# Are We All Clear On What A Mediational Model Of Behavior Is?

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I would like to thank the panel of commentators. They have greatly enriched the presentation of our topic, and to do complete justice to their viewpoints would demand another symposium. In the interests of space I will confine my reactions to the questions of just what we mean when we refer to a mediational theory of behavior, particularly since this point is central to the teleologist's case — at least, to "this" teleologist's case. I will begin with some of the philosophical issues raised, and then focus more specifically on the current practices of cognitive science.

First of all, it has always seemed crucial to me to distinguish between a theory or preferred understanding of some topic of interest on the one hand, and the method or manner of putting that theory to test on the other (Rychlak, 1980, 1981). We rarely solve theoretical differences through empirical data, because so often data can make sense in more than one way (indeed, there are in principle $N$ explanations for any one empirical fact pattern). Data can, of course, embarrass a theory and no self-respecting scientist would want to defend a theory that is completely at odds with the empirical facts. We found Chaplin, Muscari, and Westcott referring to empirical findings in support of their contentions. These researches were framed by each commentator's theoretical predications of what the findings meant. Theory plays a role "in addition to" the role played by evidence (a method is the means or manner of obtaining evidence). And when I therefore refer to a "mediational model" I am not referring to some collection of facts that pressed themselves on me. I am referring to my preferred way of understanding, construing, or accounting for *any* facts!

In my paper, I claimed that the British empiricists or associationists had as their preferred understanding of mentation that the person takes influences in from the environment and then associates them together according to the frequency and contiguity of this or that occurrence, or remembers (knows, etc.) them based upon repetitions of one sort or another. Such frequency and contiguity issues are said to direct the course of thought itself. Leahey questions

my understanding of John Locke, so I will say a bit more about this representative of the British school even though I mentioned several others in this line of theoretical descent.

The selection of Locke's *Essay Concerning Human Understanding* that Leahey focuses on (i.e., Book II, Chapter XXXIII) is, as he says, aimed at criticizing certain types of associations—namely, those associations that are brought about through unexamined or unreasonable ties of pure chance or of custom. Note in the quote Leahey gives us that Locke speaks of *two* forms of "connexion of ideas." The "bad" kind of connexion that Locke criticizes is the sort in which, for example, darkness is tied to goblins and spirits by ignorant people, such as the housemaid who teaches such nonsense to the children of the house (Locke, 1952, p. 249). Another bad kind of connexion arises when person A has had a painful experience with person B, and, thinking of this troubled interaction "over and over" (ibid., p. 250) forms such a strong connexion via these frequent repetitions that each time person B comes to mind so does pain and displeasure. A "good" connexion of ideas would be something like the idea of lightning when we hear thunder. Experience establishes such associations reliably over time and we are in line with reason when we therefore continue to expect the one to go with the other.

Because Locke is critical of such (what he considers) unreasonable and unnecessary connexions in mind, Leahey jumps to the conclusion that his concept of the "association of ideas is far from being the central machinery of the mind." I disagree with this conclusion, because it seems to me that the entire thrust of Lockean mental philosophy is to suggest that all we human beings have in mind begins as simple ideas that are formed into increasingly complex ideas by way of (either sound or unsound) connexions formed through frequency considerations of one sort or another, such as the number of times the housemaid tells the child about goblins in dark places, the child's resultant ruminations about these connexions, and so on. Without frequency of this or that experience to direct thought we would need a homunculus to explain why it is that the Lockean mind ruminates this way as opposed to that way. The need for association begins in this requirement of the simple constituting into the complex by way of a frequency-contiguity principle.

Although he may not have referred specifically to the "association of ideas" in the first edition of his *Essay,* Locke did express this same notion in other ways. For example, in Book II, Chapter XXIII, Locke tells us that "a certain number of these simple ideas go constantly together" and that a complex idea can be "a complication of many ideas together" (ibid., p. 204). It is in elaborating on such complications (connexions, associations) that Locke advances what I think is a good definition of a mediation model: "When the understanding is once stored with these simple ideas, it has the power to repeat, compare, and unite them, even to an almost infinite variety, and so can make at pleasure new complex ideas" (ibid., p. 128).

