Bateson's Process Ontology for Psychological Practice

Julien Tempone-Wiltshire and Tra-ill Dowie

Julien Tempone-Wiltshire has a doctorate in philosophy from University of Tasmania. Email: <Julien.Tempone-Wiltshire@utas.edu.au>. Tra-ill Dowie is head of the School of Counselling of the Ikon Institute of Australia. Email: <tra-ill.dowie@ikon.edu.au>.

Abstract. The work of Gregory Bateson offers a metaphysical basis for a "process psychology," that is, a view of psychological practice and research guided by an ontology of becoming—identifying change, difference, and relationship as the basic elements of a foundational metaphysics. This article explores the relevance of Bateson's recursive epistemology, his reconception of the Great Chain of Being, a first-principles approach to defining the nature of mind, and understandings of interaction and difference, pattern and symmetry, interpretation and context. Bateson's philosophical contributions will be drawn into relationship with Wittgenstein's philosophy of language as use, Melnyk's theory of causal levels of explanation, Korzybski's account of map and territory, the rejection of the heuristic rigidity of substantialist ontologies, and a cybernetics communication science-informed approach to contextual-bidirectionality of causality. We thereby arrive at an understanding of Bateson's process psychology that, given its ecological-systemic nature, is explanatorily applicable across the mind sciences. This process psychology equips us to answer the question: What is mind? Not by explanatory appeal to substantial entities contained within mind, but instead by recourse to the contextually relevant patterns for understanding mind to a particular purpose. We have thereby attended to the gulf between heuristics and fundamentals, between psychological models and an onto-epistemic account of reality. Insufficient attention has been given to characterizing the vital nature of Bateson's philosophical oeuvre to psychological practice. This article draws out Bateson's relevance to establishing foundational principles for a process psychology capable of reinvigorating psychological thought.

> Daughter: We can play canasta whenever we want to. But at the moment I would rather play this game. Only I don't know what sort of a game this is. Nor what sort of rules it has.
> Father: And yet we have been playing for some time.
> Daughter: Yes. And it's been fun.
> Father: Yes.
>
> —Bateson, *Steps Towards an Ecology of Mind* 19

Gregory Bateson's *Steps Towards an Ecology of Mind* offers an account of the mind's nature as an ecology of patterns, information, and ideas that happen to be embodied things—material forms. Seeking to understand the patterns of relationship is characteristic of process ontology and the nonlinear scientific paradigm currently in emergence. Today this work is more pertinent than ever. Our aim is to contribute to the emerging science of complexity as it relates particularly to psychological practice, and we have demonstrated that we are intellectually poorly equipped to think about interaction, process, and becoming in light of our inherited emphasis upon the familiar category of entities. The workings of the brain remain more readily accessible to our scientific methods than to the workings of the complexly interwoven phenomena of mind. Bateson's thinking characteristically meanders. Rather than addressing himself to a specific subject matter, we ought to understand Bateson's philosophy as characterized by a distinctive manner of thinking. It is in attending to this manner of thought that we begin to comprehend his process ontology. In the present article we demonstrate how an epistemic methodology deriving from, and in turn enforcing, a process-based ontology allows us to shed new light upon issues from environmental ecology to societal decision-making, but principally new light is shed upon the science of mind.

While a "complete" process ontology requires engaging with myriad strands of thought, within the scope of this article we will focus on the facet of process thought from which psychological practice profits most directly. It is worth noting, nonetheless, that engaging in process thinking casts radical new reflections upon the systemic character of many crises that we have experienced in the past century. This includes epidemiological crises and threats to ecological health, which result from radically new forms of global interconnection, threats of global warfare, the systemic climactic impacts of population growth, consumptive ecological degradation, habitat and species loss, and ever more rampant economic

disparity. To fully conceive and address these wider concerns, we suggest, necessitates a radical reconstruction of our patterns of thinking toward an ecological, systemic, and process-based view of causal relationships. Addressing complex large-scale issues requires attending to the interdependence of such problems and the patterns inherent across them. Consequently, there is a need for inter-systemic response and integrative change capable of sustaining ongoing ecological health. These topics will nonetheless be bracketed in what follows, as our attention resides with the bearing of process thought on psychological practice.

A process ontology for psychological practice should be vertiginous, suggesting a challenge to, or transmogrification of, familiar patterns of thought. Such an ontology should be intended, in this way, to playfully evoke new thought and thinking patterns. In what follows we attend to the implications of Bateson's thought regarding a process psychology. This will constitute part of a larger series examining the epistemic and pragmatic bearing of process ontology on psychological practice. There are limitations of sketching a process ontology derived from the thought of multiple philosophers and clinicians. First, there is the evident danger that in attempting to synergize different process thinkers we may arrive at a "brand labeled" school of thought—a process psychology perhaps, but a mere synopsis or caricature of each process thinker in their own right. For this reason, we address these process models separately, allowing these thinkers to retain their individual and unique contributions to the process ontology currently emerging.

