

**To Understand a Cat: Methodology and Philosophy**

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In Plato's *Phaedo*, Socrates famously distinguishes between mechanistic and mentalistic explanations of behavior (see also the later dialogue, *Timaeus*). Rakover's book is a contemporary excursus on this Platonic conception of dual causation from the *Phaedo*. Mentalistic explanations, including such private concepts as will, purpose, or intent are needed because "it is impossible to understand . . . behavior . . . by [the sole] use of mechanistic explanations prevalent in the natural sciences" (p. ix). Consequently, Rakover suggests an approach, "methodological dualism," in which mentalistic and mechanistic hypotheses are accorded equal status. The approach is sustained, in turn, by Rakover's "multi-explanation theory" that is meant to unite in a coherent manner the use of mentalistic and mechanistic schemes. These cautious and somewhat contrived moves are taken in order to avoid, indeed outflank, the ontological constraints posed by the interminable mind-body problem.

A word is in order to understand Rakover's sense of mechanistic explanation. Rakover relies extensively on recent work on "mechanistic explanation" accomplished in the philosophy of life sciences. The contributions of William Bechtel (cf. Bechtel & Richardson, 1993) figure prominently in the book: the decomposition of a complex system into component parts and operations as well as their appropriate organization are well taken and form part of Rakover's own multi-explanation theory. However, Rakover's own view is more encompassing, both in a horizontal and a vertical sense. For the former, Rakover subsumes under mechanistic explanation *any* explanation used in the natural sciences (not just those that can be modeled by a machine). For the latter, Rakover considers (the behavior of) entire living organisms as the subject requiring (mechanistic) explanation. In a sense, he searches for the mechanism of all mechanisms responsible for producing behavior. The appropriate explanation must entail mental as well as physical development of the organism (in a way akin to the Aristotelian concept of *entelechy* or built-in purpose). Rakover is skeptical that a mechanism comprising physical or biological components is capable of producing the observed mental phenomena. Although complex organizations of such components are capable of explaining quite high-level phenomena, they are still constrained by underlying axioms (e.g., neural networks that are capable of learning from experience are constrained by their syntax, e.g., back propagation). Recent theories that incorporate neural models (e.g., Craver, 2002) are still unable to give a satisfactory account of the mental aspect of human and sub-human behavior. Consequently, the demarcation line espoused by Rakover lies in the unbridgeable difference between the mental and the physical: "I don't think that today there is any philosophical approach or scientific theory that is . . . able . . . to bridge the mental and physiological-behavioral" (p. 150). This

dictates the need for the inclusive multi-explanation theory, and, in the absence of a solution to the mind-body problem, also explains the status of Rakover's development as a methodological device.

The result of Rakover's labors is a thought-provoking treatise covering an unusually large ground from the foundations of (behavioral) science and measurement to theory construction and testing to human-animal commensurability. The last theme is notable, alluded to already in the book's title. Rakover makes generous use of the behavior of his cat, Max, as both a scientific and literary device. In my opinion, the gambit does not work. The anecdotes with Max are entertaining, but the reader does not gain new insights on the main issue of explanatory models for behavior. The presence or absence in animals of higher cognitive processes such as recognition, consciousness, or intentions, is a contentious issue, but one that is orthogonal to the book's main theme of the mentalistic-mechanistic partition of explanation. Consequently, readers who do not subscribe to Rakover's anthropomorphism (and even those who do) might consider the lengthy descriptions of Max's behavior unwelcome digressions. As an aside, one notes the inconsistent use of grammar with respect to animals: Compare the possessive adjective "his" (p. ix) with the relative pronoun "which" (p. 17). With my tongue firmly in cheek, Rakover's unconscious mind might not be as determined as his conscious one on the issue of "animal intelligence."

Rakover justifies admirably the book's promise regarding methodology (as reflected in the subtitle). Notably, Rakover carefully avoids the pitfall of "methodolatry," the slavish attachment to method at the expense of discussing underlying theory and philosophy (Danziger, 1990). In salutary contrast, Rakover does tell the substance of the story, and he does so in an engaging manner. Rakover's breadth of scholarship sustains a compelling research into the roots of psychological theorizing, methods, and modes of interpretation, all elucidated within a broad philosophical context.

