

# Quine and Whitehead: Ontology and Methodology

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## Introduction

The very idea of a basis for comparing the philosophies of W.V. Quine and A.N. Whitehead may be surprising to most philosophers, including Quine himself. Both produced systems of thought that have taken philosophy in two completely different directions. Quine's thought has remained at the forefront of contemporary analytic philosophy for the better part of the 20th century, while Whitehead's influence has been reserved for a relatively small number of devotees who have cut their own path. With regard to the latter, Anthony Quinton has remarked: "Outside the sequestered province of the cult, Whitehead is regarded with a measure of baffled reverence, mingled with suspicion."<sup>1</sup> While Whitehead was clearly made of "the right stuff," says Quinton, his philosophical writings have been utterly incomprehensible to the general philosophical community.

In this paper, I make a case for a number of common themes between Quine and Whitehead in their approach to ontology, especially when Quine's views are compared with the work of Whitehead's middle period on the foundations of physics. Allegiance to one or the other of the warring factions within philosophy, i.e., the analytic vs. the speculative, has prevented notice of these common themes. I hope to show that the boundary that separates the two thinkers is not as precisely drawn as most have supposed.<sup>2</sup> Moreover, as new '-isms' have emerged on the

<sup>1</sup>Anthony Quinton, "The Right Stuff," *The New York Review of Books* 32, no. 19 (1985), 52 (review article of Victor Lowe's *Alfred North Whitehead: The Man and His Work. Volume I: 1861-1910*).

<sup>2</sup>As analytical philosophy has recently become preoccupied with its own history, there has been a certain amount of dispute over what constitutes the origin of the analytic tradition. On the one hand, Michael Dummett (*Origins of Analytical Philosophy* [Cambridge, MA: Harvard University Press, 1994]) has claimed that post-Fregian analytic philosophy is distinguished by the foundational role of the philosophy of language, particularly by the search for a viable theory of meaning. This has the odd consequence of denying Russell membership to the tradition, given his complaint that philosophy so conceived does not attempt to understand the world but only sentences. On the other hand, P.M.S. Hacker (*Wittgenstein's Place in 20th-Century Analytic Philosophy* [Oxford: Blackwell, 1996]) sees a schism over the relationship between philosophy and science. Those who see a sharp distinction between the two regard philosophy as a quest for human understanding via conceptual clarity. Witt-

genstein, Ryle, Austin and Strawson, then, are the quintessential analytical philosophers because they eschew the orientation of the scientific investigator as a guideline for philosophical work, i.e., scientism. By contrast, those who see both philosophy and science as engaged in a collaborative effort for truth about the world have abandoned the true analytic ambition. But now if Russell, Carnap and Quine are so charged, then there is even more reason to see the kinship between Whitehead and Quine.

Before I begin to explore the affinities, as well as some contrasts, between Quine and Whitehead, a word of caution is in order. It is well known that Quine wrote his doctoral dissertation, "The Logic of Sequences: A Generalization of *Principia Mathematica*," under Whitehead's direction.<sup>4</sup> Quine also took two of Whitehead's seminars at Harvard, "Science and the Modern World" and "Cosmologies Ancient and Modern," but he says that he "responded little to these courses" and "took refuge in his relatively mathematical material on 'extensive abstraction.'"<sup>5</sup> Despite Quine's statement that he "retained a vivid sense of being in the presence of the great," he does not acknowledge any philosophical influence from Whitehead. Rather, Carnap and Russell are cited as the inspirations of Quine's early development.

When Quine overlapped with Whitehead at Harvard, Whitehead was deeply involved in working out the details of his metaphysics of process—a philosophic vision that ran against the spirit of the times. Just prior to Whitehead's "metaphysical period," however, he had devoted his attention to a general ontology of physics and a theory of natural knowledge. This is where Whitehead and Quine connect.