This is my understanding of what a mediational model "is." Something comes indirectly to play a role in a process that it was not initially a part of, acting as a medium, conveyance, or conduit following its introduction to that process. Locke then adds: "But it is not in the power of the most exalted wit, or enlarged understanding, by any quickness or variety of thought, to *invent* or *frame* one new simple idea in the mind, not taken in by the ways before mentioned; nor can any force of the understanding *destroy* those that are there" (ibid.). This formulation is unacceptable to a dialectical theorist. Locke is construing ideas as unipolar singularities, akin to singular objects that one might place in a cabinet (a metaphor he actually used to describe the mind and its ideas; see Cranston, 1957, p. 266). But to a dialectician, simple ideas are never this singularly simple; they are, in effect, *dimensional*—much in the way that Lamiell's research suggests. Tyler finds it difficult to accept the bipolarity of dialectic, suggesting instead that alternatives can spring forth in any of a number of directions. The dialectician would expect that her reference to a "creative advance to novelty" would be framed by some sense of going from "this" event to "that" possibility. Here is where we can turn to research for a clue, and Westcott's interesting study in which subjects found over 200 different ways to describe a feeling in opposition to the feeling of being free supports the view that dialectical machinations promote novelty of conceptualization.

So, the dialectical theorist would answer Locke by saying that many of these simple ideas would delimit and hence imply their opposite in some way—by negation, contradiction, contrariety, and so on. Some of these opposite ideas would be construed as playful and even "wild" speculations. This would mean that people could indeed create or negate simple ideas, begin with empty cabinets but be capable of framing dimensions of opposition/negation for each singularity placed within them. Leahey believes that Locke was dialectical in theoretical formulation because he spoke of a person doing or not doing something, or agreeing or disagreeing with some point through an exercise of reason. Leahey is impressed by the fact that Locke referred to a person's "will." But the fact is, the will was conceived as under the direction of desire, of so-called uneasinesses that arise in the course of living (Locke, 1952, p. 186). When desire is active, the mind has the power to suspend the execution of what the will is being impelled to do (ibid., p. 190). Here is where reason can direct the person. Locke goes on to observe: "This [suspension of will] seems to me the source of all liberty; in this seems to consist that which is (as I think improperly) called *free-will*" (ibid., p. 190; italics in original). The problem with this formulation, as axiologists have since pointed out (e.g., Rickaby, 1906, p. vii), is that Locke fails to explain why such suspension of desire takes place in some instances but not in others? He begs the question needing explanation. Once again, the homunculus seems indicated to make such choices.

If all the "person" amounts to is a receptive cabinet, a mediating conduit that takes in from the environment and then uses *only* what is put there, then the

grounds for hanging-fire on a decision to act or not to act must itself be dependent upon such external inputs (placings into the empty cabinet, or etchings upon the tabula-rasa intellect). It was easy for subsequent theorists like Hume (whom some experts believe took his conception of mental ideas from Locke; e.g., see Cranston, 1957, p. 274) to add that what determined the suspending or not suspending was the ongoing rewards and punishments of the external environment. As Leahey notes, Hume (1952) did indeed underwrite his mediational conception of mind with Newtonian mechanics, and as a result suggested the "law" that behavior was moved solely by rewards and punishments (p. 485). What this comes down to is that efficiently-caused singularities, viewed as moving "over there" (i.e., extraspectively), connect and summate into complexities based exclusively upon whether or not they result in satisfactions. The way is now set for traditional reinforcement explanations of learning.

I do not find dialectical reasoning under formal presentation in Lockean philosophy. Locke's view of reasoning is entirely demonstrative. Just because we can oppose two concepts of a theory oppositionally does not mean that the theorist who framed these concepts is relying upon a dialectical formulation. Sometimes the theoretician qua human being may be reasoning dialectically, and aligning his or her theoretical presentation through a series of oppositionally-framed conceptions. But the *formal* theory under espousal cannot therefore be said to be a dialectical presentation unless it is shown precisely how this is the case.