Characterizing Bateson's Project

Bateson's notion of an ecology of mind may be understood to constitute the birthing of a new organized body of theory and knowledge concerning how we think about ideas and the aggregates of ideas he terms "mind." Bateson has contributed to fields inclusive of anthropology, biological evolution, psychiatry, and genetics—and to subjects within these fields he has applied his ecological and systemic thinking. The breadth of phenomena Bateson draws into a relational ecology of ideas is apparent across the following subjects:

> The bilateral symmetry of an animal, the patterned arrangement of leaves in a plant, the escalation of an armament race, the process of courtship, the nature of play, the grammar of a sentence, the mysteries of biological evolution and the contemporary crisis in man's relationship to his environment. (*Mind* xxiii)

In addressing the relation between his theory and such diverse phenomena he turns naturally toward an ecology of process: How do these ideas interact? Should such interaction be modeled on natural selection, determining the survival of some ideas at the expense of others? And, if so, what are the necessary conditions for the survival of such systems and subsystems? His project is not overly concerned with resolving such questions but rather with clearing the way such that space is available for this manner of questioning. We examine the bearing of such questioning in the domain of the mind sciences.

Recursive Epistemology and Process Ontology

Harries-Jones coined the term "recursive epistemology" to capture the processes of knowing with which Bateson concerned himself. Bateson's emphasis upon the ecology of mind flowed into epistemic questions regarding perception, communication, and translation. His epistemic approach could be viewed as recursive in that it carefully delineated logical levels that played back on themselves: "[B]etween the knower and the known, knowledge looping back as knowledge of an expanded self" (Bateson, *Mind* xiii). This recursive epistemology is also epistemically ecological in that it seeks to discover the relationship between the patterns of nature in the biological world and our understanding of those patterns.

An ecological, recursive epistemology is a crucial dimension of process ontology in our contemporary climate. Today the consequences of human actions have been radically amplified by technology. We stand on a brink, risking irreversible sociopolitical disaster of a global scale. In addressing such threats, our epistemologies need to be recursively self-reflexive and ecologically broad in perspective. Bateson's concern remains ever more pertinent in light of our culture's present-day quest for what he terms:

> Short-term solutions that worsen the problem over time (often by mirroring it, such as violence used to oppose violence); the focus on individual persons or organisms or even species, in isolation; the tendency to let technological possibility or economic indicators replace reflection; the effort to maximise single variables (like profit) rather than optimising the relationship among a complex set of variables. (*Mind* xiv)

For this reason, we turn to the value of an ecological, recursive epistemology and process ontology due to the necessity of our survival and evolution as a species.

What Is Mind? On Interaction and Difference

Establishing a process psychology begins with a return to first principles, alongside a definition of terms. For Bateson, a "mind" is a mental system with the capacity to process and respond to information in self-corrective ways. Responding to information self-correctively is characteristic of all living systems, from eucaryotic cells, to rainforests, and to nation states, as he notes in "Pathologies of Epistemology" (482). He would later come to expand the definition and to conceive of mind as a composite of multiple material parts, out of which arose various emergent processes and patterns that we understand familiarly as "mind." Mind, on such a definition, cannot be understood without reference to its supervenient base. However, for Bateson, mind could not be presumed to end at the boundary of the skin: indeed, for Bateson, mind could not satisfactorily be conceived as the possession of a singular organism in isolation, but rather must be understood as critically involving the organism-in-environment (see *Mind*).

Having described Bateson's account of mental systems, it is important to note that, for him, in the world of mental processes *difference* is the analogue of *cause*, as evidenced by his famous aphorism: "[I]t is the *difference* that makes a difference" (see *Mind*). This aphorism encapsulates Bateson's central point that how we define things is usually a pragmatic act. Bateson saw differences as the key features that become parts of our map for any particular domain. In the material world, effects are brought about by the push and pull of physical forces, yet in the formal world of patterns, Bateson writes that one: "[L]eave[s] behind that whole world in which effects are brought about by forces and impacts and energy exchange. You enter a world in which "effects" . . . are brought about by differences" (*Steps* 452). In the world of pattern, then, it is the difference that makes a difference. This difference Bateson identifies with "information." What translates from the territory to the map are transformations of difference, and these differences are elementary ideas. Bateson's notion that it is the difference that makes a difference describes, then, the fact that a thing is more accurately understood when defined in terms of its relationships, using contrasts and contexts, instead of isolating it substantially with a name. This is to say that the difference between two things is not "in" either or "in" the space between, rather what is ontologically "real" is the relationships themselves. This view is related to Wittgenstein's account of conceptual confusions in psychology.

Patterns in Process Psychology

We are attempting to describe the psychological and the philosophical temperament highlighting the ways in which knowledge, and the process of coming to know, depend themselves upon profound depths of *unknowing*, awareness of one's own ignorance, but also, critically, meeting the world from a perspective of "awe." Interestingly, Bateson was convinced that responses of awe involved identifying *pattern*, a kind of knowing that he viewed as leading to respect for the systemic integrity of nature, in which all organisms—plant or animal—are conceived as inextricably part of each other's environment. Bateson here (*Mind*) attends to the relation between *pattern* and *process*, suggesting that embedded and interacting systems, such as human organisms, have a capacity to derive pattern from random elements, as evident in the "two great stochastic processes" of evolution and learning. It is useful to reflect upon how pattern-making bears on process psychology and how analogy-making underlies all the "patterns which connect," in Bateson's phrase.