## General Common Themes

Although most interpreters of Quine's philosophy focus their attention on disparate doctrines (e.g., inscrutability of reference, indeterminacy of translation) in isolation from the broader framework, Quine is clearly a systematic philosopher. That is, unlike a philosopher such as Wittgenstein whose thought promoted reflection on bite-size analytical problems of an anti-metaphysical nature, Quine's thought forms a systematic whole in which the apparently disparate doctrines have their place. Quine is a linguistic philosopher, but not one who takes a piecemeal

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<sup>3</sup>In this connection, see the Special Focus of *Process Studies* (25), "On the Interface of Analytic and Process Philosophy," ed. by George Shields. Also see George Lucas, *The Rehabilitation of Whitehead* (Albany: State University of New York Press, 1990), Chapter VIII.

<sup>4</sup>Quine's dissertation was subsequently revised and published under the title, *A System of Logic* (Cambridge: Harvard University Press, 1934).

<sup>5</sup>"Autobiography of W.V. Quine" in *The Philosophy of W.V. Quine*, The Library of Living Philosophers, Volume XVIII. ed. by Lewis Hahn and Paul Schilpp (LaSalle: Open Court, 1986), 9-10.

approach to philosophical problems. As Roger Gibson persuasively argues, "Quine's philosophy is a systematic attempt to answer, from a uniquely empirical point of view, what he takes to be the central question of epistemology, namely, 'How do we acquire our theory of the world?'"<sup>6</sup> The answer that follows is a system in which logic, mathematics, linguistics, ontology and natural science form a whole. The key elements to this system are: naturalism, physicalism and empiricism.<sup>7</sup>

Quine is also credited, along with Strawson, with resurrecting metaphysics from the hands of the logical positivists. As Quine came to recognize the failure of such projects as Carnap's attempt to reduce all theoretical language of science to experiential terms, he became increasingly committed to a holism in which the theoretical and experiential terms of a scientific theory hang together when confronting experience. The positivists who sought to separate these two had thrown the baby out with the bathwater because much of a scientific theory is unverifiable in principle. Metaphysics, for Quine, is the general and abstract end of a continuum with the natural sciences. It is not the transcendent or speculative metaphysics of the rationalists, but rather a naturalized metaphysics that originates in the natural sciences and forms an essential part of our theory of the world.

Quine's naturalism contends that our attempt to discover what there is cannot rise above our scientific theories and, in particular, our theories of physics (TT 67-8; LPV 44). This view commits him to the revisionary over the descriptive approach to metaphysics. Strawson's espousal of the descriptive approach has privileged the role of ordinary language in our attempt to make meaningful sense of the world (IDM 9-12). Grammar is the guide to ontology. For Quine, however, the descriptive metaphysician does not begin to do justice to the role of science in shaping our worldview. In fact, it appears to sidestep science completely in the attempt to discover another way to truth by restricting philosophy to mere conceptual analysis. This is not to say that the turn to language was wrong, but that the linguistically-oriented philosopher must conduct his or her inquiry within the framework of the scientific enterprise. Philosophy, in this manner, works with the cutting-edge discoveries of science in the pursuit of truth: If physics posits an ontology that is contrary to common sense (and ordinary language), so much the worse for common sense. The revision of the categories is always a genuine option for philosophy and science. In this way, particles such as quarks and leptons or the

<sup>6</sup> Roger Gibson, in *The Philosophy of W.V. Quine: An Expository Essay* (Tampa, FL: University of South Florida Press, 1988), quotes Stuart Hampshire's comment that Quine is "the most distinguished living systematic philosopher" and notes how surprising this remark is for most analytic philosophers (xvii).

<sup>7</sup> Roger Gibson, "The Key to Interpreting Quine," *The Southern Journal of Philosophy* 30, no. 4 (1992): 17-30. Also see, "Introduction" and Quine's "Three Indeterminacies" in *Perspectives on Quine*, ed. Robert Barrett and Roger Gibson (Cambridge, MA: Basil Blackwell, 1990), xiii-xxiii and 1-16.

space-time regions of field theory may turn out to be ontologically basic rather than the macro bodies of perception.

