or friction with the ecosystem, in order to create a safe haven for the imagination to allow the mind to entertain its own field of pure play, novelty, and creativity.
- [35.](#) Brian C. Goodwin, *How the Leopard Changed Its Spots: The Evolution of Complexity*, New York: Simon and Schuster (1996), 175.
- [36.](#) *ibid.*, 177.
- [37.](#) *ibid.*, 193.

- [38.](#) Brian C. Goodwin, [Biology is Just a Dance](#) in J. Brockman (Ed.), *The Third Culture* New York: Simon and Schuster (1996), 104.
- [39.](#) *ibid.*, 104.
- [40.](#) *ibid.*, 104.
- [41.](#) *ibid.*, 104.
- [42.](#) Charles S. Peirce, [The Essential Peirce: Selected Philosophical Writings, Vol. II \(1893-1894\)](#), N. Housner and C.Kloesel (Eds.), Bloomington: Indiana University Press (1992), 131.
- [43.](#) *ibid.*, 436.
- [44.](#) George Santayana, [Dominations and Powers: Reflections on Liberty, Society, and Government](#), New Brunswick: Transaction Publishers (1995), 154.
- [45.](#) *ibid.*, 90-91.
- [46.](#) George Santayana, [The sense of beauty : being the outlines of aesthetic theory](#), W. G. Holzberger and H.J. Saatkamp, Jr (Eds.), Cambridge, MA: MIT Press (1988), 20-21.
- [47.](#) *ibid.*, 20-21.

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