Process ontology suggests that we turn our attention from the interaction between distinct isolates toward the patterns of relationship and interaction within a system. To explore the bearing on psychological practice, it is valuable to consider how human pattern recognition occurs and, in particular, its relation to hemispheric function. McGilchrist offers an account of hemispheric brain behavior, on which pattern recognition can be understood as the activity of the right hemisphere, which, in turn, understands the overall meaning of the totality that the mind encounters. McGilchirst contends that thought originates in the right hemisphere, is processed for expression by the left hemisphere, and meaning integrated again by the right. On this view, it is the right hemisphere that understands the overall meaning of any complex utterance and that can take everything into account. This view emphasizes the different ways the hemispheres pay attention; the left is considered to be "detail" oriented, while the right is more "wholistic" in nature. In considering "pattern" in psychological practice, Schore expands on McGilchrist's work in his text *Right Brain Psychotherapy*. Here Schore examines the function of the emotional right brain, as involved in affect and affect-regulation, both *within* a mind, but also the communication and interactive regulation of affect *between* minds. Schore evidences the way emotional interactions between individuals reflect right-brain to right-brain affective communication and utilizes this fact to make sense of the therapeutic relationship.

We also emphasize the relevance of "pattern thinking" in relation to intuition in hypothesis-making in clinical practice and the transmission that occurs between clinician and patient of what may be termed a "pattern of mind." The experience of "intuitive knowing" occurs while the pattern, that which is being recognized, is not yet clear. The clinician detects or predicts the content of a pattern on the basis of only a few aspects of input. This may be termed "The Gist," a vague perception of coherence embodied in a "gut feeling" had by the clinician (see Volz and von Cramon). Beyond defining intuition as merely immediate knowing without conscious reasoning, this notion of the transmission of a pattern of mind suggests that individuals continuously, without conscious attention, recognize patterns in their stream of sensations. Transmission of "know-how" occurs between clinician and patient through mimicry: through communal acts of thinking the mentor and apprentice share an extended mind, which allows an imprint to form on the apprentice. We elaborate this understanding of the "transmission process" in greater depth in a forthcoming work. The crucial point is that know-how describes a form of *embodied knowledge*—a pattern of mind or an enacted mode of being that is present when an action is performed skilfully and without deliberation. As Sensky suggests, embodied knowledge is not acquired by rote, but rather is learned by the human body's nervous and endocrine systems. Like a dancer, the expert clinician is drawing on tacit knowledge when taking actions or making judgments without explicit reflection on the principles or rules involved.

Data, Context, and Meaning

Utilizing this understanding of human process and pattern-building leads inexorably to an understanding of the importance of "context" in forming meaning. In this way, we move toward an ecological understanding of human mindedness and meaning-making. Our ecological-contextual situatedness is vital to understanding the true ramifications of the data we use and gather for psychological practice. Within science, data is utilized to draw inductive conclusions, yet data is only a record or description of an event or phenomenon. In collating data, an inevitable transformation or recoding of the original source event, the raw phenomena, occurs. This "transcription problem" intervenes between the psychological researcher and the object of study. Part of this transcription problem arises because, inevitably, the data must be "selected" from a

greater data pool—the broadest "context" of the universal domain. As the total universe is not subject to observation from any single position, all data gathered is necessarily edited by the researcher, a collation inescapably colored and biased by the researcher's interests. In this way, meaning is always a derivative of a broader context—consequently, meaning is a pattern derived from within and across contexts.

In psychological practice, then, when seeking to treat or develop a case formulation for a client, it is necessary that we determine what data, within the broader context, is most relevant and reliable. This is critical as the data selected will inevitably be a selection that is heavily informed by the preestablished beliefs, models, and theories of the cultural-scientific milieu in which psychological practice is carried out. These determinative contextual features include: preexisting psychopathological categories like specific personality disorders, mood disorders, and so forth; prevalent explanatory mechanisms, such as recourse to instinctual drives; tacit beliefs about the nature of "mind," "health," "well-being," and "illness"; and essentialist or reductionist understandings of specific psychological entities, such as emotions like "anger" or "fear." These "heuristics" form and emerge out of a loose, mutually reinforcing web of belief—a *coherentist* epistemology, in Quine's phrasing. By pulling on any one heuristic fiber, and examining its efficacy, one finds it intricately entangled with the whole web. As a result, in attending to the broader ecology or context of a psychological theory, we find ourselves navigating a fog within which all our conceptual tools are enshrouded. This returns us inevitably to questions of first principles: questions of the nature of knowledge acquisition and the scientific enterprise more generally. About this more shall be said in what follows.

What Sellars referred to as the "myth of the given" pervades both science and everyday life. This is evident in the tacit belief of many scientific practitioners that they are studying the raw data, which in turn leads to new heuristic concepts or working hypotheses that may then be tested against further data. Science, on such a vision, is a satisfyingly cumulative pursuit, driven by careful, self-critical experimentation. The deeper truth identified by philosophers of science, such as Popper with his notion of falsifiability, Kuhn and his paradigm shift, Lakatos and his research program, and Bateson and his ecology of mind, is that the many heuristics governing psychological practice, or any science, inevitably detach themselves from the raw data. This occurs as what we take for "raw data" are

constructed, theoretically imputed objects whose character is delineated by further heuristic presumptions.

To illustrate, consider entities postulated by different psychological models. Is there really such a thing as a narcissist? An anxiety disorder? Is what you are feeling anger or is that a culturally constructed label imputed onto an unfathomably complex internal state? As an alternative to seeing phenomena as "simples" that are reducible to existing theories, Bateson suggests that we may recognize that the phenomena we identify in our scientific taxonomies are parts of complex interactive systems. Our "critical faculties" may be placated by such forms and models and projective causes as these devices help us to better orient ourselves in an irreducible, complex world. Yet when we seek to identify the "components and causal relations" of these phenomena, we do so at the expense of truth.

