Descriptive and Revisionary Theories of Events

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To set limits to speculation is treason to the future.
A. N. Whitehead, The Function of Reason

Introduction

Early in this century, three Cambridge philosophers, A. N. Whitehead, Bertrand Russell and C. D. Broad, became champions of event ontologies that were thought to be compatible with emerging relativity theory.1 Events, therefore, replaced Aristotelian substances as the primary constituents of the universe—they are conceived as units of space-time spreading throughout and overlapping within the electromagnetic field. As modern physics advanced, event ontologies seemed to gain further support from the un-thinglike behavior of elementary particles described in the peculiarities of the quantum world. From the expansion of the universe to the trajectories of subatomic particles, it appears that everything can be systematically interpreted in terms of events.

This view involves a radical revision of our common sense conceptual framework, i.e., our ordinary view of the world as composed of enduring material objects existing in space and time, but Whitehead, Russell and Broad were concerned with a new conceptual scheme that is more adequate as a foundation for science. For these philosophers, metaphysics is continuous with science, not prior to, or separate from, science. It is a superscience, but one that must develop from bottom up, so to speak.

With the widespread influence of logical positivism in the 1930s, however, philosophy and physics eschewed fundamental ontology. While the philosophers labored to provide a secure logical foundation for the sciences and demonstrate the meaninglessness of all metaphysics, physicists adhered to the instrumentalist interpretation of the mathematical formalism. Cool analysis was in; grand speculation was out.

The project of logical positivism eventually wore down, since the positivists themselves failed to formulate precisely the cornerstone of their theory—the principle of verifiability—and it was much to their credit that they acknowledged the difficulty and abandoned the movement. From outside the Vienna circle, there

1 See for example, A. N. Whitehead, The Principles of Natural Knowledge, 1919, The Concept of Nature, 1920; Bertrand Russell, The Analysis of Matter, 1927; C. D. Broad, Scientific Thought, 1923.
were devastating criticisms of the positivist's attempt to eliminate metaphysics once and for all. In the wake of Quine's "Two Dogmas of Empiricism," and Strawson's *Individuals*, metaphysics was back, albeit in revised form. Strawson, for example, almost single-handedly resurrected metaphysics by providing a linguistic framework in which analytical philosophers could take the subject seriously. In fact, philosophy in the English-speaking world for the past forty years has been dominated by what Strawson called "descriptive metaphysics" Others have dubbed the linguistic approach "analytic ontology" in contrast to broad gestures of "speculative cosmology."2

**The Conceptual Scheme of Descriptive Metaphysics**

Descriptive metaphysics is not an attempt to determine the nature of reality but rather seeks to describe the basic concepts by which we normally think about the world. In a recent work, Strawson describes the aim of analytical philosophy as "conceptual analysis" and says that "the philosopher labors to produce a systematic account of the general conceptual structure of which our daily practice shows us to have a tacit and unconscious mastery."3 In this approach, an analysis of ordinary language takes priority in the attempt to construct a metaphysical theory. Strawson himself finds strong historical links with the logic of Aristotle and the epistemology of Kant. Revisionary metaphysics, he claims, is concerned to produce a better structure of our thought about the world. Strawson names Descartes, Leibniz and Berkeley as key examples of thinkers who have produced permanently interesting structures of revisionary metaphysics in the history of thought. And from what follows in *Individuals*, there is little doubt that he would categorize the event ontologies of Whitehead, Russell and Broad as clear cases of exotic or extravagant metaphysics in the revisionary style. Perhaps the best statement of descriptive or analytic metaphysics was made by Donald Davidson when he said:

I am interested in how English and languages like it (i.e., all languages) work, but . . . I am not concerned to improve on it or change it. . . . I see the language of science not as a substitute for our present language, but as a suburb of it. Science can add mightily to our linguistic and conceptual resources, but it can't subtract much. I don't believe in alternative conceptual schemes, and so I attach a good deal of importance to whatever we can learn about how we put the world together from how we talk about it (AEP 172).

