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Moral Responsibility
——The Implications of Psychiatry and Behavioral Genetics

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Abstract

Laws or social customs of most countries do not hold insane people liable for what they have done because they lack moral responsibility. Nonetheless, science and technology might evolve new contents of and criteria for insanity. This essay focuses on whether breakthroughs in psychiatry and behavioral genetics could influence the judgment of moral responsibility and what the influence might be if the answer to the previous question is yes. This essay showed that common law insanity criteria have changed over time like the swing of a pendulum and that various philosophy of mind theories compete with each other. Both phenomena implied the "subjectivity" of the institution of responsibility that co-developed with society. Compatibilism seems to be a feasible solution for the conflict between scientific determinism and responsibility that upholds human autonomy. However, as science encounters issues of responsibility, it must confront its own "subjectivity" problem. In addition, although biological psychiatry and behavioral genetics have made great progresses, their materialism vocabularies

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could not grasp the abundance of mind phenomena. Therefore, the essay's pre liminary conclusion is that the combination of folk psychology and psychopathology, though subjective, must not be downgraded. But, results of scientific research might change expectations of human behavior and thus gradually modify the connotations of moral responsibility.

Keywords: moral responsibility, psychiatry, behavioral genetics, philosophy of mind, insanity, folk psychology, complexity, determinism, indeterminism, compatibilism.

1. INTRODUCTION

Regardless of the type of society, there are generally some moral rules for holding a person responsible to something she or he has done. We might blame and punish them; we might praise and reward them. It is common sense that we hold people responsible because we think they can choose and control their own behavior according to their free will. Sometimes we find it hard to hold people morally responsible for their own behavior because those people do something under duress, coercion or due to being provoked. In these kinds of circumstances we often treat those people as normal people since their intentions and responses are understandable. However, from time to time in legal cases, literature, movies, and from other mass media we learn that somebody did terrible things but was not responsible because he was insane. In societies where the insanity defense exists, insane people were thought to be unable to appreciate the wrongness of their behavior or to control it.[1] The basic idea is that we do not hold insane people criminally responsible because of their lack of moral responsibility. But, this parallel phenomenon is not always sustainable. For example, in 1982 John Hinckley Jr. was found not guilty by reason of insanity one year after he attempted to murder then U.S. President Reagan in 1981. This result turned out to be a trial of psychiatry. One columnist commented, “The psychiatrists spun sticky webs of pseudoscientific

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[1] The American Law Institute Model Penal Code § 4.01 offers a two-pronged insanity test: “(1) Persons are not responsible for criminal conduct if at the time of such conduct, as a result of mental disease or defect, they lacked substantial capacity either to appreciate the criminality (wrongfulness) of their conduct or to conform their conduct to the requirement of the law. (2) The term “mental disease or defect” does not include abnormality manifested only by repeated criminal or otherwise antisocial conduct. HAROLD I. KAPLAN ET AL., SYNOPSIS OF PSYCHIATRY 1182 (7th ed. 1994).

jargon and in these webs the concept of justice, like a moth, fluttered feebly and was trapped."[2] Obviously, many people thought Hinckley was morally responsible for his violent behavior. Under the strong pressure of public opinion, the U.S. federal government and some states therefore reformed and made stricter the laws of the insanity defense.[3] The problem in the Hinckley case is that many people did not think he was "mad" enough as not to be responsible. According to them, his behavior reflected his bad character. In another extreme case, Jeffrey Dahmer was sentenced to 957 years in prison for murdering 17 young men and committing acts of cannibalism, and was killed ironically by a psychotic inmate in 1994.[4] Dahmer might have had a psychiatric diagnosis. But, a psychiatric diagnosis was not in itself sufficient to render a person not morally responsible for what he did.

What is wrong with psychiatry? Is it really a "voodoo science" full of value-laden jargon? Should the mental hospital system be taken, *de facto*, as a branch of state law enforcement system as suggested by Thomas Szasz?[5] Or, should we give psychiatry a role to play because there have been such advances in neuropsychiatry and behavioral genetics after Hinckley's trial? In 1987, Scarr declared that the era of behavioral genetics had come and genes actually exert no less influence on hu-

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2 HAROLD I. KAPLAN ET AL., SYNOPSIS OF PSYCHIATRY 1316 (8th ed. 1998).