The last general theme concerns the relation between logic and metaphysics. The logical positivists regarded logic as a neutral instrument that could be used with great effect because it did not commit one to any ontology at all. Quine, however, has always been interested in the metaphysical implications of logic. Specifically, he has focused on the problem of how our statements commit us to what there is (LPV 1-19; OR 95-96). Quine argues that we commit ourselves to the existence of entities by the use of the bound variable in quantification logic. To be is to be the value of the bound variable (LPV 12). This criterion does not tell us what there is, but rather what we are committed to saying there is. As mentioned above, the attempt to determine our ontology is another matter of fixing our overall conceptual scheme that best accommodates science.

In his foreword to Quine's *A System of Logistic*, Whitehead seems to have anticipated the general point of Quine's theory when he wrote that: "logic prescribes the shape of metaphysical thought."<sup>8</sup> For example, in *Principia Mathematica*, Whitehead and Russell put  $\Phi$  and  $\Psi$  in quantifiers—e.g.,  $(\exists\Phi)(x)\Phi x$ —such that attributes become variables in their own right. As Quine says, "The effect of letting ' $\Phi$ ', ' $\Psi$ ', etc. occur in quantifiers, now, is that these letters cease to be fragments merely of dummy matrices ' $\Phi x$ ', ' $\Psi y$ ', etc., and come to share the genuinely referential power of ' $x$ ', ' $y$ ', etc."<sup>9</sup> Throughout Whitehead's philosophy, he proposes an ontology that is dualistic in the sense of recognizing both individuals and properties. In Quine's logic, however, individuals and classes are properly quantified over—e.g.,  $(\exists x)(\Phi x)$ —but not attributes (LPV 102-3; OR 91-2). This has an important consequence for "the shape" of Quine's ontology in that he does not recognize properties or attributes in addition to objects or individuals. As he puts the point: "Properties were vaguely assumed in *Principia* as further denizens of the universe, but they serve no good purpose that is not better served by classes, and moreover they lack a clear criterion of identity."<sup>10</sup>

With regard to these general themes—the importance of systematic philosophy, naturalism, revisionary metaphysics and the metaphysical implications of logical theory—there is little with which Whitehead would disagree. As a systematic philosopher, Whitehead's early concern was to demonstrate the unity of the natural sciences by producing a general science of nature. He called this endeavor "pan-physics" because the central motivation behind his project was the crisis in physics at the turn of the century—the second "awakening from dogmatic slumber" (R 4). The revolutionary theories of gravitation and electricity have "made urgent the

<sup>8</sup> *A System of Logistic*, x.

<sup>9</sup> See Quine's "Whitehead and the Rise of Modern Logic" in *The Philosophy of Alfred North Whitehead*, *The Library of Living Philosophers*, Volume III, ed. Paul A. Schilpp (New York: Tudor Publishing Company, 1941), 145.

<sup>10</sup> Quine, *The Time of My Life: An Autobiography* (Cambridge, MA: The MIT Press), 85.

question, What are the ultimate data of science?" (PNK v). Once the foundations of physics are recast in an ontology that accommodates the advances, the other natural sciences, such as astronomy, geology, and biology, should follow suit. Whitehead's system, then, involved the latest mathematical, scientific and philosophical thought converging to produce a novel metaphysics and epistemology.

It should be obvious that this system is naturalistic in one important sense of Quine's meaning. Naturalism, Quine says, "sees natural science as an inquiry into reality, fallible and corrigible but not answerable to any supra-scientific tribunal, and not in need of any justification beyond observation and the hypothetico-deductive method" (TT 722). At this point in Whitehead's philosophical development, he claimed not to be engaged in "metaphysics" because his inquiry excluded consideration of the nature of the observing mind (CN 2-4). His pan-physics, however, is metaphysical in the sense of being at the general end of a theory that originates in natural science. This contrasts sharply with the traditional conception of metaphysics as a pure, *a priori* discipline with some special grasp of truth apart from scientific investigation. As Quine puts the point, naturalism abandons the goal of a "first philosophy."