For a descriptive metaphysician such as Strawson or Davidson, the main point of metaphysics is to talk sense about worldly things both specifically and

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2 D. C. Williams, *Principles of Empirical Realism* (Springfield, Ill: Thomas, 1966), 74. Also see Keith Campbell, *Metaphysics: An Introduction* (Encino, Calif: Dickenson Publishing Company, 1976), especially Chapter 8.

3 P. F. Strawson, *Analysis and Metaphysics: An Introduction to Philosophy* (Oxford: Oxford University Press, 1992), 7.
individually. This involves the attempt to establish which class of entities is basic or fundamental and which of the other classes are derived from the basic class.

Following Aristotle, Strawson's investigation of "our conceptual scheme" includes: (1) an analysis of the subject-predicate distinction, and (2) the role of particulars as objects of reference. Material bodies and persons are the basic particulars because they are paradigm logical subjects and only they satisfy the essential conditions of reference, namely, identification and reidentification. Identifiability establishes ontological commitment and identifiability-dependence establishes priority of ontological commitment. Hence, for Strawson, material bodies and persons are ontologically prior to other entities, e.g., the private particulars of sense data or the unobservable entities of theoretical physics.

Given this scheme of thought, events turn out to be ontologically dependent since they are normally identified by identification of material bodies. Births and deaths happen to particular creatures. Bangs, flashes, and battles are all products of material bodies in motion. The identification of events without reference to objects is problematic because, Strawson argues, events do not provide "a single, comprehensive and continuously usable framework" of reference of the kind provided by physical objects (IDM 53). In other words, we would not be able to have ideas of births, deaths, battles and explosions without our ideas of persons, places and things interacting in various ways.

So, in accordance with the traditional doctrine of Aristotle and the medieval schoolmen, Strawson espouses a version of the old principle operari sequitur esse. Events and processes are subordinate to substantial things; they are all activities of bodies. He also implies that a pure ontology of events would suffer from a serious practical problem of making sense of our talk about the world because we would not be able to make identifying references to anything. Re-identification becomes even more problematic in the case of events because we would not be able to reidentify such particulars as the same again without reidentification of material bodies.

Within the context of descriptive metaphysics, much of the current discussion of events concerns their possible admission to a substance-based ontology. Whether or not events gain the privileged status of "particulars" along with primary substances depends essentially on an analysis of the logic of their

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4 Of the several characterizations of substance Aristotle offered, two have exercised the most influence in contemporary descriptive schemes: (1) that which is capable of independent existence, and (2) that which is not asserted of a subject, but of which everything else is asserted. (The Metaphysics, 1028, 1029) Strawson, for example, explicitly acknowledges the importance of these characterizations when he attempts to identify basic particulars, first in terms of ontological commitment via identifiability, and then in terms of his defense of two criteria for the subject-predicate distinction, the "grammatical" criterion and the "category" criterion. He says that he defends the "traditional doctrine" that "particulars can appear in discourse as subjects only, never as predicates; whereas universals, or non-particulars generally, can appear either as subjects or as predicates" (IDM 137).
grammar. As we have seen above, Strawson consistently argued against events as particulars. Davidson, on the other hand, has admitted events along with substances (or objects) on the grounds that doing so best fits the language we use to describe our world. Still others have driven the debate further by proposing to eliminate events completely. The latter group is concerned mainly with overpopulation; events for them add needless metaphysical baggage to our conceptual apparatus. They have argued that it is simply gratuitous to assume that events form an additional ontological category alongside of physical objects.

Events gain entry into Davidson's ontology because he believes we cannot "give a cogent account of action, of explanation, of causality, or of the relation between the mental and the physical, unless we accept events as individuals" (EAE 165). As mentioned above, the argument focuses on ordinary language. If our ordinary ways of speaking call for a distinction between objects and events, then there is a need to recognize the metaphysics implicit in our language.

