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Mental Health Experts on Trial: Free Will and Determinism in the Courtroom

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MENTAL HEALTH EXPERTS ON TRIAL: FREE WILL AND DETERMINISM IN THE COURTROOM

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I. INTRODUCTION

The American system of justice assumes that people are teleological organisms.¹ In other words, people are thought to have the ability to postulate a set of facts, calculate the results of a given course of conduct, and behave accordingly. Justice Benjamin Cardozo, writing for the United States Supreme Court, explained the American legal system's approach when he wrote that the law is "guided by a robust common sense which assumes the freedom of will as a working hypothesis in the solution of its problems."² The Court later reaffirmed this proposition by stating that a "belief in freedom of the human will and a consequent ability and duty of the normal individual to choose between good and evil" is a proposition "universal and persistent in mature systems of law."³

Legal doctrines such as insanity, diminished capacity, and chemical dependency raise issues related to the mental health professions. While there may be many practical applications for the knowledge that social scientists uncover, one of the most important uses is in the courtroom. In a criminal case, the jury may need to establish the mental state of an individual to determine his or her level of culpability.⁴ In a tort case, the court may need to determine how a reasonable person would respond to a given stimulus. In a contract case, the judge may need to determine whether one of the signatories was fully competent. Courts routinely turn to mental health experts to try to answer such questions.

When it comes to the issue of free will, however, experts in the social sciences, especially psychiatry and psychology, are not really expert. They tend either to dismiss the possibility of free will as a theory of behavior, or they are confused as to the proper definition of free will. To the modern psychologist, free will is an archaic remnant of a teleological view of human nature that has long since been disproved by modern science.

¹ A teleological explanation invokes ends, purposes, or reasons for why certain items exist or a course of events takes place. WILLIAM L. REESE, *DICTIONARY OF PHILOSOPHY AND RELIGION: EASTERN AND WESTERN THOUGHT* 371 (1980).

² *Charles C. Steward Mach Co. v. Davis*, 301 U.S. 548, 590 (1937); see also HERBERT FINGARETTE, *THE MEANING OF CRIMINAL INSANITY* 79 (1972).

³ *Morissette v. United States*, 342 U.S. 246, 250 (1952).

⁴ The influence is most obvious with regard to the insanity defense, but defendants also routinely argue about addictions and other influences that in one way or another excuse actions that would otherwise subject them to civil liability, if not criminal punishment. These issues have also had an important effect on public policy. See, e.g., Martha L. Fineman & Anne Opie, *The Uses of Social Science Data in Legal Policymaking: Custody Determinations at Divorce*, 1987 WIS. L. REV. 107, 131.

Psychologists use the term “agency” to define what lawyers might call free will. “Agency is the organism’s capacity to behave in conformance with, in contradiction to, in addition to, or without regard for perceived environmental or biological determinants.”⁵ Agency, however, is widely rejected in psychological circles. Non-telic environmental or biological determinants, instead, are thought to shape most behavior. This rejection or confusion about such a basic aspect of the legal system has resulted in a de-emphasizing of personal responsibility under the law.

If the legal system is to deal responsibly with defenses and other claims based on the mental condition of defendants, then courts must develop a coherent approach that accords psychiatry and psychology their rightful status. The courts must also, however, demand that psychological and psychiatric expert witnesses function within the assumptions of the legal system. This is not routinely done today.

Expert psychiatric and psychological witnesses often frame their testimony in terms of the scientific foundations and the empirical findings of their disciplines. Although this concern for scientific validity is important, it can be deceptive. Scientific proof is guided by theory; empirical evidence must be interpreted. Thus, the theoretical construct is crucial to understanding the data. Unfortunately, psychiatry and psychology have poor records when it comes to theories relating to free will, personal choice, and self-determination.

Most of the theories in psychiatry and psychology today draw on biological and related mechanistic accounts, which are by their very essence critical of a view of human beings as capable of behaving according to free will. Due to this commitment to mechanistic interpretations, psychology has failed to properly test the free will potential of human beings. Agential capacities are rejected at the outset. Even when lip service is paid to such human capacities – capacities that underwrite the legal system – they are presented in a tentative and frequently garbled manner. Many, if not most, of the mental-health experts who appear before the court fail to serve the needs of justice. This can present serious difficulties to the judges and lawyers attempting to rely on mental health experts.⁶

⁵ JOSEPH F. RYCHLAK, LOGICAL LEARNING THEORY: A HUMAN TELEOLOGY AND ITS EMPIRICAL SUPPORT 1 (1994) [hereinafter LOGICAL LEARNING THEORY].

⁶ The recent past has revealed many applications of psychology in general to law. *See, e.g.*, IRWIN A. HOROWITZ & THOMAS E. WILLGING, THE PSYCHOLOGY OF LAW 6-11 (1984); SAMUEL MERMIN, LAW AND THE LEGAL SYSTEM 389 n.124 (1982); PSYCHOLOGY IN LEGAL CONTEXTS (Sally M. Lloyd-Bostock ed., 1981); PSYCHOLOGY IN THE LEGAL PROCESS (Bruce Dennis Sales ed., 1977); PSYCHOLOGY, LAW AND LEGAL PROCESSES (David P. Farrington et al. eds. 1979); THOMAS SANNITO & PETER MCGOVERN, COURTROOM PSYCHOLOGY FOR TRIAL LAWYERS (1985); JOHN THIBAUT & LAURENS WALKER, PROCEDURAL JUSTICE (1975); THE LEGAL TRIAL PROCESS (B. Sales ed., 1981);

II. FREE WILL AND THE LAW

The legal system's assumption of free will in human affairs is ubiquitous. It is found in many different areas of law, including wills and deeds,⁷ contracts,⁸ confessions,⁹ and criminal law.¹⁰ In fact,

[t]he core of criminal law doctrine, centered around the concept of *mens rea* and the variety of criminal excuses, probably comes closer than any other set of social practices to an instantiation of the Kantian conception of the responsible human subject as the noumenal self, characterized exclusively by a rational free will unencumbered by character, temperament, and circumstance.¹¹

The Supreme Court has held, “[m]en usually intend to do what they do.”¹² As another court put it: “the basic behavioral concept of our social order is free will.”¹³

LAWRENCE S. WRIGHTSMAN, *PSYCHOLOGY AND THE LEGAL SYSTEM* (1987); Lawrence M. Friedman, *The Law and Society Movement*, 38 *STAN. L. REV.* 763, 777-778 (1986); but see DANIEL N. ROBINSON, *PSYCHOLOGY AND LAW* (1980) (questioning wisdom of psychological invasion of law).

⁷ See, e.g., *Conley v. Nailor*, 118 U.S. 127, 134 (1866) (“The influence for which a will or deed will be annulled must be such as that the party making it has no free will, but stands in vinculis.”); *Ralston v. Turpin*, 129 U.S. 663, 670 (1889); *Mackall v. Mackall*, 135 U.S. 167, 172-173 (1890).

⁸ See, e.g., *Jackson v. Ashton*, 36 U.S. 229, 238 (1837) (“She was most cruelly tortured; and her fears, not her free will, gave the promise.”).

⁹ *Michigan v. Harvey*, 494 U.S. 344, 353 (1990) (“Although a defendant may sometimes later regret his decision to speak with police, the Sixth Amendment does not disable a criminal defendant from exercising his free will.”). In *Townsend v. Sain*, 372 U.S. 293, 307 (1963), and *Culombe v. Connecticut*, 367 U.S. 568, 583 (1961), the Court ruled that a confession is admissible only if it is a product of the defendant’s rational intellect and “free will.”

¹⁰ See, e.g., *Thompson v. Oklahoma*, 487 U.S. 815, 835 n.41 (1988) (“But, what does it mean to say that a child has no criminal responsibility? . . . One thing about this does seem clearly implied, . . . and that is an absence of the basis for adult criminal accountability – the exercise of an unfettered free will.”) (quoting S. FOX, *THE JUVENILE COURT: ITS CONTEXT, PROBLEMS AND OPPORTUNITIES* 11-12 (1967)).

¹¹ Meir Dan-Cohen, *Responsibility and the Boundaries of The Self*, 105 *HARV. L. REV.* 959, 1003 (1992).

¹² *Brewer v. Williams*, 430 U.S. 387, 434 (1977).

¹³ *People v. Wolff*, 394 P.2d 959, 971 (Cal. 1964).

At one time in the United States, women¹⁴ and slaves¹⁵ were denied full legal responsibility because they were thought to lack the capacity to freely exercise their will. Minors are still said to lack the capacity to make many decisions routinely made by adults.¹⁶ Most adults today, however, are legally presumed to have the ability to recognize the consequences of their actions and behave accordingly.¹⁷

If a person cannot freely direct his or her will, the law generally holds him or her blameless; the person must freely opt to do wrong before the criminal law system assigns guilt.¹⁸ Those who act under duress,¹⁹ out of necessity,²⁰ or in self

¹⁴ See *Kempe's Lessee v. Kennedy*, 9 U.S. 173 (1809) (holding that a "feme covert in the presence of her baron, has no will.").

¹⁵ *Dred Scott v. Sandford*, 60 U.S. 393, 477 (1856) (Grier, J., concurring) ("[W]ith the slave, with one devoid of rights or capacities, civil or political, there could be no pact; that one thus situated could be no party to, or actor in, the association of those possessing free will, power, discretion.").

¹⁶ Peter Arenella, *Convicting the Morally Blameless: Reassessing the Relationship Between Legal and Moral Accountability*, 39 UCLA L. REV. 1511, 1519 (1992) ("[Y]oung children do not qualify as fully accountable moral agents because they have not had sufficient time, experience, or brain development to fully realize their moral capacities."); Michael S. Moore, *Causation and the Excuses*, 73 CALIF. L. REV. 1091, 1111 (1985) ("A causal theorist attempting to explain why infancy excuses would liken it to the status conception of insanity: the very young, like the insane, lack free will."). As the Talmud states, "A deaf-mute, an idiot and a minor are awkward to deal with, as he who injures them is liable, whereas if they injure others they are exempt." THE BABYLONIAN TALMUD 501-502 (Edstein ed., 1935).

¹⁷ Arenella, *supra* note 16, at 1521 ("Who satisfies the threshold condition of moral agency in the law's eyes? Everyone except for the very young, the very crazy, and the severely mentally retarded.").

¹⁸ There are, of course, levels of *mens rea* other than purpose. This would include negligence, recklessness, and knowledge. See MODEL PENAL CODE § 2.02 (1995). In addition, there are strict liability crimes. See *id* § 2.05.

¹⁹ See *id* § 2.09(1) (allowing an affirmative defense when confronted with "the use of, or a threat to use, unlawful force . . . which a person of reasonable firmness . . . would have been unable to resist").

²⁰ See *id* § 3.02(1) ("Conduct which the actor believes to be necessary to avoid a harm or evil to himself or to another is justifiable [in enumerated situations].").

defense²¹ – being propelled, as it were, by an outside force²² – are usually given a full or partial defense.²³ Similarly, criminal defendants driven by an “irresistible impulse” are often excused for their behavior.²⁴

Assuming that moral culpability is the basis for inflicting criminal punishment,²⁵ “free will is an essential prerequisite to criminal liability.”²⁶ Perhaps the most important justification for the infliction of punishment is that it serves to affirm the wrongdoer’s basic humanity.²⁷ As an example, consider the case of A:

²¹ See *id* § 3.04.

²² In recognizing the *mens rea* aspects of an illegal deed, the law makes allowances for actions that are not the product of free will. Thus, a person who suffers an epileptic seizure while driving an automobile might injure or kill a pedestrian, or a person with a brain tumor might concoct an irrational fear of someone and attack this person in a deluded sense of self-defense. In each of these cases, a physical condition is at the center of the problem, and the legal system therefore provides an “out” to the defendant – a legal defense of insanity or a solid argument that there was no *mens rea*. Of course, when a system recognizes that behavior is not always a product of the actor’s will, it creates the opportunity for abuse. Consider the following hypothetical argument made by a criminal defendant:

I am incapable of internalizing moral norms and . . . my ability to defer immediate gratification of my antisocial desires is very weak because of constitutional facts about my nature and developmental factors in my early socialization.

To use their jargon, I never developed a superego. While I can articulate what morality requires of me, I have no “affective” understanding of morality’s value or purpose. . . .

So how can I deserve moral blame for becoming the sort of person who violates community norms?

Arenella, *supra* note 16, at 1565-1566.

²³ The tough question in these cases usually relates to whether that outside force was truly the cause of the behavior. If it was, the defendant usually is exempt from punishment.

²⁴ See, e.g., MODEL PENAL CODE § 4.01(1) (1995). See also Dan M. Kahan & Martha C. Nussbaum, *Two Concepts of Emotion in Criminal Law*, 96 COLUM. L. REV. 269 (1996) (discussing emotion’s impact on behavior).

²⁵ See Ronald J. Rychlak, *Society’s Moral Right to Punish: A Further Exploration of the Denunciation Theory of Punishment*, 65 TUL. L. REV. 299, 325 (1990).

²⁶ Paul H. Robinson, 1 *Criminal Law Defenses* 25(a), at 91 n.2 (1984).

²⁷ Punishment is justified when the criminal, “as a free agent, has exercised *his* choice in such a way as to make the punishment a necessary consequence.” EDMUND L. PINCOFFS, *THE RATIONALE OF LEGAL PUNISHMENT* 8 (1966); see also Lloyd L. Weinreb, *Desert, Punishment, and Criminal Responsibility*, 49 LAW & CONTEMP. PROBS. 47 (1986) (arguing that “desert” is necessary in any theory of punishment). As such, it may be said that punishment is “the systematic *moral* response to wrongdoing.” Robert J. Lipkin, *The Moral Good Theory of Punishment*, 40 U. FLA. L. REV. 17, 81

Upon hearing someone call his name [at a party], he inadvertently knocks over the glass [on a nearby table]. Suppose that A could not have been expected to be more careful than he was. Still, it would be perfectly natural for him, as well as expected of him, to feel some embarrassment and to offer to wipe up the spilled wine By his responsible stance, A reclaims his body from the status of a mere object that he most of the time successfully manipulates and invests it instead with the significance and meaning of an aspect of himself as subject.²⁸

Without recognition of such responsibility, A is nothing more than a product of his environment, accountable neither for mistakes nor for great achievement.²⁹ It is only when the individual chooses to do what he or she does as a matter of free will

(1988). Therefore, it has been argued that punishment is how society acknowledges the integrity of the person.

From the point of view of abstract right, there is only one theory of punishment which recognizes human dignity in the abstract, and that is the theory of Kant, especially in the more rigid formula given to it by Hegel. Hegel says: "Punishment is the right of the criminal. It is an act of his own will. The violation of right has been proclaimed by the criminal as his own right. His crime is the negation of right. Punishment is the negation of this negation, and consequently an affirmation of right, solicited and forced upon the criminal by himself."

Karl Marx, *Capital Punishment*, NEW YORK DAILY TRIBUNE, Feb. 18, 1853, *quoted in* J. Murphy, *Marxism and Retribution*, 2 PHIL. & PUB. AFF. 217, 217 (1973). If the person is not treated as the author of his or her actions, but a mere instrument, then the person is deprived of the role of creator. The satisfaction of personal achievement is closed to the person. PHILOSOPHY OF LAW 523 (J. Feinberg and H. Gross eds., 2d ed. 1980). As such, it has been argued that there is a fundamental *right* to punishment, which stems from the fundamental right to be treated as a person. Morris, *Persons and Punishment* 52 THE MONIST 475 (Oct. 1968), *reprinted in* PHILOSOPHY OF LAW at 582. Morris argues that a right to punishment derives from the fundamental right to be treated as a person, and denial of this right implies the denial of all moral rights and duties, hence the denial of the right to be human. *Id.*; *see also* MAX SCHELER, *FORMALISM IN ETHICS AND NON-FORMAL ETHICS OF VALUES* 366 (Manfred S. Frings & Roger L. Funk trans., 3d ed. 1973) (discussing moral right to punishment); Martin R. Gardner, *The Right to be Punished – A Suggested Constitutional Theory*, 33 RUTGERS L. REV. 838 (1981) (presenting the right to punishment as a constitutional right); *but see* John Deigh, *On the Right to Be Punished: Some Doubts*, 94 ETHICS 191 (1984).