To achieve intellectual honesty, the predictive capacity of our heuristics must by no means be understood as a final guide to the truth of our theorizing. This is the case because both prediction and coherence with existing theory provide tests of a hypothesis's soundness. Psychological practice must admit the possibility that reality outstrips our theorization. Wide-scale fabrications may amass from adherence to simple unquestioned heuristics. In Buddhist metaphysical parlance, one might say that the conceptually imputed phenomena are interdependently arisen, that is, they exist in a web of self-reinforcing beliefs, in dependence upon a scaffolding that passes without comment beneath the gaze of our critical attention (see Garfield, *Engaging*). The nature of such fabrications is evidenced clearly when reflecting upon language, as Bateson notes in conversation with his daughter during one of his "metalogues":

> [A]nyway, it is all nonsense. I mean, the notion that language is made of words is nonsense . . . there is no such thing as "mere words" and all the syntax and grammar and all that stuff is nonsense. It's all based on the idea that "mere" words exist—and there are none. (*Mind* 13)

The point Bateson is making here might be understood as a further iteration of Wittgenstein and the paradox implicit in the *Tractatus* or indeed in the Buddhist epistemologist Nagarjuna in describing Emptiness or *Sunyata* (see Garfield, "Dependent"; Garfield and Priest). Bateson is contending that language is irreducible to "simples" but must be understood as a dependent-elaborated system of gestures, akin to the gestural "showing" described by Wittgenstein—or again, like the pointing out instructions in Tibetan Buddhism.

The Implications of Heuristic-Reliance in Modern Psychology

Mistaking the predictive capacity of heuristics for truth, I contend, is responsible for the present state of psychological practice as characterized by a plethora of contradictory models, quasi-theoretical entities only speculatively connected with one other, and a failure to relate everyday causal explanations to an onto-epistemically grounded theory of reality. In light of our sciences' Newtonian inheritance, psychological practice takes the measurement of quantities—distance, time, and physiological mechanism—as the most rigorous basis from which to guide theoretical speculation. Seeking a bridge between behavior and the physical matter on which behavior supervenes is, of course, a worthy endeavor. Yet this has commonly been approached via rendering the "mental" merely epiphenomenal (see Plantinga). As Varela and others suggest in establishing the fields of embodied cognition and neurophenomenology, what is called for is a more poignant engagement with our embedded, embodied, and enacted relationship to the world. Turning to these fundamentals offers a powerful critical lens with which to observe the prevailing psychological heuristics today—as will be evident in our future work on the mind-body relation implied by distinct psychological modalities. We will offer, too, an embodied cognitivist account of the nature of mind and its organization. In relation to the above-mentioned conceptual confusions present in psychological practice, Bateson notes:

> The would-be behavioural scientist who knows nothing of the basic structure of science and nothing of the 3000 years of careful philosophic and humanistic thought about man—who cannot define either entropy or a sacrament—had better hold his peace rather than add to the existing jungle of half-baked hypotheses. (*Mind* xxvii)

The gulf between heuristics and fundamentals, between psychological models and an onto-epistemic account of reality, remains the focus of much of our ongoing research. Elsewhere we will elucidate the relation this gulf has to a number of topics, including the naive empirical attitude, the seduction of easy categorical applications as diagnostic tools, and the ignorance via specialization that reigns as a result of the beaurocratization of university institutions under unfettered free-market capitalism. It results, too, from colonial encroachment of the Newtonian-scientific paradigm across all fields of disciplinary knowledge. This is a subject examined in detail in the work of the Stanford School theorists Cartwright, Dupré, and Hacking (see Scerri).

From Substance to Process Ontology

Bateson identifies a basic error in the bridge contemporary science attempts to build between form and substance. That is, mental processes, ideas, communication, organization, differentiations, and patterns are instances of *form* rather than substance—*qualities* rather than quantities. Yet our Newtonian inheritance has led to the hubristic presumption that science can make sense of form by recourse to a language of substance. What is called for is an ontology of *process* capable of supplanting our prevailing ontology of *substance*. Bateson, drawing upon cybernetic and systems theory, invites our engagement with a language of process and the patterns that connect. A central origin myth of science is that it begins in inductive reasoning drawing from experience. Yet, as Bateson notes, it is difficult to see how the dichotomy drawn between "substance" and "form" could be arrived at by inductive methods alone (*Mind* xxxii). Human beings do not, after all, experience formless unsorted matter. We do not experience "randomness," rather experience arrives to us preordered, as the capacity for "experiencing" itself requires preexisting meaning-making faculties (as Kant realized). In this regard it is useful to reflect upon how contemporary science's origin myth relates to the Great Chain of Being.

In the Middle Ages (and perhaps as far back as Aristotle), the "Great Chain of Being" was invoked to create a hierarchy and causal order to all living phenomena. It situated "Supreme Mind" at the top and protozoa at the bottom. As a consequence, throughout the Middle Ages, mind was conceived as a central explanatory principle for understanding the origins of the universe. It was only much later that Lamarck suggested that "inversion" of the great chain was required. Causal relevance, Lamarck contended, resided with the evolutionary-adaptive sequence flowing from protozoa upward (see Leroi). As a consequence, mind lost its status as the "prime-mover," the critical explanatory principle, and became instead a problem that needed to be addressed. How to explain mind given what we know of the evolutionary sequence? That is, how does mind emerge out of matter? This problem was encapsulated by Chalmers's "hard problem" of consciousness.