3 *See* R.D. Miller, *Criminality Responsibility*, *in* PRINCIPLES AND PRACTICE OF FORENSIC PSYCHIATRY 199, 202-05, 207 (Richard Rosner ed., 1994). Some sates such as Michigan, South Carolina, Georgia, Illinois, Pennsylvania, Connecticut, and Colorado adopted the legislation of "Mentally ill but guilty," which increased the possibility of severer punishment of mentally ill offenders. 34 states enacted reforms in the three years following the verdict of Hinckley. *See* LAWRIE REZNEK, EVIL OR ILL?: JUSTIFYING THE INSANITY DEFENSE 269 (1997).

4 *See* REZNEK, *supra* note 3, at 2; *see also* KAPLAN ET AL., *supra* note 2.

5 *See* Thomas Szasz, *Second Commentary on "Aristotle's Function Argument"*, 7 PHIL. PSYCHIATRY & PSYCHOL. 3 (2000).

man being's behaviors than environment.[6] Some people might ask how we could hold people morally responsible for their behavior if they are automatons driven by their own genes. Of course, in this short paper it is not possible to make a detailed analysis of the mind-body problem, which Arthur Schopenhauer called the world-knot.[7] However, I trust through an analysis of the implications of psychiatry and behavioral genetics in the discourse of moral responsibility some clarification about the "myths" of psychiatry and behavioral genetics can be done. I would argue that biological psychiatry and behavioral genetics may offer evidence to help us understand more about human behavior, but it is impossible to reduce human mind to the activities described in biological psychiatry and behavioral genetics. However, scientific knowledge would change the expectations of people toward each other, whereby the discourse of moral responsibility finally would be transformed gradually. Scientists should be sincere and take moral responsibility in their formulation of scientific rhetoric in society.

In section 2, I will briefly analyze the theories of moral responsibility, wherein I will argue that we might adopt soft determinism or indeterminism in the discourse of moral responsibility. Actually science is not as deterministic as we have thought. Section 3 is a brief introduction of different theories of mind. The folk psychology implied in the discourse of moral responsibility also prevails in some disciplines of social sciences, but they cannot be reduced to the phenomena described by language of hard sciences such as physics or chemistry. In section 4, I will analyze what mental disorder means. While psychiatry, as a "value-laden" and marginal science, is eager to follow the main-stream paradigm of medicine, its new scientific

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6 *See* Sandra Scarr, *Three Cheers for Behavior Genetics: Winning the War and Losing Our Identity*, 17 BEHAV. GENETICS 219 (1987).

7 *See* G.G. Globus, *Unexpected Symmetries in the "World Knot"*, 180 (4901) SCI. 1129 (1973).

language would not help a lot in the discourse of moral responsibility. In section 5, recent developments and the controversies of behavioral genetics will be discussed. Even though behavioral genetics would facilitate the development of psychiatry it cannot play an important role in determining moral responsibility for specific offenses. Yet, the discourse of behavioral genetics might shape the social norm and bring forth the moral responsibility of preventing mental illness in advance. The value-judgment in psychiatric practice is not a fatal flaw for psychopathology to be a science. It reflects the morality of human society, which is outgrown from the interaction of people's minds. Mind as a system capable of self-organization and autopoiesis, can never be reduced to a simple description with the language of behavioral genetics.