²⁸ Dan-Cohen, *supra* note 11, at 978.

²⁹ [L]ike a cockroach, you are in no position to make moral choices of your own free will. When you commit some hideous brutality, it is not that you decided to do so. No, on the contrary, external circumstances made you do it. Once that message is fully absorbed by potential criminals as well as by their judges and juries, civility and safety will be doomed.

Daniel Lapin, *Darwin is Dead*, CRISIS, November 1995, at 56.

that responsibility attaches.³⁰ Thus, the legal system looks to outside experts to provide evidence relating to the causes of behavior.

III. CAUSES OF BEHAVIOR

The actual cause of a person's behavior is not easily identified. Indeed, the very concept of "a cause" is not always clear to those who use this term. The source of the word "cause" in the Greek world came from the ancient judicial practice in which responsibility for some alleged illegality was decided upon by the court. The Greek word that Aristotle selected for "cause" was *aitiá* which translates "responsible for."³¹ Thus, causation means to determine the responsibility for why a given thing exists, is happening, or is likely to take place.

In the same way that physicists seek to find the cause or the responsibility for physical happenings, psychologists seek to find the cause or the responsibility for human actions. Like physicists, psychologists use experiments and logic to answer theoretical questions. Their ultimate goal is to frame a cohesive theory to explain human nature. The search for such a theory is as old as recorded history.³²

A. *The Four Causes*

More than 2000 years ago Aristotle articulated the four causes that philosophers, theologians, and scientists have used ever since to explain both physical reactions and human behavior.³³ These four causes, which may also

³⁰ When blame can be put on an outside force, the individual feels little compulsion to better himself or herself. This has led to some interesting denials of responsibility. For instance, in Florida, Douglas Jackson filed several suits — one because the prison served him cold food and another because he did not have access to public television, leaving him with only "junk TV." How was a guy supposed to get rehabilitated, Jackson demanded, if all he saw on TV was "murder, rape, nudity, profanity and the like?"

Dale Van Atta, *The Scandal of Prisoner Lawsuits*, READER'S DIGEST, April, 1996, at 65.

³¹ Aristotle, *Physics*, in 8 GREAT BOOKS OF THE WESTERN WORLD, 257, 271 (Robert M. Hutchins ed., 1952).

³² See Frank J. Yartz, ANCIENT GREEK PHILOSOPHY: SOURCEBOOK AND PERSPECTIVE 147 (1984).

³³ The names for the causes were coined by Aristotle, but the concepts had been employed by earlier philosophers. See Joseph F. Rychlak, *The Necessity and Desirability of Being Repressed: Freudianism, Behaviorism, and the Denial of Human Agency*, in THIS WILL HURT: THE RESTORATION OF VIRTUE & CIVIC ORDER 105 (Digby Anderson ed., 1995) [hereinafter *Necessity and Desirability*].

appropriately be described as determinants or limitations,³⁴ are material causation, efficient causation, formal causation, and final causation.³⁵ These causes can work individually or in combination with any of the other causes to influence (positively or negatively) the behavior of anything in nature. Taken together, these four causes cover all of the influences that determine why anything exists, is happening or is likely to take place, *including human behavior*.

1. Material Causation

Material causation relates to the composition of the object in question. Thus, when chemicals are combined in a given ratio, they always react in a certain way. They are incapable of behaving differently from what their chemical makeup dictates. A rubber ball will bounce in ways that a steel ball will not. In humans, we might say that physical limitations (age, infirmity, disease, etc.) serve as a material cause (or limit) on ability. A person born with inferior physical equipment is limited (determined) in the number and variety of behaviors that he or she might carry out. By the same token, a physically gifted person is capable of doing things that put others in awe. Thus, one might say that the material-cause determinism of professional athletes is far less restrictive than it is with other people. In fact, it is enhancing.

2. Efficient Causation

Efficient causation is an external force applied to the object or person in question, bringing about a consequent event. Thus, gravity is the efficient cause of a raindrop falling to earth. Similarly, when the cue ball strikes another pool ball, it is an efficient cause of the second ball's movement.³⁶ In behavioristic

³⁴ The word "determine" has Latin roots meaning to set a limit on something. As applied to behavior, the limitations are usually thought of as alternatives that might be carried out in the course of events but are prevented from taking place. It is important to note that these causes may not be the necessary precedent to a consequent event. Rather, they often serve to limit possible consequences. Thus, gravity might be described as a cause for why rain falls, but it is also a limit on a person's ability to dunk a basketball. So, to "determine" may be defined not only as to cause a certain end, but also to limit the number of alternatives that might take place.

³⁵ Aristotle, *supra* note 31, at 271.

³⁶ Human behavior has been described as occurring according to the same type of force that impels a raindrop from the sky. See Clark L. Hull, *Mind, Mechanism, and Adaptive Behavior*, 44 PSYCHOL. REV. 2 (1937). More commonly, a pattern of behavior is explained as being prompted by efficiently caused influences from the past. See, e.g., Donald O. Hebb, *What Psychology is About*, 29 AM. PSYCHOLOGIST 71, 75 (1974).

psychology, when a stimulus brings about a response, the response is thought to take place just like pool balls, in efficient cause fashion.³⁷ All mechanistic theories of psychology rely fundamentally on efficient causation to explain human behavior. Indeed, this is what most psychologists believe “a cause” to be.³⁸

3. Formal Causation

Formal causation is best described as essential shapes and patterns that enable things to occur one way rather than another. A ball can roll because of its shape. Similarly, the software program of a computer embraces a formal-cause patterning that determines precisely how a line of “reasoning” will be carried out

³⁷ There are two major explanations of conditioning. *Classical* (Pavlovian) conditioning follows a strict stimulus-response interpretation of how behavior is caused. The (antecedent) stimulus is said to *elicit* a (consequent) response automatically, without any active effort on the part of the organism. Thus, a dog can be conditioned to salivate to a flashing light by blowing powdered meat into its mouth immediately following the presentation of the light. The foodstuff naturally elicits salivation, and can serve as a reinforcement. Soon, the flashing light takes over to cause the salivation even before the powder is blown into the animal’s mouth. The dog is blindly shaped by circumstances inefficient cause fashion to respond with salivation to a flashing light.

Operant (Skinnerian) conditioning suggests that responses are not elicited, but rather *emitted*. B.F. SKINNER, ABOUT BEHAVIORISM 52-53 (1974). Emission suggests a more active role for the animal in the conditioning process, though it is still described in efficient cause terminology. Thus, a bird may occasionally peck at the bark of a tree, or an infant may wave its hand while grasping a rattle. If, however, the bird pecks more frequently because insects are being churned up as the bark splits, or the infant’s hand waves more rapidly because of the rattle’s sound, this would indicate an operant type of conditioning. The bird and the infant have “operated” behaviorally to produce a contingent state of affairs that is reinforcing. One might attribute a physical reward to the bird, who devours the insects, but there is no such discernible physical drive impelling the child’s movement. Nevertheless, both the noise and the insects raise the level of responding and thus they are taken as contingencies.

Another way in which Skinner discussed the control of behavior was through aversive stimulation – frequently mistaken with negative reinforcement. B.F. SKINNER, BEYOND FREEDOM AND DIGNITY 61 (1971). In this case, the aversive stimulation causes behavior to cease rather than to rise. Legal sanctions are of this variety. Do certain acts and you can be punished by legal sanction. Physical injury (spanking a child) can also be a reflection of control through aversive stimulation.

The point of importance is that operant conditioning is just as “blind” and mechanical as is classical conditioning. Both theories hold that organisms are “shaped,” without intention on the organism’s part, by the conditioning.

³⁸ Jon Duns Scotus (1265-1308) coined the term “contingency,” explaining that a contingent cause was an efficient cause that was made dependent on an *act of will*. In short, the original concept of contingency underwrote free will decisions. MASTERPIECES OF WORLD PHILOSOPHY IN SUMMARY FORM 334 (Frank N. Magill & Dan P. McGreal eds., 1961). Yet the modern psychologist, relying entirely on efficient causation, dismisses the person’s intentions and claims that behavior is blindly shaped. See B.F. SKINNER, BEYOND FREEDOM AND DIGNITY 200 (1971).

as the computer organizes, processes, and presents data.³⁹ In terms of human behavior, customs or laws that define approved and unapproved patterns of living can be viewed as formal causes. Thus, Americans drive on the right side of the road due to the influences of both law and custom, two formal causes.⁴⁰

4. Final Causation

Final causation takes place when something exists or a course of action is undertaken for the sake of an end. Aristotle defined the final cause as behaving “for the sake of” a premising reason, plan, or purpose.⁴¹ Such “grounds” act as the end toward which the actor intends to go. A theory based on final-cause determinism is therefore a teleological formulation (*telos* is Greek for “end”), which posits that things exist and events take place for a reason (“end”) that is intentionally being worked toward or actually realized. Aristotle took this approach to all events in nature; thus leaves were said to exist for the intention of shading fruit on the limbs of trees, and skeletons existed for the purpose of supporting the flesh of living bodies. Because final causation is fundamental to the free will conception, it follows that final causation is a basic consideration in all legal judgments.⁴²

³⁹ The computer’s hardware moves this patterned analytical process along mechanically (efficient causation). As such, material- and efficient-cause determinism combine in the total action.

⁴⁰ Criminal laws, as they are laid out in state and federal statutes, function as a formal-cause determination of behavior. Of course, the men and women who framed the laws could be said to be under a final-cause determination as well. Laws are the “thats” (i.e., reasons) for the sake of which their framers intended that the society be organized. See DANIEL N. ROBINSON, *PSYCHOLOGY AND LAW: CAN JUSTICE SURVIVE THE SOCIAL SCIENCES?* (1980). The United States Constitution is regularly reviewed to see whether some current practice meets with the original intent of its drafters (indicating a final-cause influence). Even so, once a law is framed and is capable of standing alone, it can be said to reflect primarily a formal-cause determination on the affairs of people.

⁴¹ Aristotle, *supra* note 31, at 271.

⁴² One clear problem that develops with the concept of final causation is the distinction between the introspective and extraspective viewpoint. Individuals might feel that they freely choose to act in a given way, but an outside observer might also be able to predict that behavior by viewing the actor’s situation. Thus, the extraspective viewpoint cannot directly observe, measure, or weigh final-causal factors. If observable behavior can be predicted, is it really a matter of will?

Much modern psychological testing ignores the possibility of an introspective or “personal” viewpoint, and studies usually do not even test for it. This creates problems with both the methods used to test causation and the initial premise of the experiments. As such, the results cannot accurately capture what takes place when freely-willing human beings are studied. The humans are forced to behave according to the experimenter’s prearranged aims in the experimental design, which invariably exclude a valid assessment of the person’s agency. It is for this reason that psychologists continue to claim that people are shaped by reinforcements even though empirical evidence suggests that there is

B. *The Demise of Final Causation*

A final-cause explanation of human behavior was common in science until the 16th century, but a combination of events caused it to fall from grace. The issue surfaced with Galileo's notorious clash with the Roman Catholic Church. The Church had essentially adopted a final-cause explanation for the earth's placement at the center of the solar system: God wanted it there.⁴³ When Galileo's science indicated that the sun, not the earth, was at the center of the solar system, it was a threat to both the Church's authority and to the use of final-cause description in natural science.⁴⁴

Sir Francis Bacon led the assault on final-cause description of natural and scientific phenomena.⁴⁵ He argued that it was bad science to explain that trees have leaves "for the sake of" shading fruit or that bones exist "for the sake of" holding up flesh.⁴⁶ Whereas Aristotle had argued that using all four causes in *every*

no convincing evidence for conditioning in adults. See William F. Brewer, *There Is No Convincing Evidence for Operant or Classical Conditioning in Adult Humans*, in COGNITION AND THE SYMBOLIC PROCESSES 1 (W.B. Weimer & D.S. Palermo eds., 1974).

A related problem stems from formal causation because it is frequently referred to in the language of both perspectives. When one sees the funnel cloud of a tornado, he or she is seeing a formal cause extraspectively. Such a person might say "a tornado is coming" because of this extraspectively perceived shape (i.e., formal cause). On the other hand, when someone says "I have a plan for how to avoid the destruction of funnel clouds" he or she is speaking of a formal-cause pattern (i.e., the plan) from an introspective perspective, the "I" who framed the plan.

⁴³ This is in keeping with Aristotle's attribution of intentionality or purposivity to everything in nature. As noted above, he suggested that leaves on a tree exist for the sake of shading fruit on the branches. He thus concluded that nature is a cause "that operates for a purpose." Aristotle, *supra* note 31, at 277. Similarly, religious views holding that God created things according to a divine plan can be seen two ways. Viewed introspectively – from God's viewpoint – the plan is the "that" for the sake of which things take place. However, from the extraspective point of view – the human viewpoint – the plan is unknown. Humans simply observe the effects of God's already established premises. And of course, if the plan is not revealed, scientists must question whether there is such a plan.

"A deity teleology is not the same thing as a human teleology, but the very idea of assigning intentions to scientific explanations was brought into question by this confrontation between science and religion." *Necessity and Desirability*, *supra* note 33, at 106. It might appear that there is always a religious basis for teleology, but religion is not needed to accept the tenants of teleology or final causation. See LOGICAL LEARNING THEORY, *supra* note 5, at 9 (discussing Nietzsche's teleology).

⁴⁴ EDWIN A. BURTT, THE METAPHYSICAL FOUNDATIONS OF MODERN PHYSICAL SCIENCE 98-104 (1955).

⁴⁵ BENJAMIN FARRINGTON, FRANCIS BACON: PHILOSOPHER OF INDUSTRIAL SCIENCE 64 (1949).

⁴⁶ Francis Bacon, *Advancement of Learning* in 30 GREAT BOOKS OF THE WESTERN WORLD 45 (Robert M. Hutchins ed., 1952).

scientific explanation enriched the resultant account, Bacon felt that material and efficient causes were sufficient standing alone.

For to say that “the hairs of the eye-lids are for a quickset and fence about the sight”; or that “the firmness of the skins and hides of living creatures is to defend them from the extremities of heat and cold”; or that “the bones are for the columns or beams, whereupon the frames of the bodies of living creatures are built”; or that “the leaves of trees are for protecting of the fruit”; . . . or that “the solidness of the earth is for the station and mansion of living creatures,” and the like, is well inquired and collected in metaphysic, but in physic they are impertinent. Nay, they are indeed but *remoraes* and hindrances to stay and slug the ship from further sailing; and have brought this to pass, that the search of the physical causes hath been neglected and passed in silence.⁴⁷

“Thus, the *Baconian Criticism* holds that telic description should not be used to explain physical events, for it adds nothing to the account.”⁴⁸ According to Bacon, a final-cause description was suitable for metaphysical explanations or for matters relating to aesthetics and ethics.⁴⁹ When it came to the study of physics, however, he argued that scientists should explain the “how” of natural processes with material and efficient causation, and avoid the teleological analysis of “why” altogether.⁵⁰

Sir Isaac Newton developed a theory of science that fell in line with the Baconian Criticism. Newtonian science, also called “natural science,” posited that nature and all of its contents could be explained in a mathematical formula. If one were only able to determine all of the precise influences on a body, one could determine the future, because like balls on a pool table, everything simply reacts to outside forces. In the non-telic Newtonian universe, physics was reduced to laws yielding predictable results that “conform to the expectations of an experienced observer.”⁵¹ There was, of course, no room for final-cause determinism in such a world. “Newtonian science was to rely exclusively on material and efficient cause

⁴⁷ *Id.*

⁴⁸ LOGICAL LEARNING THEORY, *supra* note 5, at 9.