I find Locke doing what psychologists do, and that is to "account for" what might be construed as dialectical reasoning in a demonstrative fashion. For example, in his discussion of what he calls "contrary" observations, circumstances, reports, tempers, designs, and so on, Locke notes that it is sometimes difficult to decide whether "this" side or "that" side of an issue is the correct one. Falling back on what I would call a frequency thesis of past inputs and ruminations based on such inputs summating to a rough equality of influence, Locke then opines: "That as the arguments and proofs *pro* and *con*, upon due examination, nicely weighing every particular circumstance, shall to any one appear, upon the whole matter, in a greater or less degree to preponderate on either side; so they are fitted to produce in the mind such different entertainments, as we call *belief, conjecture, guess, doubt, wavering, distrust, disbelief, &c.*" (Locke, 1952, p. 369; italics in original). Dialectical machinations of contrariety, questioning, and negation might be placed here. But the formal treatment is *not* dialectical in any sense. It is like the normative strategy that Lamiell discredited.

When we come to Kant the theory of mentation is completely different. I would call Kant's model of the mind a *predicational* model (Rychlak, 1987a). Predication is involved with immediacy in the aligning of meanings, so that only that is known which has been framed from the very outset by some broader expanse of meaning to conceptualize it. The Greeks referred to this as reasoning from *universals* (broader meanings) to *particulars* (targeted items that take meaning from the universals). We can affirm the relationship of the broader

meaning to the targeted meaning, deny it, or qualify it in some way, as in the case of "Patricia is intelligent" or "Patricia is not intelligent" or "Patricia sometimes seems quite bright, but at other times seems dull." "Intelligence" is the broader meaning here, so that if we employed Euler circles we could place the smaller circle labeled "Patricia" totally within the wider circle labeled "intelligence" (is), or keep the two circles separated (is not), or partially overlap them (is sometimes) to symbolize the various possibilities of predicating the young woman's mental capacities. We are obviously presenting here a different process of mentation than the mediation model postulates. We are more in the realm of formal-final causation than material-efficient causation.

Kant views the mind as a conceptualization process in which broad-ranging categories of the understanding (akin to our "intelligence" circle) frame experience from the very outset of cognitive processing. The mind is not first pump-primed with items "taken in" from the environment that later function intermediately to influence the course of thought. The mind works immediately to frame certain items within its aegis, lending them meaning from the moment at which cognition may be said to be underway. Kant's interpretation of an idea is completely different from Locke's interpretation. For Kant (1952), an idea is always conceptual, it frames things that are known, and can even transcend known experience (p. 115). Ideas are never "put into" mind, but function as the organizers of experience, lending a predicated meaning to experience that it would not have had otherwise. Ideas grow into complexity, but this is always by way of moving from what is already broadly conceived (understood, grasped, known, etc.) to what can then be brought within this conceptual realm. Past experience influences what we know hence conceptualize today. But that past experience as today's experience was also subject to predication. Westerman seems to be describing a process of this sort, but I am not sure because he is critical of the implicit rationalism of Kantian philosophy.

I was very pleased to see Martindale say that all Ph.D. candidates in psychology should be made to understand Kant's The Critique of Pure Reason. I agree, but I also wonder how well cognitive enthusiasts really understand what Kant is saying? Kant's name is increasingly bandied about in the research literature as a supposed precursor of modern cognitive theory. But every time I look carefully, it is clear that a mediation model is being employed to "account for" the predicational model that Kant actually employed. Martindale draws some questionable parallels between the Kantian view of mentation and the computer's processing of information. He believes that because the computer processes information according to a binary logic it is reflecting dialectical reasoning. Actually, the Boolean logic underwriting the digital computer is non-dialectical because it interprets disjunction as "either . . . or (but not both)" [Reese, 1980, p. 64].