2. THEORIES OF MORAL RESPONSIBILITY – AN ARGUMENT FOR COMPATIBILISM

2.1 Kinds of Responsibilities

Before we start the discussion of moral responsibility we should ask what we mean by "responsibility?" H.L.A. Hart made a good analysis that I think is worth brief description here. Hart thought that responsibility has four meanings: (1) role-responsibility; (2) causal-responsibility; (3) liability-responsibility and (4) capacity-responsibility.[8]

If a person assumed a position in a social organization, he would be expected to fulfill his obligation assigned to that position. We say he has role-responsibility to do his job sincerely. Sometimes, we use "was responsible for" merely to de-

8 *See* H.L.A. HART, PUNISHMENT AND RESPONSIBILITY: ESSAYS IN THE PHILOSOPHY 211-215 (1992).

scribe the causal relationship between a person's behavior and an event. When it comes to liability-responsibility, Hart meant that a person who is legally responsible is liable to punishment. Sometimes, a person has vicarious responsibility for another person's behavior because these two persons have special relationship such as employment; when the employee wrongfully causes some damage to others during his work, the employer has to assume the responsibility to compensate for the damage. Actually the liability-responsibility included capacity-responsibility, which means a person must have the capacity of cognition and control for him to be held responsible. Even if a person's activity is compatible to the description of criminal behavior, he would not be responsible if he lacked the required intention, knowledge or mens rea.[9] Hart explained that in general, when we say "a person is responsible for his actions" we imply that he has capacity above some level, which is the most important criterion in the discourse of moral responsibility.[10] This capacity-responsibility is exactly what I mean by moral responsibility in the following discussion.

2.2 Moral Responsibility, Indeterminism and Determinism

In Book III of Nicomachean Ethics, Aristotle wrote, "moral goodness is concerned with feelings and actions, and those that are voluntary receive praise and blame, whereas those that are involuntary receive pardon, and sometimes pity too."[11] Though Aristotle did not mention the term moral responsibility directly, we can observe that the concept of moral responsibility has existed at least for thou-

9 *See id.* at 215-22.

10 *See id.* at 227-30.

11 ARISTOTLE, THE ETHICS OF ARISTOTLE: THE NICOMACHEAN ETHICS, 111 (J.A.K. Thomson trans., Penguin Books 1977) (1953).

sands of years. Instead of paying much attention to the conditions of responsibility Aristotle focused on the discussion of excuses – ignorance and compulsion, which make people not responsible for their own behaviors. He explained that those actions "which are performed under compulsion or through ignorance" are involuntary.[12]

In a similar vein, Kant based his moral philosophy on the ideas that "men can rationally will to govern their conduct in an ethical commonwealth" and "moral legislation is to be agreed to under conditions that characterize men as free and equal rational beings."[13] He maintained that the "transcendental" freedom of will, a capacity for absolute spontaneity or self-determinism, is the characteristic of rational beings.[14] Although he thought that his concept of moral agency, with transcendental freedom of will, may be compatible with determinism,[15] nowadays many scholars equate freedom of will with indeterminism. In fact, we should differentiate two kinds of freedom of will. One is "strong" freedom of will, which is incompatible with determinism. So sometimes we call this theory incompatibilism, under which, if the laws of nature and the facts in the past are fixed, a person living in a deterministic world would have no freedom of will because he/she has no choice of alternative actions.[16] The other is called compatibilism, which holds the compatibility between determinism and some level of "freedom of will," or better called some "rational power" to control one's behavior with the guidance of rea-

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12 *See id.*; *see also* CARL ELLIOTT, THE RULES OF INSANITY: MORAL RESPONSIBILITY AND THE MENTALLY ILL OFFENDER 25 (1996).

13 JOHN RAWLS, A THEORY OF JUSTICE 221 (1999).

14 *See* IMMANUEL KANT, GROUND WORKS OF THE METAPHYSICS OF MORALS 52-54 (Mary Gregor ed. & trans., 1998).

15 R.J. WALLACE, RESPONSIBILITY AND THE MORAL SENTIMENT 12 (1996).

16 *Id.* at 2.

sons.[17] Explained in the other way, the arguments of hard determinism and compatibilism have been mostly focused on three propositions:[18]

(1) every event has cause;

(2) at least some choices of a person are made freely;

(3) if every event has cause, then no choice of a person is free.

Hard determinists, who oppose compatibilism, would accept propositions (1) and (3). Compatibilists would accept propositions (1) and (2).

