Seven hundred years ago, the key elements of our current approach to knowledge and learning were put in place by the medieval philosopher and theologian William of Ockham, best known for his famous "Razor." Many historians argue that Ockham's theory, known as "nominalism," set the agenda for the modern age.1 It was Ockham, for example, who insisted that all learning is "a passage from individuals to universals," a process he described as "induction."2 Friedrich Uebenveg, in his classic tome on the history of philosophy, pointed out that induction — the notion that one builds from the bottom up, from particular experience to general concept — is the thread that connects nominalism across the diverse domains of philosophy, education, and science.3 Induction has played this role from the medieval period to (and through) the modern era. In science, for example, Ockham, more than any other figure, is credited with convincing the Aristotelians to abandon their approach, which was almost entirely deductive, in favor of the "new" science, which is experience-based and inductive.4

As is well known, experience-based (or, alternatively, activity-based) inductionism has also been a mainstay of progressive educators, thanks largely to the efforts of two turn-of-the-century philosophers: William James and John Dewey. James placed great faith in induction, which he defined, in true nominalist fashion, as the process whereby generalization works "itself free from all sorts of entangling particulars."5 Induction is primarily a solo act: "Offer the opportunities, leave the student to his natural reaction to them, and he will work out his personal destiny," James insisted.6

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Dewey repeated this advice, albeit after expressing some concern about the nature of the experiential opportunities that ought to be provided to children.\(^7\)

Dewey's nominalist and inductionist approach to education has played a key role in three major educational reform efforts in this country: the first in the 1930s, the second in the 1960s, and the third in the 1990s.\(^8\) According to David Tyack and Larry Cuban, the perceived excess of individuality associated with Dewey's child-centered approach was a key contributor to the demise of these three reforms.\(^9\) It is not unreasonable, as we will see, to attribute the problem of excessive individuality in education to nominalism and its belief that "order," of the sort that emerges from disciplined inquiry, is necessarily created (or re-created) in the individual mind from the raw stuff that constitutes personal experience.

What if it was not the triumph of nominalism that marked the signal event in the development of Western thought, but that of its competitor, a theory termed "scholastic realism"?\(^10\) It is fair to say that teachers adopting this latter perspective would constitute a quite different alternative to both traditional and progressive education and would play a dramatically different role in educational reform compared to their nominalist counterparts. They would eschew the typical constructivist role, the proverbial "guide on the side," in favor of a different kind of role, most aptly described as the "sage on the side" (as opposed to the traditional, didactic "sage on the stage" role). This novel way of talking about the teacher's role reflects the fact that scholastic realists, unlike their nominalist counterparts, do assume that regularity and order exist in the world.

As a result, those who accept responsibility for helping others "see" that regularity, be they teachers or fellow inquirers, define their role differently: It is their task, because they are more knowledgeable others, to provide students or colleagues with the metaphoric lenses that allow them to see that regularity and, as a first test, to verify its existence (be it photosynthesis, negative number, or the notion of history as story). This "seeing" process, it should be noted, takes place in the open, between the inquirer and the object or event that evidences the regularity. This understanding contrasts with nominalism, which insists that the process of coming to know takes place within the confines of the individual's own experiential "workspace." The great medieval scholar, John Duns Scotus, who developed scholastic realism as a

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\(^7\) John Dewey, *John Dewey: The Early Works*, vol. 5, ed. Jo Ann Boydston (Carbondale: Southern Illinois University Press, 1969), 85. This five-volume collection, with volume and page numbers, will be cited as EW in the text in subsequent references.


more palatable version of Aristotelian essentialism, said this about the process: "Both knower and object are active in producing cognition. Thus, we avoid the incongruities associated with the assumption that the intellect is wholly passive, or that it is wholly active, so that the object would do nothing."\(^{11}\)

It is interesting to note that nominalism, not scholastic realism, represented the most dramatic break with mainstream Aristotelian philosophy. In fact, many historians believe that the realist variant on Aristotelian essentialism would have prevailed but for an accident of history.\(^{12}\) According to John Boler and others, the scholastic realists lost out because their position was unfairly cast as being inherently more conservative than nominalism — in other words, scholastic realism was seen as more supportive of the "ancient regime."\(^{13}\) Detractors of the realist approach credited adherents of this view with saying that, not only is there order or regularity in the world, but the church and the state provide the best mechanisms for ensuring that one gets in touch with this order.

Thus, the debate between realists and nominalists was decided on political rather than philosophical grounds. Boler picks up on the thread of this argument: "In the struggle for control of the universities, the humanists sided with the followers of Ockham in an attempt to overthrow the Dunces [the realists], who were then in power. As a political favor, but with little concern for or understanding of the real issues involved, the humanists championed nominalism."\(^{14}\) The vehemence of the debate attested to the political stakes — as Charles Sanders Peirce reported, these debates "sometimes ended with black eyes and bloody noses," at least within the university. Even monarchs, Peirce added, were involved in the dispute, using the power of the state to protect their interests in the nominalist/realist argument.\(^{15}\)

What were the real issues in this great medieval debate? Any answer to this question must start with Aristotle, whose writings burst onto the scene in the late twelfth century thanks largely to their rediscovery by Arab scholars. Aristotle believed in the reality of universals — the notion that everything from acorns to humans possesses a fixed and definite essence (such as rationality in humans), a universal attribute that distinguishes it from other things in the same category or class (in this example, other living things). The human intellect, it was thought, is uniquely equipped to extract this essence (or universal), which Aristotle insisted precedes and shapes the matter that contains it. The metaphor Aristotle used to


\(^{12}\) Charles S. Peirce, *Collected Papers of Charles Sanders Peirce*, vol. 2, eds. Charles Hartshorne and Paul Weiss (Cambridge: Harvard University Press, 1931), 96. This eight-volume collection, with volume and page numbers, will be cited as *CP* in the text in subsequent references.


\(^{14}\) Ibid., 20.

\(^{15}\) Charles S. Peirce, *Writings of Charles Sanders Peirce: A Chronological Edition*, vol. 1, ed. Peirce Edition Project (Bloomington: Indiana University Press, 1982), 361. This six-volume collection, with volume and page numbers, will be cited as *CE* in the text in subsequent references.
describe the process of coming to know the universal was that of the "signet ring" impressing itself upon a piece of wax (that is, the human mind).

Ockham roundly rejected this metaphor (as did the scholastic realists). Ockham argued that universals exist only in the mind, in the form of concepts or names attached to perceived similarities in one's individual experience; this is a subtle but terribly important difference. As John Marenbon explains, "Ockham argues that everything in the world is singular, and only mental concepts or words can be universal."16 Peirce captured the distinction that Ockham drew between his own position and scholastic realism, which he viewed as the leading non-Aristotelian contender:

[The question is] whether man, horse, and other names of natural classes, correspond with anything which all men, or all horses, really have in common, independent of our thought, or whether [as the nominalists believe] these classes are constituted simply by a likeness in the way in which our minds are affected by individual objects which have in themselves no resemblance or relationship whatsoever (CE, vol. 2, 467).

As suggested, most if not all modernist philosophers adopted the nominalist perspective. Bertrand Russell made a compelling case for the fact that Thomas Hobbes was a nominalist, as were John Locke and David Hume.17 John Skorupski also sees strong nominalist tendencies in the work of John Stuart Mill.18 James and Dewey must be added to this distinguished list, but while Dewey embraced nominalism only during the first half of his long and productive career, James clung to what he termed his strong "nominalistic tendency" to the bitter end.19

Ockham's theory, in somewhat different guise, continues to exert a profound effect in the postmodern era. One of the most prominent postmodernists, Richard Rorty, puts himself firmly in the nominalist camp.20 Postmodern nominalists like himself, Rorty avers, place less emphasis on particular experience, preferring instead to focus on the "mind creating" process that occurs when individuals apply language to commonalities detected in their own experience.21 Marenbon supports this notion, arguing that the position Rorty espouses, which highlights the role of language in human cognition, is a direct descendant of Ockham's approach.22 Several scholars, including Steven Ozment, attribute this connection to the fact that nominalism is, at root, a philosophy of language. Ozment traces the origins of the language connection back to Ockham's belief that the relation between human beings and God and, by extension, human beings and nature, is a contractual one. Ozment uses the expression "willed verbal relation" to describe both types of

22. Marenbon, Later Medieval Philosophy (1150-1350), 171.
contractual relation: "Late medieval nominalism is distinguished, philosophically
and theologically by the insistence that man's relation to God and to his world
is...covenantal and not ontological, based on willed agreements and conventions,
not on common natures."\textsuperscript{23}

Given the power of the nominalist view of knowledge, learning, and language,
it is amazing how little attention has been devoted to the origins of this philosophy
and to the fact that at two points in time — in the thirteenth century and in the late
nineteenth–early twentieth century — two sets of scholars with pedigrees every bit
as impressive as Ockham's advanced an alternative perspective, "scholastic real-
ism." These scholars argued that this alternative view is preferable because it is more
consistent with what we know about the process of knowledge construction during
disciplined inquiry.\textsuperscript{24}

A scholar named John Duns Scotus originated the theory that provided the major
foil for Ockham's "anti-realism." Historians today consider Duns Scotus to be one
the greatest of the medieval philosophers.\textsuperscript{25} Evidence for the fact that his contempo-
raries (at least those of a nominalist bent) harbored less complimentary views about
him lies in the fact that Duns Scotus is best known for having inspired the pejorative
label "Dunce," a term derived from his name which ever since has been synonymous
with willful ignorance. This epithet notwithstanding, it was Duns Scotus who came
up with the most creative of the "middle-ground" positions in the struggle to
reconcile Aristotle's views with those of the church. In Ockham's more extreme
approach, individuals are left to their own devices in their efforts to understand God
and the world; Duns Scotus's deity, on the other hand, is more than willing to meet
human beings halfway in this regard.

Duns Scotus argued that God is bound by the set of logical possibilities he is
willing to entertain prior to exercising his will. By apprehending this logic, this order,
Duns Scotus believed, it is possible for humans to discern the pattern as it is
unfolding. Order (that is, generality), according to Duns Scotus, is not merely in our
minds; it actually exists in nature, although it takes an act of creative intelligence to
recognize it. Fortunately, as Duns Scotus emphasized on numerous occasions,
nature does its part in making this order known through a process that can best be

\textsuperscript{23} Steven Ozment, "Mysticism, Nominalism, and Dissent," in The Pursuit of Holiness in Late Medieval
and Renaissance Religion, eds. Charles Trinkaus and Heiko O. Oberman (Leiden, Netherlands: E.J. Brill,
1974), 78.