This means that if we reason as a computing machine does, we presume that something is either "true" or "the case" or it is "false" or "not the case." Actually, as Westcott points out, in the strictly engineering sense of a computer, no

meaning need be attached to the concept of information ("on/off" takes the place of "true/false"). But, when theorists in artificial intelligence employ the binary logic of a computer they are relying upon Boolean algebra. And since there is no "both" in this logic it violates the "one and many" principle of dialectical reasoning (where, e.g., left is left and right is right, but there is *also* a "both" in the sense of a left-right commonality of meaning). Binary logic follows the "law of contradiction" (i.e., A is not non-A), which underwrites demonstrative reasoning.

A human being who actually reasoned the way a computer "reasons" would see no difference between "on/off" and "tall/fast," or between "true/false" and "deep/cold." Computers never "realize" that they cannot get from "tall" to "fast" through a common ground uniting these meanings, but that they *can* get from "true" to "false" thanks to the uniting bond of oppositional meaning ("both"). Writing a program to simulate such dialectical reasonings would not solve the problem because the way in which the computer actually would carry out the program would still be exclusively demonstrative, lacking a "sense" of the bonding oppositionality that all humans grasp implicitly.

Martindale tells us that "everything Kant said about human understanding applies just as well to computer 'understanding'." I disagree with this reading of the *Critique*. As we have just seen, computers have no understanding of alternative meanings by way of dialectical (non-Boolean) logic. Neither can the computer transcend its executive program, thanks to a transcendental reasoning capactiy, and frame thereby (often erroneous) alternatives to this script in the way that Kant said a person could (ibid., pp. 59, 109, 203, 229). This is why computers do not make mistakes; they cannot question and distort things through dialectical machinations. This is also why computers cannot be said to be teleological mechanisms. They cannot in principle fashion the grounds for the sake of which they are demonstratively determined. They are Lockean creatures, bound by their programs which they cannot transcend and reflexively alter in the way Westcott has indicated that he can alter his behavioral direction through self-examination.

Martindale cannot really be committed to Kantian formulations if he believes, as he tells us, that dialectic is not a *natural* (much less useful or important) mode of reasoning. Here are some quotes from Kant that state precisely the opposite: ". . . human reason, which naturally pursues a dialectical course" (ibid., p. 248) and "Pure reason always has its dialectic, whether it is considered in its speculative or its practical employment" (ibid., p. 337). It should also be recalled that the Kantian categories of the understanding are framed dialectically (e.g., unity-plurality, possibility-impossibility, necessity-contingency, etc.). And please, Dr. Martindale, let us try to remember in the future that Hegel is *not* the father of dialectical reasoning — which can be seen active in primitive languages and writings stretching back to 2000 BC. No one has to be a Hegelian in order to be a dialectician. Kierkegaard, for one, was a dialectician who ridiculed Hegelian pretensions.

I would like briefly to address a point raised by Muscari. He seems to think that dialectical thought has to be conscious, and that somehow if we pursue a dialectical analysis of mentation we will be missing out on the unconscious side of things. Actually, as I have tried to show in many of my writings, dialectical reasoning is very friendly to a theory of the unconscious mind. Jung was openly supportive of dialectical formulations, and although Freud disparaged "dialectic" per se his theories are fraught with such explanations. I wonder if Muscari is familiar with Freud's *very first* theoretical effort, *A Case of Successful Treatment by Hypnotism* (1966; written in 1892/93). In this formulation he makes use of clearly dialectical concepts such as the antithetical idea and counter-will. And as for the unconscious, it was always construed by Freud as a predicational model, a conceptualizing process that was underway at birth and did not have to be "given" unpredicated inputs to get it something to think about. The unconscious is underway (*immediately*) at birth, framing contents through a Kantian form of idea rather than taking them in (*mediately*) on the basis of a Lockean idea. Concepts like defense, repression, denial, reaction-formation, and so on, are completely in line with a dialectical intelligence. It is *not* "illogical" for a dialectical mode of thought to know (*consciously*) and not know (*unconsciously*) something at the same time. Freudian thought does not rely upon the Boolean interpretation of disjunction, as do the cognitive models of today.