Events are individuals or particulars because they can be quantified over. Davidson thus challenges Strawson's conception of ontological priority on the grounds that various grammatical structures and their logical forms designate event structures by identity and individuation. Events are named by gerunds—nouns generally ending in "ing" e.g., "the crashing of the jet at Los Angeles," or by verb-nominalization—a noun or noun phrase formed from a verb, e.g., "the crash of the jet at Los Angeles." These phrases name particulars that have a verbal character; that is, there is a verb alive and kicking in the description (Cf: EN 4-12). They are often accompanied by adverbial clauses that modify the events that certain verbs introduce. In a slight modification of one of Davidson's examples, "Sebastian walked slowly and aimlessly through the streets of Bologna at 2:00 p.m.," the reference clearly identifies an event—the slow and aimless walk of Sebastian (AEP 162-63; also see EAE 166-67). Following the lead of Quine, Davidson holds that the logical forms of sentences of this sort commit us to an ontology of events as unrepeatable particulars. So we can render Sebastian's walk as

$$\exists x (x \text{ is the walk and } x \text{ is slow and } x \text{ is aimless and } x \text{ occurred in Bologna and } x \text{ was at 2:00 p.m. and } x \text{ is by Sebastian})$$

In this manner we quantify over events rather than objects.

Now if Sebastian whistled while he walked the streets of Bologna, do we have two events or one? The individuation of events remains a hotly debated issue in the contemporary literature.5

5 Terence Horgan, "The Case Against Events," The Philosophical Review LXXXVII, No. 1 (1978), 28-47. Also see Irving Thalberg, "A World Without Events?" in Essays on Davidson: Actions and Events, ed. Bruce Vermazen and Merrill B. Hintikka (Oxford: Oxford University Press, 1985), 137-155.

6 The details of this controversy would take us too far afield from the broader considerations that occupy our present attention. See essays by Quine and Davidson, AEP 162-176; Bennett, EN 122-128; and Nicholas Unwin, "The Individuation of Events," Mind (April,
Davidson therefore argues that there is no reason to assign second-rank status to events; while there is a conceptual dependence of the category of events on the category of objects, there is also a symmetrical dependence of the category of objects on the category of events (EAE 174). For example, we might identify an event by identifying an object involved in the event (the explosion is traced to a star that went supernova in 1987); and we might identify an object by identifying an event in which the object participates (the knife found in the airport dump is traced to the murder).

**Critique of Ordinary Language**

As opposed to the conceptual self-understanding of the descriptive metaphysicians, the aim of the revisionary metaphysician is to understand the way the world is quite apart from how we talk about it. This tradition has strong support from the history of science since all revolutionary ideas in science have by definition radically altered our “ordinary” understanding of the world. In this regard, science is a form of revisionary metaphysics that breaks out of the confines of ordinary language. Given the theoretical latitude afforded by the revisionary approach to ontology, we are not bound by the straightjacket of one conceptual scheme, particularly the one that has become sacrosanct among ordinary-language philosophers. The Aristotelian or Kantian conceptual scheme is enshrined in our language, but not vindicated by it.

Our common-sense conceptual scheme has occupied a privileged place in Western philosophical thought. Whitehead, however, argued in *The Concept of Nature* that this resulted from the historical accident of the subject-predicate structure of Greek and then the dominance of Aristotelian logic in which substance was defined as the ultimate substratum not predicated of anything else (CN 16-18; Cf. PR 30). Instead of attempting to stick to what is present in experience, the habit of positing a substratum has reigned supreme in Western philosophy. As the British empiricists discovered, the resulting conception of the world is based on abstraction, not on concrete experience.

Ordinary language is designed to express clear-cut concepts, but not all sensed phenomena fall within its simplified classificatory criteria. Admittedly, the abstract concepts implicit in the structure of ordinary language have demonstrated their pragmatic value in enabling us to manage our common-sense world. Science, in fact, was considered an extension of our common-sense conceptual scheme until

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1996) 315-330.

