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In two recently published articles Prawat (2000, 2001) advanced a controversial thesis with regard to the development of Dewey's thought over the course of his career. He offered the observation that Dewey's thinking undertook a radical shift in mid-career away from a Jamesian version of pragmatism toward one more closely aligned with the writings of C.S. Peirce. As a result of this "discontinuity," Prawat argued that Dewey's writing can be divided into two phases: the early "inductionist" Dewey and the later "social constructivist" Dewey. Prawat's 'two-Deweys' thesis is at odds with other accounts of Dewey's development as a thinker such as Garrison's (1997) and Garrison (2001) has called some of the premises underlying Prawat's thesis into question. I have no wish to take a position with regard to this dispute specifically, but instead hope to raise a question with reference to a presupposition underlying these and an earlier Prawat article (Prawat, 1999).

Within these articles Prawat undertakes to conflate Peirce and Dewey's respective descriptions of the processes of inquiry. Prawat (2001) concludes, "The fact that inquiry is both public and private, social and individual, the fact that it is both continuous and fallible—these ideas and more are key in Dewey's

system, and they bear the stamp of the man Dewey called the 'philosopher's philosopher'" (p. 719). Disregarding previous accounts that highlight differences in Peirce and Dewey's treatments of inquiry (cf., Burke, 1994; Sleeper, 2001), Prawat adopts a pattern of presentation by which Peirce and Dewey are cited as though they spoke with a single authorial voice (e.g., "Like the postmodernists who single out language, P. and D. argue …" [Prawat, 1999, p. 59], "Of this, P. and D. are quite insistent …" [Prawat, 1999, p. 59], "Ala P., D. argues …" [Prawat, 2000, p. ???], "Taking a chapter out of P.'s book, D. argues …" [Prawat, 2001, p. 680], "…, D. writes paraphrasing P., …" [Prawat, 2001, p. 691], "P. and D. insist …" [Prawat, 2001, p. 695]). This begs the potentially contentious question, however, of whether or not their respective conceptualizations were indeed the same.

In these two pieces, Prawat appears particularly keen to establish a connection between Peirce's notion of abduction and Dewey's later writing. He (2001) offers the following quote from the revised edition of *How We Think*:

> There is a time during our investigation when meaning is only suggested: when we hold it in suspense as a possibility rather than accept it as an actuality. Then the meaning is an idea. An idea thus stands midway between assured understanding and mental confusion and bafflement. (p. 692, original quote LW8: 221[1])

Commenting on this passage, Prawat (2001) wrote:

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[1] Throughout the paper, I will employ this format for all citations to Dewey's writings. The citations refer to the collected works edited by J.A. Boydston (Carbondale, IL: SIU Press) and organized into three sets of volumes, the Early Works (EW) 1882-1898, the Middle Works (MW) 1899-1924, and the Late Works (LW) 1925-1953. Citations in this form, therefore, specify a volume number and, in most cases, a page number or range of page numbers within the volume.

> This maps nicely onto Peirce's notion of abduction.
> Clearly, Dewey came as close as one could to describing
> Peirce's process without actually using Peirce's novel term.
> (p. 692)

Given this convergence in thinking, however, Prawat professed to

be puzzled by Dewey's failure to adopt Peirce's terminology. He

(2001) wrote:

> Interestingly enough, Dewey never actually used the term
> "abduction" to describe the process of idea generation in
> his own work. There is ample evidence, however, that Dewey
> fully embraced the concept. (p. 691)

The purpose of this paper will be to examine the nature of that

evidence. It begins with a short review of the ways in which

Peirce employed this concept within his own writing.