I would like next to take up some of the interesting beliefs and attitudes held to by certain of the commentators regarding science, and in particular the role that psychology is to play in science. Chaplin, Leahey, and Martindale find the efforts of this symposium's contributors to be irrelevant, or beside the point. Chaplin is not bothered by the fact that cognitive psychology is just as much an efficient-cause account of behavior as traditional behaviorism. He feels that the broader reaches of theory and research in cognitive psychology are accounting for the telic aspects of behavior in any case. Martindale attempts to redefine final causality into efficient causality, essentially dismissing the distinction drawn and adhered to in Western philosophy virtually from its inception. Leahey asks us to pursue the neo-Newtonian aspirations of trying to explain human behavior mechanistically, or else consider ourselves to be non-scientists.

As to Martindale's renaming of the final cause: just because the premised intention (encompassing a predication) comes before the instrumental act carrying out this intention does *not* make this an efficient-cause sequence. All four of the causes (material, efficient, formal, final) can be shown to have causes *and* effects, in that order. In the case of final causation, the intended premise — the "that for the sake of which" — appears first in *logical* order, which may on occasion parallel the flow of efficiently caused antecedents-to-consequents across time. However, in a statement such as we used above — "Patricia is intelligent" — the predication, the intended meaning ("cause") being extended to the target lies to the right or comes after the item on which it will have an "effect." In this case the intended meaning being extended is *not* preceding the target, even though logically it "comes first" as a precedent. The point is, in the realm of

final-cause description, time's passage is irrelevant; a final "cause-effect" sequence can parallel time's supposed passage from earlier to later *or not*. I have in my logical learning theory broken from traditional, efficient-cause terminology such as stimulus-response or input-output by speaking of the "telosponse," which involves a precedent-sequacious flow of meaning without regard for time's passage (Rychlak, 1987b). I did this precisely for the reason reflected in Martindale's efforts to make one and only one "cause-effect" sequencing relevant to behavioral description. It is impossible to express final causation through efficient causation. You can repress or dismiss the former by limiting discussion to the latter, but this restricts the account, and, in the case of human beings, distorts it unnaturally.

I understand Chaplin's desire to demonstrate that we are well on the way to explaining behavior teleologically in cognitive science. I too believe that the cognitive movement in psychology augurs well for teleology, though much work (as is presently underway in our exchanges) must be done to clarify things. When Chaplin (as Westcott) cites George Kelly (1955) as an example of this move to teleology he is on the right track. Kelly, who was my teacher and influenced my thinking, definitely *did* try to present a rigorous humanism, relying on a predicational model. His ideas are frequently twisted into mediational models today. I cannot comment on all of the papers Chaplin included as examples of worthwhile tendencies toward teleology, but when he tosses in Mischel and Bandura I must take exception. I have had exchanges in print with both of these theorists concerning just how well they are "accounting for" telic capacities such as reflexive thought and personal choice (Rychlak, 1976,1979). Both Mischel and Bandura use language having the "sound" of teleology, but when the chips are down it is clear that they are mediation-model thinkers. Bandura (1979) once criticized my efforts to explain behavior teleologically, as follows: "There is a difference between analyzing cognition as a contributing factor in the reciprocal determination of events and conceptualizing cognition as a psychic agent that orchestrates behavior. Understanding of how people exert some influence over their actions is more likely to be advanced by delineating and exploring the nature of self-regulatory *mechanisms* [italics added] than by simply ascribing behavior to a psychic agent" (p. 440).

A mechanism is, by definition, an efficiently caused sequence of events. So far as I am concerned, Bandura's "reciprocal determinism" is a direct descendant of Lockean "complex" ideas — where three items (behavior, person, environment) somehow "add up to" something more than they are individually in an efficient-cause fashion. The same Lockean formulation is to be found in Minsky's (1986) *Society of Mind*, which Martindale believes is doing a suitable job of accounting for purpose and intention. We have to be careful about the use of words. Though Minsky builds his entire case on so-called agents, the resulting agency has nothing to do with teleology. He clearly states that "Minds are simply what brains do" (ibid., p. 287), that brains are "machines with enormous numbers of

parts that work in perfect accord with physical laws" (p. 288), and that agency in the sense of free-will is a myth (p. 307). So, let us not be misled by the use of telic-sounding words. When mechanists "account for" teleology they merely give us mechanism in new clothing.