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Descriptive metaphysicians might reject this particular characterization of substance as an unchanging substratum but the force of Whitehead’s criticism against the linguistic origin of the substance concept remains. For a more detailed exposition of Whitehead’s argument, see my chapter VI “Pan-Physics: Whitehead’s Philosophy of Natural Science, 1918-1922” in ed. J. B. Schneewind, Victor Lowe’s *Alfred North Whitehead: The Man and His Work, Volume II: 1910-1947* (Baltimore: Johns Hopkins University Press, 1990), 107-130.
the ancient trinity of space, time and matter was replaced by the conception of the space-time energy field. The substance ontology, however, only makes sense within a very narrow range of our current understanding of the electromagnetic spectrum—roughly within the range of visible light (400-700 nm), and even here there are the usual perplexing questions about identity and individuation. That is, the traditional substance theory and Strawson’s defense of a quasi-Aristotelian view privilege an evolutionary accident: that our visual perceptors are only sensitive to a narrow band of electromagnetic radiation within which entities sensed appear primarily as “objects” rather than as events. The field itself, and the range of entities within it and perceived through it, are predominantly of an event character, rather than of an object character. Given the entire spectrum of known electromagnetic phenomena, from gamma rays to radio waves, the event theory is more plausible as a comprehensive ontology.

Present-day science and the foundations of social intercourse thus remain unreconciled. On the one hand, we are aware that the seventeenth-century cosmology has been replaced by the advance of modern physics. Yet on the other hand, our common-sense notion of substance still reigns supreme in our ordinary thought. But why should that which was designed for the marketplace and other rather mundane matters be our guide to metaphysics? Our ordinary ways of sorting have been mistaken as a paradigm for determining what there is.

Another main problem with the descriptive account is that the kinds of events discussed by Strawson, Davidson and other descriptive metaphysicians are not the sort that would make a pure event ontology plausible. Battles, births, deaths, walks, and airplane crashes are all everyday, garden variety events that necessarily involve references to objects. But physicists seem to have little trouble making sense of events and processes that are not tied down to physical particulars. For example, in the case of Cosmic Microwave Background, the microwave “glow” that fills the sky is thought to be a remnant of the radiation that was present in the early universe and has now cooled to 2.7 K. Where is the physical object of which this radiation is a property? If we try to trace this event to an object, it appears that there is no presently existing object of which the radiation is predicated. Moreover, this case is not analogous to that of the light from a star that ceased to exist a million years ago—that is, there never was an object of which the event is a property. Instead, to the extent the radiation can be traced to anything, it is to another event: the Big Bang. And this relationship is a causal one rather than one of substance to property.

A similar point can be made regarding the microscopic realm. The modern notion of the atom has been “dematerialized,” so the formal atoms of modern theory are no longer interpreted in terms of matter understood as self-identical substance across time. This is not to say that modern physicists necessarily think of atoms in event terms, but rather that the substance theory can no longer be seen as the ontological foundation of high-energy physics. In short, because of the misguided notion that the evidence for events must be found in ordinary language,
the event concept of descriptive metaphysics is too narrow.

**Revisionary Theories of Events**

When Whitehead, Russell and Broad advanced novel formulations of the theory of events, it was clear that they believed science had outgrown the substance theory of Aristotle and his followers. As Russell points out, belief in substance seemed warranted as long as physics assumed one cosmic time and one cosmic space, but this view was radically altered with the arrival of the Einstein-Minkowski concept of space-time (AM 286). With further developments in physics, many philosophers were led to believe that events are the best candidates for a reconciliation of all parts of physical theory—from the microscopic forces in nuclear physics to the macroscopic, large-scale structure determined by gravity. Whitehead, in fact, says at the opening of his *Principles of Natural Knowledge*: “Modern speculative physics with its revolutionary theories concerning the natures of matter and of electricity has made urgent the question, What are the ultimate data of science?” (PNK v). In *Science and the Modern World*, he echoes the point again: “the field is now open for the introduction of some new doctrine... which may take the place of the materialism with which, since the seventeenth century, science has saddled philosophy” (SMW 36). The thesis he advances for the unification of scientific knowledge is that “the ultimate facts of nature, in terms of which all physical and biological explanation must be expressed, are events connected by their spatio-temporal relations, and that these relations are the main reducible to the property of events that they can contain (or extend over) other events which are parts of them” (PNK 4).