Peirce's notion of abduction

The task of appreciating Peirce's notion of abduction is

complicated by two factors: first, because he used different

terms to refer to the same underlying concept and, second,

because he employed the underlying concept for different purposes

at different points in his career. In an early paper entitled

"The Consequences of Four Incapacities" Peirce wrote, "All valid

reasoning is either deductive, inductive, or hypothetic; or else

it combines two or more of these characters" (CP 5.274)[2]. In an

entry on "Reasoning" in the *Dictionary of Philosophy and*

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[2] Unless otherwise specified, citations to Peirce will follow this form.
References are to the *Collected Papers of Charles Sanders Peirce* (Cambridge,
MA: Harvard University Press, 1931–1958) edited by C. Hartshorne, P. Weiss,
and A. Burks and published in eight volumes. Citations take the form of a
volume number followed by a paragraph number or range of paragraph numbers.

Psychology published in 1901, Peirce introduced the term

presumption and wrote, "Presumption is the only kind of reasoning

which supplies new ideas, the only kind which is, in this sense,

synthetic" (CP 2.777). Later, in his 1903 Harvard lectures,

Peirce employed the same taxonomy as that presented in the

"Incapacities" paper but substituted the term *abduction* for

hypothetic reasoning:

> Th[e] three kinds of reasoning are Abduction, Induction, and
> Deduction. Deduction is the only necessary reasoning. It
> is the reasoning of mathematics. It starts from a
> hypothesis, the truth or falsity of which has nothing to do
> with the reasoning; and of course its conclusions are
> equally ideal. The ordinary use of the doctrine of chances
> is necessary reasoning, although it is reasoning concerning
> probabilities. Induction is the experimental testing of a
> theory. The justification of it is that, although the
> conclusion at any stage of the investigation may be more
> less erroneous, yet the further application of the same must
> correct the error. The only thing that induction
> accomplishes is to determine the value of a quantity. It
> sets out with a theory and measures the degree of
> concordance or that theory with fact. It never can
> originate any idea whatever. No more can deduction. All
> the ideas of science come to it by the way of abduction.
> Abduction consists in studying facts and devising a theory
> to explain them. Its only justification is that if we are
> ever to understand things at all, it must be in that way.
> (CP 5.145)

In "A Neglected Argument for the Reality of God," a paper written

five years later, Peirce observed:

> The whole series of mental performances between the notice
> of the wonderful phenomenon and the acceptance of the
> hypothesis, during which the usually docile understanding
> seems to hold the bit between its teeth and to have us at
> its mercy,—the search for pertinent circumstances and the
> laying hold of them, sometimes without our cognizance, the
> scrutiny of them, the dark laboring, the bursting out of the
> startling conjecture, the remarking of its smooth fitting to
> the anomaly, as it is turned back and forth like a key in a
> lock, and the final estimation of its Plausibility,—I reckon

as composing the First Stage of Inquiry. Its characteristic
formula of reasoning I term Retroduction, i.e., reasoning
from consequent to antecedent. (CP 6.469)

In this quote and other unpublished manuscripts (c.f., Peirce
Edition Project, 1998, Vol. 2, pp. 287-288), Peirce took
abduction (or retroduction as it is labeled here) to be not only
a *type* of argument, but also a preliminary *stage* of inquiry.

Though his terminology varied, the underlying notion was one
that preoccupied Peirce over the course of his entire career.
First, he wished to give an account of the process by which
scientific discovery is accomplished (c.f., CP 5.172). Peirce is
credited with the observation that the logic of discovery is
distinctively different from other forms of reasoning (see CP
5.146).[3] On a grander scale, Pierce wished to construct an
architectonic, that is a systematic framework based on formal
logic (in the style of Kant) within which the totality of
knowledge could be accommodated. His logic was one constructed
on a theory of signs. Arguments, for Peirce, were treated as
"rationally persuasive signs" (Peirce Edition Project, 1998, Vol
2, pp. 275) composed of more simple sign forms. To construct his
architectonic, Peirce needed to provide an exhaustive list of
argument types and abduction was necessary for this purpose.
Finally, in the latter part of his career, Peirce dedicated
himself to the task of providing a proof for his pragmatism (see
Houser, 1998). His closing lecture in the 1903 Harvard series
was entitled "Pragmatism as the Logic of Abduction." Abduction,

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[3] This claim of Peirce's has received considerable attention of late among
philosophers of science. See Kapitan (1997) and Hintikka (1998).

therefore, initially introduced as a residual category to account for the weak form of reasoning employed in the early stages of scientific discovery, became a crucial component of his intended proof. As part of "The Three Cotary Propositions" (CP 5.180–181), Peirce asserted that abduction "shades into" perception thereby providing an uninterrupted chain from perception to perceptual judgments.