The same is true of Tolman (1967), whom Leahey tells us "always respected purpose as a vital, fundamental aspect of behavior." Yes, but what did he *mean* by purpose? He meant an observable improvability (docility) in behavior, as when an animal does some task better over trials (ibid., p. 14). He did *not* mean what a teleologist means by purpose. He was thinking in terms of efficient causes, functioning as "intervening variables" (mediation model) coming between the environment/biological substrate and the animal's observable behavior. Indeed, he specifically ridicules McDougall — a true teleologist — for believing in an introspectively framed "something" called purpose that is not to be seen overtly in behavior (ibid., p. 16). The upshot is that if a person intends to solve a problem but shows *no* improvement over trials we cannot say that he or she has a purpose in mind. Since we cannot "see" the purpose it does not exist unless it reflects docility. If this satisfies Leahey's sensibilities as a psychological account of purpose, well and good. But it surely does not satisfy mine.

I found Westerman's reactions to be rather presumptive, in that he seems to have a fixed idea of what "a" teleological approach represents, and he worked mightily to disengage himself from it. It seems to me that he was assigning all kinds of views to the members of this panel that we do not really hold. I do not like to use "subjectivity" in referring to the person's influence on his or her experience, or to people as "subjects" excepting only in a research report. We could all — as individual persons — be agents of our experience quite "objectively," agreeing on the nature of reality. I do not think that a teleological position requires that we defend only or even primarily a subjective view of cognition. Westerman seems to believe this. He tells us that "the subject always comes to know an object against the background of the subject's prior involvement in the social world." This is where he wants to place the dialectical interaction, rather than within cognition itself as I am claiming. Supposedly, I am therefore defending the position of an "uninvolved subject," who sits off to the side and construes the world as a passing scene "over there" in some fashion.

I hope it is clear now that as a predicational theorist I certainly do not think of the person as uninvolved with ongoing experience, social or otherwise. How can you be uninvolved if the very meaning of your experience depends upon framing it predicationally to begin with? I would paraphrase Westerman's statement above and say "the subject [to be read in my terminology as "the person"] comes to know the social world against the subject's prior involvement in the non-social world, trailing back to predications framed in the crib." Westerman criticizes the members of the symposium for not going far enough, for not giving an alternative way in which the initial cognition — the framing of A regardless of non-A — takes place. This is simply not true in my case, as my

concept of telosponsivity (accounting for predication) should now make clear. We did not go into every aspect of cognition in this symposium because we were hoping to raise the awareness level of our colleagues concerning dialectical reasoning—something that now, for all practical purposes, does not exist in the psychological literature! But I for one certainly *do* have an alternative understanding of what cognition is all about at the level of the A "input" (in my terms, the framing of a premise encompassing predication in the telosponsive act).

I have studied Westerman's comments concerning agency, and if he has accounted for this in some way the explanation eludes me. He completely overlooked the fact that when I defined agency I said the agent could also "comply" with what the environment or biological prompting indicated. He seems to think that teleologists claim a person's goals come from the subject's (i.e., person's) side of things, and that "agents are free to make choices from a vantage outside the flow of events." Now, there may be some teleologists who believe this, but I surely do not. What the person "knows" as the "flow of events" is what the person predicates as the "flow of events," and this is based on the same dialogue and interaction with the environment that Westerman alludes to in describing so-called involved subjectivity. In fact, everything he says about context fits my understanding of predication.