\textsuperscript{24} This argument, incidentally, has been raised anew by philosophers like Susan Haack, who views the
realist alternative to nominalism as a potential solution to the increasingly acrimonious "science wars"
that pit philosophers and educators against practicing scientists. See Susan Haack, Manifesto of a
surprisingly, take issue with nominalists (that is, "constructivists") who maintain that order or lawfulness
is a mental creation. Steven Weinberg, for one, does not mince words in his insistence that the laws of
physics are real in the same sense that rocks in the field are real. Neither law nor rock, he adds, represents
a "construction" in the modern or postmodern nominalist sense. See Steven Weinberg, "Sokal's Hoax,"

\textsuperscript{25} Allan Wolter, O.F.M., Duns Scotus on the Will and Morality (Washington, DC: The Catholic University
labeled “organism/environment co-action,” although, needless to say, Duns Scotus was several centuries away from being conversant with this type of terminology. Peirce was one of the first twentieth-century philosophers to appreciate the brilliance of Duns Scotus’s approach. In the second half of his career, Dewey also explicitly adopted Duns Scotus’s model which, as was pointed out earlier, has organism and environment working together (that is, “trans-acting” in Dewey’s parlance) in an effort to identify the regularity or generality in nature. Both Peirce and Dewey defined the process of teasing out this regularity (in processes such as photosynthesis, for example) as the goal of all disciplined inquiry.26

The unsuccessful effort of these philosophers to resurrect Duns Scotus’s reciprocal model of knowledge construction is the focus of this paper. (James plays an important role in the story as well, as will be seen.) It was the inability to reconcile James’ version of nominalism with their own developing views about the nature of inquiry that led Peirce and later Dewey to seek an alternative to Ockham’s theory—an alternative which they variously called “scholastic realism” or “logical realism” [LW, vol. 11, 111] and which I will call “realist constructivism.” Both scholars agreed that, as Dewey so aptly put it, “The natural world has generic as well as specific traits, and that in the one case as in the other experience is such as to enable us to arrive at their identification” [LW, vol. 16, 388].

Given the formidable political opposition arrayed against it, it is understandable why the position championed by Duns Scotus failed to win acceptance in the thirteenth century. Less clear is why it was rejected in the first third of the twentieth century despite the best efforts of two world-class philosophers. The first of these, Peirce, is considered one of the most important of American contributors to philosophy.27 He spent the better part of his life combating nominalism, which he characterized as a “malady” that “taints” all modern philosophy.28 Like Duns Scotus, Peirce believed in the reality of generals or universals; as a result, he insisted that there is “complete reciprocity between Thought and its Object,” between the inquirer and the lawful phenomenon he or she is trying to understand.29 While he managed to avoid the dunce label, Peirce still paid a steep price for what Max Fisch characterizes as his “life-long war against nominalism.”30 He had an extraordinary amount of trouble finding outlets for his writing, the majority of which were

published posthumously. Peirce never did succeed in landing an academic position, and he died in poverty as a result.

Dewey's struggles with nominalism are less well known. His wrenching shift at mid-career, from Jamesian nominalism in favor of Peircean realism, which I have argued elsewhere, casts a dramatically different light on his career.31 Evidence of this change abounds. The pre-1915 Dewey was a staunch supporter of the use of induction in both education and inquiry (for example, in 1898 he asserted that "After the conquests of the inductive method in all spheres of scientific inquiry, we are not called upon to defend its claims in pedagogy" [EW, vol. 5, 545]). However, in his classic 1925 tome, Experience and Nature, Dewey bluntly rejected this approach: "It would be difficult to imagine any doctrine more absurd than the theory that general ideas or meanings arise by the comparison of a number of particulars, eventuating in the recognition of something common to them all" [LW, vol. 1, 147]. Details of this dramatic shift in view are presented in this paper.

To understand the second great realism/nominalism debate, one must start with James. A close examination of James' position will reveal why Dewey initially found nominalism so attractive. It also sets the stage for an appreciation of what Peirce found problematic in James' approach, which is the latter's tendency to locate experience entirely within the individual. James' subjectivist, antirealist theory, Peirce decided, is a shaky foundation upon which to build a philosophical rationale for scientific inquiry. Dewey eventually agreed, as he became more and more intrigued with Peirce's attempt to turn James' approach on its head. [Dewey summarized this about-face well when he argued that we are in perception more than perception is in us.]32

WILLIAM JAMES

James, by his own admission, was a hard-core nominalist, as evidenced by his assertion that "All experience is particular."33 He also was a functionalist and an instrumentalist. Functionalism is a good place to begin James' story. It was this view that first attracted Dewey to James. Functionalism focuses on how the mind works in the environment. James decided, in this regard, that coordinated action is the basic unit of analysis; it is coordinated action that allows the organism to maintain an adaptive relation with the world. Coordinated action involves three key components. First and foremost, there is the need to act in ways that enhance survival.


Organisms cannot afford to stand by passively, waiting to see if their needs will be met; they must take action to secure their physical well-being. Second, organisms cannot afford to waste energy when acting, which is why successful action is quickly translated into routine habit: "Habit simplifies the movements required to achieve a given result, makes them more accurate and diminishes fatigue."34 Habit breaks down, however, in the face of the new and unexpected. When this happens, sensory input becomes grist for serious reflection, which is the third element of coordinated action. For James, the emphasis is always on action: "perception and thinking are only there for behavior's sake," he insists.35

Viewing relations between mind and world through a functional, coordinated-action lens can dissolve hard and fast distinctions like self and other, or stimulus and response, which many philosophers assume as givens. Acts that are felt to be part of the inner self, for example, are no different physiologically from those that are thought to be connected to objects or events (PP, vol. 1, 301). The distinction here is a functional one: Muscle movements in the chest, head, and jaw that represent "adjustments" are appropriated to the self; those that represent "executions" are attributed to the nonself or world. James applied the same functional analysis to experience. The nature of experience changes based on the kind of relation one enjoys with the world. When interaction with the environment proceeds in a harmonious way — which is to say, needs are being satisfied with little apparent effort or disruption — there is no push to attend consciously to what one is experiencing. This changes in the face of disruption or blockage, however, when individuals are forced to attend carefully to current experience. In fact, they must seek out new experience to understand better what is disrupting their need-driven interaction with the environment.

It is at this point in James' complex scheme that instrumentalism joins forces with functionalism. All organism-environment interaction is "interested," James emphasized. We become aware of the selective nature of this interest when faced with the blockage of a need. It serves as a homing device that orients individuals to the kind of information they need to consider in what has suddenly become a problematic situation. According to James, selective interest "gives accent and emphasis, light and shade, background and foreground" to experience. That interest dictates how we structure experience was a vital point for James, who believed that "Only those items I notice shape my mind."36 The important point to keep in mind here is that, for James, humans are creatures of interest first and intellect second. Ralph Perry defended this instrumentalist stance, which would get James into a great deal of trouble, arguing that "The mind is not only active, but interested. It tries what

it hopes is true. If the mind wanted nothing, it would try nothing."\textsuperscript{37} The trouble for James came when he equated "interest" with truth.

On numerous occasions, James equated the truth of a belief with its ability to satisfy a need: "The truth for any thinker," James wrote in 1907, "is his most 'satisfying' belief."\textsuperscript{38} James was quick to add that he was referring to truth in the singular here — truth as what a particular man thinks. In the same set of notes, James explicitly connected interest to instrumentalism: "Certain things are important to us by existing. Ideas that put us in relation to such things and help us to act satisfactorily about them are useful subsequentially."\textsuperscript{39} To cite an example, it is no coincidence that the development of farming led to an intense interest in seasonal climate changes on the part of our ancestors. Subsequent beliefs about the onset of spring and fall were judged truthful, according to James, exactly because they became associated in the farmers' minds with satisfactory consequences [that is, more successful planting and harvesting].

This last quote suggests how James' instrumentalism related to his nominalism, a point that obviously needs some elaboration. James argued that the mind seeks to fulfill needs in ways that are instrumentally satisfying in the long run. True belief provides more than immediate satisfaction; it provides "subsequential" satisfaction. Interest directs attention to particular objects and events in the environment, and this results in a very particular set of experiences. These data, while providing a rich record of what is happening in the present, tell us little about what is likely to happen in the future. Fortunately, all experience is "double-barreled," which is the term James coined to capture the ambidextrous nature of experience — the fact that it can function as both the object and the subject of reflection, for example.\textsuperscript{40} It is this quality that enables individuals to identify and name regularity in their experience. In this sense, reason, or reflection, serves desire, which, according to Paul Forster, is one of the key tenets of nominalism: "Reason can assist Desire by providing an indication of the likelihood of desire fulfillment under specified conditions (prediction), by illuminating the means by which desires can be fulfilled [control], and by pointing to the incompatibility of various desires [logic]."\textsuperscript{41}

Experience, as the object of reflection, is picked over, just as one sorts through a sock drawer. The intent in both cases is identical: to figure out what goes with what. According to James, there is nothing terribly complicated about this process. It "proceeds by cutting out particular contents from the flux of experience and then linking them through external relations [such as similarity or difference] with other

\textsuperscript{37} Ralph B. Perry, The Thought and Character of William James, vol. 1 (Boston: Little, Brown, 1935), 455.
\textsuperscript{38} James, Manuscript Essays and Notes, 244.
\textsuperscript{39} Ibid, 234–235.
\textsuperscript{40} David C. Lamberth, William James and the Metaphysics of Experience (Cambridge: Cambridge University Press, 1999).
individuated contents or aspects." Fortunately, James argued, experience lends itself to this kind of sorting: "Things seem once for all to have been created in kinds." Identifying what goes with what in the way of particular experience is the only way one can identify regularity or generality, which is essential if one is to reliably predict future consequences. Predicting future consequences, as I have argued, is the way to ensure that interests are served in the long run. Paraphrasing James, Charlene Seigfried explains that "Every novel or unclassified experience is a mental irritant which is relieved only when its future consequences are understood."

James was quick to point out that generality, while created by the mind, nevertheless has a basis in experience (see Dewey, MW, vol. 7, 145). In his book Essays in Radical Empiricism, which was published posthumously in 1976, James complicated this notion further by insisting that even pure, unreflected-on experience contains "relations": "The great obstacle to radical empiricism in the contemporary mind," James explained shortly before his death, "is the rooted rationalist belief that experience as immediately given is all disjunction and not conjunction." Continuities in experience, even though they are felt rather than articulated, nevertheless are real, James argued. The relations he called the "loveliest unions" are present in experience, though not in quite the same way as those constructed by one's "reflective intellect." This second type of relation, which finds expression in concepts, plays a key role in nominalist thinking.

Nominalists believe that abstraction or generality occurs when individuals apply language to commonalities in their own experience. It is important to note that James did not assign a lofty role to the reflective intellect that results in abstraction. As the notion of "double-barreledness" suggests, James adopted a layered approach, assigning equal weight to both unmediated and mediated (that is, named) experience. While abstract named concepts point to the future, they remain grounded in the present and past. James used the metaphor of water versus air to describe the tension between "reworked," or named, experience and its concrete, everyday base:

Both worlds (the concrete and the abstract) are real, of course, and interact, but they interact only at their boundary, and the locus of everything that lives, and happens to us, so far as full

42. Lamberth, William James and the Metaphysics of Experience, 181.
45. It is based on experience but is not in reality. Generalizations are created to meet individual needs, according to the nominalists, not, as Peirce claimed, because they "forcibly recommend" themselves to us" (CP, vol. 7, 669).
47. James, The Meaning of Truth, 7.
experience goes, is the water. We are like fishes swimming in the sea of sense, bounded above by the superior element, but unable to breathe it pure or penetrate it.... The abstract ideas of which the air consists are indispensable for life, but irresponsible by themselves.  

As pointed out previously, conceptualization, the process of pulling out and naming recurring experience, has a practical genesis. The purpose is to identify concrete regularities that have the potential for satisfying needs, now and in the future (to return to the farming example, “This time, coming halfway between the longest and shortest days of the year, is best for planting”). Despite its concrete and practical origins, however, conceptualization clearly does represent a process of abstraction. Direct acquaintance with an object or event gives way to a mediated relation. The hallmark of mediation is that the “self-same piece of pure experience” is “taken twice over,” to use James’ terminology. In the process of moving from thing to thought, a general quality is added to the concrete states of experience that yielded up the regularity. Edibility might be an example as it is abstracted from the remembered experience of self and others eating apples. In this way, the characteristic of edibility becomes one of several frames that can add meaning to apples and apple-like objects. This potential is realized when the concept, in fact, merges with or joins these objects, moving, in the process, from “thought” to “thing.” According to James, the fact that a piece of experience can be considered both a “subject” or “knower” of its content and an “object” or “thing known” is no more paradoxical than the fact that an object in the world can be both high and low, small and large, depending on its relation to other objects surrounding it. The thought/thing, subject/object distinctions are no different from the self/nonself distinction described previously; both contrast functions that are apparent only after the fact.