How (and where) does Dewey reference abduction?

Prawat (1999) wrote: "The process that Peirce and Dewey credit with giving rise to ideas, termed *abduction*, defies easy description" (p. 59). But, as Prawat himself pointed out, Dewey never explicitly referenced it in his published work. This naturally raises the question, where and in what terms did Dewey discuss the concept variously labeled by Peirce as abduction, hypothetic reasoning, presumption, and retroduction?

In "Dewey, Peirce, and the Learning Paradox," Prawat (1999) attempted to weave together Dewey's notion of experience, Peirce's concept of abduction, and his own theory of *idea-based social constructivism* (Prawat, 1993). How these ideas are tied together, however, is a little murky. Prawat wrote, "Abduction involves reasoning from the known (rule) to the new or unknown (case) by way of metaphoric leap or projection" (p. 62). He then gives an extended example based on Peirce's postulated stages in the interpretation of a sign. The connection to Dewey is loose, however. Metaphor is offered as a means by which ideas could be linked to the existensial conditions from which they arose. The

connection to idea-based social constructivism is even weaker.
Idea-based social constructivism in Prawat (1993) is presented as
a theory of learning with associated pedagogical recommendations
(about which I will have more to say later). In Prawat (1999),
however, Prawat's theory becomes Dewey's ("Dewey's approach has
been described as one that best fits the label *idea-based social
constructivism*." p. 60). An explicit description of where Dewey
applies Peirce's notion of abduction is nowhere to be found.

Prawat (2001) was more specific in "Dewey and Peirce, the
Philosopher's Philosopher." It is here that we encounter the
quote from the revised edition of *How We Think* (LW8) that Prawat
suggested "maps nicely onto Peirce's notion of abduction" (p.
692). Lest we be too hasty in conflating Peirce's notion of
abduction with the phase of idea or hypothesis generation in
Dewey's model of inquiry, however, it is best to bear in mind
possible differences in perspective among Dewey and Peirce. For
example, Sleeper (2001), drawing on Peirce's correspondence with
Dewey around 1905, noted sharp differences in their respective
positions with respect to the nature of inquiry and other
matters. By Sleeper's account, Dewey's ideas regarding logic and
scientific discovery were on a collision course with the project
that Peirce had set for himself in the latter part of his career
and this was already apparent at the time that *Studies in Logic*
(MW2) was published. If this was true, Dewey's failure to use
some of Peirce's terminology may not have been as inexplicable as
Prawat contends.

I enthusiastically endorse Prawat's contention that Peirce's notion of abduction is important and worthy of careful study by educators. Peirce's contributions to logic and the foundations of science have received much attention from philosophers, but have been almost completey neglected in educational circles. Given Dewey's contributions to educational theory, it would also be worthwhile to understand how Peirce's notion relates to Deweyan inquiry but this will require further, careful scholarship. In the meantime, it might be useful to examine why Prawat might be so keen to identify a discontinuity in Dewey's thought.

The problematic situation and idea-based social constructivism

In the article in which he introduced his theory of idea-based social constructivism, Prawat (1993) was critical of methods of instruction that depend upon learning in the context of practical problem solving. He argued that such methods produce a form of learning that is overly instrumental and in which learners fail to appreciate important ideas in their full profundity. Prawat sought support for this position in Dewey's early writing, specifically in the first edition of *How We Think* (MW6).