⁴⁹ *See supra* note 47 and accompanying text.

⁵⁰ *See Bacon, supra* note 46, at 45.

⁵¹ Ron Haybron, *Planck Set Newton Straight*, THE PLAIN DEALER, (Cleveland), June 1, 1993, at 8C.

explanations. Indeed, the phrase ‘natural science’ is tantamount to saying ‘science without final causation’.”⁵²

This seemed to be a neat and clean explanation of the world. If the precise location of all particles were known, and if all outside influences were known and measured, then thanks to the efficient cause nature of reality, one could accurately predict the way everything would take place. Scientists strove to find what conditions and events occur in nature, for if that were ever known, the future would also be known. The idea was “that a superhuman intelligence acquainted with the position and motions of the atoms at any moment could predict the whole course of future events.”⁵³ After all, because there was a finite number of elements in the universe, the future organization of reality had to be some combination of their efficiently caused effects. By this same reasoning, humans would be able to produce a model of the world just by placing a set of elements into motion from certain points.⁵⁴ There was no room for anything as uncertain (or unverifiable) as free will or final causation in this kind of science.⁵⁵

The “clockwork universe” theory seemed to fit with scientific discoveries of that era. Chemistry was becoming uniform, and with each new experiment, the case for efficient cause determinism was strengthened. Certain chemicals, mixed in precise measures, always rendered the same result. Objects reacted to gravity in predictable ways. A given force, applied to a stationary object, would always move that object the same distance. In short, material and efficient causation seemed to explain just about everything that could be tested. The testing at this time, however, did not focus on human behavior.

⁵² *Necessity and Desirability*, *supra* note 33, at 107.

⁵³ BURTT, *supra* note 44, at 96 (quoting LaPlace).

⁵⁴ See Percy W. Bridgman, *Determinism in Modern Science*, in DETERMINISM AND FREEDOM IN THE AGE OF MODERN SCIENCE 43-63 (Sidney Hook ed., 1958).

⁵⁵ *Id.* at 51. The times and the science have, however, changed. Not only in the social sciences, but also in the “hard sciences,” modern research indicates that there is room for final causation. It was this realization that caused physicist Joseph Ford to respond to Einstein’s proclamation (that God does not play dice with the universe) by asserting that God does indeed play dice, “[b]ut they’re loaded dice. And the main objective of physics now is to find out by what rules were they loaded and how can we use them for our own ends.” JAMES GLEIK, *CHAOS: MAKING A NEW SCIENCE* 314 (1987).

IV. THE NEWTONIAN BASIS OF MODERN PSYCHOLOGY

The late 19th century was the heyday of British empiricism.⁵⁶ Efficient cause explanations, based on Newton's view of the universe, were all-powerful in that era. Because psychology emerged as a science during this time, it is not surprising to find its roots firmly planted in efficient cause soil. Freudian psychoanalysis and modern behaviorist psychology both trace their roots back to the Newtonian ideal.⁵⁷

Early academic psychology was greatly influenced by the renowned physicist, Herman von Helmholtz, who argued that human behavior was limited to the same physical laws that all other natural structures obey.⁵⁸ Thus, he wrote, "the phenomena of nature are to be referred back to motions of material particles possessing unchangeable moving forces, which are dependent upon conditions of space alone."⁵⁹ The aim was to describe behavior without attributing any of the responsibility to "unscientific" final-cause determinism. "The truth is, psychology is more Newtonian in conception than any other modern science."⁶⁰

Freud even seems to have adapted his theory to meet the expectation of his Newtonian colleagues, reluctantly substituting his libido theory for earlier references to his patients' wishes.⁶¹ A wish is telic in formulation, a mental image or thought carried on "for the sake of" some highly desired end (final causation). Libido, on the other hand, is a material- or efficient-cause concept that presumably motors the personality structure instrumentally.⁶² Freud could always explain his cases in terms of either wishes or libidinal investments, reserving the latter explanations in particular for his Newtonian colleagues.

⁵⁶ LOGICAL LEARNING THEORY, *supra* note 5, at 6.

⁵⁷ *Necessity and Desirability*, *supra* note 33, at 107; *see infra* notes 72-79 and accompanying text.

⁵⁸ *See* ILYA PRIGOGINE & ISABELLE STENGERS, ORDER OUT OF CHAOS: MAN'S DIALOGUE WITH NATURE 96 (1984).

⁵⁹ Herman von Helmholtz, *Über die Erhaltung der Kraft*, in 1 THE NATURE OF GASES AND HEAT 92 (S. Brush trans., 1965).

⁶⁰ Ronald J. Rychlak and Joseph F. Rychlak, *Free Will is a Viable, Verifiable Assumption: A Reply to Garrett and Viney*, 8 NEW IDEAS IN PSYCHOL. 43, 44 (1990) [hereinafter *A Reply*]; *see also* JOSEPH F. RYCHLAK, THE PSYCHOLOGY OF RIGOROUS HUMANISM (2d ed. 1988).

⁶¹ *See Necessity and Desirability*, *supra* note 33, at 108, 109, 111-12.

⁶² *See supra* note 37.

Another highly influential early psychologist, John B. Watson, is generally regarded as the father of behaviorism. He said, "Let us try to think of man as an assembled organic machine ready to run."⁶³ A machine, of course, operates through material and efficient causation, with no consideration of final causation.⁶⁴

If we believe that people are machines then they are no longer agents. They cannot evaluate and then set the grounds for the sake of which they will be influenced, determined, shaped, and so forth. This has been the guiding assumption of behaviorist theory for most of the 20th century. Rather than look to the individual for a personal influence on behavior, we must look to the environment, because all the person can do is respond in efficient-cause fashion to the stimulations of the environment.⁶⁵

This approach to behavior, of course, fits perfectly with the Newtonian view of science.

A. *Psychology's View of Will*

Psychopathologists can be found who will present the entire gamut of determinism. Medically-trained psychiatrists may stress biological factors relying on some combination of material- and efficient-cause determinism to make their case. Behavioristically-oriented psychologists are likely to stress the efficient cause determinisms stemming from childhood and the environment. Humanistic psychologists may place some emphasis on personal responsibility or final causation, but they are the exception. The dominant psychological theories share one common element. They all see human behavior as being primarily shaped by outside forces. This reflects efficient cause determinism, which rests at the heart of most psychological profiles of human behavior. Agency, free will, or final-cause determinism plays only a negligible role in this modern understanding of human behavior.

⁶³ JOHN B. WATSON, BEHAVIORISM 216 (1924).

⁶⁴ See WILLIS L. REESE, DICTIONARY OF PHILOSOPHY AND RELIGION: EASTERN AND WESTERN THOUGHT 345 (1980); DAGOBERT D. RUNES, DICTIONARY OF PHILOSOPHY 194 (1960). Recently, computers have become more the model than machines. See HOWARD GARDNER, THE MIND'S NEW SCIENCE: A HISTORY OF THE COGNITIVE REVOLUTION (1985).

⁶⁵ *Necessity and Desirability*, *supra* note 33, at 109-10.

There are hundreds of “mainstream” theories of human behavior,⁶⁶ but they can be grouped into four basic schools: organic-biological, psychodynamic, behavioral, and cognitive. All of these modern schools of thought, however, do share one thing in common: an efficient cause view of human behavior.

1. Organic-Biological Theories

The organic theories look to brain impairment or dysfunction to explain improper behavior. This approach developed as the scientific community departed from moral or religious explanations for disordered behavior. As theorists went from religious explanations to a more scientific approach in the late 18th and early 19th centuries,⁶⁷ they focused attention on the pathology of the brain,⁶⁸ seeking organic determinants of mental disorder.⁶⁹ Theorists from this school seek to explain abnormal behavior as the result of injury to the brain.⁷⁰

The closely related biological view of psychology points to chemicals, hormones, and bodily processes as the “answers” to our behavioral questions. Thus, genetics and biochemicals are thought to be the (material) “cause” of behavior. We now know that chemical imbalances can alter personality. The primary problem,

⁶⁶ Even without addressing the marginal theories, psychiatric and psychological theories that have a major following and apparent legitimacy number in the hundreds. See COMPREHENSIVE TEXTBOOK OF PSYCHIATRY/IV (Harold I. Kaplan & Benjamin J. Sadock eds., 4th ed. 1985).

⁶⁷ See MICHAEL FOUCAULT, MADNESS AND CIVILIZATION (1965).

⁶⁸ See WILHELM GRIESINGER, THE PATHOLOGY AND THERAPY OF PSYCHIC DISORDERS (1845); ALBRECHT BON GALLER, ELEMENTS OF PHYSIOLOGY (1757); W. EMIL KRAEPELIN, CLINICAL PSYCHIATRY (A. Ross Diefendorf trans., 2d ed. 1915).

⁶⁹ See, e.g., KRAEPELIN, *supra* note 68, at 3-22.

⁷⁰ See generally STANISLAV ANDRESKI, SYPHILIS, PURITANISM AND WITCH HUNTS: HISTORICAL EXPLANATIONS IN THE LIGHT OF MEDICINE AND PSYCHOANALYSIS WITH A FORECAST ABOUT AIDS (1989).

The concept of dualism took organic theory to new heights. Descartes is normally identified as the father of modern dualism. Based on his personal introspections, Descartes believed that human reasoning occurred in a realm that had no extension, as did physical structures like the physical body. See René Descartes, *Meditation II: Of the Nature of the Human Mind; And That It Is More Easily Known Than The Body*, in A DISCOURSE ON METHOD AND SELECTED WRITINGS 93, 93-103 (John Veitch trans., 1951). This led him to frame a dualism of soul (mind) and body. Eventually, he postulated that these two realms could exchange influence via the pineal gland, which straddled the two lobes of the brain and acted as the point of exchange between the physical brain and the non-physical mind. An input, command, or emotion would have to pass through this gland to reach “consciousness.” See DANIEL C. DENNETT, CONSCIOUSNESS EXPLAINED 34, 105-06 (1991) (discussing Descartes’ theory).

from a legal perspective is that it is often difficult to prove that a physiological condition is more than just a resistible influence. Many people with deficiencies are fully capable of conforming to the requirements of law. This difficulty in proving a direct causal relationship is where biology-based defenses usually fall short.⁷¹

2. Psychodynamic Theories

The psychodynamic psychological theories explain behavior as the result of internalized (sometimes unconscious) influences.⁷² Psychoanalysis is based on this theory of behavior.⁷³ Freud explained irrational behavior in his patients by looking to unconscious conflicts between natural instincts and societal demands. The unconscious mind contains the biological, instinctual, and sexual drives, which seek release.⁷⁴ In contrast to the unconscious realm of the mind is the conscious realm, which operates at a logical, rational, and adaptive level.⁷⁵ These conflicts, usually originating in childhood, eventually reassert themselves “through new and devious channels.”⁷⁶ This is what leads to odd or irrational behavior.

Complicating the free will issue is the common presumption that someone under the direction of an unconscious mental process is necessarily operating without free will.⁷⁷ The theory holds that these submerged motivations must be

⁷¹ These defenses have been raised but have not fared well in criminal cases. *See generally* Deborah W. Denno, Comment, *Human Biology and Criminal Responsibility: Free Will or Free Ride?*, 137 U. PA. L. REV. 615 (1988).

⁷² *See* Sigmund Freud, *The Unconscious*, in THE MAJOR WORKS OF SIGMUND FREUD 428, 428-30 (1986) [hereinafter *The Unconscious*].

⁷³ *See* CHRISTOPHER BADCOCK, ESSENTIAL FREUD 1-3 (1988).

⁷⁴ *The Unconscious*, *supra* note 72, at 434.

⁷⁵ *Id.*

⁷⁶ *Id.*

⁷⁷ When Freud formalized his concepts of *id* and *ego* (with *super-ego* as a derivative of the latter) he muddied the waters because he made it possible for the *ego* to be in the unconscious region of mind yet also be in consciousness at the same time. This capacity that the *ego* has – to be spread out across different levels (or regions) – enabled Freud to say that an unconscious wish (hoped-for intention) or a conflict between such wishes (*e.g.*, to love and hate someone at the same time) is *always known* by the person in such a dilemma; it is known unconsciously. *See* Joseph Breuer & Sigmund Freud, *Studies on Hysteria*, in 2 THE STANDARD EDITION OF THE COMPLETE PSYCHOLOGICAL WORKS OF SIGMUND FREUD 117 (James Strachey ed., 1962) [hereinafter COMPLETE WORKS OF FREUD];

elevated to the conscious level through psychoanalysis in order to understand motivations. Since the beliefs and desires that motivate actions are not accessible to the individual, there are those who would argue that he or she is not responsible for the behavior.⁷⁸ This theory suggests that psychoanalysis, not criminal punishment or attribution of legal responsibility, is the appropriate response to these influences that shape behavior.⁷⁹

3. Behaviorism

Behaviorism may be “the single most influential school of psychology in the English-speaking world.”⁸⁰ Behavioral theories seek to address the full range of human behavior, rather than only abnormal or extreme behavior, as most other theories of human action seek to do.⁸¹ Behaviorists aim to explain behavior as an

Sigmund Freud, *The Unconscious*, in 14 COMPLETE WORKS OF FREUD at 166. The meaning of “unconscious” at this point shades over into something like “the unadmitted.” There is an unadmitted cognizance of what is known in one region (psychic unconsciousness). Freud more than once referred to that “strange state of mind in which one knows and does not know a thing at the same time.” Breuer & Freud, *supra* at 117 n.1. The *id*, *ego*, and *super-ego* would be unable to work out compromises if such a paradoxical mental capacity did not exist. Elaborate mental gyrations are gone through quite intentionally by these *homunculi* to keep unconscious wishes (i.e., “ends”) out of the conscious region of mind. 20 COMPLETE WORKS OF FREUD at 162. This is why Freud could say that the essence of repression is that it is an intentional act. Breuer & Freud, *supra*. at 116.

Since the *ego* is knowledgeable about the external world as well as the wishes of the *id* and the *super-ego*, it has to be considered conscious. The unconscious aspect of the *ego* even “inoculates” its conscious portion against gaining insight by somehow causing it to be anxious. There is always this one aspect of mind in Freud that has access to the conscious realm, the “*ego*.” As such, the *ego* is both conscious and unconscious, as is the *super-ego*. See NORMAN CAMERON & JOSEPH F. RYCHLAK, PERSONALITY DEVELOPMENT AND PSYCHOPATHOLOGY: A DYNAMIC APPROACH 123-31 (2d ed. 1985).

⁷⁸ See generally Michael S. Moore, *Responsibility and the Unconscious*, 53 S. CAL. L. REV. 1563, 1641 (1980) (“If all conscious mental life is determined by unconscious mental states, as many psychoanalysts believe, why is everyone not excused for all of his actions, seemingly the product of his conscious decisions but in fact . . . determined by his unconscious mental states?”).