In Whitehead’s view, events are not to be thought of as particulars in the Aristotelian sense because they do not exist independently. They blend into one another with the passage of nature (PNK 73-74). Hence the most important aspect of Whitehead’s theory is what he calls the “doctrine of significance”—that events are interlocked into a complex system ordered by the primary relation of “extending over.” This system replaces the standard predication of substance and attribute (PNK 12-13; CN 52). In *The Concept of Nature*, he calls this interlocked complex system “fact as a relationship of factors.” Nature is at each moment an all-comprehensive event or “fact” within which we discriminate constituent events and objects or “factors.” But all particulars are abstractions because every factor discriminated is abstracted from the totality of nature; each is a mere fragment within the harmonious texture of the percipient event. In sense-awareness we discern “the specific character of place through a period of time” (CN 52). Thought or reflection on this duration present to awareness distinguishes subevents and various orders of “objects.”

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8 Broad says that Whitehead and Russell led the way by combining constructive fertility, penetrating critical acumen and technical mathematical skill, whereas he claims the humbler power of stating difficult things clearly and not too superficially (ST 6). In what follows, I focus mainly on the affinities and contrasts between Whitehead and Russell.
Whitehead's events are, however, "basic particulars" in the sense that they are the primary constituents of reality. They are basic not because of identifiability on the part of ordinary speakers but because they are the fundamental entities of sense-awareness. The fact that sense-awareness does not apprehend definite spatio-temporal limits in events does not imply that nature is an undifferentiated whole. Whether events are longer or shorter, extended over or extending over, will depend on how they are described, but the properties or "objects" ingredient in events provide the natural boundaries (CN 144, 172-73). Without the description, the demarcation of events would be arbitrary. So, the French Revolution is the description of a long, vastly-complicated event that extends over the storming of the Bastille, and the storming of the Bastille extends over the release of the prisoners. But the same spatio-temporal region could be described in innumerable ways by different historians, and the political scientists, sociologists and economists would provide radically different descriptions given their different purposes. As long as the primary relation of "extending over" is used to mark off a certain amount of qualitative similarity in the events described, there is no limit to how the space-time regions are individuated.

According to Whitehead's theory, all appearances of permanence and abiding structure in nature must be explained in terms of event processes. Everything in the universe, from medium-size dry goods to planets and galaxies, is reinterpreted as patterns of properties repeated in event sequences. "Things," as we ordinarily understand them, are relatively monotonous patterns in events. They are bundles of energy that more or less maintain their characteristics and consequently form "space-time worms" (or following Minkowski, "world-lines") in the four-dimensional manifold. As Broad put the point, "A thing . . . is simply a long event, throughout the course of which there is either qualitative similarity or continuous qualitative change, together with a characteristic spatio-temporal unity" (ST 393). Even more abstractly, for physicists, the "objects" have evaporated into mere sets of numerical coordinates. So, in the four-dimensional space-time, the only real difference between the abiding structure of the Los Angeles control tower and the dramatic crash of the jet below is the rate of change.

Events happen only once; they are non-repeatable particulars of space-time. Within events we discriminate repeatable properties that give the events structure. Whitehead calls these factors "objects" and distinguishes three ordinary types: "sense objects" such as individual colors, sounds or textures, "perceptual objects" such as the ordinary macroscopic bodies of perceptual experience, and "scientific objects" such as electrons and molecules. Objects are the *re cognition* amid events (PNK 81). The value and intensity of a particular instance of white, the physical

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9 This type of Pythagorean move in ontology has been taken seriously in Quine's most recent speculations on the subject. See for example TT, 17-18 and The Pursuit of Truth (Cambridge: Harvard University Press, 1990), 31-33. Also see Barry Stroud, "Quine's Physicalism" in Perspectives on Quine, ed. Robert Barrett and Roger Gibson (Oxford: Basil Blackwell, 1990), 323-324.
body with which I write on the board and the molecular structure of calcium carbonate (CaCO₃) all continue to characterize a sequence of events that we recognize as “the chalk.”