Chalmers claims there are really two problems of consciousness: the "easy" problems and the "hard" problem. The easy problems concern, for instance, determining how an apparatus like the sensory system works, how data are processed in the brain, what is the neural basis for thought, emotions, and so on. The hard problem, by contrast, concerns

determining why and how physiological processes are accompanied by experience whatsoever. The question of how to explain the relationship between physical phenomena, such as brain processes, and phenomenal experience is a vexed one. This question has spawned endless philosophical disputation. The hard problem, while specific to philosophy of mind, points to a larger epistemic issue. "Why does consciousness arise in relation to matter?" is the question that points toward an explanatory gap within the materialist paradigm.

The Mysticism of Pattern, Operationalism, and Psychological Categories

We have sought for pattern and regularity in nature since the dawn of our species. Numerous scholars have operated on a mystical belief in the pervasive unity of the world's phenomena. We might ask: Is there something mystical driving the belief that the same sort of process is at work in all fields of natural phenomena, that the same sort of laws ought to be at work when regarding the structure of crystals or the segments of the earthworm? (*Mind* 74). Or is it merely that the type of mental operations applied in one field might serve equally well in another? Regardless of the existence of such mystical unity, its possibility calls into question the scientific tendency toward "operationalism." Operationalism describes the rigid adherence to essentialist systems of thought and categories, accompanied by a tendency to seek ever stricter and narrower means of conceiving phenomena. Through this process, the ability to think critical, innovative, and challenging thoughts is foreclosed. The sterility of formalized thought is an unfortunate by-product of scientific advancement, yet, as Bateson notes, scientific advancement more generally calls for a dynamic tension "between strict and loose thinking" (*Mind* 75).

Bateson's reflections on anthropology demonstrate the dangers of operationalism. As concerns anthropological categories, Bateson notes that it is generally unwise to construct systems of categories until the problems they are designed to elucidate have been clearly formulated. The immediate need then is not to construct an organizational schema but rather to formulate the problems so they may be manageably investigated. The relevance of these remarks to psychological practice is evident. We will offer in the future a critique parallel to Bateson in relation to issues present with the biomedical categorical approach to psychopathology adopted by the Diagnostic Statistic Manual. Psychological practice faces

problems in light of the ill-defined concepts of illness and well-being. As Bateson notes:

> It is as if in the construction of categories for the study of criminology we started with a dichotomy of individuals into criminal and non-criminal—and indeed that curious science was hampered for a long while by the easy willingness to define a "criminal type." (*Mind* 62)

Such thinking is hampered by the fallacious assumption that we can classify the traits of a human being under specific pathological headings or by recourse to psychometric typologies.

It is problematic to assume that human beings may be divided neatly into prescribed types, as it implies that individuals may be reducible to bundles of traits, a notion we critique significantly in relation to complexity science. Why should we presume our models to be exhaustive and totalizing? We are prone to forgetting that these categories are not subdivisions that exist "in nature" but are abstractions made for our convenience and prone therefore to slipping into what Whitehead termed "fallacies of misplaced concreteness" (*SMW* 52).

Substantial versus Process Conceptions of Causation

It is common in psychological parlance to handle terms and concepts as if they describe a category of behavior, or otherwise a sort of factor that shapes behavior. Units or entities we regard as "causative" and such a use of entity words is familiar to us via phrases such as "the cause of the famine were economic" or "his suicide was influenced by his depression" or "the neurosis resulted from a conflict arising between his Superego and Id." Yet to tacitly presume such word entities have causative power is to problematically confer "concreteness" onto abstractions. This cognitive error is rife within psychological practice that, in an attempt to shore up a theoretical view of reality, imputes ever more concepts with causative power, thereby constructing ever more abstractions, which are then treated as if they were concrete entities. We will flesh out this danger elsewhere by considering the role of unchecked essentialism, referentialism, and reductionism in psychological practice. Of course, this misplaced concreteness does not demonstrate that a theory lacks value. Even if misplaced concreteness abounds in disciplines such as psychoanalysis, psychoanalysis nonetheless remains the outstanding contribution to our understanding of the mother-child dyad as well as of the broader family unit. As Bateson

notes, "[C]onsiderable contributions to science can be made with very blunt and crooked concepts" (*Mind* 84).

This tendency to treat abstractions as causally potent occurs due to a predisposition to understand mental or formal events via recourse to physical analogies—just as an atom's number of electrons will impact its capacity to bind to another atom and produce a specific molecule, so we presume the entities identified in psychological practice relate to one another in an analogous, causative fashion. We are here repeating the mistake of transposing onto phenomena of *form*, the mechanisms of action that govern phenomena of *substance*. The science of quantities in this way skews our inquiry into qualities. Of course, analogies between fields of inquiry are valuable and can produce heuristic innovation and insight, yet similes drawn from the interaction of particles may prove to be of precisely the wrong form when considering the workings of minded phenomena. As Wittgenstein asks, "[W]hy should there not be a psychological regularity to which no physiological regularity corresponds?" (*Zettel* 609).

This bias toward seeking to explain *mental* phenomena by recourse to mechanisms of action that govern phenomena of *substance* extends throughout other domains of the sciences. Consider genotypic and phenotypic expression. It is an unfortunate consequence of our scientific advances in recent years that the very capacity we have developed for mapping the human genome means that we all too readily forget that the individual phenotype is formed through the interaction of multiple genetic factors, not by any single factor in isolation. Furthermore, the phenotype expressed results from the complex relationship between these multiple genetic factors and the surrounding environment. To properly understand the genotypic and phenotypic relationship calls for breaking with analogies to sciences of substance.