⁷⁹ There are other views which see in the unconscious negotiations and compromises of *id*, *ego*, and *super-ego* an innate capacity for free will taking place. See JOSEPH F. RYCHLAK, IN DEFENSE OF HUMAN CONSCIOUSNESS 263-291 (1997).

⁸⁰ PAUL M. CHURCHLAND, MATTER AND CONSCIOUSNESS: A CONTEMPORARY INTRODUCTION TO THE PHILOSOPHY OF MIND 88 (1984).

⁸¹ See DANIEL W. SHUMAN, PSYCHIATRIC AND PSYCHOLOGICAL EVIDENCE 39-40 (1986 & Supp. 1992).

elaborate sequence of efficient causation, engaging the organism in its environment without purpose or intention.⁸²

Behaviorism as a specific approach was framed initially by John Watson,⁸³ and it adopted the classical Pavlovian concept of conditioning.⁸⁴ Behaviorism was later broadened to include psychologists like B.F. Skinner⁸⁵ and Donald Lindsley,⁸⁶ who applied operant conditioning to both animals and people. Although classical (Pavlovian) and operant (Skinnerian) conditioning differ in how the nature of the response is viewed,⁸⁷ both approaches continue to attribute behavior to efficient causation.⁸⁸

Behaviorists look only to observable physical activity for an explanation of human behavior, maintaining that concepts like agency, free will, and final causation are nothing but unverifiable conjecture.⁸⁹ Behaviorism thus reflects the

⁸² Behavioral scientists think statistically and look for the nature of variation. At one time, variation was attributed to the will. Today, few scientists use free will to explain variation, though “examples abound of variation as a function of age, health, literacy, intelligence, sex, socioeconomic status, political or religious persuasion, and emotional stability.” Wayne Viney, *The Tempering Effect of Determinism in the Legal System: A Response to Rychlak and Rychlak*, 8 NEW IDEAS IN PSYCHOLOGY 37 (1990).

⁸³ See John B. Watson, *Psychology as the Behaviorist Views It*, 20 PSYCHOLOGICAL REVIEW 158-77 (1913). Watson was influenced by Edward Thorndike. See HENRY GLEITMAN, BASIC PSYCHOLOGY 72-73, 77-79 (3d ed. 1992).

⁸⁴ See IVAN P. PAVLOV, *CONDITIONED REFLEXES: AN INVESTIGATION OF THE PHYSIOLOGICAL ACTIVITY OF THE CEREBRAL CORTEX* (1927); see also *supra* note 37.

⁸⁵ For good overviews of the work of B.F. Skinner, see B.F. SKINNER: CONSENSUS AND CONTROVERSY (Sohan Modgil & Celia Modgil eds., 1987); THE OPERANT BEHAVIORISM OF B.F. SKINNER: COMMENTS AND CONSEQUENCES (A. Charles Catania & Stevan Harnad eds., 1988); see also STEPHEN HAWKING, *A BRIEF HISTORY OF TIME: FROM THE BIG BANG TO BLACK HOLES* 74-75 (1988).

⁸⁶ See generally BEHAVIOR MODIFICATION: CONTRIBUTIONS TO EDUCATION (Sidney W. Bijou & Roberto Ruiz eds., 1981); IV BRAIN FUNCTION, BRAIN FUNCTION AND LEARNING (Donald B. Lindsley & Arthur A. Lumsdaine eds., 1967); SKINNER, *supra* note 85.

⁸⁷ See *supra* note 37.

⁸⁸ See *supra* note 37.

⁸⁹ CHURCHLAND, *supra* note 80, at 88.

“hard science” approach that Skinner felt would legitimize the field of psychology.⁹⁰ There are, however, problems with behaviorism, and these problems have affected subsequent research.

Since efficient cause actions are the most readily observed, and behaviorist theory has researchers looking only for observable influences, it was inevitable that behaviorists would develop a mechanistic image of the human being.⁹¹ “[H]uman action for Skinner is determined by the environment, and not beliefs or desires generated *sua sponte*. Under this rubric, attributions of moral responsibility are impossible, since all behavior is caused by external forces, and no free will is involved.”⁹² Skinner himself wrote that “autonomous man is a device used to explain what we cannot explain in any other way.”⁹³ Otherwise stated, “[a] fundamental Skinnerian position seems, on the surface, totally incompatible with a concern for human worth and individuality.”⁹⁴ As such, behaviorism is in fundamental conflict with the legal system’s notions of justice and personal responsibility.

4. Cognitive Psychology

“Cognitive psychology” is the term given to the study of how people detect, transform, store, retrieve, and use information from the environment. It is really an umbrella term for disciplines that seek to understand behavior by looking at the way people process information and make decisions. The cognitivists postulate that the mind is made up of (a) a hard-wired program which processes inputs; (b) the inputs themselves; (c) outputs, which are similar to the efficient cause “effects” of the behaviorist; and (d) feedback, which is a part of the output returning as input. Cognitive psychologists generally agree on an information-processing model, which holds that information proceeds through a series of identifiable stages including a

⁹⁰ See CHURCHLAND, *supra* note 80, at 88; but see Andrew E. Lelling, *Eliminative Materialism, Neuroscience and the Criminal Law*, 141 U. PA. L. REV. 1471, 1488 (1993) (“Skinner actually elucidated a philosophy as much as a scientific theory.”).

⁹¹ See Rebecca Dresser, *Can Law Survive Cognitive Science?*, CRIM. JUST. ETHICS, Winter/Spring 1991, at 31; see also MARIO BUNGE, *THE MIND-BODY PROBLEM: A PSYCHO BIOLOGICAL APPROACH* 5 (1991) (“[D]ualism is not scientifically viable. Hence it is unacceptable to a science-oriented philosophy.”)

⁹² Lelling, *supra* note 90, at 1488.

⁹³ B.F. SKINNER, *BEYOND FREEDOM AND DIGNITY* 200 (1971).

⁹⁴ GUY R. LEFRANCOIS, *PSYCHOLOGICAL THEORIES AND HUMAN LEARNING* 70 (2d ed. 1982).

sensory system, a memory system with short-term and long-term components, and a response system.⁹⁵

Cognitive psychology has gone beyond behaviorism in its reliance on a machine model but only in the sense that the mechanism concerned is far more sophisticated. Modern cognitive theory moves psychology into the age of robotics. The human being is essentially pictured as a robot, moving from day to day with adaptive capacities under the direction of both its hardware and its software programming, enabling certain mechanical adaptations to be made thanks to its feedback capabilities. But these adaptations are not actually choices for which the robot may be held accountable. They are blindly shaped influences, actions that cannot be opposed or modified to suit intentions framed outside of or in contradiction to the pre-arranged framing of the hardware and software. As a result, there is little in this doctrine to support legal theories of responsibility. For responsibility to attach, it must be possible for a person to choose a proper path over an improper one. Such final causation is not, however, in the picture when considering robotic machines.⁹⁶

V. PSYCHOLOGY AS THE SCIENCE OF EFFICIENT CAUSATION

“[E]xperimental psychology had, by the mid-20th century, been nurturing a hard-won tradition of disregarding ‘inside the organism’ speculations in favor of ‘observed behavior’.”⁹⁷ When John Watson asked his psychologist-colleagues to think of people as “assembled organic machine[s],”⁹⁸ he established the starting point which would shape the psychological research from then on. Watson’s theory was accepted as the initial proposition, and almost all subsequent research on behavior would be directed toward that end. As one psychologist explained,

⁹⁵ For typical examples of this kind of theorizing, see HOWARD GARDNER, *THE MIND’S NEW SCIENCE: A HISTORY OF THE COGNITIVE REVOLUTION* (1985); JOHN R. ANDERSON, *THE ARCHITECTURE OF COGNITION* (1983); ROBERT S. WYER, JR. & DONALD E. CARLSTON, *SOCIAL COGNITION, INFERENCE, AND ATTRIBUTION* (1979).

⁹⁶ For many arguments along this line, see HUBERT L. DREYFUS, *WHAT COMPUTERS CAN’T DO: THE LIMITS OF ARTIFICIAL INTELLIGENCE* (rev. ed. 1979); HUBERT L. DREYFUS & STUART E. DREYFUS, *MIND OVER MACHINE* (1986).

⁹⁷ LOGICAL LEARNING THEORY, *supra* note 5, at 67. See also B.F. Skinner, *Are Theories of Learning Necessary?*, 57 *PSYCHOL. REV.* 193 (1950).

⁹⁸ Watson, *supra* note 83, at p. 216.

[E]veryone has been molded by influences which in large measure at least determine his present behavior; he is literally the product of these influences, stemming from periods prior to his “years of discretion,” giving him a host of character traits that he cannot change now even if he would An act is free when it is determined by the man’s character, say moralists; but what if the most decisive aspects of his character were already irrevocably acquired before he could do anything to mold them? What are we to say of this kind of “freedom?” Is it not rather like the freedom of the machine to stamp labels on cans when it has been devised for just that purpose?⁹⁹

As psychology grew into scientific study, it was positioned solidly on efficient causation, with a secondary emphasis on material causation (as in drive theories, which impelled behavior). Final and formal causation were not given serious consideration. As a result, empirical investigations were *designed* to prove that human behavior was *exclusively* efficiently causal in nature, rather than being designed to explore all possibilities. This is where the real problem arose.

VI. THE BREAKDOWN OF NEWTONIAN SCIENCE

Newtonian science dominated the field for almost 300 years, and this had a profound influence on the philosophy of scientific exploration. If scientists expect a certain result, and especially if they are able to interpret their data so as to fit their initial assumptions, the philosophy under which they operate can have a dramatic self-fulfilling impact on their findings. When those conducting the experiments expected to find a Newtonian clockwork universe, they structured their experiments to go about proving their theory.

Science begins with the assumption that . . . events follow patterns that are *predictable* if we just understand the underlying principles. Physics is the model: If we know the current state of the world and the laws that take it from its current state to its next state, in each instant of time, then in principle the world is completely predictable through all future time. This was the dream of the great Eighteenth Century physicist Laplace – but, as every dabbler in popular science knows, Laplace’s vision is no longer acceptable. Chaos theory, Heisenberg’s uncertainty principle, and quantum

⁹⁹ John Hospers, *Free Will and Psychoanalysis*, in *FREEDOM AND RESPONSIBILITY* 463, 465 (H. Morris ed., 1961).

mechanics all show that the idea of perfect predictability is wrong, even in physics. Eminent physicists have constructed theories of brain and mind that use non-deterministic physics to restore human free will to the pedestal from which Skinner and other psychologists appeared to have displaced it.¹⁰⁰

During the first thirty years of the twentieth century, classical notions concerning the nature of physical reality underwent significant revision.¹⁰¹ The great revolution in twentieth century physics has come from the recognition that the very nature of some events is probabilistic and not certain.¹⁰² In fact, "theoretical statistics in the 20th century may have been influenced more by indeterminism than by determinism."¹⁰³ As science has advanced, and quantum mechanics has emerged as a new science, Newtonian physics has proved to be less than adequate at explaining the world.¹⁰⁴

¹⁰⁰ John Staddon, *Freedom From Fear? How belief in a pain-free utopia has discredited punishment and de-civilized society*, THE OXFORD AMERICAN, Spring 1996, at 103-104. Regarding quantum physics, Niels Bohr wrote, "[w]e are here so far removed from a causal description that an atom in a stationary state may in general even be said to possess a free choice between various possible transitions to other stationary states." NIELS BOHR, ATOMIC THEORY AND THE DESCRIPTION OF NATURE: FOUR ESSAYS WITH AN INTRODUCTORY SURVEY 109 (1934). Bohr was speaking metaphorically, but in doing so he was also suggesting that there was something beyond efficient and material causation at work. Non-telic determinations of events are valuable as postulates in the search for natural laws, but physical scientists have come to realize that these mechanistic formulations are mere approximations of the truth; they are incomplete descriptions. See also *infra* notes 109-111.

¹⁰¹ *Phases of Physics*, THE TIMES (LONDON), May 13, 1992, at 13. As scientists pushed the envelope in their investigations into new areas, "[t]he Newtonian, matter-in-motion picture that had dominated scientific thought for well over 200 years unraveled like an old sweater." *Id.*

¹⁰² Hawking, *supra* note 85, at 56. See generally ROBERT P. CREASE & CHARLES C. MANN, THE SECOND CREATION: MAKERS OF THE REVOLUTION IN 20TH-CENTURY PHYSICS 83 (1986).

¹⁰³ Viney, *supra* note 82, at 36 (citing THEODORE M. PORTER, THE RISE OF STATISTICAL THINKING, 1820-1900 (1986)).

¹⁰⁴ See *Phases of Physics*, *supra* note 101. While Einstein's general theory of relativity accurately predicts that which Newton's theory of gravity cannot, Newton's theory is nonetheless still used in "normal" applications, because it "has the great advantage that it is much simpler to work with than Einstein's!" Hawking, *supra* note 85, at 10.

The principle of uncertainty forms one of the cornerstones of modern physics.¹⁰⁵ In explaining the complex theory of quantum electrodynamics, the late Professor Richard Feynman provided an interesting example of uncertainty in modern physics by describing an experiment to measure the partial reflection of light by a glass surface.¹⁰⁶ The experimenter focused a light source onto a block of glass and set up two light receptors, known as photomultipliers. One photomultiplier measures the number of photons reflected off the glass surface (receptor A), and the other, imbedded in the glass, measures the number of photons transmitted by the front surface of the glass (receptor B). The experimenter observed that “for every 100 photons that go down toward the glass, an average of four arrive at A and 96 arrive at B. So ‘partial reflection’ in this case means that 4% of the photons are reflected by the front surface of the glass, while the other 96% are transmitted.”¹⁰⁷

As Professor Feynman explained, the challenge is to explain this result in terms of a theory: “how does the photon ‘make up its mind’ whether it should go to A or B.”¹⁰⁸

Try as we might to invent a reasonable theory that can explain how a photon “makes up its mind” whether to go through glass or bounce back, it is impossible to predict which way a given photon will go Here is a circumstance – identical photons are always coming down in the same direction to the same piece of glass – that produces different results. We cannot predict whether a given photon will arrive at A or B. All we can predict is that out of 100 photons that come down, an average of 4 will be reflected by the front surface. Does this mean that physics, a science of great

¹⁰⁵ German physicist and Nobel prize winner Werner Karl Heisenberg is best known for his formation of the Uncertainty Principle, also called the Principle of Indeterminacy. With this principle he suggested that it is not possible to specify precisely both the position and velocity of an electron at any given moment.

When Heisenberg presented his new theory to the world, all of the old, previously accepted assumptions of determinism could no longer be accepted as fact. One would never be able to completely predict all reactions as long as it is impossible to measure both position and momentum precisely. The Heisenberg principle forces the scientist to make a choice between exact position or exact momentum (or neither being exact) when calculating the uncertainty of an electron. Thus, the aim of Newtonian science is mathematically unattainable, even in theory.

¹⁰⁶ RICHARD P. FEYNMAN, QED: THE STRANGE THEORY OF LIGHT AND MATTER 17-19 (1985).

¹⁰⁷ *Id.* at 17.