As indicated, James’ view of the role of language in conceptualization put him squarely in the nominalist camp. Without language, there would be no way to “bundle” experience. As James pointed out, “Experience merely as such doesn’t come ticketed and labeled” (P, 84). It is up to the individual to ticket and label what is general, according to nominalists. Individuals mark regularity in their own experience, but this does not mean that this regularity actually exists in nature. The nominalist has no way of accessing regularity in the world. The best that one can do, according to James, is to use language to “class facts” and then see whether these classifications enable one to better meet individual and group needs. Take as an example the class of facts we might call “bizarre” or “crazy” behavior on the part of others. The question the individual faces when presented with alternative language

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49. William F. James, Pragmatism, eds. Frederick H. Burkhardt, Fredson Bowers, and Ignas K. Skrupskelis (Cambridge: Harvard University Press, 1975), 63–64. This essay will be referred to as P in the text for all subsequent citations.
50. James, Essays in Radical Empiricism, 15.
— like the term "mental illness" — is what is gained or lost in renaming experience in this way. Members of a community may see a tangible benefit in using the language of "mental illness" if it causes hitherto unsympathetic individuals to respond more sympathetically to aberrant others.

The language used by others can shape the way individuals construe their own experience, James argued; this important idea continues to shape the way philosophers, psychologists, and educators think about education. James applied this notion to a distinction that has grown more important with time: that between commonsense, everyday concepts versus more abstract, disciplinary-based concepts. According to James, commonsense concepts, such as the notion that light emanates from objects or that the sound emitted by one's lips travels directly into the listener's ears, are acquired early in the child's development and work well enough given the child's need for ready explanations of everyday phenomena: "Common sense is the more consolidated stage," James maintained, "because it got its innings first, and made all language into its ally" (P, 92). Not only must teachers overcome the barrier of language that reinforces commonsense understanding (such phrases as "sun rise, sun set," for example), but they must also overcome the fact that commonsense concepts have instrumental value. In fact, James insisted, they suffice "for all the necessary practical ends of life." Only minds "debauched by learning" realize the limits of this way of thinking (P, 89).

James was among the first psychologists to distinguish between everyday and more formal concepts. Not surprisingly, James' approach to these two distinctly different ways of understanding phenomena mirrors that adopted by the most recent crop of postmodernist or nominalist conceptual change theorists, who prefer the term "alternative concepts" to that of "misconceptions." Like James, they reject the notion that more abstract or critical concepts are somehow nearer the truth. Both the commonsense and the scientific way of knowing are equally adaptive, albeit in different spheres of life: "No hypothesis is truer than any other in the sense of being a more literal copy of reality. They are all but ways of talking on our part, to be compared solely from the point of view of their use" (P, 93).

Commonsense concepts, which put us into "equilibrium with the surface of nature," are more than satisfactory for ordinary practical purposes, James emphasized (P, 94). Formal or disciplinary concepts are equally adaptive given their purpose, which is to provide a bare essentials cut on experience, rising above common sense and its "overfulness" of facts. The resulting sparse or economical way of thinking allows additional relations to be tested. James compared this mode of thought to "co-ordinates or logarithms." Like the latter, they are "only artificial short-cuts for taking us from one part of experience's flux to another. We can cipher wonderfully with them, but we must not be their dupes" (P, 92). James emphasized more than

once that our abstract concepts represent "notes, views taken on reality, not pieces of it." 54

This nominalist approach to conceptualization is so intuitively reasonable that it is difficult to imagine an alternative, or so Peirce thought at the turn of the century: "The nominalistic Weltanschauung has become incorporated into what I will venture to call the very flesh and blood of the average modern mind" (CP, vol. 5, 42). Despite this fact, Peirce maintained that the logical debate between nominalists and realists ought to be reopened. It is important to see why Peirce considered this to be the case in order to understand why Dewey eventually jumped ship, abandoning James and his nominalism in favor of Peirce and his semiotic realism.

CHARLES SANDERS PEIRCE

Peirce argued that instrumentalism is insufficient to explain why humans search out regularity or lawfulness in the universe. Absent regularity, individual existence — including one's own — is a nullity: "Chaos is pure nothing" (CP, vol. 5, 289). Like Duns Scotus, who exerted a profound effect on his thinking, Peirce believed that real universals are the key to the cosmos being ordered and intelligible and that human reason is tuned into this regularity. According to Peirce, the human mind is well suited to detecting the lawfulness that lurks beneath the surface of reality. "Nature's objective regularity specifies man's knowledge, and man guides his own activity toward and in nature accordingly," Vincent Potter writes. 55

In a move that ran dramatically against the grain, Peirce attempted to shift attention away from James' compelling, nominalist preoccupation with personal experience, focusing instead on the world and the order that exists there. Peirce's goal in developing pragmatism was straightforward enough: to develop a philosophical rationale for scientific inquiry. Science, Peirce wrote, "embodies the epitome of man's intellectual development" (CP, vol. 7, 37). Nominalism, he argued from the outset, provides a shaky edifice upon which to build such a rationale. The lawfulness that science is attempting to identify is not solely a creation of the human mind; it is there in nature, ready to reveal itself when subjected to the right kind of scrutiny. Reality imposes itself upon us; all that is required to seize hold of the lawfulness that lurks there is a little imagination (CP, vol. 1, 162):

There are Real things, whose characters are entirely independent of our opinions about them; those Reals affect our senses according to regular laws, and, though our sensations are as different as are our relations to the objects, yet, by taking advantage of the laws of perception, we can ascertain by reasoning how things really and truly are; and any man, if he have sufficient experience and he reason enough about it, will be led to the one true conclusion (CP, vol. 5, 242).

This passage troubled nominalists at the turn of century and vexes the current crop of nominalists as well. Both groups, Jamesian and postmodern pragmatists alike, take issue with the first premise. They accept the notion that there are "real

things" in the world that are independent of what people know about them, but they insist that there is no way to get at those things apart from the concepts individuals construct out of their own experience and the language they attach to those constructs.56

Philosophers at the turn of the century were also troubled by what comes later in the passage. The notion that perception and creative reasoning are the mechanisms that lead to new insights in science, implicit here and explicit in Peirce's other writings, struck at the very foundations of the modernist approach to disciplined inquiry, which made science synonymous with the process of induction. Those who kept abreast of cutting-edge developments in science knew that rising young stars like Henri Poincare, Ludwig Boltzman, and Albert Einstein questioned the notion that science advances through induction, the mining of personal experience to yield regularity or order.57 For example, in his 1908 essay on mathematical invention, Poincare insisted that novel hypotheses are developed through an imaginative perceptual process. Einstein wholeheartedly agreed: "There is no inductive method which could lead to the fundamental concepts of physics," he declared, adding that "Failure to understand this fact constituted the basic philosophical error of so many investigators of the nineteenth century."58

**Peirce's Maxim**

Peirce directly addressed the important issue of how members of a scientific community assign meaning or significance to propositions, an issue that was badly handled or ignored by the nominalists who, in their bottom-up approach, preferred to focus on concepts that are embedded in propositions. In his famous 1878 maxim, Peirce dealt with this problem; however, he did so in a way that he would regret for the rest of his life. This statement led to the rift between James and Peirce, convincing James that nominalism was the way to go and Peirce — after a great deal of soul-searching — that it was not. Peirce's 1878 maxim reads as follows: "Consider what effects, that might conceivably have practical bearings, we conceive the object of our conception to have, then, our conception of these effects is the whole of our conception of the object" (CP, vol. 5, 258). The meaning or significance of a proposition, in other words, lies in the tangible outcomes with which it is associated. To cite a previous example, the proposition that "Craziness' is actually 'mental illness" has real significance if it leads to changes in the way people relate to aberrant individuals. James warmly embraced Peirce's maxim because it went hand-in-glove with his functionalism. To instinctual and habitual action, the twin pillars of his functional approach, James could now add "belief-related action." The origins of the maxim, in fact, supported James' functionalist interpretation.

56. Current critics of this view, like John D. Caputo, reject the notion that language functions as a cognitive gatekeeper. Because of this assumption, Caputo adds, postmodern nominalists are caught in a kind of "linguistic house arrest," "a mirror play of words in which words lead to more words but never to the matter itself" (that is, "generals" in the world). See John D. Caputo, "The Thought of Being and the Conversation of Mankind: The Case of Heidegger and Rorty," *Review of Metaphysics* 36, no. 3 (1983): 661–685.
58. Ibid., 99.
As Fisch makes clear, Peirce’s pragmatic maxim was not spun out of whole cloth; the basis for the idea can be traced back to Alexander Bain.59 Bain defined a propositional belief as “that upon which a man is prepared to act.” Chauncey Wright, a charter member of the philosophical group that Peirce had convened in the winter of 1871, quickly latched onto Bain’s important idea and gave it a Darwinian spin.60 Darwin’s theory, of course, was the intellectual event of the nineteenth century. Certainly, its import was not lost on Peirce’s small group of prominent philosophers, scientists, and lawyers — especially Wright and James. Wright, in his 1870 review of Bain’s work, explicitly connected Bain’s notion that a belief’s meaning is connected to the action it spawns with the equally compelling notion that nature is the final test of the efficacy of that action.61

James was thrilled with Peirce’s reformulation of the Bain/Wright maxim. He immediately found a place for it in his functionalist and (increasingly) nominalist worldview. A belief in free will, James argued, if it has any meaning or significance for the individual, must be associated with outcomes that fall under the heading of taking control of one’s life. A belief in God, if truly embraced, must lead one to act as if there is a better life to come. The more James embraced the maxim, the more Peirce pushed it away. The latter soon began to give voice to his doubts about James’ interpretation of the maxim: “I did not...mean to say that acts, which are more strictly singular than anything, could constitute the purport, or adequate proper interpretation, of any symbol [that is, idea],” he wrote (CP, vol. 5, 259 n. 3, emphasis added). A simple act, in other words, does not lawfulness or regularity make.

Peirce believed that a statement such as “this diamond is hard” must stand for something more than its specific action-outcome meaning (for example, “it resists scratching”). It must stand for some more general potentiality or possibility. To think otherwise is to say that the statement implies nothing about the hardness of a diamond that is not put to the test: “This” diamond that, it has been determined, lies at the bottom of the ocean may or may not be hard. Absent the action-outcome that completes the meaning of the assertion, one is in limbo. Such an interpretation was unacceptable to Peirce: “When an experimentalist speaks of a phenomenon...he does not mean any particular event that did happen to somebody in the dead past, but what surely will happen to everybody in the living future who shall fulfill certain conditions” (CP, vol. 5, 284).