Causation, Context, and Cybernetics

Of course, the relevance of contextual features to causal relationship varies across disciplines. It might be reasonably argued that explanations in physics truly should make sense of the macroscopic through recourse to the microscopic. Cybernetics, however, should rightly emphasize the opposite. While cybernetics describes the science of communication, we know that without context, there is no communication. Words as symbols derive meanings only in the larger context of their utterance, which means they derive meaning in relationship. Psychological practice maps better to cybernetics than to physics, as such it is more responsive to this

interactionist process view of causality than to a physicalist causal reduction to internal parts.

Nonetheless, there are significant issues we encounter when overemphasizing "context" in seeking causal explanation. For one, to speak of an event occurring "within" a context is tacitly to suggest that the event is a variable dependent upon the context—which remains the independent or determining variable. Yet such a view merely reverses the problems that result when seeking to understand an event *without* recourse to contextual features. Both approaches distract the thinker from perceiving the ecology of ideas, the subsystem of "context" and its bidirectionality (*Mind* 338). Seeing the phenomena as part of the ecological subsystem of context, rather than as *merely* the product of context, is a heuristic error.

An example of this issue from physics is celestial mechanic's "N-body" problem. When attempting to compute the gravitational effects of many bodies upon each other, so that one may know the position in space of an object at a given time, recourse must be made to one of the various imperfect "restricted" models. For instance, a restricted model may assume that the most massive body in a system is unaffected by the pull of smaller bodies. Such restrictions *may* render the mathematics solvable, but there is no analytic solution for an unrestricted N-body problem in which all objects act as independent variables (see Valtonen for a primer on the mathematics involved). This demonstrates nature's bidirectionality, or omnidirectionality, in that you cannot isolate an independent from a dependent variable.

In the social sciences, we encounter an analogous problem when considering the danger when social or critical theory alone informs psychological practice. The imposition of specific contextual frames atop the individual's experience results in just such an artificial "determination by context." Making sense of the "total person" by recourse to specific large-scale contextual features alone invariably does violence to the person, as surely as an explanation via a causal reduction to internal features such as "genetic predisposition" does violence to the totality of the person (see Smith, "Revising Formulation" Parts 1 and 2). This is all to say that seeking for explanation in the ever-larger unit drives the same problems as seeking for explanation on an ever-smaller scale. As Melnyk writes, when offering a "causal" account, it is the causally relevant level of explanation that calls for attention, and discerning this level is not a simple operation. It is for this reason that a crossing of disciplinary boundaries is a necessary precondition for approaching complexity thinking.

Bateson's Difference: Representations of Representations

In making determinations regarding causal relevance, we may turn to the question of the role of "pattern" in defining mind. In posing the question "What is mind?" we are not seeking a basic reduction to the stuff of the mind's constitution, the gray matter; rather we are concerned with the pattern mind enacts. A process ontology for psychological practice calls for inquiry into pattern rather than substance. Cybernetics, systems thinking, and information theory offer a formal basis for attending to the question of pattern and mind. Such an engagement is required when seeking to think clearly about the relationship between organism and environment. This orientation is also critical to the "semantics movement" and the work of Korzybski, who is perhaps most famous for the statement that "the map is not the territory" or rather "the map is not the thing mapped" (247). The maps we offer concerning the nature of mind do not contain the territory of mind but rather capture, as Bateson notes, differences, just as a map of a landscape represents differences—be they variations in gradient, altitude, or topology. We ought to understand difference not as a concrete event or thing but rather as an abstract quality, a relation.

When we are dealing with the world of minds and communicative phenomena, it is difference that becomes causative, difference that produces effects. The causal role of difference calls for a radical rethinking of mental and communicational processes. Yet behavioral-cognitive theorizing around our psychology continues to draw for analogy upon the causative activity of material sciences. We contend that a conceptual frame, different in kind, is called for in approaching causality in the mind sciences. Bateson, in *Steps to an Ecology of Mind*, contended that the word "idea" should be considered synonymous with the word "difference." On this view, any phenomenon, such as my right leg, might then be understood as constituted by an infinity of ideas or differences: differences from my left leg, from my hand, from a billiard ball recently struck at the local pub, from the lottery numbers. From this infinity of differences, we extract bits of "information" relevant to our interest. It is in this sense that Bateson understood the term "information" as a "difference which makes a difference." As Bateson notes, the difference is only able to make a difference because the neural pathways along which it travels are provided with energy (*Mind* 459). It is important to note that to say what travels in an axon is a nerve "impulse" is misleading, as it could more correctly be called "news of a difference" (459).

This notion of difference and information nuances our understanding of Korzybski's statement that the map is not the territory. When drawing a map of a landscape that one has seen, one is encoding information—or relevant differences—by creating a representation of a representation. That is, a representation on paper of a representation in the brain, resulting from light falling on the retina. This process entails a seemingly infinite regress, as the representation on the retina is made sense of via further representations of "differences" of import—visual processing, followed by conceptual processing, in turn dependent upon maps drawn from our past experience, and so forth. In this way human meaning-making constitutes an ongoing series of maps that never touch the territory.