¹⁰⁸ *Id.* at 18.

exactitude, has been reduced to calculating only the *probability* of an event, and not predicting exactly what will happen? Yes. That's a retreat, but that's the way it is: Nature permits us to calculate only probabilities.¹⁰⁹

Similarly, even though our understanding of the orbits of the planets in our solar system is quite sophisticated, calculating the minute variations in those orbits still remains beyond the grasp of present day scientists and their computers.¹¹⁰

Nor did Newtonian scientists acknowledge that they, as observers, were actually participating in the process and that their precedent assumptions influenced and limited what they would discover.¹¹¹ The Newtonian scientists took the position that they could view reality without a presumptive bias. If they had recognized the extent to which they were participating in the process and influencing what they would eventually discover,¹¹² they would also have realized that they could never predict the future in a one hundred percent efficient cause way:

Quantum mechanics appears to destroy the basic fabric of causality and to confuse the position of the observer with what is being observed; relativity overthrows the absolutism of Newtonian time and space, revealing them to be a single continuum which curves and loops through the universe; chaos theory reveals the linearity

¹⁰⁹ *Id.* at 19. The uncertainty associated with an individual photon's behavior has been likened to uncertainty associated with an individual person's behavior. See William Stephenson, *Quantum Theory and Q-Methodology: Fictionalistic and Probabilistic Theories Conjoined*, 33 PSYCHOL. REC. 213, 215-217 (1983) (discussing the parallels between quantum theory and factor theories in psychology). Niels Bohr, speaking metaphorically, even wrote of the "free choice" of the atom to organize itself from one steady state to another. BOHR, *supra* note 100, at 109.

This discussion of the photon as possessing the ability to decide confounds the extraspective with the introspective. See Brewer, *supra* note 42. Material and efficient causation are suited to extraspective (third person) explanations, while formal and final causation are suited to introspective (first person) formulations. Unless the photon is speaking, the language of final causation makes little sense.

¹¹⁰ Isaac Newton's description of the difficulty posed in calculating the interactions of the planets has been likened to the problems posed in studying human behavior. GLEIK, *supra* note 55, at 7.

¹¹¹ ILYA PRIGOGINE & ISABELLE STENGERS, ORDER OUT OF CHAOS: MAN'S NEW DIALOGUE WITH NATURE 218, 224-225 (1984); GARY ZUKAV, THE DANCING WU LI MASTERS: AN OVERVIEW OF THE NEW PHYSICS 29 (1979).

¹¹² PRIGOGINE & STENGERS, *supra* note 111, at 218, 224, 225; ZUKAV, *supra* note 111, at 29.

of classical mathematics as a seriously deficient model of the real world. In short, the message of all three theories is: classical science is wrong insofar as it claims to be a final interpretation of reality.¹¹³

Here we have scientific evidence of a chance factor in chemical and physical reactions. Formal-cause patterns remain, some of which are probabilistic (or statistical), but one cannot – even in principle – find the efficient causes of these patterns.

VII. DOES PSYCHOLOGICAL SCIENCE REALLY SERVE THE LAW?

Behavioristic psychologists use the scientific method in their work in hopes of removing any possibility that concepts of purpose or intention will contaminate their empirical observations. Their starting assumption of people as machines, however, taints their work. This is not to say that their work is entirely without merit, but the results must be evaluated in light of current knowledge that the initial bias of even a well-meaning observer can corrupt the outcome. With psychology so firmly rooted in non-telic Newtonian determinism, these findings are particularly subject to scrutiny.

A scientist observes behavior (or the results of experiments), relates what he or she can explain based upon that observation, and accepts as uncertain what remains. The reason for this uncertainty may be interpreted as free will, randomness, or something else.¹¹⁴ This reason, however, is not a scientific conclusion; it is at most an informed guess from an extraspective point of view. Such a guess is not sufficient to fit the needs of the legal system, which examines people from their introspective points of view.¹¹⁵ To the law, the reason for behavior matters a great deal. It is not sufficient to attribute some behavior to uncertainty.

An extraspective (i.e., impersonal or third-person) point of view cannot reveal the inner motivation of the person being tested. Information gathered with such an experiment is even one step further removed from explaining the behavior of other people not under study. A scientist conducting such tests can point to

¹¹³ PRIGOGINE & STENGERS, *supra* note 111, at 218, 224, 225; *see also* Robert Pool, *Was Newton Wrong?*, SCIENCE, August 12, 1988, at 789 (examining Newton's theory of gravity in light of possible extra component of gravity).

¹¹⁴ *See* GLEICK, *supra* note 55, at 251 (discussing determinism and free will in relation to modern physics).

¹¹⁵ Hence the concern with *mens rea*. *See supra* notes 18-24.

material- and efficient-cause explanations (determinations) of how a given influence shaped behavior. The scientist cannot, however, see or measure formal- and final-cause determinations. As such, aberrations or variances in expected behavior are attributed to randomness instead of will.

Because the scientist has not tested or studied the issue of will, when it comes to judgments about introspective behavior, a layperson's judgment is as valid as that of a scientific expert.¹¹⁶ A juror can assess whether certain impulses or urges are a matter of will because the juror – like the legal system – assumes that will, self-determination or final causation exist. Unless the expert operates under a similar assumption, he or she can offer no “expert” testimony on the central issue that the court is trying to resolve. Yet, courts too often accept “expert” testimony on such issues.

If the *Baconian Criticism* holds true, Newtonian science cannot be used to explain human behavior, and those theories that rely on such science (in particular, behaviorism and reductionism), must be rethought. Why then are so many modern psychological studies based on the efficient and material-cause model, and why do courts continue to admit expert evidence based on scientific evidence that does not – even in theory – address the central issue that the court needs to resolve? To understand this (and to be able to formulate sustainable objections to such testimony), one must look to the development of these theories of behavior.

Psychological experts have evidence to support their theories. In fact, the efficient cause school claims that it “relies heavily on empirical validation.”¹¹⁷ As these theories were developed, psychologists conducted experiments to support their views on behavioral reinforcement. There are, however, serious questions about the validity of these experiments.¹¹⁸

A host of empirical work was done over the first half of the twentieth century in which initially lower animals and later human beings were studied using relatively simple, concrete tasks that lent themselves to efficient cause description

¹¹⁶ See JAMES Q. WILSON, MORAL JUDGMENT: DOES THE ABUSE EXCUSE THREATEN OUR LEGAL SYSTEM? 90 (1997) (“When a jury *judges* a defendant, it considers his or her mental state only to the extent necessary to establish the existence of one or another of a small list of excusing or justifying defenses, such as insanity, necessity, or self-defense. But when a jury *explains* the defendant's actions, it searches for a full account of the factors – the motives, circumstances, and beliefs – that caused them.”).

¹¹⁷ Daniel W. Shuman, *The Psychology of Deterrence in Tort Law*, 42 U. KAN. L. REV. 115, 151 (citing G. Terence Wilson, *Behavior Therapy*, in CURRENT PSYCHOTHERAPIES 241, 258-260 (Raymond J. Corsini et al. eds., 4th ed. 1989)).

¹¹⁸ The argument is not that because only I can feel my pain, only I can diagnose my own illness or injury. The argument is that the doctor trying to diagnose me must acknowledge that there is such a thing as pain.

and analysis. The founder of Connectionism, Edward L. Thorndike, studied cats to see how long it took them to find their way out of a puzzle box in which various rings could be pulled to gain release.¹¹⁹ John Watson, studied white rats,¹²⁰ as did his followers, Edward C. Tolman and Clark L. Hull.¹²¹ The rats, who were denied food or water for considerable periods of time, were placed in various types of mazes and then timed to see how quickly they could reach rewards (reinforcements) at a goal box. Over repeated trials in these boxes or mazes it was found that the animals' performance improved.¹²² This was taken as proof that learning was merely a question of frequently repeated responses, encouraged in some cases by the physical drive to gain nourishment. Although Tolman made a stab at explaining purpose in terms of observed improvement on a task,¹²³ none of these behavioral theories deviated from the assumption that behavior was exclusively efficiently caused.

When the succeeding generation of behaviorists began administering such experimental tasks to humans, they continued explaining the behavior of a person as if a machine were being studied – a free-standing object that was constituted of parts moving in a well-oiled, efficient cause manner. The point of view of the person being studied by an experimenter was not considered relevant to what transpired in the conditioning process. In the same way that the animals had been viewed as nothing more than experimental apparatus, the introspective viewpoints of human experimental participants were also ignored. These people were treated as if they were objects, lacking the capacity to influence what took place through personal choice or purposeful intention. Conditioning theories kept the human being trapped within this mechanistic image of humanity. Behavior was behavior, and it moved thorough efficient causation up and down the Darwinian ladder of living organisms.¹²⁴

¹¹⁹ See generally EDWARD L. THORNDIKE, AN EXPERIMENTAL STUDY OF REWARDS (1993).

¹²⁰ See generally JOHN B. WATSON, BEHAVIORISM (1924).

¹²¹ See EDWARD C. TOLMAN, PURPOSEIVE BEHAVIOR IN ANIMALS AND MEN (1932); See also CLARK L. HULL, PRINCIPLES OF BEHAVIOR (1943).

¹²² See GLEITMAN, *supra* note 83, at 78.

¹²³ TOLMAN, *supra* note 119, at 421-23.

¹²⁴ JOSEPH F. RYCHLAK, THE PSYCHOLOGY OF RIGOROUS HUMANISM 226-273 (2d ed. 1988).

Fortunately, a few psychologists were willing to challenge the narrow interpretation that behaviorism was giving to conditioning theory.¹²⁵ As these psychologists conducted their research on the conditioning phenomenon, the behaviorists' confident belief in efficient causation as the sole cause of behavior was brought into question.

When human beings (as opposed to animals) are used to study conditioning it becomes possible to study things from their viewpoint. Those conducting the experiments can ask the subjects about their conditioning experience. Interviews can be conducted with people following the tests, including those subjects who have performed in an operant-conditioning format.¹²⁶ This interviewing process shifts the psychologist's theoretical perspective from an extraspective (third person) slant to an introspective (first person) position. Explanations of "him, her, that, and it" change to explanations of "I, me, we and us."

As this interviewing process was gradually perfected, it threw an entirely new light onto the understanding of what it means to shape behavior through conditioning.¹²⁷ In ninety percent of the experiments conducted over several years, conditioning was found to be a cooperative venture in which the person being "shaped" had to (1) grasp what was taking place in the experimental format, and (2) willingly comply with what this format required or demanded. If these two requirements were not met, actual conditioning was rarely demonstrated.¹²⁸

The person in an operant-conditioning study has to "catch on" to the experiment if he or she is going to be conditioned. People who have been conditioned are routinely able to verbalize that "every time I say this one type of word [for example, an adjective or a plural noun] the experimenter says 'mm hmm,'

¹²⁵ L. Douglas DeNike, *The Temporal Relationship Between Awareness and Performance in Verbal Conditioning*, 68 J. EXPERIMENTAL PSYCHOL. 521-529 (1964); DONELSON E. DULANEY, *AWARENESS, RULES, AND PROPOSITIONAL CONTROL: A CONFRONTATION WITH S-R BEHAVIOR THEORY IN VERBAL BEHAVIOR AND GENERAL BEHAVIOR THEORY* 340-387 (T.R. Dison and D.L. Horton eds., 1968); Monte M. Page, *Demand Characteristics and the Verbal Operant Conditioning Experiment*, 23 J. PERSONALITY & SOC. PSYCHOL. 372-378 (1972).

¹²⁶ Joel Greenspoon, *The Reinforcing Effect of Two Spoken Sounds on the Frequency of Two Responses*, 68 AM. J. PSYCHOL. 409-416 (1955).

¹²⁷ L. Douglas DeNike, *The Temporal Relationship Between Awareness and Performance in Verbal Conditioning*, 68 J. EXPERIMENTAL PSYCHOL. 521-529 (1964); Charles D. Spielberger et al., *Conditioning of Verbal Behavior as a Function of Awareness, Need for Social Approval, and Motivation to Receive Reinforcement*, 67 J. ABNORMAL & SOC. PSYCHOL. 241-246 (1963); Donelson E. Dulany, *An Analysis of Verbal Control in Verbal Conditioning*, in *BEHAVIOR AND AWARENESS: A SYMPOSIUM OF RESEARCH AND INTERPRETATION* 102-129 (Charles W. Eriksen ed., 1962).

¹²⁸ See Brewer, *supra* note 42, at 1-41.

so that must be what I should keep on saying.” Or, in a classical-conditioning format in which a person is being conditioned to blink his or her eyes to a flashing light, the person may observe, “every time that light flashes a puff of air is blown into my eye, making me blink.” These subjects figure out what is taking place and, even though they could negate the process, go along with experimental demands.¹²⁹ If the person who is being conditioned lacks this awareness, it is very difficult, if not impossible, to condition behavior.¹³⁰ Furthermore, even when people know what is going on in the conditioning format, they are occasionally found to be uncooperative. They simply refuse to “get conditioned” and “play the game” as good experimental participants should do.¹³¹

With these findings on awareness, it becomes difficult to characterize conditioning as a matter of efficient causation. The participants in this research are conscious of what is going on, and they make a decision as to whether to play along with the experimental instructions. They are behaving for the sake of a personal choice, and such behaviors are only truly captured by using the telic terminology of formal and especially final causation.

The efficient cause machine model does not work to explain such behavior, because a scientist would not have to obtain a machine’s cooperation to get it to work properly. Although the reinforcement concept is still widely used, and non-specialists still tend to believe that conditioning involves a blind shaping of behavior, current research literature indicates otherwise. Modern researchers speak of expectancy and predictability in the conditioning formats.¹³² Concepts such as these are future oriented and purposive, and highly consistent with teleology. Conditioning itself has been redefined by a leading theoretician as “the process whereby when an animal is exposed to certain relationships between events, representations (i.e., cognitive images) of those events are formed, and associations established between them, with the consequence that the animal’s behaviour [sic]

¹²⁹ I.E. Farber, *The Things People Say to Themselves*, 18 *Am. Psychol.* 185-197 (1963).

¹³⁰ See Brewer, *supra* note 42, at 1-41.

¹³¹ Monte M. Page, *Demand Characteristics and the Verbal Operant Conditioning Experiment*, 23 *J. PERSONALITY & SOC. PSYCHOL.* 372-378 (1972).

¹³² Allan R. Wagner, *Expectancies and the Priming of STM*, in *COGNITIVE PROCESSES IN ANIMAL BEHAVIOR* 177-209 (Stewart H. Hulse et al. eds., 1978); Robert A. Rescorla, *Informational Variables in Pavlovian Conditioning*, in 6 *THE PSYCHOLOGY OF LEARNING AND MOTIVATION: ADVANCES IN RESEARCH AND THEORY* (Gordon H. Bower ed., 1972) at 1-46; Robert A. Rescorla, *Some Implications of a Cognitive Perspective on Pavlovian Conditioning*, in *COGNITIVE PROCESSES IN ANIMAL BEHAVIOR*, *supra*, at 15-50.

changes in certain specifiable ways.”¹³³ This definition could easily accommodate the concepts of intention and purpose if understood from the first-person (introspective) perspective of an actor carrying out mental formulations. By adding the findings on the capacity of choice within the conditioning format, a free will concept is easily accommodated. Behaviorism is no longer riveted to the mechanistic position by empirical research findings. Unfortunately, most of today’s psychologists and psychiatrists still are riveted to the mechanistic position. This includes most of those who are called before the court as expert witnesses.

A. *Efficient Cause Determinism Has Led the Law Astray*

Because the mechanistic determinists in psychology hold themselves out to be “tough-minded” scientists, courts often look to them for guidance in matters of mental health and personal responsibility. Behaviorist experts do not, however, begin from the same initial premise that the courts do. They do not even study final-cause concepts. Thus, lawyers ask the expert to give an opinion as to whether the defendant acted out of his or her free will or due to some outside influence (that might excuse the behavior), when the behaviorist *as a core proposition of his or her theory* believes that *all* behavior is shaped by external forces. Lawyers want the psychologist to say whether the act in question was an exercise of free will, but the behaviorist rejects the very notion of free will. Adoption of the behaviorist model has led to situations where legal doctrine has been modified to accommodate shifting psychological understandings.¹³⁴ The most obvious situation relates to the development of the insanity defense.¹³⁵ The original M’Naghten Rule,¹³⁶ was

¹³³ NICHOLAS JOHN MACKINTOSH, *CONDITIONING AND ASSOCIATIVE LEARNING* 20 (1983).