This reverses the ontological priority of the common-sense conceptual scheme. Events support objects; they are the basic entities upon which we are able to perceive the continuity of objects across time. In this manner, Strawson’s idea of identification and reidentification is retained as a linguistic convenience; however, it is not substance but patterns of properties repeated in diverse events that are recognized and become the objects of reference. In fact, for Whitehead, science (or for that matter, any type of communication) would not be possible without the objects that give events structure and definition. Laws of nature are discoveries of patterns of objects in the passage of events.

As suggested above, the main reason why the proponents of an event ontology have found this theory to be superior to the substance theory of descriptive metaphysics is its empirical adequacy. Russell, for example, argued that the aim is to fill the gulf between physics and perception. The metaphysical status of physics is improved when we construct a theory of the physical world that makes its events continuous with perception. For Russell, this means that we construct the smooth, abstract world of physics from the concrete but disjoined knowledge of percepts (AM 275-289; KEW 81-102). We perceive events and what we infer from these percepts are groups of events (AM 284).

Whitehead was concerned with the same problem as early as 1917 when he wrote that the task of science “is the discovery of the relations which exist within that flux of perceptions, sensations, and emotions which forms our experience of life” (AE 157).¹⁰ In his later theory of natural knowledge, he rejects the bifurcation of nature—the view of nature partitioned into two systems of reality—appearances and the causes of those appearances. His way out of the quandaries of modern epistemology is to view nature as one system of related events. What is disclosed to sense perception is nature itself, not just a datum in the mind that is caused by the unknowable reality of matter. The process of breaking up the subject matter of experience into a complex of entities is what he calls the “diversification of nature,” but unlike Russell, he stresses relatedness instead of the disconnection of percepts (PNK 59; CN 15).

Beginning with perceivable properties of nature given in experience rather than with mental abstractions or a priori concepts, one finds not substance but events as the primary data. Our observed field of experience, the specious present, or present duration, is made up of related events, each of which has the character

¹⁰ Dorothy Emmet claims in her Cambridge Philosophers lecture, “Whitehead,” that one of the themes that runs throughout Whitehead’s thought is his interest in the relation between logico-mathematical schemes and the rich, complex world of experience. Philosophy 71 (1996), 103, 112. Victor Lowe calls this Whitehead’s doctrine of “the rough world and the smooth world.” See especially, Understanding Whitehead (Baltimore: Johns Hopkins University Press, 1966), 180-81.
of passage. Within the duration of any experience, one discriminates constituent events, and by "cognizance by relatedness" or the significance of factors in fact, we construct a system of whole-part relations that comprises the four-dimensional space-time manifold (R 18; CN 49). While events have spatial and temporal aspects of their extension, the space-time structure of mathematical physics must be seen as derivative from the concrete relatedness of events.

In opposition to the atomistic framework of British empiricism, Whitehead reshapes the notion of experience to accord with the phenomenon of the specious present—the new or radical empiricism pioneered by William James and the Gestalt psychologists. Nothing exists at an instant. Instead of beginning with points in space or material configurations at an instant and then building our picture of the physical universe outward, the passage of nature and the experience of an observer are placed on a closer footing. Both happen as temporal slabs. For Whitehead, the specious present is an example of the unity of an event that then becomes the basis for understanding the unity of nature. This is not to say that physics is confined to the events of the specious present, but rather that the idea of spatio-temporal spans, of whatever magnitude, must replace points and instants, if indeed our science of nature is to be based on observation.

Of the revisionary school of thought, Quine has been one of the most recent proponents of an event ontology. Like Whitehead, Russell and Broad, he contends that "our ontology is determined once we have fixed upon the over-all conceptual scheme which is to accommodate science in the broadest sense . . ." (LPV 17). Metaphysics is therefore "naturalized" when it is based on the best current account of the world that science has to offer. Since physics is the science par excellence in virtue of its place in the hierarchy of the sciences, we begin to construct a generalized ontology from the posits of physics.

Quine proposes a maximally broad view of an event: an event is any portion of space-time. What he calls a "physical object" is roughly synonymous with what we have called an "event" above—namely, "the material content of any portion of space-time, however irregular and discontinuous and heterogeneous" (Cf: TT 10 and WO 171). Quine agrees with Whitehead's point regarding the difficulty of precise demarcation of events, but unlike Whitehead, Quine's ontology is based on identity-conditions rather than the sort of empirical considerations discussed above. Quine also refuses to admit properties to his well-swept ontology.