The mind makes maps and representations as the basis of our experience, which we inevitably forget are mere representations. To illustrate, consider the fact that the mental processes by which the mind creates three-dimensional perspectives are naturally contained *within* the mind and yet we remain largely unconscious of these processes. Elsewhere we will construct a modern-day Abhidharma to explore the question of which of these "structuring" conditions of experience are truly outside our control and which one may gain genuine insight. In short, what epistemic breakthroughs might direct experience offer? We are reminded here of Kant's notion that the noumenal realm is inaccessible to thought. The noumenal is, in Kant's phrase, *Ding an Sich—a thing as it is in itself*. The mental world as such is constituted by maps of maps of maps. This is the nature of mind: all phenomena that arise in awareness are mere appearances. Here exists a meaningful connection between Bateson's thought on "difference" and Buddhist metaphysics. Both meet in suggesting a process ontological view of reality. Both, too, describe phenomena as mere appearances—suggesting that all apparent phenomena are not substantially real entities with essences but are rather conceptually imputed and interdependently arisen constructions. As such, the phenomena of conventional reality are held to be "empty" of intrinsic existence (see works by Garfield for an account of Tibetan Buddhist Prasangika metaphysics).

Mind Is What You Seek to Explain

This brings us back to the question "What is mind?" The answer will depend on what we wish to explain (Bateson, *Mind* 464). As noted earlier, Bateson suggests it is unwise to construct systems and categories until the problems they are designed to elucidate have been clearly formulated. The immediate need, then, is not to construct an organizational schema but

rather to formulate the problems so they may be manageably investigated. This follows naturally from our account of "information," as illustrated above: the difference that makes a difference must always be defined in relation to our purposes. This points to the way our description of a phenomenon should be understood in relation to our explanatory project, just as our explanations should be relevant to the phenomena they seek to explain. This bears on the subject of causal relevance and explanation (see Melnyk). To illustrate, if someone wishes to understand why I slapped them in the cheek, they may be irritated to receive an explanation of the physiological mechanisms by which my nervous system carried out this action. They are more likely to be seeking explanation of my intentionality, which occurs on a different phenomenological register.

Bateson's process ontology proffers a definition of mind that is amenable to the variety of explanatory levels and needs to which we subject the concept of mind. Drawing on the causal theory of difference and informational exchange, Bateson offers an account of mind as bound to—indeed as a subsystem within—a greater mind. As he notes:

> The cybernetics epistemology which I have offered you would suggest a new approach. The individual mind is immanent but not only into the body. It is immanent also in pathways and messages outside the body; and there is a larger mind of which the individual mind is only a subsystem. This larger mind is comparable to God, it is perhaps what some people mean by "God," but is still immanent in the total interconnected social system and planetary ecology. (Bateson, *Mind* 467)

The point in a process ontological account of mind is that it expands both inward and outward. That is, while a Freudian psychology expanded the concept of mind "inward" so as to include the whole communication system within the body (the unconscious, bodily processes, the autonomic, and the habitual), a process ontology may additionally expand mind outward—mind may be understood as radically extended, coemergent with its environment, and coconstituted by something much greater. This necessarily calls for a radical restructuring of how we understand ourselves to be and what we think others and the world more generally are. As Bateson writes:

> Let me say that I don't know how to think that way. If I am cutting down a tree, I still think "Gregory Bateson" is cutting down the tree. I am cutting down the tree. "Myself" is to me still an excessively concrete object, different from the rest of what I have been calling "mind." (468)

It may seem, with this declaration, that moving beyond identification with self to identify with the greater mind is called for by a process psychology, and yet the intellectual tools available to us fail to provide means of producing such a reorientation of perspective. Here contemplative traditions may be drawn upon to offer steps to breaking such habituality and realizing, experientially, this alternate way of thinking. For this reason, we elsewhere apply a Buddhist philosophical perspective to our understanding of process ontology. Further inquiry into Bateson's relevance to a process ontology for psychological practice may include an exploration of the importance of diversity in maintaining the flexibility, or resilience, of a system; how basic continuities support adaptation; learning from change and cultural disparity; and situating story as a form of thought and inquiry.

Conclusion

Bateson's philosophical oeuvre offers important insights and contributions for the establishment of a process psychology. Yet insufficient attention has been given to characterizing Bateson's contribution. In drawing together Bateson's recursive epistemology, Wittgenstein's philosophy of language as use, Melnyk's theory of causal levels of explanation, Korzybski's account of map and territory, a rejection of the heuristic rigidity of substantialist ontologies, and a cybernetics communication science informed approach to contextual-bidirectionality of causality, we arrive at an understanding of Bateson's process psychology that, given its ecological-systemic nature, is explanatorily applicable across the mind sciences. This process psychology equips us to answer the question "What is mind?" Not by explanatory appeal to substantial entities contained *within* mind but instead by recourse to the contextually relevant patterns for understanding mind to a particular purpose. We have thereby attended to the gulf between heuristics and fundamentals, between psychological models and an onto-epistemic account of reality. In this way, the preceding inquiry has begun the project of a deeper engagement with Bateson's critical philosophy, process ontology, and psychological thought.

Works Cited

Bateson, Gregory. "The Cybernetics of 'Self': A Theory of Alcoholism." *Psychiatry*, vol. 34, no. 1, 1971, pp. 1–18.

---. *Mind and Nature: A Necessary Unity*. New York, Bantam Books, 1979.

---. "Pathologies of Epistemology." *Transcultural Research in Mental Health*, Honolulu, U of Hawaii P, 2021, pp. 383–390.

---. *Steps to an Ecology of Mind: Collected Essays in Anthropology, Psychiatry, Evolution, and Epistemology*. Chicago, U of Chicago P, 2000.

Bateson, Gregory, D. D. Jackson, J. Haley, and J. Weakland. "Toward a Theory of Schizophrenia." *Behavioral Science*, vol. 1, no. 4, 1956, pp. 251–264.