The operational definition of a proposition helps fix its meaning, but it does not exhaust what it stands for, Peirce argued. The laws that scientists seek to uncover represent more than the action–outcome instantiations of those laws. This is where Peirce parted company with James. James insisted that action is the ultimate end. For

60. James was one of the original members of the Cambridge Metaphysical Club, as was Wright, who is described, interestingly enough, as “an avowed nominalist.” Other members of this distinguished group included Oliver Wendell Holmes, Nicholas St. John Green, John Fiske, and Francis Ellingwood Abbot. Peirce’s pragmatic maxim is generally regarded as the most important outcome of this club.
Peirce, the ultimate end — at least of inquiry, which was Peirce's bailiwick — was to get smarter about the world. Action-outcomes, even in the form of operational definitions, illuminate but do not encapsulate ideas. Peter Skagestad illustrates what Peirce means by building on one of the latter's examples. To say that the force of gravity acts on an object dropped from the hand is to specify certain action-outcomes, certain specific changes in velocity that can be precisely calculated. We understand, however, that the object is subject to the force of gravity even if it remains in the hand. The fact that we are able to describe the concept in words other than those used by physicists is additional proof that the idea represents more than its operational definition.

Peirce later admitted to some confusion when he first introduced the pragmatic maxim. He went “too far in the direction of nominalism” (CP, vol. 8, 166), which became evident when James pushed the action-outcome method “to such extremes as must tend to give us pause” (CP, vol. 5, 1). “Perhaps the writer waivered in his mind,” Peirce continued (CP, vol. 5, 305); regardless, it was now clear to him that the meaning of a proposition lies “not in individual reactions in their segregation, but in something general or continuous” (CP, vol. 5, 2). Peirce felt so strongly about this issue that he decided to disown his own brainchild. The term pragmatism had become so associated with a nominalist interpretation of his maxim that he felt compelled to “kiss his child good-by.” In its place, Peirce offered a new, “purer” philosophy, one that was realistic as opposed to nominalistic. The term he coined for this new philosophy, “pragmaticism,” was chosen with some care. The idea was to come up with a term that was so “ugly” that it would be “safe from kidnappers” (CP, vol. 5, 277). Peirce had no trouble articulating what set his version of pragmatism apart from that of James.

The core notion, borrowed from Duns Scotus, is that generals or universals are real: a plant's ability to produce food, to cite a modern example, is a general quality existing in all green leafy objects. This general attribute is not, as Peirce was fond of saying, a mere figment of our imagination. It is because nominalists consider generality to be a kind of mental projection that they assign such importance to action-outcomes. Absent this anchor, no claims can be made about the relation between language and the real world. However, as Stephen Pepper pointed out in his classic book World Hypotheses, the best the nominalist can say of that relation is that certain symbolic statements are “co-related” with certain positive outcomes; symbolic statements, by definition, give “no insight into the qualities of nature.”

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63. Peirce, Carl Hausman explains, took pains to substitute the term “idea” for “belief” in the reformulation of his pragmatic maxim. “Belief” has a linguistic, hence nominalist, connotation that is less evident when the term “idea” is used. See Carl R. Hausman, *Charles S. Peirce's Evolutionary Philosophy* [Cambridge: Cambridge University Press, 1993], 38. Rorty, who repeatedly cites James as his inspiration, chimes in on this issue, insisting that beliefs (as opposed to ideas) possess two key qualities: intentionality and the absence of “phenomenal properties.” See Richard Rorty, *Philosophy and the Mirror of Nature* [Princeton: Princeton University Press, 1979], 24.

The fact that nominalists locate generality in the mind and not in the world raises doubts about their version of induction as well, according to Peirce. Nominalists like James assume that the process of induction begins with analysis. One discerns similarity in experienced objects or events and applies a label to this pattern. Thus equipped, the individual can place and make predictions about similar objects or events in the future. Peirce argued, however, that discovering a law is not the same as identifying what is uniform or regular in experience. A gambler who has enjoyed a run of sevens experiences a uniformity, but not the kind that scientists trust and seek out. Scientific uniformity is on a different footing. Scientists make predictions based upon trustworthy uniformity precisely because they view it as an element in nature (CP, vol. 6, 76).

According to Peirce, nominalists like James treat all uniformity equally, at least initially, in arguing that all uniformity, being a creation of the mind, deserves to be taken seriously. Peirce took issue with this notion, subjecting it to a devastating critique:

> It is, surely, not difficult to see that this theory of uniformities, far from helping to establish the validity of induction, would be, if consistently admitted, an insuperable objection to such validity. For if two facts, A and B, are entirely independent in their real nature, then the truth of B cannot follow, either necessarily or probably, from the truth of A. If [referring to the law of gravitation] I have tried the experiment with a million stones and have found that every one of them fell when allowed to drop, it may be natural for me to believe that almost any stone will act in the same way. But if it can be proved that there is no real connection between the behavior of different stones, then there is nothing for it but to say that it was a chance coincidence that those million stones all behaved in the same way; for if there was any reason for it, and they really dropped, there was a real reason, that is, a real general (CP, vol. 6, 76).

Nominalism, which regards “nature’s laws” as nothing more than “prognostic generalization” (EP, vol. 2, 70), is anathema to science, Peirce insisted. Philosophy can afford the luxury of nominalism but science is a different matter: “Science has always been at heart realistic” (CP, vol. 1, 81). Be that as it may, Peirce’s brand of realism — anti-nominalist, anti-inductionist — was difficult for both scientists and philosophers to accept at the turn of the century. Peirce appreciated this: “All modern philosophy is built upon Ockhamism, by which I mean that it is all nominalistic.” Science, against its better judgment, has followed suit, Peirce added (EP, vol. 2, 156).

**Regularity as Real Possibility**

One problem philosophers faced in accepting Peirce’s realism is that it flew in the face of traditional logic. This requires some explanation. Peirce believed that lawfulness or regularity represents possibility. Not all possibility, he was quick to point out, is created equal; there are gradations of possibility, from the vague kind associated with the origination of an idea to the more serious kind (termed “real” or “logical” possibility) that we have reason to believe points to things that actually exist in the world (CP, vol. 6, 260). As the term “real possibility” suggests, order or regularity comes cloaked in the specific or the particular. Peirce agreed with the

65. James, Essays in Psychology, 33.
Scotish realists on this point. However, he parted company with them on the issue of where this order resides.

Peirce argued that the general does not exist in the particular, in the sense of some static, "substantial form" or "essence," as Duns Scotus believed. The regularity Peirce had in mind is best thought of as a kind of logical "coming together," or, to use Boler's description, the "truncated image of a relational law." Isaac Newton's ideas about gravity are an example: If a falling apple can exert a reciprocal influence on the earth, which Newton came to believe, then gravity must be a universal force, applicable to any two objects, regardless of size, kind, distance, or the like. Newton's proposition can be expressed as a three-part mediational relationship. The powerful idea of universal gravitation is what connects the notion that falling apples interact with the earth in the same way that planets interact with the sun.

Ideas originate as iconic or perceptual metaphors, according to Peirce: "A pure idea without metaphor or other significant clothing is an onion without a peel." Peirce further asserted that there is no possibility of framing conceptions "otherwise than by metaphors" [EP, vol. 2, 392]. Archimedes' sudden realization that the volume of irregularly shaped objects can be measured by immersion in water is an example. This insight came to him in the midst of a bath, with his own body serving as a physical metaphor for the new idea. Once the idea has been seized hold of in this way, so to speak, the more controlled process of deduction takes over. This process spells out the consequences that will serve to test the idea, according to Peirce.

Induction plays a role in determining how much action-testing is necessary in order to "confirm" the hypothesis. Induction is, at best, a probabilistic enterprise; individual tests are meaningful only as they lay the groundwork for the large number of tests that will follow. This, of course, implies that attempts to verify a hypothesis are enacted by what Peirce terms a "community of inquirers." The decision to move a proposition from "real" possibility to "truth" can only be made by members of a community. Faith that the community, in the long run, will arrive at the correct conclusion about a proposition follows logically from Peirce's assumption that propositions lend themselves to an almost infinite number of tests. No individual can ever exhaust the "theoretically infinitely long list of conditionals" associated with a proposition.

Kenneth Ketner and Christian Kloesel, with the benefit of hindsight, argue that Peirce should be regarded as "the most profound native intellect to have appeared in the United States." Unfortunately, as was pointed out previously, this view was not endorsed by many, if any, during Peirce's lifetime. Even James, one of his few

supporters, admitted that he understood very little of what Peirce had to say. Scholarly opinion about Peirce has undergone a major revision since the turn of the century. In part, this can be attributed to the excesses of nominalism. In the hands of postmodernists like Rorty, nominalism has been carried to an extreme. In the next section, I argue that Dewey reached a conclusion similar to that arrived at by critics of postmodern nominalism. Dewey decided that it is profoundly dissatisfying to equate truth with successful action, whether that action is rhetorical, as certain nominalists aver (that is, successful “moves” in the language game), or purely instrumental (that is, correlated with happy outcomes), as James would have it. Action ought not be the *summum bonum* for the pragmatist, Peirce argued and Dewey agreed (see LW, vol. 2, 5). Generalization, “the spilling out of continuous systems, in thought, in sentiment, in deed,” is the true end of life, according to Peirce (CP, vol. 4, 284).

Dewey, echoing Peirce whom he credits with the idea, explicitly rejected nominalism in his 1925 work *Experience and Nature* (LW, vol. 1, 147). In a 1936 essay titled “What Are Universals?” Dewey paraphrased Peirce’s critique of induction as it is understood by both the nominalists and the conceptualists:

> We cannot extract the common character of “horsiness” from horses until each singular has already been determined to be a horse, and this determination implies that, through the operative use of a universal, certain qualities have been warranted to be evidential characteristics of a certain kind of thing (LW, vol. 11, 113).

This way of thinking, he wrote, “differs fundamentally from nominalism in holding that the general has its ground in existence” (LW, vol. 12, 261). Dewey made other pejorative comments about nominalism in the second half of his career (cf., LW, vol. 12, 350). When one reads the mature Dewey, it is easy to lose sight of the fact that this great scholar had embraced nominalism early in his career. Educators, in particular, may not realize the extent to which Dewey later disavowed the nominalist thinking that pervades his best-known writings on education, most of which predate World War I.

**Dewey: From Nominalism to Realism**

To understand Dewey’s approach to philosophy, one must first appreciate the depth of his lifelong aversion to dualisms of any stripe. Morris Cohen is correct to term this opposition “one of the dominant notes of Dewey’s philosophy.” Some time between Dewey’s undergraduate and graduate years he experienced a profound personal crisis over a duality that was to vex him for years, that between his religious beliefs, on the one hand, and the new insights he was gaining from science and philosophy, on the other (LW, vol. 5, 153). When he encountered G.W.F. Hegel’s idealism while in graduate school, Dewey became convinced that dualisms like the

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70. Twentieth-century philosophers have substituted language for experience, albeit for different reasons. Nominalists like himself, Rorty writes, believe that there is no way to get at experience but through language: “The world is out there, but descriptions of the world are not” (Rorty, *Contingency, Irony, and Solidarity*, 5).

one he was wrestling with lessen or disappear entirely as we get closer and closer to the truth. Dewey wrote many years later that Hegel’s thought, which met a “demand for unification that was doubtless an intense emotional craving” was instrumental in helping him deal with his angst [LW, vol. 5, p. 153]. This period of Dewey’s life deserves mention in the present context because it is key to a debate that has important implications for the central premise of this paper — namely, that in his early work (1890 to 1915) Dewey fully accepted James’ instrumental nominalism.