¹³⁴ *In re Rosenfield*, 157 F. Supp. 18 (D.D.C. 1957), is commonly known as the “weekend flip flop case,” because on Friday the defendant, diagnosed as a sociopath, was not suffering from a mental disease according to a psychiatrist from St. Elizabeth’s Hospital. Over the weekend, however, the hospital decided – as an administrative matter – that a sociopath should be classified as suffering from a mental disease. See *United States v. Brawner*, 471 F. 2d 969, 978 (D.C. Cir. 1972) (describing the “flip flop”).

¹³⁵ See, e.g., Rychlak & Rychlak, *supra* note 60. According to Blackstone, “idiots and lunatics are not chargeable for their own acts, if committed when under these capacities: no, not even for treason itself.” 4 WILLIAM BLACKSTONE, *COMMENTARIES* *24-25 (1765) (“*furiosis furore solem punitur*” – “a madman is punished by his madness alone”).

¹³⁶ For a full discussion of the origins of this rule, see Rychlak & Rychlak, *supra* note 60, at 9-12.

modified by the irresistible impulse test,¹³⁷ to ease the concerns of psychopathologists of that era that the original rule was overly “intellectual” in its assessment of the circumstances of mental illness.¹³⁸ These early mental health experts, who were theorizing based upon material- and efficient-cause determinations in biological reductionism, complained that anyone who dealt with the inmates of an insane asylum could readily establish that these patients usually knew the quality of their acts, and the rightness or wrongness of their acts, but that they could still not control themselves.¹³⁹ The irresistible impulse test permitted these experts to offer opinions relating to the material- and efficient-cause influences that “shaped” the behavior of their patients.

Later, one court framed an insanity decision that most leading psychopathologists favored for similar reasons. The key section read as follows:

The rule we now hold . . . is simply that an accused is not criminally responsible if his unlawful act was the *product* of mental disease or mental defect.

We use “disease” in the sense of a condition which is considered capable of either improving or deteriorating. We use “defect” in the sense of a condition which is not considered capable of either improving or deteriorating and which may be congenital, or the result of injury, or the residual effect of a physical or mental disease.¹⁴⁰

Under this test, behavioristically-oriented psychopathologists did not have to answer a simple yes or no to the question “Did the defendant know the difference between right and wrong at the time of his or her offensive act?” This test permitted the psychopathologist to frame background considerations in rendering a judgment as to the mental state of the defendant. It was then up to the jury to decide whether these background considerations were of sufficient proportion to *produce* (via causal determinations of one sort or another) the *actus reus*, and

¹³⁷ See *Parsons v. State*, 2 So. 854, 866 (Ala. 1887).

¹³⁸ Rychlak & Rychlak, *supra* note 60, at 11.

¹³⁹ *Id.*

¹⁴⁰ *Durham v. United States*, 214 F.2d 862, 874-75 (D.C. Cir. 1954) (emphasis added).

thereby excuse the defendant from criminal responsibility.¹⁴¹ Subsequent modifications to the insanity defense have been similarly shaped by evolving views of human nature.¹⁴²

Recently, efficient cause determinants have been urged as possible defenses to criminal cases even though they do not claim to rise to the level of insanity.¹⁴³ Thus, narcotics addiction has been urged as a defense to both narcotics crimes,¹⁴⁴ and to other crimes driven by the need to support the addiction;¹⁴⁵ chronic alcoholism has been raised as a defense to crimes involving public drunkenness;¹⁴⁶ and compulsive gambling has been raised as a defense to theft offenses.¹⁴⁷ Developing these arguments further, defendants have claimed defenses such as the cultural evidence defense, battered spouse defense, mob defense, Black rage defense, urban psychosis, steroid-induced psychosis, anti-abortion psychosis, and

¹⁴¹ Rychlak & Rychlak, *supra* note 60, at 12; *see also* WILSON, *supra* note 116, at 37 (“Psychologists liked the [*Durham*] decision; now there was virtually no criminal trial in which their testimony would not be relevant.”).

¹⁴² *Id.* at 13-15.

¹⁴³ In criminal law, the Battered Woman’s defense has been generally well received by the courts, *see, e.g., State v. Hennem*, 441 N.W.2d 793, 799 (Minn. 1989), other such theories are still in their infancy. *See also* *United States v. Gould*, 741 F.2d 45 (4th Cir. 1984) (pathological gambling defense asserted without success); Grossman, *Postpartum Psychosis – A Defense to Criminal Responsibility or Just Another Gimmick?*, 67 U. Det. L. Rev. 311 (1990); Davidson, *Post-Traumatic Stress Disorder: A Controversial Defense for Veterans of a Controversial War*, 29 Wm. & Mary L. Rev. 415, 421 (1988).

¹⁴⁴ *United States v. Moore*, 486 F.2d 1139 (D.C. Cir.) (en banc) (plurality opinion), *cert. denied*, 414 U.S. 980 (1973); *People v. Davis*, 306 N.E.2d 787, (N.Y. 1973), *cert. denied*, 416 U.S. 973 (1974).

¹⁴⁵ *Commonwealth v. Sheehan*, 383 N.E.2d 1115 (1978).

¹⁴⁶ *Powell v. Texas*, 392 U.S. 514 (1968).

¹⁴⁷ *United States v. Torniero*, 735 F.2d 725 (2d Cir. 1984), *cert. denied*, 169 U.S. 1110 (1985); *United States v. Gould*, 741 F.2d 45 (4th Cir. 1984); *United States v. Llewellyn*, 723 F.2d 615 (8th Cir. 1983). In *Lomonaco v. Sands Hotel Casino and Country Club*, 614 A.2d 634, 638 (N.J. Super. Ct. Law Div. 1992), the plaintiff alleged that his behavior during the visit to the casino put the casino on notice that he suffered from a gambling addiction, and that casino employees exerted sufficient psychological pressure to override his free will. *Id.* at 635. For a listing of other such defenses, *see* WILSON, *supra* note 116, at 23.

financial, emotional, and work-related pressure syndrome.¹⁴⁸ At least one author has argued that evidence of a defendant's personal history, including cultural background, should play a role in the criminal trial, because individuals are subject to so many varying environmental, family, and societal influences that they cannot be held wholly responsible for their criminal actions.¹⁴⁹

Efficient causation is even beginning to have some important ramifications outside of the criminal law area. For example, in *Cipollone v. Liggett Group, Inc.*,¹⁵⁰ the plaintiff claimed, and the Third Circuit agreed, that nicotine addiction can supply the causation element necessary for a tort cause of action.¹⁵¹ In *Joseph E. Seagram & Sons v. McGuire*, the plaintiffs claimed that manufacturers and

¹⁴⁸ Rachel J. Littman, *Adequate Provocation, Individual Responsibility, and the Deconstruction Of Free Will*, 60 ALB. L. REV. 1127, 1162 (1997) (discussing these defenses); Note, Feasibility and Admissibility of Mob Mentality Defenses, 108 HARV. L. REV. 1111, 1112-13 (1995) (discussing the argument that defendants are less blameworthy due to participation in group criminal activity); Kimberly M. Copp, *Black Rage: The Illegitimacy of a Criminal Defense*, 29 J. MARSHALL L. REV. 205, 207 (1995); See John McQuiston, *Jury Finds Ferguson Guilty of Slaying on the L.I.R.R.*, N.Y. TIMES, Feb. 17, 1995, at 1 (discussing the Colin Ferguson trial and the "Black rage" defense); Junda Woo, *Urban Trauma Mitigates Guilt, Defenders Say*, WALL ST. J., Apr. 27, 1993, at B1, B7; see generally Rogers Worthington, "Urban Psychosis" Rejected as Slaying Defense, CHI. TRIB., Nov. 5, 1992 (jurors rejecting the urban psychosis defense in a murder trial); JAMES GARBARINO ET AL., CHILDREN IN DANGER: COPING WITH THE CONSEQUENCES OF COMMUNITY VIOLENCE 1-21, 67-99 (1992) (discussing the danger in exposing children to community violence and how it relates to post-traumatic stress disorder).

¹⁴⁹ Abbe Smith, *Criminal Responsibility, Social Responsibility, and Angry Young Men: Reflections of a Feminist Criminal Defense Lawyer*, 21 N.Y.U. REV. L. & SOC. CHANGE 433, 445-449, 477-480 (1994-95) (discussing the theory and use of cultural defenses); *id.* 458 n.121 (arguing that free will should be determined according to a law and society based spectrum).

¹⁵⁰ 893 F.2d 541, 563 n.19 (3d Cir. 1990) (stating that if a plaintiff can show that he or she became addicted to nicotine as a result of smoking, then a jury can consider the effects of cigarettes smoked after addiction when determining whether a tobacco company's "conduct proximately caused [a plaintiff's] lung cancer"). See Alan Schwartz, *Views of Addiction and the Duty to Warn*, 75 VA. L. REV. 509 (1989). Perhaps the most interesting case in this area is that of *Castano v. American Tobacco Co.*, 84 F.3d 734 (5th Cir. 1996). In this case, the trial court originally certified a plaintiff class that would have included all nicotine-addicted persons in the United States, regardless of any cause (or influence) other than the efficient cause influence of smoking a cigarette. See T. Dean Malone, Comment, *Castano v. American Tobacco Co. and Beyond: The Propriety of Certifying Nationwide Mass-Tort Class Actions Under Federal Rule of Civil Procedure 23 When the Basis of the Suit Is a "Novel" Claim or Injury*, 49 BAYLOR L. REV. 817 (1997).

¹⁵¹ At least one jury returned a verdict against the Brown & Williamson Tobacco Corporation based upon the suppression of information concerning nicotine addiction. See Suein L. Hwang et al., *Jury's Tobacco Verdict Suggests Tough Times Ahead for the Industry*, WALL ST. J., Aug. 12, 1996, at A1, A4 (reporting \$ 750,000 verdict by Florida jury for smoker with lung cancer).

distributors of alcohol have a duty to warn consumers that they may “develop[] the disease of alcoholism” through “excessive consumption.”¹⁵² And the recent settlement of actions brought by state governments seeking recovery of Medicaid expenditures on behalf of smokers is also based upon the idea of an efficient cause determinism overcoming the free will of individuals.¹⁵³

B. *Challenges to Free Will*

Most social scientists take it for granted that if strict efficient cause determinism is true (i.e., if everything is completely determined by its antecedents in strict accord with universal, efficiently caused laws), then there is no free will. Because they have put their faith in the non-telic theory of “hard” determinism, they attempt to discredit final causation, by calling it “folk psychology” or “suppositional science.”¹⁵⁴ Thus, one critic of the free will model has written that “the legal structure of liability cannot be more sound than its philosophical foundations. And these foundations – insofar as they comprise the idea of free will – are notoriously shaky.”¹⁵⁵ As another has argued, “Wherever the concept of free will is offered as an explanation, the scientist must entertain a suspicion that ‘the particular go’ of the thing in question is yet to be discovered.”¹⁵⁶

Despite claims to the contrary, social scientists have not put together a convincing case against free will. Empirical findings used to support the efficient- and material-cause explanations of behavior are subject to interpretations that are fully consistent with the free will model. In fact, many behavioristically-oriented experts have recognized the shortcomings of non-telic deterministic theories, but

¹⁵² *Joseph E. Seagram & Sons*, 814 S.W.2d at 385.

¹⁵³ At least 14 states have sued the cigarette industry. *See Tobacco Shares Lead Drop as Dow Falls 31.44 Points*, N.Y. TIMES, Aug. 22, 1996, at D6. For discussion of one such suit brought by the state of Florida, see Richard N. Pearson, *The Florida Medicaid Third-Party Liability Act*, 46 FLA. L. REV. 609 (1995).

¹⁵⁴ *See, e.g.,* Lelling, *supra* note 90, at 1473 (“the psychological theory motivating our assignments of blame is not an outgrowth of sober research, but the culmination of thousands of years of unquestioned supposition.”).

¹⁵⁵ Dan-Cohen, *supra* note 11, at 960.

¹⁵⁶ Viney, *supra* note 82, at 32; *see also* Committee on Psychiatry and the Law, Group for the Advancement of Psychiatry, *Criminal Responsibility and Psychiatric Expert Testimony*, in BY REASON OF INSANITY: ESSAYS ON PSYCHIATRY AND THE LAW 3, 10 (Lawrence Z. Freedman ed., 1983) (“Attacks upon the law by psychiatrists and the defense of the legal system by lawyers have engaged a disproportionate share of our attention and exertions . . .”).

they nevertheless have clung to their beliefs in this model even when the science would seem to go the other way.¹⁵⁷ As one of them has explained, “most behavioral scientists would probably agree that the assumption that there is free will when in fact there is none, results in more damage than the assumption that there is no free will when in fact there is some.”¹⁵⁸ The use of assumptions, however, undermines the science. Too often, behavioral scientists simply avoid this very important issue.

C. *Ignoring the Free Will Issue*

One way to avoid confronting the shortcomings of the efficient- and material-cause model of human behavior is by ignoring the free will issue altogether, at least when it comes to matters involving the legal system. “Legal scholars usually have either chosen to ignore this question or, in what amounts to the same thing, have posited ‘free will’ for legal purposes.”¹⁵⁹ Thus, they argue that legal decisions should not be burdened with considerations of free will.¹⁶⁰ Similarly, it has been suggested that “the law treats man’s conduct as autonomous and willed, not because it is, but because it is desirable to proceed as if it were.”¹⁶¹ Such an approach has even been expressed by the United States Supreme Court:

How far one by an exercise of free will may determine his general destiny or his course in a particular matter and how far he is the toy of circumstance has been debated through the ages by theologians, philosophers, and scientists. Whatever doubts they have entertained as to the matter, the practical business of government and administration of the law is obliged to proceed on more or less rough and ready judgments based on the assumption that mature and rational persons are in control of their own conduct

¹⁵⁷ Einstein, for instance, knew that the science of his day was at odds with the deterministic model, but he believed that the science would one day be corrected and fit with the deterministic model. LEWIS S. FEUER, *EINSTEIN AND THE GENERATIONS OF SCIENCE* 83-84 (1974).

¹⁵⁸ Viney, *supra* note 82, at 40.

¹⁵⁹ Christopher Slobogin, *A Rational Approach to Responsibility*, 83 MICH. L. REV. 820, 820 (1985) (reviewing MICHAEL S. MOORE, *LAW AND PSYCHIATRY: RETHINKING THE RELATIONSHIP* (1984); see also WILSON, *supra* note 116, at 40 (referring to free will as a “convenient fiction”).

¹⁶⁰ As one legal commentator put it, “[o]ne way of reconciling the apparent tension between the scientific and the legal view of persons is to jettison the notion of retributive justice.” Slobogin, *supra* note 159, at 821.

¹⁶¹ HERBERT L. PACKER, *THE LIMITS OF THE CRIMINAL SANCTION* 74-75 (1968).