For Quine, ordinary physical objects are our primary objects of reference, but since the criteria of individuation and identity of such objects over space and time are vague, our concept of such objects is correspondingly vague. What seem to be self-identical objects soon dissolve into their temporal parts, of which we are equally vague about individuation and identity. Is the desk at a second an entity? What about the desk at a microsecond? Even when we consider a physical body "frozen" in time, the problem persists. Quine asks: "Who can aspire to a precise intermolecular demarcation of a desk? Countless minutely divergent aggregates of
molecules have equal claims to being my desk” (AEP 167). At the level of subatomic particles, our “robust sense of the reality of physical objects” is disrupted again since identity-conditions fail to provide well-behaved entities. Quine notes that the physicists’ age-old attachment to matter has relaxed: “Matter is quitting the field, and field theory is the order of the day.”

Quine’s generalized notion of a physical object (or event) addresses this problem and allows for theoretical latitude so that we can quantify over variables as required by science—particles, waves, electromagnetic fields, and also complex material bodies such as organisms, planets and galaxies. Quantifying over regions of space-time itself also allows us to accommodate mass substances such as water, air, dirt, clay, and so on. These do not pass the test for bodies but can be classified as physical objects in Quine’s sense of the term. Accepting the concept of an event as the material content of any portion of space-time results in conceptual simplification because it squarely addresses the problem of temporal and spatial parts and provides a basis for an ontology that might span both relativity physics and field theory.

Aside from a few physicists, the revisionary event ontologies have not altered the course of physics in any significant way. With the lingering influence of positivism, most physicists appear to have little or no interest in the ontological underpinnings of physical theories. Given that the mathematical formalism continues to provide results in terms of successful predictions, physicists generally eschew interpretations of the formalism in terms of fundamental ontology.

However, insofar as the Copenhagen interpretation of quantum mechanics has proved to be unsatisfactory in resolving a number of problems regarding wave/

\[\text{Compare Quine's analysis with Whitehead's discussion of Cleopatra's Needle (CN 170-172).}\]

\[\text{W. V. O. Quine, "Whither Physical Objects?" in Boston Studies in the Philosophy of Science, ed. S. Cohen et al. (Dordrecht: D. Reidel, 1976), 499. In this essay, Quine considers the evidence from recent developments in physics for his view of physical objects. From the philosophical perspective, Quine's thesis of the inscrutability of reference confirms these findings. It is indeterminate what objects the singular terms, pronouns and bound variables of our true sentences refer to.}\]

\[\text{One is reminded of Plato's analogy in Phaedrus (265e-266c)—that the good dialectician, like the good carver, must divide nature at its joints. But for Quine, since we are unclear about the natural divisions, we gerrymander and carve up space-time to suit our purposes.}\]

\[\text{For example, see Henry Stapp, "Mind, Matter and Quantum Mechanics," Foundations of Physics 12, (1982), 363-399; "Whiteheadian Approach to Quantum Theory and the Generalized Bell's Theorem," Foundations of Physics 9 (1979), 1-25; and Milic Capek, "Particles or Events?" and "Time-Space Rather than Space-Time" in The New Aspects of Time: Its Continuity and Novelties (Dordrecht: Kluwer, 1991), 191-218 and 324-342, The Philosophical Impact of Contemporary Physics (New York: Van Nostrand Reinhold Company, 1961).}\]
particle duality and measurement, the search for a realistic and more understandable quantum ontology has focused on empirically equivalent but more fruitful ways of picturing the quantum world. In this approach, the wave function is not merely a tool for calculating correlations among observations but rather is treated as an appropriate mental representation of the world itself. One of the contenders—a development of Heisenberg’s theory, the actual-events ontology—interprets quantum probabilities as probabilities for actual events to occur. The fundamental process of nature is taken to be the formation of a sequence of discrete actual events. Each event transforms the potentialities created by the prior event into potentialities for the next event.