One view, argued forcibly by scholars like Andrew Reck and Denis Phillips, holds that Dewey jettisoned what remained of his Hegelian idealism once he had encountered James’ startling new ideas. Thus, Phillips argues that James’ work, particularly his classic tome The Principles of Psychology, “had a revolutionary impact on Dewey.” Reck agrees, highlighting the fundamental discontinuity between Dewey’s youthful Hegelianism and his post-1890 “experimental naturalism.” Reck contrasts Dewey’s thinking before and after this watershed time in his life, in support of the contention that Dewey underwent a “radical shift” in his philosophy as a result of his encounter with James’ groundbreaking work. The pre-1890 Dewey believed, like Hegel, that man could aspire to an almost God-like state of “absolute” or “universal” self-consciousness where one finally and fully grasps the hidden harmony of everything — where opposites like matter and mind, subject and object, good and evil, are resolved in unity. Philosophy can shed light on key features of this state (for example, its complete unity, the fact that it is eternal, without origin or decay, and so on), but it is up to psychology to determine how individuals, drawing on intelligence and will, can bootstrap their way to this ideal state: “Knowledge resolves the fragmentariness of the part by locating it in the whole. The will, on the other hand, operates by both moving the finite self toward its realization and originating the ideals toward which it moves and in which its self-realization consists.”

A great deal of evidence supports Reck’s hypothesis regarding the source of the early discontinuity in Dewey’s thinking. In his 1930 autobiography, Dewey states explicitly that James’ Principles of Psychology changed the course of his thinking, giving it “a new direction and quality” [LW, vol. 5, 157]. Neal Coughlan writes that Dewey was so thrilled with James’ book that he “was teaching it to his students a bare month or two after he received it.” Fisch agrees with Coughlan’s assessment, writing that “The advent of James’ Principles was the great literary event of Dewey’s life.” In a 1903 letter to James, Dewey wrote that he believed James’ work was “the

spiritual progenitor of the whole [nominalist, instrumentalist] industry."76 Dewey's daughters later confirmed the importance of James' thinking on their father's early work: "William James' *Principles of Psychology,*" they wrote, "was much the greatest single influence in changing the direction of Dewey's philosophy." Dewey's daughters add, and Dewey himself confirms, that it was chapters in this book "dealing with conception, discrimination and comparison, and reasoning" that most caught the great man's attention.77 This is worth mentioning because these chapters are the most decisively nominalist in character. Before elaborating on this point, I will address the counterargument, which holds that James' influence on Dewey is overstated and that the latter blended many of his Hegelian commitments with key aspects of James' approach (that is, the biological and functional aspects of the theory).

Andrew Backe, an advocate for what might be termed the "blended" view, cites two pieces of evidence in support of his argument.78 The first is a comment Dewey made in his 1930 personal statement: "Hegel has left a permanent deposit in my thinking" (LW, vol. 5, 154). However, Backe leaves out the sentence following the one just quoted, which elucidates his meaning: "The form, the schematism, of his [Hegel's] system now seems to me artificial to the last degree." Dewey found the content of many of Hegel's ideas helpful but could not accept the rigid system in which they were embedded. Darnell Rucker, in his introduction to volume 3 of the *Middle Works,* supports this interpretation: "Hegel provided a holistic viewpoint of prime importance for Dewey, but he did not get trapped in the Hegelian apparatus that probably only Hegel could stay alive in" (MW, vol. 3, xxiii).

The second piece of evidence provided by Backe against a discontinuity in Dewey's thinking is a letter Dewey sent to James, in which he purportedly expressed severe reservations about James' criticism of Hegel in *The Principles of Psychology.* "Dewey argues that James has mischaracterized Hegel's views" in this unpublished letter, Backe insists, adding the comment that Dewey was "unable to suppress his 'secret longing' that James had worked out Hegel's views more carefully."79 The bone of contention appears to be James' sense that Hegel, like Immanuel Kant, assigned too great a role to consciousness as a necessary, unifying presence in experience. Dewey maintained that Hegel really had in mind a role much more connected to the end result than to the process that produces this result. Backe allows for this interpretation in his summary of Dewey's view. Thus Backe writes, quoting Dewey, "Hegel perceives the self as 'the organized content of the physical world.'" Backe then goes on to say that Dewey believes that the self, while part and parcel of the unified organization, need not function as the "unify-ing organ."80 In Backe's

79. Ibid., 317.
80. Ibid., 117.
interpretation, Dewey was stoutly defending an element of Hegel — the notion that subject (self) and object (fact) become integrated or merged in objective knowledge — that he believed James was willing to sacrifice in an effort to maintain purity and continuity in his “stream of thought.” This shows, Backe hints, that when James and Hegel were pitted against each other at this point in Dewey’s life, Dewey sided with Hegel.

I believe that Backe’s interpretation misrepresents both James and Dewey. In a 1903 piece, James explained that he found Hegel’s views vexing because of his tendency to reify the subject, making it a kind of “consciousness at large” in any knowing experience:

> Experience, now treated as synthetic datum due to two factors, a consciousness and a content, neither of which is capable of separate existence, is less dualistic than mind and matter were. Nevertheless, so long as the consciousness and the content are still regarded as elements inside of every piece of experience, eternally two in number, and the more universal one more spiritual in nature than the other, the conception, I believe, is far too dualistic still.84

James opposed Hegel’s scheme because he thought the gain — that is, the merging of self and fact — was bought at too steep a price: “Consciousness and content are not instinct ingredients constituent of any experience whatever. They are names of functions which experiences in the undivided wholeness may enter into and fulfill, of opposite spheres of relation in which they may get mutually involved.”85 This is what James meant when he criticized Hegel, a fact that becomes obvious when one reads the crucial passage in *The Principles of Psychology* with this concern in mind (PP, vol. 1, 366–370).

Turning now to the point under discussion, Backe’s characterization of Dewey’s letter to James, the much longer passage provided by John Shook points to a different interpretation (see PP, vol. 1, 304). Shook’s excerpt shows that Dewey compliments James on a section in the *Principles* that precedes the one on which Backe’s analysis focuses.83 In this earlier passage, James suggests that “thinker” (the “me”) and “matter” (the “not me”) are “postulates”; evidence in support of one or the other waxes and wanes during the act of thought as the focus of attention shifts inward and outward: “Between the postulated Matter and the postulated Thinker, the sheet of phenomena would then swing, some of them [the ‘realities’] pertaining more to the matter, others [the fictions, opinions, and errors] pertaining more to the Thinker” (PP, vol. 1, 304).

Briefly stated, in this passage James proposed a functional analysis of subject and object. What Dewey said about this passage is revealing: “If I understand at all what Hegel is driving at that [the passage] is a much better statement of the real core of Hegel than what you criticize later on as Hegelianism.”86 Dewey supported this argument by showing how James could fit Hegel into his functional framework:

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82. Ibid.
84. Ibid., 104.
Take out your "postulated" "matter and thinker," let "matter" [i.e., the physical world] be the organization of the content of consciousness [i.e., the stream of thought] up to a certain point, and the thinker be a still further unified organization [not a unify-ing organ as per Green] and that is good enough Hegel for me.85

Dewey recognized that Hegel's decision to call this second kind of unity "Self" seemed strange to James and others; he maintained that, unlike Kant, Hegel did not intend to make an agent out of this unity. Hegel's "self," Dewey explains in his letter to James, is "simply the universe doing business on its own account."86 The preceding analysis casts a different light on the evidence Backe cites to demonstrate that Dewey, following his encounter with James' theory, attempted to reconcile the latter's views with his own Hegelian idealism. In fact, I contend that Dewey's 1891 letter to James supports the opposite conclusion: In my view, Dewey attempted to reconcile the one aspect of Hegel that he considered worth keeping with his newfound commitment to James' point of view.

The preponderance of the evidence reviewed to this point supports the contention that, in contrast with Backe's view, Dewey made a wholehearted conversion to James' position in 1891. This statement begs the question of what role James' nominalism played in Dewey's conversion, however. The eminent philosopher Hans Reichenbach thought it played a major role. According to Reichenbach, Dewey bought totally into the nominalist notion that abstract terms are "to be conceived as a kind of shorthand for groups of complicated statements about concreta."87 This is true of the pre-1915 Dewey. Also evident is the fact that he inherited this view from James. As indicated previously, Dewey's daughters were able to identify the chapters in James' Principles of Psychology that most resonated with their father's thinking. These chapters, strongly nominalist in character, deal with the topics of conception, discrimination and comparison, and reasoning. In his autobiography, Dewey included the same list with one addition — "generalization" (LW, vol. 5, 158).

Most of the topics Dewey mentioned are treated in three lengthy chapters in volume 1 of James' Principles: chapter 12, "Conception"; chapter 13, "Discrimination and Comparison"; and chapter 14, "Association." At the very beginning of chapter 12, James made clear his commitment to a nominalist epistemology: "The sense of sameness is the keel and backbone of our thinking" (PP, vol. 1, 459). Detecting sameness in multiple objects always begins with selective attention: "Every one of our conceptions is of something which our attention originally tore out of the continuum of felt experience, and provisionally isolated" (PP, vol. 1, 465). Image and symbol play a role in identifying and carrying forward the sameness that has been identified:

The only class of thoughts which can with any show of plausibility be said to resemble their objects are sensations. The stuff of which all our other thoughts are composed is symbolic, and a thought attests its pertinency to a topic by simply terminating, sooner or later, in a sensation which resembles the latter (PP, vol. 1, 471).

85. Ibid., 105 [emphasis added].
86. Ibid., 105.
James used the metaphor of the sieve to describe the process that identifies what is similar and what is different across objects: Most facts and relations, being either insignificant or difficult to discern, are permitted to fall through the mesh of the sieve. However, we retain those that connect with the previous facts and relations that have drawn our attention: "Whenever a physical reality is caught and identified as the same with something already conceived, it remains on the sieve" (PP, vol. 1, 482).

In chapter 13, James considered what allows us to "catch and identify" sameness, highlighting two processes: analysis and synthesis. According to James, "Analysis of a thing means separate attention to each of its parts," which is possible only if we can create an image of the attribute in question (PP, vol. 1, 503). A vague sense of the part in relation to the whole will not do. We need to get as firm a fix on it as possible if it is to be useful in future situations. James admitted that the process of abstraction, which analysis makes possible, is not well known: "Why the repetition of the character in combination with different wholes will cause it to break up its adhesion with any one of them, and roll out, as it were, alone upon the table of consciousness, is a little of a mystery" (PP, vol. 1, 507). The purpose of chapter 13, then, was to examine how the mind, through analytic attention and discrimination, is able to "break asunder" objects.

Chapter 14 dealt with the converse of this operation, called synthesis. The two work in tandem, as James explained: “Analysis and synthesis are...the incessantly alternating mental activities, a stroke of the one preparing the way for a stroke of the other, much as, in walking, a man’s two legs are alternatively brought into use, both being indispensable for any orderly advance" (PP, vol. 1, 550). The more expansive term that James used for the second leg of the process of concept formation is "association." James contrasted involuntary association, which is a function of the number of common elements shared across two or more experiences, with voluntary association. While involuntary association is guided by very general interest, voluntary association requires specific interest (specific interest is also key to analysis — that is, the process of pulling out attributes). To cite an example, consider a child who has isolated attributes across a number of encounters with dogs that seem related to their aggressiveness; having once been bitten by a dog, the child has a huge incentive to figure out which combination of characteristics contributes to one's ability to predict future negative encounters with dogs. To paraphrase James, the mind "emphasizes and lingers" over those attributes that are of interest. When the effects of attention and volition are greater, the role of "cerebral laws" in association is less relevant (PP, vol. 1, 594). It is here, he argued, that his "anti-mechanical psychology must, if anywhere, make its stand in dealing with association."