Whether or not this assumption squares with philosophical doctrine, or even with reality, is not for our determination.¹⁶²

More recently, the Court wrote, “[h]appily, our task is not to resolve the philosophical meaning of free will, but to determine [Congressional intent].”¹⁶³

Legal responsibility, however, is certainly tied to the issue of free will. Criminal actions, for example, are filed and prosecuted by the state, not an aggrieved individual. The goal of a criminal prosecution is not to restore the injured party, but to punish the violator.¹⁶⁴ The typical remedy is imposition of a fine or incarceration of the wrongdoer. Such punishment is justifiable if the wrongdoer freely decided to commit the bad act. Punishment is hard to justify if the person is little more than a robot, propelled along in an efficient- and material-cause manner.

One theory which purports to ignore personal responsibility is what has been called a “dangerousness” analysis. If we decide not to require personal blameworthiness, punishment can be premised on the need to prevent future crime by the individual in question.¹⁶⁵ Judge Richard Posner, of the United States Seventh Circuit Court of Appeals, has argued that as societies’ legal systems mature, criminal responsibility becomes increasingly “external.”¹⁶⁶ In other words, mature systems attach criminal liability more as a matter of conduct than of intent, with criminals eventually likened to “unreasonably dangerous machines.”¹⁶⁷ Under this theory, the law does not require a “concept of mind in which intentions and free will

¹⁶² Gregg Cartage & Storage Co. v. United States, 316 U.S. 74, 79-80 (1942) (footnote omitted).

¹⁶³ United States v. Kozminski, 487 U.S. 931, 959 (1988).

¹⁶⁴ GEORGE FLETCHER, *RETHINKING CRIMINAL LAW* 409 (1978) (“As a test for when processes are criminal, the Supreme Court unhesitatingly invokes the concept of ‘punishment’ as the relevant criterion.”). See, e.g., *Allen v. Illinois*, 478 U.S. 364 (1986) (Illinois “Sexually Dangerous Persons Act” found not criminal in nature because it is not aimed at punishment).

¹⁶⁵ See generally KARL MENNINGER, *THE CRIME OF PUNISHMENT* (1968); B. WOOTTON, *CRIME AND PENAL POLICY* 220-39 (1978). A significant practical problem associated with this approach is the difficulty in predicting dangerousness. See generally JOHN MONAHAN, *PREDICTING VIOLENT BEHAVIOR: AN ASSESSMENT OF CLINICAL TECHNIQUES* 21-67 (1981).

¹⁶⁶ See RICHARD POSNER, *THE PROBLEMS OF JURISPRUDENCE* 168-169 (1990).

¹⁶⁷ *Id.* at 168. Judge Posner refers to Holmes, citing the diminishing role of mental states in light of advancing scientific knowledge as a “major theme” of that work. *Id.*

figure.”¹⁶⁸ Instead, what a person intends to do is equated with what it is rational for that individual to do,¹⁶⁹ and consideration of mental states is removed from the explanation of behavior.¹⁷⁰ The law thereby becomes an “instrument of social control,”¹⁷¹ designed to guide rational people along the path of acceptable behavior.

Ultimately, Posner’s theory fails to provide a meaningful explanation of behavior because it either “envisions some brute, external force dictating the actions of persons’ bodies, [or it] implicitly relies on beliefs and desires.”¹⁷² Of course, when beliefs and fears are brought into play, mental states must also be involved.¹⁷³ As such, this theory simply acts as if there were no free will, despite any evidence to the contrary.

Some people have tried to accommodate both mechanistic determinism and free will responsibility. Thus it has been argued that psychological explanations for behavior do not negate free will or excuse responsibility.¹⁷⁴ In other words, just because the behavior was predicted according to the deterministic theory, it does not necessarily follow that the actor was not a free moral agent who may justly be held responsible.¹⁷⁵ This approach argues that caused behavior is not necessarily compelled behavior, and that caused behavior is not excused simply because it is caused.¹⁷⁶ Sheldon Glueck was a proponent of the degree-determinist continuum.¹⁷⁷ He found it helpful to imagine a chart which showed the freedom/determinism proportions of different people, in which the freedom reflected behavior of a

¹⁶⁸ See *id.* at 176.

¹⁶⁹ See *id.* at 170.

¹⁷⁰ *Id.* at 173.

¹⁷¹ POSNER, *supra* note 166, at 176. This might be considered a formal-cause of behavior.

¹⁷² Lelling, *supra* note 90, at 1536.

¹⁷³ *Id.* (“Posner is unsuccessful in his attempt to explain the law without mental state attributions because he relies on a concept of deterrence entailing beliefs and fears.”).

¹⁷⁴ Stephen J. Morse, *Psychology, Determinism, and Legal Responsibility in NEBRASKA SYMPOSIUM ON MOTIVATION: THE LAW AS A BEHAVIORIAL INSTRUMENT*, 35, 45-58 (Gary B. Melton ed., 1985).

¹⁷⁵ *Id.* at 46.

¹⁷⁶ *Id.*

¹⁷⁷ See S. GLUECK, *LAW AND PSYCHIATRY: COLD WAR OR ENTENTE CORDIALE?* (1962).

formal/final cause nature and determinism reflected behavior of a material/efficient-cause nature. With this proportional array we might then speculate that a feebleminded person's freedom/determinism mix might consist of ten percent endowed intelligent free-choosing capacity, and ninety percent predetermined blocking of freedom, choice, and control. Glueck set his baseline for responsibility at the "free-choosing capacity of the 'average, reasonable' or 'prudent' abstract standard man of the law [which] will range, let us say, between 50 and 65 percent, leaving a 50 to 35 percent quantum of solid-line dominance."¹⁷⁸ Norval Morris also claimed that there were "degree[s] of freedom of choice on a continuum."¹⁷⁹

These half-way theories all seem to leave room for final (free-will) causation, resulting in what has been termed a "soft determinism" as opposed to the hard determinisms of the mechanists.¹⁸⁰ Even so, these are minority positions. Most psychological and psychiatric professionals are so steeped in the traditions of hard (efficient cause) determinism that they are unwilling to undertake a serious consideration of the scientific evidence in support of free will.¹⁸¹ Yet, strong, scientifically based evidence does exist.

¹⁷⁸ *Id.* at 12-13.

¹⁷⁹ NORVAL MORRIS, *MADNESS AND THE CRIMINAL LAW* 61 (1982). Of course, others have argued that "[i]t makes sense to say that we are determined or that we are free, but to speak of being partly determined or partly free makes as much sense as to speak of being partly pregnant." Moore, *supra* note 16, at 1115-16.

¹⁸⁰ Rachel J. Littman, *Adequate Provocation, Individual Responsibility, and the Deconstruction of Free Will*, 60 ALB. L. REV. 1127, 1131 (1997); John Lawrence Hill, *Exploitation*, 79 CORNELL L. REV. 631, 670 n.231 (1994); Michael Corrado, *Automatism and the Theory of Action*, 39 EMORY L. J. 1191, 1202 (1990).

¹⁸¹ For a recent statement by one of today's leading criminal law theorists reflecting the dominant theory in the mental health sciences, see WILSON, *supra* note 116, at 39.

One can concede – indeed, if one is an especially ambitious social scientist, one will proclaim – that all human behavior is [efficiently] caused. That is to say, if one knew enough about the antecedent conditions of a given act, one could completely explain that act For example, if I strike your knee in a certain place with a small hammer, your leg will jerk upward. The patellar reflex is an involuntary act based on a heritable disposition. Things get a good deal more complicated when we attempt to explain intentional thought, speech, and social behavior. But there is no reason to think that these actions are any less caused than the patellar reflex. If we knew enough about my genetic endowment and childhood socialization, the opportunities and incentives available to me, we could fully explain why I am sitting here writing this chapter.

Id.

VIII. SCIENTIFIC EVIDENCE IN THE COURTROOM

The consistent findings that awareness and cooperation are fundamental to the “shaping” of behavior through conditioning suggests that the person under study is not a mere pawn being manipulated by external forces in efficient cause fashion.¹⁸² Rather, the person is a freely-willing agent, capable of furthering what is being indicated or opposing it. Evidence for free will in such research is apparent, but it is rarely analyzed by psychologists who conduct these experiments. As such, expert witnesses who rely on this testing as a core premise of their science either flatly reject agency in human behavior or are confused about how such self-determination can take place.¹⁸³ How then can such “experts” assist the court in evaluating ethical dilemmas?

Traditionally, if the science underlying the evidence at issue were “generally accepted” by the relevant scientific community as being accurate and reliable, the evidence would be admissible. This standard evolved from the case of *Frye v. United States*,¹⁸⁴ and has been known as the *Frye* Test or *Frye* Rule. Under this approach, evidence based upon novel scientific or technical processes would be admissible only if it had been “sufficiently established to have gained general acceptance in the particular field in which it belongs.”¹⁸⁵

In 1993, the Supreme Court handed down the decision of *Daubert v. Merrell Dow Pharmaceuticals, Inc.*,¹⁸⁶ in which the Court ruled that the Federal Rules of Evidence superseded *Frye*. The Court quoted the Federal Rules, which provide that all logically relevant evidence is admissible “except as otherwise provided by the Constitution of the United States, by Act of Congress, by these

¹⁸² See *supra* notes 125-131 and accompanying text.

¹⁸³ See Committee on Psychiatry and the Law, Group for the Advancement of Psychiatry, *Criminal Responsibility and Psychiatric Expert Testimony*, in *BY REASON OF INSANITY: ESSAYS ON PSYCHIATRY AND THE LAW* 3, 10 (Lawrence Z. Freedman ed., 1983) (testifying experts often fail to recognize the requirements of the law); COMMENTARY: CRIMINAL RESPONSIBILITY, IN *PSYCHIATRISTS AND THE LEGAL PROCESS: DIAGNOSIS & DEBATE* 97-98 (Richard J. Bonnie ed., 1977) (“[T]he spirit of the law is frequently frustrated when cases go to trial on the insanity plea . . . Psychiatrists and defense attorneys have simply not devoted to these cases the time and attention necessary to transcend the disciplinary boundaries and to translate clinical materials into terms that will be understandable and useful to the ultimate decision makers – judges and juries.”).

¹⁸⁴ 293 F. 1013 (D.C. Cir. 1923).

¹⁸⁵ *Id.* at 1014. See also RONALD J. RYCHLAK, *DEMONSTRATIVE EVIDENCE: APPLICATIONS AND THEORY* 417-418 (1995 & Supp. 1997) [hereinafter *DEMONSTRATIVE EVIDENCE*].

¹⁸⁶ 509 U.S. 579 (1993).

rules, or by other rules prescribed by the Supreme Court pursuant to statutory authority.”¹⁸⁷ The Court ultimately concluded that the *Frye* standard is “absent from and incompatible with the Federal Rules of Evidence”¹⁸⁸ In summary, with respect to “scientific evidence,” the trial court must make a preliminary assessment of whether the reasoning or methodology underlying the testimony is scientifically reliable and whether that reasoning or methodology properly can be applied to the facts at issue.¹⁸⁹

Trial courts have a “screening” or “gatekeeping” role to assure the scientific reliability and validity of the reasoning or methodology underlying the expert’s testimony and to assure that unreliable evidence will not be admitted. Under this new standard, the trial court must undertake a two pronged inquiry. The first prong is that the evidence must assist the trier of fact. “Expert testimony which does not relate to any issue in the case is not relevant and, ergo, non-helpful.”¹⁹⁰ In general, this first prong adds little to the basic requirement of relevancy for admissibility. The Court did, however, note that since expert evidence can be both powerful and misleading, the judge, in weighing possible prejudice against probative value under Rule 403, exercises more control over expert witnesses than over lay witnesses.¹⁹¹

The second prong is the new part of the test. The evidence must amount to “scientific knowledge.” In order to constitute “scientific knowledge,” the evidence must derive from the scientific method, that is, it must be supported by appropriate scientific validation.

The subject of an expert’s testimony must be “scientific . . . knowledge.” The adjective “scientific” implies a grounding in the methods and procedures of science. Similarly, the word “knowledge” connotes more than subjective belief or unsupported speculation. The term “applies to any body of known facts or to

¹⁸⁷ FED. R. EVID. 402.

¹⁸⁸ *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 589 (1993).

¹⁸⁹ The *Daubert* decision was based on the language of the Federal Rules, not a constitutional principle. As such, this case is controlling only in federal court, but it should also be highly persuasive in those states which have adopted the federal rules or have independently enacted rules similar to Federal Rules of Evidence 402 and 702. By mid-1993, thirty-five states had adopted evidence codes patterned directly after the Federal Rules of Evidence. See also DEMONSTRATIVE EVIDENCE, *supra* note 185, at 418-423.

¹⁹⁰ *Daubert*, 509 U.S. at 591 (quoting 3 WEINSTEIN & BERGER ¶ 702[02], at 702-718).

¹⁹¹ *Id.* at 595.

any body of ideas inferred from such facts or accepted as truths on good grounds.”¹⁹²

The main thrust is no longer to establish that the proposition is generally accepted in the expert’s discipline.¹⁹³ Instead, the goal now must be to show sound scientific procedure. “The focus . . . must be solely on principles and methodology, not on the conclusions that they generate.”¹⁹⁴

While *Daubert* affirms the “liberal thrust” of the *Federal Rules*, the admissibility standard for new scientific evidence will not necessarily be more liberal in every case. *Daubert* makes it possible to introduce testimony about novel scientific theories that probably would have been barred under *Frye*. *Daubert*, however, may also require a more extensive foundation than was necessary under *Frye*. An attorney can no longer simply elicit conclusory testimony that the overwhelming majority of the specialists in a given field subscribe to a given proposition. Instead, under *Daubert*, the court must require evidence relating to the scientific methodology used to verify the scientific hypothesis and show that it is empirically sound. Of course, once general acceptance stops being the exclusive test for admissibility, even seemingly well accepted scientific propositions are no longer immune from attack.¹⁹⁵

¹⁹² *Id.* at 589-590.

¹⁹³ *Id.* at 588. According to the Supreme Court, *Federal Rules of Evidence*, Rule 702 does not incorporate the “general acceptance” test of *Frye*:

Nothing in the text of this Rule [702] establishes “general acceptance” as an absolute prerequisite to admissibility. Nor does respondent present any clear indication that Rule 702 or the Rules as a whole were intended to incorporate a “general acceptance” standard. The drafting history makes no mention of *Frye*, and a rigid “general acceptance” requirement would be at odds with the “liberal thrust” of the Federal Rules and their “general approach of relaxing the traditional barriers to opinion testimony.”

Id.

¹⁹⁴ *Id.* at 594.

¹⁹⁵ DEMONSTRATIVE EVIDENCE, *supra* note 185, at 423.

IX. THE PSYCHOLOGICAL EXPERT ON THE WITNESS STAND

An expert witness must have “specialized knowledge . . . to assist the trier of fact.”¹⁹⁶ If the witness’s theories have not been demonstrated to be accurate, the judge cannot determine whether “expert” opinions based on the theories are of assistance. “If the jury is in as good a position to reach a decision as the expert, expert testimony would be of little assistance to the jury and should not be admitted.”¹⁹⁷ “The principal question has been not whether psychiatric testimony is relevant in criminal cases, but whether its usefulness is outweighed by its lack of trustworthiness.”¹⁹⁸

When a mechanistic determinist testifies as an expert on issues of free will in the courtroom,¹⁹⁹ he or she may introduce more confusion than clarity. Cases that involve psychology often pit one mental health professional against another in a

¹⁹⁶ FED. R. EVID. 703; DEMONSTRATIVE EVIDENCE, *supra* note 185, at 426. *But see* Richard J. Bonnie & Christopher Slobogin, *The Role of Mental Health Professionals in the Criminal Process: The Case for Informed Speculation*, 66 VA. L. REV. 427, 461-495 (1980) (contending that courts should allow mental health professionals to offer opinions as expert witnesses even though their opinions are not supported by empirical research).