In holding that it is cutting-edge science, not armchair speculation or an *a priori* investigation of the categories, that determines our general ontology, Whitehead and Quine are in general agreement about the legitimacy of revisionary conceptual schemes. This of course does not imply that anything goes, but rather that a system of thought that revises our ordinary thought has to be firmly grounded in the advancing natural sciences. The gods of Homer or astrology will not compete as "best theories" in this sense.

Whitehead long held that ordinary language of the standard subject-predicate form distorts our conception of reality. The descriptive projects of Strawson and his intellectual predecessors, such as Aristotle, have taken as basic a historical accident of the structure of Greek and other Indo-European languages, such as English. The result is a conception of substance as the ultimate substratum. But this has been a disaster as an epistemological foundation for the empirical sciences (CN 16-20). As Berkeley discovered, the concept of matter has thereby become disconnected from the complex of immediate fact and survives as a mere abstraction of thought.

When Whitehead repudiated substance philosophy and posited an ontology of events in its place, many such as Strawson would claim that he ceased to make sense (IDM 46-7, 59-86). If Whitehead is right, however, Einstein, Bohr and Heisenberg, not ordinary language philosophers, are at the forefront of making sense.

The advances in logico-mathematical schemes at the outset of the 20th century provided the impetus for Whitehead's first major contributions, *Universal Algebra* and (with Russell) *Principia Mathematica*. On the one hand, these advances led to the reformulation of the definition of mathematics, from "the science of discrete and continuous magnitude" to the more general concept of "the

science concerned with the logical deduction of consequences from the general premises of all reasoning."<sup>11</sup> On the other hand, specific technical devices developed in Whitehead's early works provided the tools for the organization of thought in other endeavors such as cosmology and metaphysics. One such device with enormous metaphysical implications for Whitehead was the logic of relations, initially pioneered by Peirce and DeMorgan.

Paraphrasing Russell, the logic of relations gave thought wings whereas the categorical logic of Aristotle caused it to flutter.<sup>12</sup> Instead of thinking of relations as attributes of substances—as reducible to the subject-predicate pattern—the polyadic relations of modern symbolic logic allow us to treat each term in the relation as an individual in its own right. So "x is larger than y," symbolized  $xLy$ , preserves the two individuals in the relation rather than absorbing y into the predicate. The immediate consequence was crucial for the foundation of mathematics in *Principia Mathematica* because it allowed all sorts of distinctions of order and sense for quantitative differences, for example, transitive and asymmetrical relations.<sup>13</sup>

For Whitehead, the logic of relations provided a basis for metaphysical pluralism against the anti-relational arguments of monists such as Bradley. This new logic was put to work in his Royal Society paper of 1906, "On Mathematical Concepts of the Material World," and was applied further to the structure of events in *The Principles of Natural Knowledge*. The primary relation of "extending over" is his fundamental idea from which all else, such as points, lines and planes, are derived (PNK 101). Later, in *Process and Reality*, the asymmetric relation of the temporal process becomes fundamental and his theory of extension is modified so that extension is derived from process.

#### *The Ontology of Events*

Moving now from the general to the specific, the main point of contact between Quine and Whitehead is their view of the physical world: an ontology of events consistent with the four-dimensional structure of space-time.

In *Word and Object*, Quine advances his project of regimentation of ordinary language in order to create an extensional language for science.<sup>14</sup> In accordance with the Einstein-Minkowski concept of space-time, for example, he translates tensed sentences into a canonical notation that interprets a specific time as a "slice of the four-dimensional material world, exhaustive spatially and perpendicular to

<sup>11</sup> A.N. Whitehead, "Mathematics," in *Encyclopedia Britannica*, 11th edition; reprinted in *Science and Philosophy* (New York: Philosophical Library, 1974), 282, 291.

<sup>12</sup> Bertrand Russell, *Our Knowledge of the External World* (New York: Mentor, 1956), 53.