A context is a wider expanse of meaning than the particular item or circumstance being framed by that context. I agree that the context (predicate) *is* the "that [meaning] for the sake of which" ongoing experience is made meaningful. Westerman accuses me of defending "radical freedom," but at no point have I ever claimed that the person can literally do everything that he or she can freely concoct mentally. Seeing the elevator entrance from the tenth floor next to the window I can see myself leaving by *either* "way down." I can imagine myself, as in a dream, leaping out the window and floating with waving hands to a gentle landing on the street below. But, because I have this clear picture in mind and the obvious freedom to leap out the window, does that mean I am really free to do the gentle landing? The facts of reality tell me "no." But sometimes it is also the case that by reasoning in opposition to common sense, to the "facts" of reality, a person like Einstein can indeed create empirically established outcomes as spectacular as arm-waving oneself down ten stories to the pavement below.

There does seem to be an issue separating Westerman's view of the context from my own. He stresses the fact that the background context is always a "shared" practice, by which I take it he means some kind of mutual, interpersonal definition of reality. I guess his concept of involvement hinges in some large degree on social involvement. On the other hand, I say that preliminary to social involvement is the process of cognizing, and this process is predicational "by nature." Hence, when the infant relates to others for the very first time this predicational process—this context-endowing process—is already underway. And, as an aspect of this predicational process we have dialectical reasoning. Here is where I see Westerman losing his predicational model to what may be

another one of those "back door" mediational models so common in psychology, for he tells us: ". . . the notion of involved subjectivity leads to the view that the context defines for us what is salient." I, on the other hand, would contend that salience issues from the person (Westerman's "subject"), who can affectively assess (itself, a form of predication) and align experience predicationally one way or another *from birth.* And it is the dialectical reasoning capacity which makes such alternatives possible. (I might mention in passing that none of the commentators presented any empirical evidence to contradict the likelihood of dialectical reasoning in human behavior. The distaste and/or reservations expressed for this concept are apparently totally theoretical. I find this almost amusing).

The final point I would address is one that we see again and again in psychology. It mystifies me why this view is so prevalent, considering the immense changes that have come about in the philosophy of the physical sciences over this century. Leahey enunciates this view when he says that "Since the time of Newton, science has sought to explain what appears to be purposive in mechanistic terms." I can think of leading scientists like Mach, Einstein, Bohr, Heisenberg, and others who would not agree that human purpose is a mechanism. Leahey goes on to suggest the following: "If psychology is to be a natural science like the other natural sciences, then it must *explain* purpose and meaning, as the other sciences have, with principles that themselves contain neither teleology nor semantics." I read this and wonder why we psychologists persist in such outdated Newtonianism? To give but one recent example of an eminent scientist who would disagree with Leahey, I cite the following view of Ilya Prigogine, a Nobel laureate: ". . . the reality studied by physics is also a mental construct; it is not merely given. . . . One of the reasons for the opposition between the 'two cultures' [i.e., Art vs. Science] may have been the belief that literature corresponds to a conceptualization of reality to 'fiction,' while science seems to express 'reality.' Quantum mechanics teaches us that the situation is not so simple. On all levels reality implies an essential element of conceptualization" (Prigogine and Stengers, 1984, p. 225).

Prigogine is not relying on a mediational model in his comments here. Conceptualization in his view — as was true in the views of the scientists listed above — amounts to an act of predication, a framing of "that, for the sake of which" (final cause) something can be known. For Leahey to ask me as a psychologist to "accept purpose and meaning as human givens, as ultimate bases for understanding [and] not themselves to be explained by anything more basic" is in effect to ask me to forego my professional commitments, my very "calling" as a scientist interested in human nature. But now, why does Leahey tie my hands? The mechanists are free to prove their theory empirically, but I should not busy myself doing so regarding my agential theory. I should not propose concepts to explain human agency and seek their validation through typical experimental methods. Why in the world do so many psychologists who

are — or, are potentially — friendly to teleology continually reject the scientist's role? We are past Newtonianism! Let's get on with proving what we readily sense ourselves to be — telic organisms, agents of our behavior. Maybe then psychology will attain the relevance in the family of sciences that it now lacks.

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