In the dream of Laplace, which represented the traditional deterministic paradigm of science, given all the factors of a state at one moment, equations of the laws of nature, and the unlimited computing ability, we can get the solution for the next state in the next moment in the world, human behavior included.[19] That our scientific prediction is not perfect is because of our ignorance of laws of nature. Therefore, everything has cause and no self-determination is possible. Since traditional science demonstrates its own "validity" frequently through its power to improve our material living, freedom of will seems to be nothing but an "irrational," "religious" belief. In this paradigm moral responsibility can merely be construed as the qualification of receiving deterrent measures. However, in the first half of 20th

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17 *Id.* at 7.

18 Hume argued that in a situation we believe that there is a causal relationship, there are three features perceived by us: (1) cause is temporarily prior to effect; (2) cause has spatiotemporal contiguity to effect; (3) constant conjunction between cause and effect. However, Hume maintained that the connection between cause and effect is nothing but a psychological phenomenon. Therefore, cause and effect are related by custom and habit. However, many other scholars argued that the physical connection exists. Among them, Salmon argued that if we can observe the transmission of a mark from cause to effect at a specific space and at a specific moment, there is physical connection between cause and effect. *See* WESLEY C. SALMON, CAUSALITY AND EXPLANATION 15, 20-21 (1998).

19 *See id.* at 32-33.

century this Newtonian mechanical view of the world was strongly shocked by the quantum theory developed by Heisenberg and Schrödinger. If quantum theory is true, then we will observe a "spooky action-at-a-distance" between two particles, which could not be explained by the causal relationship between them.[20] In addition, Gödel's incomplete theorem made another fatal blow toward the certainty foundation of mathematics and logics.[21] Based on the scientific evidence, it looks like determinism is not a complete winner any more. However, no definite conclusion is yet made.

Indeterminists argue that even given all the conditions required by determinists in their computation, we still cannot determine the state of the next moment in the universe. To the extreme of this argument, it is possible that our behavior is the result of the operation of a total chaotic system that could be described only by probabilities. Therefore, some determinists might argue that actually indeterminists do not win the battle of freedom of will; that people have reasons and choose their

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20 *Id.* at 23. John Bell and Alain Aspect showed separately that there exist remote correlation relationships between particles that cannot be explained by causal process. This phenomenon is predicted by quantum theory, but is against the Newtonian mechanics. What Einstein worried through the expression "[g]od does not play dice with the universe," is this spooky action at a distance.

21 *See* Gregory J. Chaitin, *Gödel's Theorem and Information*, 22 INT'L J. THEORETICAL PHYSICS 941 (1982). "In 1931, Czech-born mathematician Kurt Gödel demonstrated that within any given branch of mathematics, there would always be some propositions that couldn't be proven either true or false using the rules and axioms ... of that mathematical branch itself. You might be able to prove every conceivable statement about numbers within a system by going *outside* the system in order to come up with new rules and axioms, but by doing so you'll only create a larger system with its own unprovable statements. The implication is that *all* logical systems of any complexity are, by definition, incomplete; each of them contains, at any given time, more true statements than it can possibly prove according to its own defining set of rules." Http://www.miskatonic.org/godel.html (last visited on July 19, 2006).

own actions is an illusion. People's actions are the production of luck. This result surely is not what indeterminists have in their mind. What they are mostly against is the determinists' naïve hope of reducing all the complex phenomena into simple principles. It is not possible to describe our rich mind activities by the hard symbols of physics or chemistry. When person A intentionally breaks a cup under his anger toward person B, we absolutely would not describe A's behavior as due to luck. Kane argued that even though our brain activities are like chaos we still can recognize the effort of A's will through observing the repeated feedback loops in the neuronal networks of A's brain until the last moment he breaks the cup.[22]