Dewey was immensely impressed with all these elements of James’ theory. He repeatedly singled out James’ treatment of analysis and synthesis as representing an important breakthrough for philosophy, psychology, and education (MW, vol. 3, 370-375). They are the processes par excellence for getting knowledge, Dewey writes. One of the things Dewey most disliked about Kant’s approach was the insidious
distinction he drew between the two processes. In Kant's formulation, analysis was pure thought, while synthesis, its poor cousin, was forced to deal with the external material thrust upon it (EW, vol. 1, 37–47). James insisted that these two processes are correlative and thus equal. One implication of the correlative notion, Dewey realized, is that both processes must deal with the same kind or quality of material. James was clear about what this matter was: the world of perceptual particulars. This key nominalist assumption is part and parcel of James' approach to concept formation: "The significance of concepts consists always in their relation to perceptual particulars," James stated elsewhere in his writing. "Made of percepts or of parts of percepts, their office is to enable the mind to apply itself again to the world of percepts with a better command of the situation there."88

Dewey understood that processes of analysis and synthesis, guided as they are in James' theory by emphasis and selection, make sense only in the context of a view of knowledge that is nonessential — which is to say, nominalistic. James emphasized this in his discussion of reasoning in The Principles of Psychology: "Men are so ingrainedly partial [that] the notion that there is no one quality genuinely, absolutely, and exclusively essential to anything is almost unthinkable" (PP, vol. 2, 334).89 James insisted that to believe in universals is merely to insist on an aspect of an object or event that suits one's own purpose. When he wrote, "The essence of a thing is that one of its properties which is so important for my interests that in comparison with it I may neglect the rest," James firmly tied his nominalism to his instrumentalism. He had previously made light of the whole enterprise that motivated the scholastic realists in his chapter on conception, noting that "The traditional universal-worship can only be called a bit of perverse sentimentalism, a philosophic 'idol of the cave'" (PP, vol. 1, 480).

Dewey was clear about the fact that the epistemology came with the process — that is, he could not embrace the mechanism of analysis and synthesis as it relates to concept formation without also embracing its nominalist view of knowledge. Each of these ideas — the correlative nature of analysis and synthesis, the role that interest plays in the process, and the rejection of essences or universals — figured prominently in Dewey's post-1890 work. Three examples may suffice to illustrate this fact. First, in his classic 1910 book How We Think (MW, vol. 6, 177–356), the processes of analysis and synthesis play an absolutely pivotal role in the way Dewey described conception in scientific thinking — in fact, he defined this type of thinking as the "conjoint process of analysis and synthesis." This conjoint process also plays an important role in Dewey's discussion of psychology as a field of study (MW, vol. 1, 121), in his review of a book laying out a psychology of education (EW, vol. 5, 383), in a chapter on "data and meanings" in his 1903 book Studies in Logical Theory (MW, vol. 2, 339) — the list goes on and on. James' approach also figures prominently in Dewey's discussions of abstraction and induction.

89. For his complete discussion, see James, PP, vol. 2, 325-371.
The second example relates to the role that interest plays in analysis or abstraction in education. Dewey made ample use of James' notion that personal, vested interest is the most natural initiator of abstraction. Educators, especially of young children, ignore this fact at their own peril, Dewey warned:

It is pointed out that abstraction first exists practically in simple selection or preference as to ends and means, and that generalization is of the same practical sort, consisting in the adjustment of means to ends, and that only at a later point does this practical selection and adjustment come to consciousness in explicit rational form (EW, vol. 5, 182).

The third example of James' influence on Dewey is the way the latter embraced James' notion that essence is tied to interest. After calling this idea "one of the many of Professor James' important contributions to psychology," Dewey used the idea to drive home his point that we construct essence out of interest: "The factor of enduring interest comes to be [wrongly] thought of as a sort of fixed permanent core, which is the reality" (EW, vol. 4, 47). This quote is further proof that Dewey had, at least by 1893, fully accepted James' position on the nonreality of essences or universals.

In fact, Dewey's brand of nominalism closely matches James' in most particulars. Like James, for instance, Dewey argued that everyday inquiry and disciplined inquiry are not qualitatively distinct processes; they differ only in degree. In ordinary observation, the process of abstraction — "placing a thing where it belongs" (EW, vol. 3, 149) — is mostly unconscious. In scientific observation, the converse is true; the inquirer carefully attends to the process. The data upon which both the common man and the scientist act, however, are the same: "It is one and the same world which offers itself in perception and in scientific treatment; and the method of dealing with it is one and the same — logical. The only difference is in the degree of development of the logical functions in both" (EW, vol. 3, 80).

Like James, Dewey highlighted the role language plays in determining how experience is ordered. In Dewey's parlance, language functions as a "fence," a "label," and a "vehicle" in the abstraction-projection process (MW, vol. 6, 316). As a fence, language allows us to single out and detach meaning from the hurly-burly of everyday experience; as a label, it allows us to retain or store that meaning; and, as a vehicle, it enables us to project our understanding into real existence in the present and in the future. Dewey asserted that "To name anything is to give it a title; to dignify and honor it by raising it from a mere physical occurrence to meaning that is distinct and permanent." Naming puts meaning on wheels, so to speak, allowing us to transport meaning "from experiences that no longer concern us to those that are as yet dark and dubious" (MW, vol. 6, 317). Dewey, like James, distinguished between everyday language, tailored to practical needs, and scientific language, developed to help identify more lasting, and thus more predictable, relations in our experience. Both forms of language constrain and shape thought: "The chief intellectual classifications that constitute the working capital of thought have been built up for us by our mother tongue" (MW, vol. 6, 318).

Dewey's nominalism is further evident in his views about the origins of ideas and how those ideas are verified, as expressed in the 1911 article "The Problem of Truth"
[MW, vol. 6, 12–68]. Like James, Dewey subscribed to what might be considered a kind of "language-encased" approach to verification that viewed hypotheses (that is, ideas) as operationally linked to outcomes.90 Propositions are true if they point to outcomes that appear to be logically connected to the statements. The key notion here is that there is no direct connection between hypothesis and outcome. A symbolic statement, like a shovel, is an instrument that allows one to exert some influence on an aspect of the world; it acts on but does not mesh with objects or events in the world—a subtle but important difference. As Pepper explains, "The texture of the hypothesis is one thing, the successful act which verifies it is another."91 The qualities of the one are, in other words, "radically severed" from the qualities of the other. In his 1911 essay, Dewey explicitly rejected the notion that ideas connect in a qualitative way with the reality they are trying to capture: "To tell whether a proposition reflects a thing as it really is requires a third medium in which the original proposition and its object are surveyed together, are compared and their agreement or disagreement seen" [MW, vol. 6, 34]. Language, as a tool brought into the environment, does not lend itself to this kind of arrangement.

Attempting to explain away the nominalist trap, Dewey argued that the best test of a proposition anyone can offer is "functional correspondence." In this type of relation, "the human factor must work itself out in cooperation with the environmental factor." Dewey equated side-by-side functional correspondence to the written correspondence that travels back and forth between two friends: though separated by time and space, the two "interact as checks, as stimuli, as...parts of a machine correspond" [MW, vol. 6, 47]. The content of an idea, Dewey continued, is not the same as that which the content causes to come into being. The latter represents some action-outcome or happening in the world. In 1910, Dewey stated that, when the environment appears to have "cooperated" or "co-responded" in producing a valued action-outcome, the symbolic statement associated with the action-outcome is judged valid or truthful [MW, vol. 6, 5]. This is not a replacement for verification, or an imperfect substitute or approximation that may be the best we can (realistically) have. For the Dewey of this period, it is the only sort of verification there is: "If we exclude acting upon the idea, no conceivable amount or kind of intellectualistic procedure can confirm or refute an idea, or throw any light upon its validity," he wrote even earlier, in 1907 [MW, vol. 4, 85].

This nominalist approach to verification came under increasing attack after 1910, and Dewey, who took this criticism to heart, was forced to clarify his meaning. His responses to these criticisms help mark the end point of Dewey's shift from nominalism to Peircean realism. One major issue raised by the critics, not surprisingly, was that of the relation between propositions (symbolic statements) and the action-outcomes that verify or validate those propositions. Arthur Lovejoy, one of Dewey's most trenchant critics, made this the centerpiece of his 1920 critique of

90. Pepper, World Hypotheses, 275.
91. Ibid., 275.
Dewey’s approach, which he argued is dualist through and through. One important point to keep in mind about this criticism is that it was aimed at three writings or sets of writings that Dewey produced between 1909 and 1917 — the period during which I claim Dewey jettisoned nominalism and adopted scholastic realism. To further complicate the situation, the second set of writings that Lovejoy mentioned, Dewey’s *Essays in Experimental Logic* (1916), itself reflects a span in Dewey’s thinking from 1910 to 1915; hence, the issue that Lovejoy believed Dewey waffles on is in fact connected to the change in his thinking during this period of time. Little wonder that Lovejoy was confused.

Lovejoy devoted the bulk of his critique of Dewey to the issue of how the mind connects to real-world objects and events. Can we, as some realists believe, know the world immediately and directly through the process of perception? Or must we act on data first, creating mental entities (that is, concepts and ideas) that provide a “mediate” kind of knowledge owing to the fact that they remain distinct, “numerically and in the manner of their being” (to use Lovejoy’s terminology) from the actual world of objects and events (MW, vol. 13, 453)? Lovejoy rightly indicated that the question of how the mind connects to the world is vitally important. He argued that there are two opposing views in this regard, which he termed “immediatism” and “mediatism.” The immediatist, according to Lovejoy, believes that “whatever kind of entity be the object of knowledge, that object must be directly given, must be itself the directly experienced datum.” The mediatist, in contrast, holds that “it is of the essence of the cognitive process that it is mediate, the object being never reached directly, and, so to say, where it lives, but always through some essence or entity distinguished from it, though related to it in a special way” (MW, vol. 13, 453–454). Lovejoy further argued that immediatists are either realists or idealists. Both believe that our knowledge of objects is somehow got at directly, but the realist thinks this happens through presentation to the senses while the idealist thinks this occurs through a kind of direct presentation to the mind, a process whereby the essence of the physical impresses itself upon the psychical. The alternative to these two approaches, mediatism, is of course a nominalistic position.

According to Lovejoy, the chief problem with Dewey was that he appeared to support and refute both of these mutually exclusive alternatives (mediatism and immediatism) in his writings. In his critique (MW, vol. 13, 456), Lovejoy provided a close analysis of Dewey’s 1910 essay “The Experimental Theory of Knowledge,” highlighting several mediatist statements. For example, Lovejoy quoted Dewey as insisting that “the object of any given meaning is always beyond or outside of the cognitional thing [that is, the proposition] that means it.” “Both the meaning and thing meant are elements in the same situation,” Dewey added. “Both are present, but both are not present in the same way.”


and thing represented and no way to reduce one to the other. However, while these phrases appear to commit Dewey to the mediastist perspective, other passages from Dewey's writings do not. Lovejoy marked this inconsistency: to support the contention, Lovejoy focused on a passage from the introduction Dewey wrote for his 1916 book Essays in Experimental Logic [MW, vol. 10, 320–369]. The point of this passage is that signs ought not be viewed as purely subjective or mental phenomena — this is true even of the word “fire” yelled out by someone in a situation where there is some uncertainty about what actually is happening. In this case the sign does not yield a meaning; it is a suggestion, which serves as a spur to look deeper into the situation. It is the resulting investigation that determines the status of the sign. Lovejoy noted that, in this line of argument, Dewey appeared to contradict his own representational theory.