The book is organized as follows. Chapters 1–5 are devoted to the attempt to justify the inclusion of mentalistic explanations in mainstream psychological research and theory. The first chapter claims that mentalistic hypotheses are on par with mechanistic ones from the standpoint of empirical testing. In other words, a mentalistic hypothesis (that Max is feeling jealous) can be supported or disconfirmed by empirical observations placed within a proper *scientific* framework. Large portions are devoted to Max's behavior and, consequently, to a discussion of the question of "animal intelligence." The second chapter entails ideas for constructing mentalistic hypotheses. In particular, Rakover offers the principle of "new application": if different behaviors are employed to achieve a given goal or the same behavior is employed to achieve different goals, then mentalistic explanations are invited. So, if you visit your girlfriend's place (the goal) once by walking and once riding the bicycle (different behaviors), then a mentalistic goal-directed explanation provides a good account of your situation. Surprisingly, Rakover does not specify whether the notion of "goal" itself is mentalistic or not. If it is, then one commits oneself to the use a mentalistic explanation (itself open to empirical testing). Rakover sometimes implies this sense when he includes the concept of goal in the mentalistic

hypothesis at test. However, "goal" can also be conceived in an objective fashion without recourse to the mentalistic domain.

Chapter 3 takes the argument a step further by offering a systematic set of indicators of private behavior (goals, intentions). Rakover makes the bold argument that free will is also involved and offers indicators for free will. Chapter 4 entails the double claim that mentalistic explanations are not as valuable scientifically as mechanistic explanations, yet they are necessary nonetheless. The reason is that mentalistic explanations do not meet the observation, consistency, and measurement criteria satisfied by mechanistic theories in the natural sciences. Mentalistic explanations are nonetheless necessary for the reasons stated by Plato in the *Phaedo*—to provide a full account of behavioral causation. Sometimes Rakover espouses the position that "only when the mechanistic hypothesis fails can one appeal to a mentalistic hypothesis for explanatory help, because... mentalistic hypotheses, despite these methodological flaws, succeed in providing us with fairly good explanations" (p. 75). Chapter 5 introduces a new explanatory procedure in which the to-be-explained behavior is decomposed onto its mentalistic and mechanistic aspects with the main component determining the type of the dominant interpretation.

Chapters 6–9 discuss various facets of the author's "multi-explanation theory," aimed at reconciling mentalistic and mechanistic concept within a single umbrella structure. Rakover's main tenet is that "complex behavior is based on two kinds of action: action controlled by the will, beliefs... and automatic action controlled by involuntary mechanistic mechanisms" (p. 133). Consequently, mentalistic and mechanistic explanations for the same behavior always exist and should be considered in tandem; moreover, the two models are available also when one decomposes the behavior in question into its smallest component parts. In chapter 6, Rakover introduces the new structure, "multi-explanation theory," that includes both mentalistic and mechanistic explanation models. Rakover discusses several problems with this structure, chief of which are those of refutability and the commensurability of mental and physical concepts. He suggests a strategy of "divide and rule" by way of solution, with (a) behavior-explanation matching and (b) coherent organization of the pertinent behavioral modules as tools for separating the mental and the physical. The goal of chapter 7 is to establish (partially) the scientific credentials of "multi-explanation theory" by attempting to show that the derivation of mentalistic hypotheses follows the rules used for derivation of mechanistic hypotheses. Chapter 8 recounts the various failures at solving the mind-body problem. An adequate solution would have rendered the "multi-explanation theory" gratuitous (replacing it with the customary "one-explanation theory"). However, the absence of a solution also means that one can entertain dualism only at the methodological level. The final chapter attempts a general characterization of "multi-explanation theory" by various comparisons with other approaches and theories.

Therefore, Rakover distinguishes between the explanatory practices in the natural sciences and in psychology as follows. In the natural sciences, "every scientific

explanation has the same explanatory structure" (p. 124), which Rakover identifies with Hempel's deductive-nomological model. Within this model, various (competing) theories are possible; notably, when a theory is refuted, the explanatory structure is not affected. The property that characterizes explanatory practice in the natural sciences is: one method (explanatory model, empirical testing), many theories. In psychology, the situation is the mirror image of that in the natural sciences because the same theory often uses many explanatory models. The property best characterizing psychological practice is: one theory, many explanatory models.