<sup>13</sup> See Bertrand Russell, "Principia Mathematica: Mathematical Aspects" in *My Philosophical Development* (London: George Allen and Unwin, 1959), 86-101.

<sup>14</sup> That is, given the anomalies of ordinary language (vagueness, ambiguity, and various failures of reference), Quine seeks a regimentation of scientific and ontological language by the purely extensional device of mathematical logic.

the time axis" (WO 172). Physical objects in this world, he says, "are not to be distinguished from events or, in the concrete sense of the term, processes" (cf. WO 171, ER 167). "A body is thus visualized eternally as a four-dimensional whole, extending up and down, north and south, east and west, hence and ago. A shrinking body is seen as tapered toward the hence; a growing body is tapered toward the ago" (PL 30). These are the "worms" of space-time, or the "world-lines" of Minkowski's theory.

Quine's generalized notion of a physical object or event is intentionally broad so as to accommodate whatever objects are posited by science, such as particles, waves, electromagnetic fields and organisms. It also allows us to think of mass substances, such as all the world's sugar, sand, dirt or water, as discontinuous physical objects (TT 10). All of the above constitute the values of the variables of quantification.

Because ordinary bodies fail to provide clear criteria for identity and individuation, Quine says that his liberal notion of a physical object, as any portion of space-time, spares us this pointless task (WPO 497). Furthermore, as physics continues to probe the subatomic realm, the same problem increasingly applies to particles. It was only by rough analogy that the comparison between bodies and particles was useful anyway. With the convertibility of matter and energy, "field theory is the order of the day" (WPO 499). It is in relation to field theory that the notion of an event is especially promising as an ontological foundation for physics; the various states are ascribed to regions of the electromagnetic field and bodies seem to fade altogether from the picture. Once again, whether we call this an ontology of "physical objects," "events," or "portions of space-time," it is all the same for Quine.

As discussed above, when Whitehead asked the question about the ultimate data of science, which had been made urgent by advancing physics, he was in search of a unifying concept. Substances and physical bodies in the Aristotelian sense no longer answered the question. With the fusions of time and space, and matter and energy, in Einstein's theory of relativity, a new ontology was required. Whitehead saw this requirement as an opportunity to set physics back on solid empirical foundations by proposing that the basic particulars are events. As he says: "What we discern is the specific character of a place through a period of time. This is what I mean by an 'event'" (CN 52).

Physical objects in Whitehead's theory are conceived in roughly the same way as they are in Quine's view. All aspects of endurance and stability in nature must be explained in terms of events of varying durations. His example is Cleopatra's Needle on the Embankment in London. The enormous and seemingly permanent structure may not appear to be an event by comparison with the short duration of the traffic accident below. Whitehead argues, however, that the abiding structure is simply a relatively stable situation in the stream of events constituting this permanence of character, and the difference between it and the traffic accident

is merely one of time-span (CN 165-7). Cleopatra's Needle just happens to be a rather monotonous, long-lasting event.

Within the duration of one's specious present, we discern subordinate events by whole-part relations, from which we can eventually construct the elements of geometry via the method of extensive abstraction. Working outward from the specious present, the larger space-time structure is known only as *relata* in relation to the entities in the discerned field. This is what Whitehead calls the "discernible." For example, the orbits of planets in distant galaxies are not at present discerned but are, in principle, discernible. The discerned is always part of the broader field of the discernible. This notion, that events are interrelated to form the space-time structure of nature, is the basis for Whitehead's doctrine of significance. Space-time is, in fact, an abstraction from the concrete order of events.

Given the interrelatedness of events, how are events identified and individuated? Sense-awareness does not apprehend definite spatio-temporal limits in events. Whether events are longer or shorter, extended over or extending over, depends on our descriptions of them. The properties ingredient in events, however, provide certain natural boundaries for our attempts at demarcation (CN 144).