In his response to Lovejoy's critique, published in 1922, Dewey further muddied the waters, at least as far as Lovejoy was concerned [MW, vol. 13, 40–60]. Dewey rejected the latter's attempt to characterize him across the period of time in question as a “confused mediastist.” He wrote of Lovejoy's criticism (which took the most recent views as the definitive ones),

He conducts his discussion on the assumption that I am an immediastist in the sense defined and as excluding all mediastism. Then he has no difficulties in finding inconsistencies in my treatment. I should go further and say that upon his assumption everything I have written about knowledge is one huge inconsistency [MW, vol. 13, 51].

In fact, Dewey argued (somewhat disingenuously given the fact that he was responding well after his 1915 realist turn) that any perceived inconsistency in his position represents a failure to understand his theory: “The gist of my theory about the object of knowledge is that it is mediate in one respect and immediate in another” [MW, vol. 13, 54, emphasis in original]. Dewey resolved the dilemma of having to choose one or the other approach in a seemingly simple way: There is mediation because inference, which is always present in knowing, requires a sign “which points to or signifies or represents or gives witness to or evidence of.” Inference becomes knowledge when the signification bears fruit — when it allows the individual to “reach” the object (that is, the regularity in the object); and the “reaching,” Dewey insisted, is an immediate or direct experiencing [MW, vol. 13, 51–52]. In other words, the sign — or, rather, the evolving sign — initially plays a mediating role, pointing the mind toward a possible regularity; this is its suggestive role. Further search, using a more refined version of the first sign, may or may not then allow the inquirer to get into direct contact with that regularity.

To capture better what Dewey had in mind, it might be helpful to use an example from science: Galileo's description of his thought process in verifying that the earth moves around the sun. According to Galileo, while he was sitting on a barge in the Gulf of Venice and reflecting on how he might find evidence to support his claim that it is the earth rather than the sun that moves, his eye suddenly settled on the sloshing action of water in several huge casks arrayed before him. Galileo credited this

“metaphor” as playing a key mediational role in helping him tease out a regularity that he believed was there in the situation all along: the rise and fall of the tides was, he thought (wrongly as it turns out), attributable to the earth’s movement around the sun. The inference became “knowledge” for Galileo when he was able to test it out by visually confirming the notion that the ebb and flow of water in the casks did (for him) convincingly map onto the ebb and flow of water in the sea. Dewey summarized the argument well when he wrote that “Short of verificatory objects directly present, we have not knowledge, but inference whose content is hypothetical....The test is found in what is immediately present, which has a meaning because of prior mediation which it could not otherwise have” (MW, vol. 13, 52).

Another comment in this article demonstrates Dewey’s firm grasp of scholastic realism: “From my point of view the relation, connection or mediation of one thing by another is an essential feature of the subject-matter of knowledge” (MW, vol. 13, 52). Icon and index, the qualitative and schematic understandings of the regularity in question, are key aspects of what we must come to understand in the situation. Three years later, Dewey wrote that the combination of what he called “organic” (iconic) and “psycho-physical” (indexical) knowledge “supply mind with its footing and connection in nature. They provide meanings with their existential stuff” (LW, vol. 1, 220). Taking all this into consideration, it is fair to say that Dewey’s characterization of his position as involving important elements of both mediatism and immediatism represents as concise a statement of Peirce’s position, developed some forty years earlier, as one is likely to find.

Lovejoy drew on another piece written by Dewey in 1911, which was revised and reprinted in the 1916 book on logic (MW, vol. 6, 101–122). This article, which must also have been a source of confusion for Lovejoy, marks an important milestone in Dewey’s dramatic journey away from nominalism and toward scholastic realism from the time of James’ death in 1910 to the outbreak of the First World War. In this article, Dewey considered and rejected mainstream realism, an approach that he called “presentative” realism. Instead, he toyed with the idea of adopting an alternative type of realism, which he called “naïve” realism. According to Dewey, the plain man or woman who subscribes to the naïve view does not feel the need to categorize things like noises heard, lights seen, and so on, as mental events. Nor does he or she consider the things that lie behind these signals to be already known. The relation the signals have to the individual as a “mind” or a “knower” is of less consequence than what they suggest that the person should do, particularly if his or her interest has been piqued. Only then does the person feel compelled to inquire deeper into the situation. Dewey noted that the naïve realist considers the noise or the light to be a real event but not the real event—an important distinction. Looking deeper into the source of noise or light moves the inquirer closer to what he or she wants to know in what is intuitively viewed as a continuous process of getting to the bottom of things.

The issue that faces the realist, Dewey observed, is how to treat perception. Using an example of a distant star, its visible light, and our perception of that light,
Dewey built an argument for and against our perception being a case of direct knowledge about the star. On the negative side, the visible light could be viewed as something that stands between knower and known; it points to an object that, depending upon the distances involved, may no longer even exist. On the positive side, the perception can be viewed, at least, as a case of adequate knowledge, which is the position taken by the “presentative” realist according to Dewey. Furthermore, even if the scientist must “operate on” the visible light data to determine the current status of the star, the perceptual data provide the only ultimate evidence of the star’s existence. At this point, the argument gets tricky. Dewey noted that “When the realist conceives the perceptual occurrence as an intrinsic case of knowledge or of presentation to a mind or knower, he lets the nose of the idealist camel into the tent” [MW, vol. 6, 106].

Once in the tent, the issue that divides the realist and idealist positions is more verbal than substantive. Both believe that knowledge is presented to the knower. The idealist has a built-in advantage if this is the case. The idealist argues that presentation is all about mind. Dewey quoted an idealist colleague, who argued that “There is no possible knowledge of a world except in relation to mind,” and because everything is constituted by mind, it is a contradiction even to discuss the possibility of an independent world [MW, vol. 6, 112]. The realist argues that it is not relation to mind that is key in the presentation of knowledge but the role of objects and the percepts caused by the objects. Dewey stated, “The realist says; ‘To be a mind is to be a knower; to be a knower is to be a knower-of-objects. Without the objects to be known, mind, the knower, is and means nothing’” [MW, vol. 6, 116]. Because both realist and idealist share the same assumption — the notion that knowledge is presented to mind — they can go back and forth forever on the issue of what is the prime “presenter.”

When Dewey wrote “The Problem of Truth,” he was well on his way toward rejecting the nominalist notion that knowledge is created in the mind; that is not to say, however, that he was about to endorse in its stead a view, either realist or idealist, that portrays knowledge as a presentation to the mind. His willingness to consider a radical alternative to these two approaches as early as 1911 is indicated by his suggestion that the philosopher break out of the knower/object known dichotomy. What if, he suggested, we think of self as being in perception as opposed to perception being in self? This was an idea Dewey must have gotten from Peirce, who, forty years earlier, had written, “Just as we say that a body is in motion, and not that motion is in a body we ought to say that we are in thought and not that thoughts are in us” [CP, vol. 5, 173 n. 1]. The advantage in this way of thinking, Dewey suggested, is that, as in the case of naïve realism, it puts percepts in the same category as visual signs — both of which are in continuous relation to objects. The first (percepts) does not benefit because of its proximity to mind while the second (visual signs) does not suffer from being “removed” from object. Dewey used an analogy to drive home this point, comparing the self, when in perception, to hydrogen atoms in a water molecule: “The organism is involved in the occurrence of the perception in the same sort of way that hydrogen is involved in the happening — producing — of water”
To argue, as most philosophers do, that percepts present themselves to self is akin to arguing that water presents itself to hydrogen.

One can trace the development of Dewey's thinking as he moved from nominalism to scholastic realism by examining the articles and chapters included in the Lovejoy critique. The fact that Dewey appropriated aspects of Peirce's antinominalist stance a bit at a time between 1910 and 1915 is not surprising given the complexity of Peirce's views. [As early as 1903, Dewey signaled to James that he was considering an alternative to James' subjectivism and nominalism. In a letter written to his erstwhile mentor, Dewey suggested, diplomatically, that James might tone down his emphasis on instrumental outcomes as a test of truth by working more of the "world of fact" into his treatment of ideas. In the same letter, Dewey announced that he was delving deeply into Peirce's work: "I can see how far I have moved along when I find how much I get out of Peirce this year, and how easily I understand him, when a few years ago he was mostly a sealed book to me, aside from occasional inspirations."]

Sidney Ratner supports the contention that 1915 was a watershed for Dewey, marked by his dramatic repudiation of the nominalism of Auguste Comte and Ernst Mach in favor of what Ratner terms a "descriptive and analytic metaphysics" focused on "the irreducible traits found in any and every scientific inquiry." The climactic chapter in this progression of thought, Ralph Sleeper suggests, is the introduction Dewey prepared for a composite book, *Essays in Experimental Logic*, published in 1916 (MW, vol. 10, 320–365). I call this a "composite" book because four of the chapters were reprinted from Dewey's 1903 book on logic, while the rest were written between 1907 and 1915. The new introduction holds the key to his thinking in 1915. Sleeper characterizes this work as signaling a dramatic about-face on Dewey's part, an "Aristotelian turn" that resulted in Dewey's total acceptance of the reality of universals — "the lost souls of philosophical theory," to use Dewey's terminology (MW, vol. 10, 93).

Like Peirce, Dewey believed that essences "are the empirical characteristics of individual things that allow them to be grouped together as a class." More important, they are not "found" in a set of particulars worked over by the human mind, as Dewey — in nominalist mode — once argued; they are teased out in actual inquiry situations through a process of transaction, a process that involves give and take. This formulation implies two things: First, both the inquirer and the objects and their essences are in thought; second, the last two, when they are in thought, play an active role as well. As Dewey asserted, "Thinking is what some of the actual existences do. They are in no sense constituted by thinking; on the contrary, the

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98. Ibid., 87.
problems of thought are set by their difficulties and its resources are furnished by their efficacies; its acts are their doings adapted to a distinctive end" \((MW, \text{vol. 10, 339})\).

The notion that objects “talk back” in inquiry situations is essential to Peirce’s approach, as has been argued. This is what Peirce, and before him Duns Scotus, had in mind when they argued that coming to know is a reciprocal process. As Peirce wrote, “The possible is a positive universe” \((CP, \text{vol. 8, 209})\), real possibilities suggest themselves to the individual. This is not to say that essence is gotten at quickly or effortlessly — far from it. The process that gives form to what is initially little more than an inchoate sensing of underlying regularity (essence) is called “abduction.” Abduction starts with a percept and a preliminary interpretation of that percept, Peirce, who had a propensity for coining new terms, called this informational unit the “percipuum”:

I propose to consider the percept as it is immediately interpreted in the perceptual judgment, under the name of the “percipuum.” The percipuum…is what forces itself upon your acknowledgement, without any why or wherefore, so that if anybody asks why you should regard it as appearing so and so, all you can say is, “I can’t help it; that is how I see it” \((CP, \text{vol. 7, 379})\).

According to Peirce, the percipuum, in the form of a metaphoric image, thrusts itself upon the individual: sound perceived as a water wave, the heart seen as a pump — in fact, all scientific ideas — originate in the rich metaphoric images Jacob Bronowski calls “explosions of sudden likeness.”