Clearly, Rakover's is an extremely ambitious undertaking, unfolding on a large canvass. Rakover's rejection of the non-scientific status of such mentalistic concepts as free will or jealousy, his skepticism about the true nature and contribution of the so-called "cognitive revolution" (which did not include free will), his advocacy of novel criteria for slicing behavior and for testing it, and his quest at unification of interpretations all challenge key assumptions of the prevailing orthodoxy in psychological investigation and understanding. Although thought provoking, Rakover's project fails in final analysis. According to Rakover's own admission, his multi-explanation theory is "not a kind of . . . theory on a phenomenon . . . nor a kind of philosophical theory . . . multi-explanation theory is nothing but a procedure to guide the researcher" (p. 220). If multi-explanation theory is not a theory, then Rakover's major distinction between natural science (one explanatory model, multiple theories) and psychology (one theory, multiple explanatory models) collapses. To be sure, I do not believe that "multi-explanation theory" is a theory in any acceptable sense of the term or that it is even a useful guide for the investigator. It merely juxtaposes incommensurable classes of concepts (observable and non-observable, deterministic and non-deterministic) in some structure that is neither well-understood nor really open to refutation (hence is not scientific by Popper's demarcation principle). Rakover's procedures of "matching" and "organization" are not remedies because one can always alter the matching and/or the organization.

Rakover's scheme of introducing free will (and other mentalistic concepts) into psychological theorizing does not seem feasible. It is interesting to note in this respect that William James found the concept of free will useful in his private life but was careful to exclude it from his science of psychology. Opening the door for mentalistic explanations of behavior comes with an enormous price tag that is tantamount to compromising psychological science as we currently know it. Note that psychology does employ "mentalistic" terms such as sensation, aggression, or decision, but only as unobservable concepts that are tightly tied to theory, on the one hand, and to observable behavior, on the other hand. It is only by observing such rigors that psychology maintains its deterministic outlook along with the rest of science. Therefore, terms used by Rakover such as "mechanistic behavior" and "mentalistic behavior" (p. 17) are anathema to psychological science—a behavior is a behavior is a behavior!

As is well known, the mind-body problem was absent from Greek philosophy. Rakover's attempt to outflank the problem thus harks back to that philosophy

in more ways than meet the eye. Having deemed Rakover's project a failure therefore does not mean that it is not worthy of pondering. Rakover's erudition makes the journey instructive in recognizing the nature of the problems and the daunting task of tackling them.

Let me end with a word on the expected audience. Who is going to read this book? For an answer, let us take a final look at the *Phaedo*. Plato wrote this dialogue after establishing his Academy so that he had in mind philosophers and men of letter in general as his audience. This is Rakover's audience with the notable addition of his fellow psychologists.

### References

- Bechtel, W., & Richardson, R. C. (1993). *Discovering complexity: Decomposition and localization as strategies in scientific research*. Princeton, NJ: Princeton University Press.
- Craver, C. F. (2002). Structures of scientific theories. In P. Machamer & M. Silberstein (Eds.), *The Blackwell guide to the philosophy of science* (pp. 55–79). Malden, MA: Blackwell.
- Danziger, K. (1990). *Constructing the subject: Historical origins of psychological research*. Cambridge: Cambridge University Press.

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### **The Measure of Mind: Propositional Attitudes and their Attribution**

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*The Measure of Mind* both challenges a popular view of propositional attitudes as representational states and offers Matthews' own view of propositional attitudes as measure predicates. The challenge to what Matthews terms the "Received View" (RV) is well developed and plausible. The Measurement-Theoretic account of propositional attitudes may, however, be met with more skepticism.

The issue of how properly to construe propositional attitudes is significant to a range of specialists, including philosophers of mind, linguists, cognitive psychologists, and researchers in artificial intelligence. The diverse group of specialists interested in questions of how to explain the relationship between belief and