Quine's very definition of a physical object or event, as "the material content of any portion of space-time, however irregular and discontinuous and heterogeneous," recognizes the fact that there are no precise lines to draw (TT 10; WO 171). Space-time is 'gerrymandered' to suit our purposes. Language creates a "vaguely varied and very untidy ontology" that Quine's regimentation seeks to tame (TT 9). "There is room for choice," he says, "and one chooses with a view to simplicity in one's overall system of the world" (TT 10). His generalized ontology allows us such theoretical latitude in that it does not tie our hands to any specific way that events or physical objects must be conceived. It is, after all, the business of science, not ontology, to tell us specifically what there is.

As to whether there are functionally relevant groupings in nature in the Whiteheadian sense, Quine's theory is less clear. Quine's discussion of natural kinds seems to point in this direction, given his view that there are both intuitive and taxonomic kinds that are useful for language learning and more general theoretical pursuits, but he refuses to admit properties to his ontology in favor of classes (OR 114-38).

Physical objects or events are identical, Quine argues, if and only if they are spatio-temporally coextensive. In other words, two events *e* and *e'* are identical when they occupy the same place at the same time. But how do we individuate the identical regions of space-time in the general sense? Quine says that formal logic does the job with the notion of an *extension family*—"a family of vaguely delimited classes, each class being comprised of nested [events]" (ER 168). Each event consists in the activities of some region so that a spatially small event is contained in a Chinese box of larger ones extending outward to the vast event of the whole universe. This certainly sounds like the Whitehead of *Principles of Natural Knowledge*, but, again, how does Quine make sense of the boundaries of

the space-time regions without recognizing the existence of properties?

Whitehead's ontology is dualistic, containing events and properties (which he called "objects"). Quine's ontology is also dualistic, containing events (which he calls "physical objects") and classes. Do the two fundamental and irreducible types do the same work in the end?<sup>15</sup> Whereas Whitehead's "events" are non-repeatable particulars, his "objects" are the "recognizable permanencies in nature of various grades of subtlety" (PNK 82). His objects, on the other hand, are the recognizable and repeatable entities in nature. Examples include: sense objects, such as colors and sounds; perceptual objects, such as ordinary macroscopic bodies; and scientific objects, such as electrons and molecules. Without them, science would be impossible; laws of nature are discoveries of patterns of objects in the passage of events (PNK 87).

In Quine's well-swept ontology, classes were only begrudgingly admitted for services rendered. As he puts the point:

Physical objects in this generous sense constitute a fairly lavish universe, but more is wanted—notably numbers. Measurement is useful in cookery and commerce, and in the fullness of time it rises to a nobler purpose: the formulation of quantitative laws. These are the mainstay of scientific theory, and they call upon the full resources of the real numbers. (TT 13-14)

Since numbers are ultimately reducible to classes, the latter are the abstract entities that Quine finally recognizes. Like Whitehead, he sees that science would be impossible without them (WPO 500-01).

#### *Some Important Differences*

Although classes and properties may do some of the same ontological work for science, they are not the same entities. For Quine, however, the legitimate needs that apparently called for properties can be dealt with by classes. In his view, the scientific demand for exactitude requires that we reject properties as *bona fide* members of our ontology. His stringent requirement for admission is summarized by his criterion, "No entity without identity" (TT 102). For any entity considered as a real object, there should exist some general criterion of identity for all things of the general kind to which the entity belongs. Classes are identical when their members are identical. But there is, Quine argues, no such clear principle for properties. As he says, if he must come to terms with Platonism, the least he can do is keep it extensional (TT 100).

Whereas Quine identifies physical objects with events in the broadest sense, for Whitehead they are not identical: physical objects are conceived as relatively stable patterns *in* events. Events are primary; objects are secondary. Whitehead's

reason for this distinction is based on his claim that events are the entities we directly perceive. Nothing is known in an instant. The primary objects of knowledge are events known only within the specious present of an observer.