Bateson, Gregory, A. Manstead, R. W. Rieber, and K. Oatley, editors. *The Individual, Communication, and Society: Essays in Memory of Gregory Bateson*. Cambridge, Cambridge UP, 1989.

Chalmers, David. "Facing Up to the Problem of Consciousness." *Journal of Consciousness Studies*, vol. 2, no. 3, 1995, pp. 200–219.

---. "The Hard Problem of Consciousness." *The Blackwell Companion to Consciousness*, edited by Max Velmans and Susan Schneider, Oxford, Blackwell, 2007, pp. 225–235.

Deguchi, Y., et al. *What Can't Be Said: Paradox and Contradiction in East Asian Thought*. Oxford, Oxford UP, 2021.

Garfield, Jay L. "Dependent Arising and the Emptiness of Emptiness: Why Did Nāgārjuna Start with Causation?" *Philosophy East and West*, vol. 44, no. 2, 1994, pp. 219–250.

---. *Engaging Buddhism: Why It Matters to Philosophy*. Oxford, Oxford UP, 2014.

---. *The Fundamental Wisdom of the Middle Way: Nagarjuna's Mulamadhyamakakarika*. Oxford, Oxford UP, 1995.

Garfield, Jay L., and G. Priest. "Nāgārjuna and the Limits of Thought." *Philosophy East and West*, vol. 53, no. 1, 2003, pp. 1–21.

Greengard, L. "The Numerical Solution of the N-body Problem." *Computers in Physics,* vol. 4, no. 2, 1990, pp. 142–152.

Harries-Jones, P. *A Recursive Vision: Ecological Understanding and Gregory Bateson*. Toronto, U of Toronto P, 1995.

Korzybski, Alfred. *Science and Sanity: An Introduction to Non-Aristotelian Systems and General Semantics*. 4th ed., Lakeville, CN, Institute of General Semantics, 1958.

Kuhn, Thomas. *The Structure of Scientific Revolutions*. 2nd ed., Chicago, U of Chicago P, 1970.

Lakatos, Imre. *The Methodology of Scientific Research Programmes*. Cambridge, Cambridge UP, 1978.

Leroi, A. M. *The Lagoon: How Aristotle Invented Science*. London, Bloomsbury, 2014.

McGilchrist, Ian. *The Master and His Emissary.* New Haven, CT, Yale UP, 2019.

Melnyk, A. *A Physicalist Manifesto: Thoroughly Modern Materialism*. Cambridge, Cambridge UP, 2003.

Plantinga, Alvin. "Evolution, Epiphenomenalism, Reductionism." *Philosophy and Phenomenological Research*, vol. 68, no. 3, 2004, pp. 602–619.

Popper, Karl. "Philosophy of Science." *British Philosophy in the Mid-Century*, edited by C. A. Mace, London, George Allen and Unwin, 1957.

Qiu-Dong, W. "The Global Solution of the N-body Problem." *Celestial Mechanics and Dynamical Astronomy*, vol. 50, no. 1, 1990, pp. 73–88.

Quine, W. V. O., and Joseph Ullian. *The Web of Belief*. New York, Random House, 1978.

Ruesch, J., Gregory Bateson, E. C. Pinsker, and G. Combs. *Communication: The Social Matrix of Psychiatry*. London, Routledge, 2017.

Scerri, E. R. "The Failure of Reduction and How to Resist Disunity of the Sciences in the Context of Chemical Education." *Science and Education*, vol. 9, no. 5, 2000, pp. 405–425.

Schore, A. N. *Right Brain Psychotherapy*. New York, W. W. Norton, 2019.

Sellars, Wilfred. "Empiricism and the Philosophy of Mind." *Minnesota Studies in the Philosophy of Science*, vol. 1, no. 19, 1956, pp. 253–329.

Sensky, T. "Knowledge Management." *Advances in Psychiatric Treatment*, vol. 8, no. 5, 2002, pp. 387–395.

Smith, G. C. "Revisiting Formulation: Part 1. The Tasks of Formulation: Their Rationale and Philosophic Basis." *Australasian Psychiatry*, vol. 22, no. 1, 2014, pp. 23–27.

---. "Revisiting Formulation: Part 2. The Task of Addressing the Concept of the Unique Individual. Remediating Problems with Formulation." *Australasian Psychiatry*, vol. 22, no. 1, 2014, pp. 28–31.

Tempone-Wiltshire, Julien. "Foster Wallace's 'The Empty Plenum' Revisited: Exploring the Intersection of Philosophic and Literary Inquiry." 2020. University of Tasmania, PhD dissertation.

Valtonen, Mauri J. *The Three-Body Problem*. Cambridge, Cambridge U P, 2006.

Varela, F. J., E. Thompson, and E. Rosch. *The Embodied Mind: Cognitive Science and Human Experience*. Cambridge, MIT Press, 2016.

Volz, K. G., and D. Y. von Cramon. "What Neuroscience Can Tell about Intuitive Processes in the Context of Perceptual Discovery." *Journal of Cognitive Neuroscience*, vol. 18, no. 12, 2006, pp. 2077–2087.

Whitehead, Alfred North. *Science and the Modern World*. 1925. New York, Free Press, 1967.

Wittgenstein, Ludwig. *Tractatus logico-philosophicus*. Translated by C. K. Ogden et al., Peterborough, ON, Broadview Press, 2014.

---. *Zettel*. Translated by G. E. M. Anscombe and G. H. von Wright, Berkeley, U of California P, 1967.

Process Studies
52.1 (2023): 95–116