¹⁹⁷ *State v. Saldana*, 324 N.W.2d 227, 229 (Minn. 1982); *see* *Andrews v. Metro N. Commuter R.R.*, 882 F.2d 705, 708 (2d Cir. 1989) (holding that an expert may not testify “to lay matters which a jury is capable of understanding and deciding without the expert’s help”); *see also* *United States v. Larkin*, 978 F.2d 964, 971 (7th Cir. 1992) (holding expert testimony on hazards of eyewitness identifications may be excluded because “these hazards are well within the ken of most lay jurors” and because the defendant’s attorney could discuss those hazards in argument), *cert. denied*, 507 U.S. 935 (1993); *cf. In re Air Crash Disaster at New Orleans*, 795 F.2d 1230, 1233 (5th Cir. 1986) (“The trial judge ought to insist that a proffered expert bring to the jury more than the lawyers can offer in argument.”).

¹⁹⁸ Slobogin, *supra* note 159, at 844 (citing J. ZISKIN, *COPING WITH PSYCHIATRIC AND PSYCHOLOGICAL TESTIMONY* (2d ed. 1975)); *See also* Bonnie & Slobogin, *supra* note 196, at 466-495; Stephen J. Morse, *Crazy Behavior, Morals and Science: An analysis of Mental Health Law*, 51 S. CAL. L. REV. 527, 600-611 (1978); Comment, *The Psychologist as Expert Witness: Science in the Courtroom?*, 38 MD. L. REV. 539 (1979); Joseph J. Cocozza & Henry J. Steadman, *The Failure of Psychiatric Predictions of Dangerousness: Clear and Convincing Evidence*, 29 RUTGERS L. REV. 1084, 1094-1101 (1976) (“there is no empirical evidence to support the position that psychiatrists have any special expertise in accurately predicting dangerousness.” *Id.* at 1099.).

¹⁹⁹ As indicated in the Statement on the Insanity Defense of the American Psychiatric Association, many deterministic psychiatrists recognize that the moral issue raised when they are called to testify is that of free will. *See* AMERICAN PSYCHIATRIC ASS’N, STATEMENT ON THE INSANITY DEFENSE 8 (1982). For a further example of such thought in psychiatry, *see* ALAN A. STONE, PSYCHIATRY AND VIOLENCE, IN LAW, PSYCHIATRY AND MORALITY 53 (1984); Alan A. Stone, *Psychiatry and Morality: Three Criticisms*, in LAW, PSYCHIATRY AND MORALITY 219-24 (1984).

“battle of the experts.” This is common in modern litigation, but in this setting, the two sides often express fundamentally different views of the nature of humanity.

A good example of this took place in the trial of Dan White, who was charged with the murder of two prominent San Francisco officials. The defense called psychiatrist Dr. Jerry Jones as one of its mental health experts. On cross-examination, the prosecutor explored Jones’s views about the nature of White’s decisions as White took his gun, went to city hall, entered through a window, and fired his gun nine times at the victims. Dr. Jones insisted that: “A person cannot make choices. It’s not possible to make choices”²⁰⁰ The prosecutor let this testimony pass, but the issue came up again:

- Q. Was he at that time capable, just prior to the shooting, of making a decision: Shall I shoot him or shall I not? . . . I am asking you if he was capable?
- A. I thought we already decided you can’t not make a decision.
- Q. You did . . . [I]s it true at this time?
- A. You can’t not act. So he was capable of acting, behaving, and he was behaving.
- Q. He made a choice, didn’t he?
- A. Okay. I said you can’t not make a decision. Yes. Yes.²⁰¹

Here the prosecutor is using the term “decision” as a basis for imposing moral and legal responsibility. In other words, if White decided and chose to shoot the officials, he was responsible for his actions and guilty of murder. Dr. Jones, however, was using the same terms as though decisions were the inevitable result of being alive. “Deciding, choosing, acting – these bear no connotations of self-actuation, and thus they are compatible with a view that all conduct is determined by physical factors.”²⁰²

White’s case was built upon the denial of final-cause determinism in his actions. Of course, if White’s behavior were not a matter of free will or final causation, the defense had to explain his action with some other efficient or material cause. His lawyers again called upon a psychological expert to do this. Dr. Martin

²⁰⁰ GEORGE P. FLETCHER, WITH JUSTICE FOR SOME: VICTIMS’ RIGHTS IN CRIMINAL TRIALS 27 (1995).

²⁰¹ *Id.* at 27.

²⁰² *Id.* at 27-28 (comments of George Fletcher).

Blinder focused on the impact of what people eat, especially what Dan White ate prior to the killings. Dr. Blinder testified that: “there is a substantial body of evidence that in susceptible individuals large quantities of what we call junk food, high sugar content food with lots of preservatives, can precipitate anti-social and even violent behavior.”²⁰³ He concluded that

[I]f it were not for all the tremendous pressures on [Dan White] the weeks prior to the shooting, and perhaps if it were not for the ingestion of this aggravating factor, this junk food, with all three factors, did not impinge upon him at the same time, I would suspect that these homicides would not have taken place.²⁰⁴

As George Fletcher concludes, “[i]t seems to carry no weight at all that there were thousands of people who ate the same diet, hated their bosses, and lived under constant pressure but did not resort to killing.”²⁰⁵ Yet, with testimony like this from expert witnesses, Dan White was found not guilty of murder and convicted of the lesser charge of manslaughter.

To the extent that environmental factors affect behavior, some measure of uncertainty will always be associated with social scientific knowledge.²⁰⁶ Research may support experts who testify that cross-racial identifications are generally less accurate than same-race identifications,²⁰⁷ but research can never support an expert opinion on the accuracy of a given eyewitness identification. Similarly, an expert might testify that cigarette advertising generally leads people to smoke more, but such testimony could not prove that this was the cause of a given individual’s

²⁰³ *Id.* at 31-32.

²⁰⁴ *Id.* at 31. For similar arguments made in other case, see WILSON, *supra* note 116, at 17 (testifying expert claims that defendant Lyle Menendez had been “rewired” by abuse he allegedly suffered at the hands of his parents); *id.* at 19 (testifying expert said there was a “one hundred percent and absolute” chance that defendant would kill again).

²⁰⁵ FLETCHER, *supra* note 200, at 32.

²⁰⁶ Thus, a class action asserting that a group became addicted to cigarettes due to the actions of tobacco companies would make little sense. Different environmental factors would have influenced individual plaintiffs in different ways. Some people might have started smoking to lose weight, others due to peer pressure, others because their parents did, etc. Differences in these environmental factors would mean that the issues would vary in each of the case histories. As such, “smokers” logically could not be a valid class.

²⁰⁷ See generally Sheri L. Johnson, *Cross-Racial Identification Errors in Criminal Cases*, 69 CORNELL L. REV. 934 (1984).

smoking habit. In Dan White's case, no expert could with certainty say that junk food caused him to go on a killing spree.²⁰⁸ "Unless expert testimony . . . can be made defendant-specific . . . it will always be irrelevant to the issue of the particular defendant's mental state."²⁰⁹ In other words, expert testimony on efficient causation is of little help in a trial designed to determine the final cause of behavior.

When experts testify to non-scientific "findings," they inevitably intermingle their science with their view of public policy.²¹⁰ In purporting to explain the facts to the jury, these experts testify as to what they think the legal rule should be.²¹¹ Thus, in testifying that the defendant suffers from battered woman's

²⁰⁸ Dr. Blinder, the expert in Dan White's trial, conducted no tests, had no precise diagnostic information about White's blood sugar level at the time of the killings, and had no control group to test his prediction of when and how individuals are driven to kill. FLETCHER, *supra* note 200, at 32.

²⁰⁹ Note, *Feasibility and Admissibility of Mob Mentality Defenses*, 108 HARV. L. REV. 1111, 1126 (1995). "Expert testimony on mob behavior is not helpful to the fact-finder, whose role it is to ascertain the state of mind of the defendant. Equally fundamentally, such expert testimony is irrelevant so long as it is not linked to the particular defendant on trial." *Id.* at 1126.

²¹⁰ THE CITIZENS COMMISSION ON HUMAN RIGHTS, PSYCHIATRY ERADICATING JUSTICE 8 (1995) (quoting Jeffrey Harris, Executive Director of the Attorney General's Task Force on Violent Crime). What amazes me is that in any trial I've ever heard of, the defense psychiatrist always says the accused is insane, and the prosecuting psychiatrist always says he's sane. This happened invariably, in 100 percent of the cases, thus far exceeding the laws of chance. You have to ask yourself, 'What is going on here?' The insanity defense is being used as a football and quite frankly, you'd be better off calling Central Casting to get 'expert psychiatric testimony' in a criminal trial. *Id.* "It is unlikely that toxicologists would be tolerated in courts of law if one would observe that he found a large quantity of arsenic in the body of a deceased person, and another stated that he found by the same operation none." *Id.* (quoting Thomas Szasz). *But see* JOHN E. BONINE & THOMAS O. MCGARITY, *THE LAW OF ENVIRONMENTAL PROTECTION: CASES—LEGISLATION—POLICIES* 682 (2d ed. 1992) (reporting on Environmental Protection Agency hearings at which several eminently qualified pathologists disagreed as to whether tumors on dissected mice were cancerous).

²¹¹ In the introduction to *The Battered Woman*, Lenore Walker wrote: I am aware that this book is written from a feminist vision. It is a picture of what happens in a domestic violent act from the perspective of only one of the two parties. The men do not have equal rebuttal time. Rather, I view women as victims in order to understand what the toll of such domestic violence is like for them. Unfortunately, in doing so I tend to place all men in an especially negative light, instead of just those men who commit such crimes.

LENORE E. WALKER, *THE BATTERED WOMAN* xvii (1979). While this viewpoint could well be appropriate for the author of a book, Dr. Walker testified frequently in court as an expert on this issue. *See* WILSON, *supra* note 116, at 48-49 (raising questions about the value of her testimony in certain cases).

While the Battered Woman's defense has been generally well received by the courts, other defenses have not fared as well. *See* *United States v. Gould*, 741 F.2d 45 (4th Cir. 1984) (pathological

syndrome and reasonably thought that harm was imminent,²¹² the expert may really be testifying that a battered woman should be permitted to kill in self-defense, even in the absence of imminent harm.²¹³ A similar analysis would apply when an expert testifies that an alcoholic could not resist a second drink.²¹⁴ As such, ostensibly descriptive testimony by the expert witness is often nothing more than a normative judgment.²¹⁵

Courts accept the findings of scientists who are not in the courtroom, statements that would otherwise be deemed hearsay, because of the reliability of the scientific method. To the extent that findings reflect personal values rather than scientific observation, the traditional hearsay dangers become implicated and pose substantial prejudice to the opponent of the evidence who cannot cross examine the researcher to uncover bias.²¹⁶ There is no reason to believe that triers of fact, when

gambling defense asserted without success); Jennifer L. Grossman, *Postpartum Psychosis – A Defense to Criminal Responsibility or Just Another Gimmick?*, 67 U. DET. L. REV. 311 (1990); Michael J. Davidson, *Post-Traumatic Stress Disorder: A Controversial Defense for Veterans of a Controversial War*, 29 WM. & MARY L. REV. 415, 421 (1988).

²¹² Some courts limit expert testimony to a description of the general syndrome and the characteristics which are present in a person suffering from the syndrome. *See, e.g.*, *State v. Hennem*, 441 N.W.2d 793, 799 (Minn. 1989) (limiting testimony in future cases).

²¹³ Wilson explains how the “learned helplessness” which is a cornerstone of the Battered Woman’s defense is directly derived from testing conducted on dogs. WILSON, *supra* note 116, at 52. Moreover, this part of the theory seems to be at odds with the action (killing the abusive partner) that the woman has undertaken. *Id.* at 53. Such inconsistencies are possible only because the theory attempts to account for human behavior, but the testing is based exclusively on efficient- and material-cause theory. *See id.* at 57 (“[T]he evidence for the existence of a syndrome was, in the case of Dr. Walker [the person most responsible for developing the Battered Woman’s Syndrome], elicited by interviewers who were predisposed to find it.”).

²¹⁴ *See* ALCOHOLICS ANONYMOUS 24 (3d ed. 1976) (discussing the trouble many alcoholics have resisting a second drink).

²¹⁵ An expert’s non-scientific opinion may or may not be accurate, and no way exists for the jury to properly evaluate it. Presented with conflicting opinions, jurors have no well-founded basis on which to choose between them. Juries are impeded to decide disputed facts, not policy matters. When policy issues are resolved through expert testimony, parties who cannot afford experts (or well qualified experts) essentially lose their right of representation. Thus, in assisting the finder of fact, experts should be limited to factual testimony.

²¹⁶ Additionally, even though experts who testify about their own research can be cross-examined, their testimony is properly susceptible to a hearsay objection. No mature research program stands by itself. Science is a cumulative enterprise based upon the contributions of many researchers over the course of many years. Thus, in-court scientific testimony usually rests on a good deal of out-of-court hearsay.

provided with relevant studies, cannot assess many matters such as these as well as an expert would.²¹⁷ Once again, this sidesteps the question, “can an expert who does not believe in free will and final causation really be an expert in a trial designed to determine these issues?” Much expert testimony that is routinely accepted in American courts comes from such experts.

X. CONCLUSION

Most mental health professionals seeking to provide treatment vary their techniques and select a particular theory of behavior to find what works best with a given client.²¹⁸ This cannot be the approach taken by the law. As a matter of practical necessity, the legal system must choose a theory of human behavior to inform its structure without knowing the identity or psyche of each of the actors.²¹⁹ As such, any theory that is employed must look at the full picture of human behavior; it must involve all four of Aristotle’s causes.

The legal system has long focused on final causation, with perhaps too little attention being given to efficient causation. Efficient causation certainly can influence human behavior, but it is only part of the equation. As the legal system seeks to piece together the full picture it has – as it always does – turned to the experts in the field for guidance. Too often, however, the experts are only expert in half of the picture.

Because psychology jettisoned final (and largely formal) causation in favor of material and efficient causation, its theories are incomplete and inconsistent with the demands of the legal system. Most modern psychologists do not even accept the possibility of final causation, which is *still* the primary focus of the law. This means that their opinions are not only incomplete, but are based on a view of human behavior that is incompatible with the legal system. It also means that the experiments they conduct are infected from the beginning with an efficient cause bias.

²¹⁷ Morse, *supra* note 174, at 620 (“Without hard, methodologically sound quantitative data, the guess of an expert is unlikely to be better than the guess of laypersons”).

²¹⁸ Shuman, *supra* note 117, at 166 (citing Daniel W. Shuman & Myron F. Weiner, *The Privilege Study: An Empirical Examination of the Psychotherapist-Patient Privilege*, 60 N.C. L. REV. 893, 921 (1982)).

²¹⁹ *Id.* at 166.

Lawyers and judges must recognize these limitations when evaluating mental health experts for guidance in the courtroom.²²⁰ If this is done, not only might the sciences of psychology and psychiatry be forced to re-examine some of their basic assumptions (which need to be re-examined), but the administration of justice will be served by the use of experts who accept the most fundamental premises of our legal system – free will and personal responsibility.

²²⁰ One might imagine a witness on the stand to testify as to whether the defendant knew the nature and quality of his or her actions and whether he or she could conform the behavior to the requirements of the law. One logical question to ask before the witness is certified as an expert is whether the witness accepts the possibility of free will. If the witness is true to the core propositions of his or her science, that question will usually be answered in the negative. If the witness accepts the possibility of free will, numerous psychological studies could be used for cross-examination purposes. Either way, the witness' expert status is seriously called into question.