This difference in the way Whitehead and Quine understand events is rooted in their different approaches to empiricism. For Whitehead's theory of natural knowledge, all that there is for knowledge is contained within nature itself. On one front, he argues against the pure phenomenalism of Berkeley by attempting to secure the independence of nature from the knowing mind. On the other front, he argues against the "bifurcation of nature" into two systems: a world of phenomenal appearances in the mind and a world of objects that are the inferred causes of the appearances. Descartes, Locke and Kant were, in different ways, guilty of bifurcation. As an alternative to classical British empiricism, he affirms the "radical empiricism" proposed by William James. Whitehead's notion of an event closely parallels the duration of the specious present. Perception, he says, is an awareness of events or happenings (PNK 68). "Experience" means more than just sense experience; it is phenomenologically dense and includes the perception of time as an essential component. In this way, he contends, the immediate perception of events is our most important source of evidence for the pure ontology of events.

The place of the concept of the "specious present" in Whitehead's theory makes his version of empiricism significantly different from Quine's. They both hold that whatever evidence there is for science is sensory evidence, but "sensory evidence" for Quine is construed within the context of behavioristic psychology.

Defending science from within, for Quine, means that we start with empirical psychology in order to demonstrate how we account for the link between observation and theory—"between the meager input and the torrential output" (OR 83). Quine thus takes one step further back than Whitehead in his analysis of sensory evidence, because he starts not with perception but with *reception* construed as nerve endings receiving stimulation.

#### *Conclusion*

There is a tendency among analytic philosophers to consider Whitehead (if indeed they consider him at all) as having made major contributions to logic and philosophy up through *The Principles of Natural Knowledge* and *The Concept of Nature*. In this paper, I have limited my focus to these works simply for the sake of making the comparison with Quine's ontology, with no negative assessment of Whitehead's later work implied. In the later work, in which process became the fundamental idea, Whitehead developed a comprehensive metaphysics characterized by event-atomism, panpsychism, and a non-traditional theism. Quine's views, on the other hand, have been refined by a shift in emphases over the years, but the big picture, with its physicalism, naturalism, and quasi-Platonism, remains the same.

After the dust settles from the twentieth century, it is up to the historians of philosophy to determine whether Quine's philosophy shares enough with White-

<sup>15</sup> This question leaves aside for the moment Quine's fantasy of hyper-Pythagoreanism in which physical objects give way to classes constructed on the empty class (Cf: TT 17-18; WPO 502-503).

head's to justify their membership in a common movement or trend. I have made my case mainly on the basis that both Quine and Whitehead are in serious pursuit of the way things are in contrast to the more limited view of philosophy as a kind of conceptual self-understanding.<sup>16</sup>

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## Response to Leemon McHenry

W.V. Quine

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McHenry ascribes to Whitehead a dualistic ontology of individuals and properties, and to me a monistic ontology of individuals, including classes. I protest that my ontology is as dualistic as Whitehead's and indeed the same as his except that classes have a clean-cut principle of individuation, namely coextensiveness, whereas properties have none. The nearest I can come to a principle of individuation for properties is that they are identical when they are necessarily coextensive. This I reject because of not understanding 'necessarily'. Hence my renunciation of properties in favor of classes; for there is no entity without identity.

I cannot recall seeing anything explained in terms of properties that could not be explained equally to my satisfaction in terms of classes. No wonder, since the only difference between classes and properties is the enigma of diversity of coextensive properties. Let us not confuse the mere use of an adjective phrase with the appeal to a property. Appeal to a property, or to any thing, involves reckoning it as the object of an essential pronoun, hence as the value of a variable. Perhaps this point bears on McHenry's puzzling puzzlement over how we can "make sense of the boundaries of the space-time regions without recognizing the existence of properties." Perhaps he is making sense of such boundaries by means of phrases, intelligible as such, which he takes to be names of properties.

It is over properties that my clear disagreement with Whitehead lies, and the only one I think of. It dates back sixty-eight years to my senior year as a mathematics student at Oberlin College, when I immersed myself in Whitehead and Russell's *Principia Mathematica*. The authors were chary of classes, but receptive to what they called propositional functions, which were properties and relations "in intension."