**Conclusion**

Whether or not an ontology of events serves the purpose of physics is best left to physicists themselves to decide. For the reasons I have given above, however, an ontology of events has advantages over the traditional substance theory insofar as it affords greater empirical adequacy and addresses the novel developments in twentieth-century physics. In my view, it also provides us with a more fruitful approach to personal identity, the mind-body problem, causation and epistemology, since the main focus of the theory is to present an ontology of one basic type. In this way we avoid the incoherence presented by the basic dualisms in substance/property thinking. Davidson’s point is well taken—a theory that does not recognize events among the ontological citizenry of nature deprives us of the coherence of our explanations. With the revisionary schemes discussed above, however, Davidson’s point is pushed much further by dispensing with substances altogether in favor of a pure event ontology. As to the concern for the loss of substance, Berkeley put it best when he said:

> That the things I see with my eyes and touch with my hands do exist, really exist, I make not the least question. The only thing whose existence we deny is that which philosophers call matter or corporeal substance. And in the doing of this, there is no damage done to the rest of mankind, who, I dare say, will never miss it.16

As with all revisionary metaphysics, everything changes and nothing changes.

The very idea of alternative conceptual schemes has been met with strenuous resistance by descriptive metaphysicians in part because the idea of conceptual relativism is thought to be incoherent or to lead to the abandonment of truth. 17

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15 Werner Heisenberg, *Physics and Philosophy* (New York: Harper & Brothers, 1958), Chapter III.

16 George Berkeley, *A Treatise Concerning the Principles of Human Knowledge* (Indianapolis: Bobbs-Merrill, 1957), Sections 35, 39.

17 Donald Davidson, “On the Very Idea of a Conceptual Scheme,” *Proceedings of the American Philosophical Association* 17 (1974): 5-20, reprinted in *Inquiries into Truth and Interpretation* (Oxford: Clarendon Press, 1984), 183-198.
Strawson is quite clear that there are categories and concepts that are "the commonplaces of the least refined thinking; and yet are the indispensable core of the conceptual equipment of the most sophisticated human beings" (IDM 10). Revisionary metaphysicians, while embracing the idea that we are not "stuck with the conceptual scheme we grew up in," need not accept the more extreme consequences of rejecting conceptual scheme invariance—that any scheme is just as good as another (LPV 78). Science is not a mere alteration or "suburb" of our present conceptual apparatus; it is a revision of it, if indeed a revolutionary idea passes the test of rigorous experimentation and explains a broader range of phenomena. This being the case, adjustments at the more general end of our view of the world are also necessary—hence the open door to revisionary schemes.

I end with a final comparison. Strawson claims that revisionary metaphysics is at the service of descriptive metaphysics because any attempt to produce a better structure of thought about our world already presupposes the point of departure of our homely conceptual apparatus (IDM 9). Whitehead might very well concede this point yet insist that we need not remain in continual service to our ordinary conceptual scheme, since devotion to the methodology of conceptual analysis and the suppression of speculative novelty eventually result in the fatigue of reason (FR 18-21). With an uncanny anticipation of Strawson's famous distinction, Whitehead writes:

The fallacy of the perfect dictionary divides philosophers into two schools, namely, the 'Critical School' which repudiates speculative philosophy, and the 'Speculative School' which includes it. The critical school confines itself to verbal analysis within the limits of the dictionary. The speculative school appeals to direct insight, and endeavors to indicate its meanings by further appeal to situations which promote such specific insights. It then enlarges the dictionary (MT 173).

What we gain in clarity and safety by remaining at home sacrifices the adventure of the speculative urge. 18

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AM Bertrand Russell. The Analysis of Matter. New York: Dover Publications, 1954. (Originally published in 1927.)

KEW Bertrand Russell. Our Knowledge of the External World. New York: Mentor Books, 1960. (Originally published in 1929.)

IDM Peter Strawson. Individuals: An Essay in Descriptive Metaphysics. London: Methuen & Co., 1959.

TT W. V. O. Quine. Theories and Things. Cambridge: Harvard University Press, 1981.

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