It was in a later article, that Prawat introduced his two-Deweys thesis. Prawat (2000) summarized the educational philosophy of the early "inductionist" Dewey as, "The teacher's role is to guide the child toward a resolution of the problem that stands between the person and his or her needs or interests"

(p. ???). For the later "social constructivist" Dewey, however, Prawat argued that "worthwhile experiences … are those where the teacher 'deposits' powerful ideas" (p. ???). The two-Deweys thesis might be construed as an attempt to disown certain parts of Dewey's intellectual legacy while retaining others. Dismissing Dewey's treatment of inquiry as belonging to Dewey's immature, "inductionist" period, for example, might serve to support some of Prawat's pedagogical recommendations, but it would also seem to be at odds with the historical development of Dewey's thought. Inquiry took a more and more prominent role in Dewey's thinking in the latter part of his career and it is in this area that his interests most closely coincided with those of Peirce.

In his most elaborate article to date on the confluence of Peirce and Dewey's thought, Prawat (2001) seems finally to have come to grips with the indeterminate or problematic situation as a starting point for inquiry and he comes to it by way of Peirce. He wrote, "According to Peirce, the 'irritation of doubt' is what gives rise to inquiry" (p. 679). He hastens to add, however, that Peirce's doubt is not the same as that described by the early "inductionist" Dewey, though examples of Dewey's dispreferred treatment are not provided.[4] Prawat (2001) suggests

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[4] Prawat wrote:

> The kind of doubt Peirce has in mind, however, is not the same as that
> emphasized by the early Dewey, best defined as hesitancy about how to
> act or proceed [CP 5.374]. Rather, it is doubt associated with a
> violation of expectation, the kind that arises when one expects one
> thing and observes another. (p. 679)

In a footnote to CP 5.373, Peirce wrote:

that, in his later writings, Dewey uses the term *inference* to describe the process of idea generation, a process Prawat treats as synonymous with Peircean abduction.[5] Idea generation, however, is always situated. It takes place within a material setting that has in some way grown to be problematic or disordered. Prawat appears to agree and describes the object of inquiry for Peirce to be "That of transforming disordered into ordered events" (p. 691).

When we extend Peirce's model of inquiry to learning, however, we begin to see some problems for the pedagogical recommendations associated with Prawat's theory of learning (i.e., idea-based social constructivism). Prawat (1993) espouses a curriculum consisting of "a matrix or network of big ideas" (p. 13). The teacher's job is to "deposit" these ideas, presumably into the receptive heads of the students. Prawat is critical of instructional methods that rely upon placing the learner in problem-solving situations.

> Doubt, however, is not usually hesitancy about what is to be done then and there. It is anticipated hesitancy about what I shall do hereafter, or a feigned hesitancy about a fictitious state of things.

Peirce does not attribute the first treatment of doubt to Dewey and Prawat provides no evidence that Dewey employs this definition in his early writing.

[5] This may not be entirely accurate. Dewey wrote in *How We Think* (Rev. Ed.), for example:

> Positive inference can be deferred and kept in process of development and test while a meaning is *not* asserted and believed in. Moreover, ideas are indispensable to inference because they direct observations and regulate the collection and inspection of data. (LW8: 221-222).

Dewey's use of *inference* here would seem to have a scope that would go beyond just the phase of idea generation.

A key insight from Dewey is that true learning always takes place in situations that are experienced by the learner as problematic. Prawat's theory of idea-based social constructivism seems to focus too closely on the idea generated and not on the situation within which the idea was produced. In redressing this shortcoming, Prawat must rethink his pedagogical recommendations to bring them more consistently in line with Dewey's theory of inquiry. If unwilling to do so, he must abandon any pretense of basing his pedagogical recommendations on Dewey's writings, because to deny Dewey's basic insights with regard to inquiry is to deny nearly everything Dewey wrote in the latter half of his career.

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