Whitehead and Russell were heedless of the individuation of propositional functions, but punctilious about justifying the extensionality of classes by contextual definition of classes in terms of propositional functions. Once these beclouded preliminaries were out of the way in favor of classes, the ensuing chapters of the three monumental volumes commanded my unbounded admiration.

I recall Sir Karl Popper's figure of a bottomless bog into which we have vertically sunk many long piles to support the structure which is our theory of

the world. The swampy ground is our sensory input, instinct, and untutored common sense, and it affords a firm foundation thanks only to the depth and multitude of the piles. Could this have been Whitehead and Russell's intuition in starting with the unindividuated properties that reflect the vagaries of our undisciplined adjective phrases?

If this accounts for their procedure, it still does not justify it. For they had to quantify over properties, that is, propositional functions, in their contextual definition of classes. In so doing, they reified properties, incurring the responsibility, never discharged, of individuating them. They might better have assumed the classes outright. What was missing was a clear standard of ontic commitment. Hence my stress on essential pronouns and values of variables. But the properties stayed on in Whitehead's later philosophy as ill-individuated structural elements of science.

I agree with Whitehead in drawing no basic distinction between events and bodies. He draws the commonsense distinction, a matter of degree, with which I have no quarrel. I think that all of us who envision nature in terms of modern logic must share this attitude, for logic makes no distinctive structural provision for time and the tenses of verbs. We are already shunted into four-dimensional thinking quite independently of relativity physics.

McHenry asks how we individuate spatiotemporal objects. Perhaps he misses the answer because it is too close to his eyes: the objects are identical if they coincide; if they are coextensive. In individuation, for me, there is no requirement of observability. It is only a matter of an identity standard couched in terms as clear as the rest of one's science.

Nor is failure of individuation to be confused with mere vagueness. The so-called surface of what I call my desk is vague at the molecular level, and all of the myriad almost identical masses that are enveloped by that cushion of vagueness qualify equally as my desk. But I intend 'my desk' to designate one and only one of those masses. The vagueness is in my words and not in their ineluctable physical designatum. Meanwhile the individuation is quite in order: spatiotemporal coincidence.

## Process Thought and the Liberalism-Communitarianism Debate: A Comparison with Rawls

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### *Introduction*

The present article is prompted by the recent publication of two books. The first is Randall Morris' *Process Philosophy and Political Ideology*, which argues, convincingly I think, that both Whitehead and Hartshorne are political liberals and that just as their metaphysics informs their political beliefs, so also their political liberalism affects their metaphysics, as when each of them argues against both political tyranny and the tyrant view of God. Less convincing, however, is another major part of Morris' book: the attempt to criticize political liberalism itself from the perspectives of liberation theology and Hegelianism-Marxism. But my concern with Morris is with his positive contribution to process thought, including his careful distinctions between Hartshorne's more classical, libertarian version of liberalism and Whitehead's more modern, communitarian version of liberalism. The second book is John Rawls' recent work, *Political Liberalism*, the long-awaited sequel to *A Theory of Justice*. It is safe to suggest that by virtue of these two publications Rawls is the most important contemporary defender of political liberalism.

The question logically arises: if Whitehead and Hartshorne are political liberals, how does their thought square with that of the greatest contemporary defender of political liberalism, Rawls? Morris has carefully explained the origins and nature of Whitehead's political liberalism through a consideration of L. T. Hobhouse, T. H. Green, and others, as well as the origins and nature of Hartshorne's political liberalism through a consideration of the American pragmatists, Henry Simons, and others. But if process thought is still a live option in philosophy it should have something significant to say about, and perhaps something to learn from, contemporary liberalism, especially Rawls' version of liberalism. Or better, if we for the most part assume on Morris' evidence that Whitehead and Hartshorne are political liberals (although I will also cite a few key texts from Whitehead and Hartshorne to indicate the strength of Morris' view of them as