The “explosion of likeness” is akin to something hitting the individual, but this is only half the story. The person hits back as well when he or she forces the insight to confront the reality it is trying to illuminate \((CP, \text{vol. 8, 40})\). The term Peirce used for this hitting back, experienced as an outward clash, is “secondness.” The percipuum, as Richard Bernstein explains, contains elements of both firstness and secondness.\(^{100}\) Firstness represents mere qualitative possibility, while secondness is that same possibility represented schematically (that is, indexically) and tested against hard fact. Sandra Rosenthal says this about the index: “The mind devises the schema as its creative, imaginative product, yet its creativity is guided by the pragmatic need to grasp experience in workable ways.”\(^{101}\) As this quote suggests, there is a two-sidedness to secondness as the index engages with the object or event. Indexical reference, and the quality of secondness it embodies, provides a reality check on the percept as immediately interpreted: Does viewing sound as a water wave fit what I know to be “real” about sound? Does viewing the heart as a pump comport with established facts about that organ and the body as a whole?

\(^{99}\) Bronowski’s observation appears in Robert Root-Bernstein and Michele Root-Bernstein, \textit{Sparks of Genius} (Boston: Houghton Mifflin, 1999), 144–145. The 1933 revision of Dewey’s 1910 classic, \textit{How We Think}, contains unmistakable evidence of the shift in his thinking \((LW, \text{vol. 8, 105–352})\). One example will have to suffice: “The having of ideas is not so much something we do, as it is something that happens to us” \((LW, \text{vol. 8, 145})\).


Secondness is an outcome that epitomizes the realist approach to experience. The index is a creation of the mind, but it is answerable to and shaped by the world. If the sign survives the reality test, it then becomes a candidate for further development. What Peirce characterizes as preliminary perceptual judgment gives way to the real thing. The process of perceptual judgment brings closure to the iconic and indexical phase of signification by confirming (or disconfirming) the merit of ascribing a general predicate (for example, food factory) to an individual object or event (this particular plant). If this type of predication works — if one can actually see the general in the particular — one is then emboldened to carry the idea further, recasting it in symbolic and propositional form.

Dewey made frequent use of these concepts in his writings after 1915. In his 1938 classic tome on the logic of inquiry, for example, Dewey assigned a vital role to perceptual judgment, albeit under the guise of "comparison" ([LW], vol. 12, 184–186, 283). Comparison is the process that grounds qualitative generality in particularity. Seeing this kind of general in the particular, Dewey was quick to add, does not substitute for the hard work of establishing it as a universal property ([LW], vol. 12, 350–351); it provides the incentive for doing this work, which consists of specifying and carrying out tests that contribute to its ultimate validation as a universal property.

Dewey's other major post-1915 works show his commitment to Peirce's version of scholastic realism as well. A few select examples may suffice to demonstrate this point. In his 1925 book Experience and Nature, Dewey drew a distinction, which was becoming increasingly frequent in his writings, between sense, signification, and full-blown meaning. Sense, which Dewey equated with the first, qualitative stage of Peirce's system, can be distinguished from feeling because it has a specific reference; sense is a holistic appreciation, not to be confused with its typical use in referring to a single, simple quality like red or sweet. Signification builds on sense but carries it to the next level in its use of qualitative understandings "as a sign or index of something else" ([LW], vol. 1, 200). The presence of sense and signification in a situation, Dewey maintained, indicates that mind or intellect is also present: "The distinction between physical, psycho-physical, and mental is thus one of levels of increasing complexity and intimacy of interaction among natural events" ([LW], vol. 1, 200). Dewey's use of the term "psycho-physical" to describe the hybrid sign that Peirce calls the index is deliberate. It connotes the same thing for Dewey that Duns Scotus's term "physical universal" signified for the medieval scholar — namely, a sign that, when applied to an object, consists in equal parts of the mental and the real. Dewey also explicitly asserted the sequential nature of the process outlined in Experience and Nature: "Organic [that is, qualitative] and psycho-physical [that is, indexical] activities with their qualities are conditions which have to come into

102. For a more detailed examination of this question, see Prawat, "Dewey and Peirce, the Philosopher's Philosopher."
103. Almeder, The Philosophy of Charles S. Peirce, 162.
existence before mind, the presence and operation of meanings, ideas, is possible” [LW, vol. 1, 220, emphasis added].

Dewey further elaborated on these notions in his next significant book, The Quest for Certainty, published in 1929 [LW, vol. 4]. He opened an important chapter in that book by explaining how a key dispute has affected philosophy from its earliest days: the question of whether reason or sense, conception or perception, is the primary source of knowledge. Those who argue for conception and reason (the rationalists) emphasize the synthetic action of the mind — the role that certain overarching structures or schemas play converting mental dross to gold. Those who argue for sense or perception (the empiricists), Dewey explained, dwell upon “the fact that in sensation the mind does not interfere with the action of objects in writing their own report” [LW, vol. 4, 136]. Dewey’s intent was to move beyond the terms of this argument by adopting an approach in which “sensible and rational factors cease to be competitors for primary rank. They are allies, cooperating to make knowledge possible” [LW, vol. 4, 137].

Dewey acknowledged that Kant’s approach bore a superficial resemblance to the one he embraced, the fundamental difference being that, in Kant’s theory, sense and reason are forced to interact because of certain “connective operations” that are part and parcel of the mind’s normal functioning. Furthermore, the connection takes place in representation, not in the transaction between object and inquirer. In Dewey’s Peircean approach, inquiry begins with something that is problematic or that needs to be known in the situation. (In the Galileo example, for instance, the search for evidence that the earth moves.) Once the problem has been identified, the inquirer must rely on imagination, a sudden qualitative (or organic) sizing up of the situation. (Galileo’s use of the sloshing water/moving boat metaphor is an example of this.) The qualitative solution, of course, occurs in the earliest stage of a process that may or may not lead to a resolution of the difficulty. Dewey had no doubt that this organic action is at the core of all scientific discovery: “If one were to trace the history of science far enough, one would reach a time in which the acts which dealt with a troublesome situation would be organic responses of a structural type together with a few acquired habits” [LW, vol. 4, 99].

In an essay on Peirce’s theory of signs (written some thirty years after his turn in thinking in 1915), Dewey demonstrated his profound understanding of the role that iconic and indexical signs play in Peirce’s approach to inquiry and knowledge construction:

Linguistic signs, constituting thought and conferring generality, continuity, law, are cases of Thirdness. They have of themselves no reference to “things.” Such connection as they can have is, accordingly, dependent upon the intervention of another factor. This factor (called Secondness by Peirce) is of a radically different sort from Thirdness [LW, vol. 15, 147].

Dewey then quoted Peirce at length about the importance of secondness and its instrument, the index, in the process of coming to know about objects and events in the world. Dewey described the process of relating index to object as a “common transaction”: “This perceptual-manipulative behavioral event determines the indexical sign which brings ‘us’ into connection with ‘things,’ something it is
impossible, according to Peirce, for symbols, linguistic signs, or... a ‘sentence’ to do” (LW, vol. 15, 147, 148). In this last part of this quote, Dewey clearly articulated what he saw as the great strength of the realist approach: the possibility of direct intercourse between mind and world, an outcome toward which Hegel and James had pointed Dewey but that neither was able to deliver.

CONCLUDING COMMENTS

The question raised early on in this paper represents one of the great “what if’s” of modern philosophy: What if Charles Sanders Peirce and John Dewey, the latter a belated but ultimately staunch advocate for Peirce’s “realist constructivism,” had succeeded in their efforts to reopen the great medieval debate between realists and nominalists? What if they had prevailed in that debate? One can point to two possible outcomes. The first is that progressive educational theory would likely have held out the possibility of two distinctly different constructivist roles for teachers, where now there is but one role (albeit with a number of slightly different variants), which can be traced back to nominalist inductionism. The teacher’s role, according to the nominalist view of knowledge, can perhaps best be described as that of a provocateur, an individual who plays a key but indirect role in getting students to reconceive or rename their personal experience consistent with certain educational criteria. Because this view assumes that knowledge is created when individuals detect and label patterns in their own experience, the teacher in this scenario has no alternative but to try to work within what might be characterized as the students’ experiential “workspaces.” This view has become so central to how progressive educators and others construe learning and understanding that it has earned a place in Webster’s dictionary: According to the 1958 version of that storied reference, understanding “is the power to render experience intelligible by bringing perceived particulars under appropriate concepts.”

How would the role of the progressive teacher differ under a realist constructivist, as opposed to a nominalist constructivist, scenario? I can only hint at some of the key ideas. The first would be that the world contains wondrous regularity, more than we can possibly expose students to in the limited time available in the curriculum. Great care must be taken in selecting the particular set of “big ideas” with which we want students to become conversant. Once a particular regularity has been identified (for example, “weather is the movement of energy”), the task is to figure out how to begin the process of getting students to interact with this regularity as quickly and as imaginatively as possible. The use of metaphor and physical instantiation are key in this regard. To facilitate an understanding of the role that weather plays in “moving energy,” for example, the teacher must introduce and concretize other

105. An effort is underway to develop a curriculum based on this view of knowledge: colleagues and I have developed and field-tested a seventh-grade science unit, and we have obtained what we think are some dramatically different results in the classroom. For more on this project, see Richard S. Prawat, John Bell, and Shane Cavanaugh, The Weather Unit: An Example of a Radical Constructivist Approach to Science Teaching the Learning (East Lansing: College of Education, Michigan State University, 2003).
related ideas (such as the fact that the sun’s energy comes to earth in an “unequilibrated” fashion, the tension associated with which can be illustrated by the presence of an undistributed bag of candy placed on a student’s desk). Other ideas (regularities) and other metaphors flow from this (for example, weather as a “team response” to the unequal distribution of energy, where the team members are air, water, and land). The teacher’s role would be less that of a guide on the side than that of a sage on the side, an expert who works alongside students to help them “see” the fascinating regularities that disciplinary scholars have identified in the disciplines of science, mathematics, social studies, literary studies, and the like.

A second outcome that likely would have resulted from the successful reopening of the realism/nominalism debate a hundred years ago was alluded to previously: the diminution, or perhaps avoidance altogether, of what has become known as the increasingly toxic “science wars.” On the one hand are those who argue that scientific knowledge is the product of a social process, one that leaves open even the basic issue of what constitutes “fact”; on the other are those like Arthur I. Miller, who argue that virtually all practicing scientists are realists. This does not, as Miller’s brilliant discussion of scientific discovery reveals, mean that practicing scientists are inductionists — that they believe, in other words, that facts speak for themselves. Miller’s treatment of scientific discovery points to a “constructivist” process that closely mirrors the one laid out by Peirce and the later Dewey. It is not accidental, for instance, that Miller begins the first page of his most recent book with a quote from the artist Piet Mondrian:

For there are “made” laws, “discovered” laws, but also laws — a truth for all time. These are more or less hidden in the reality which surrounds us and do not change. Not only science but art also, shows us that reality, at first incomprehensible, gradually reveals itself, by the mutual relations that are inherent in things.¹⁰⁶

Peirce could not have put it any better.

One way to view the growing body of evidence being amassed by scientific historians like Miller is to say that it reinforces the merit of the plea made by Peirce and Dewey that we reexamine the issues associated with what, for them and for us, is a much older debate about the merits of two warring epistemologies. The evidence pulled together by Miller and others, based largely on the unofficial record of discovery, lends support to the alternative to mainstream nominalism first proposed by Duns Scotus seven hundred years ago and proposed again a century ago by two of the most gifted scholars in American letters. Perhaps it is time, in the interest of ending the protracted and largely unproductive “science wars,” to heed Susan Haack’s advice to revisit once again the “reformed scientific philosophy” proposed by Peirce, Dewey, and the Dunce.¹⁰⁷


¹⁰⁷. Haack, Manifesto of a Passionate Moderate.