Well, "ironically," people in the world of modernity after the enlightenment seem to be comfortable living in a "schizo-world." The world of quantum theory and Gödel's incomplete theorem seems so strange and far away from their daily lives. Many of them trust the deterministic prediction of science. But at the same time they hold each other responsible under the belief in freedom of will. We may never know either determinism or indeterminism is true. However, the theory of moral responsibility is trapped in the battlefield between determinism and indeterminism. Therefore, some scholars proposed that determinism should be compatible with some level of freedom of will. What does this mean? It means that we can hold a person morally responsible for her actions no matter indeterminism or determinism is true. We would be glad to embrace freedom of will if it is proved true; however, if determinism is true, we would be satisfied when we can make sure that people have at least some control upon their own actions. We do not have to cite the activities of photons or molecules to explain our subjective experience so that we at least can decide if we want to break a cup.

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22 *See* Robert Kane, *Responsibility, Luck, and Chance: Reflections on Free Will and Indeterminism*, 96 J. PHIL. 217 (1999).

In the following section, I will briefly introduce the theory of compatibilism proposed by Fischer and Ravizza and demonstrate that actually compatibilism does not solve all the problems. It is still haunted by the ghosts of determinism and indeterminism all the time, which wear the clothes of psychology and psychiatry.

2.3 Compatibilism Theory Constructed by Fischer and Ravizza

Actually most of the theories of compatibilism can be traced to the theory of reactive attitude proposed by P. F. Strawson.[23] He argued that responsibility should be understood in the context of our sentiment toward persons we are dealing with, which is called reactive attitude. During the interaction with each other people will hold each other responsible according to our emotional feelings. Responsibility analyzed this way, whether we are really free does not matter so much; therefore, freedom of will can be compatible with determinism. On this basis, Fischer and Ravizza developed and tuned their theory of compatibilism.

In their definition, causal determinism means that "for any given time, a complete statement of the facts about that time, together with a complete statement of laws of nature, entails every truth as to what happens after that time."[24] They argue that for a person to be morally responsible for her actions in a world of determinism, she must have guidance control of their actions. Often, in the arguments of indeterminism a moral agent must have regulative control for him to be held responsible. Regulative control includes guidance control, which involves the agent's "freely performing an action," and the power to do something else freely. That is, the agent must have the power to do an alternative for us to say that he has regula-

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23 *See* Peter F. Strawson, *Freedom and Resentment*, 48 PROC. BRIT. ACAD. 187 (1962).

24 JOHN MARTIN FISCHER & MARK RAVIZZA, RESPONSIBILITY AND CONTROL: A THEORY OF MORAL RESPONSIBILITY 14 (1998).

tory control. Since having no alternative to choose is a typical situation in a world of determinism, Fischer and Rivizza argued that a moral agent can be held responsible if and only if she has guidance control in the real world. Nonetheless, in the counterfactual world where an alternative exists she must have the guidance control to do otherwise. What matters is the causal sequence in the agent's mind when the actual sequence mechanism in the real world is held fixed. Therefore, even though in reality the moral agent does not have the choice of alternative actions, we still hold her morally responsible.[25] An example rephrased from the book of Fischer and Rivizza is presented as follows:[26]

> A and B were both no-good persons. They made a contract to assassinate C, and B would be in charge of the execution of the assassination. However, A was worried that B might finally decided not to do it, so A secretly inserted a device in B's brain to control B's behavior. If B decided to abort the plan of assassination, A would activate the device and B would have no choice but to kill C. In the long run, B assassinated C without any knowledge of the device.

In this example, even though in reality B could not do otherwise, B could have aborted the assassination had B not been inserted the device. B never thought

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25 Fischer and Ravizza separate two types of control: guidance control and regulative control. Guidance control means that an agent can freely perform an action. Regulative control includes two powers; one is the power to perform an action freely, that is, guidance control, the other is the power to have guidance control of alternative action other than A. *See id.* at 31.

26 This kind of examples that involve the consideration of alternative possibility and moral responsibility came from Harry G. Frankfurt. *See* Harry G. Frankfurt, *Alternate Possibilities and Moral Responsibility*, 66 J. PHIL. 829 (1969); *see also* Harry G. Frankfurt, *The Freedom of the Will and Concept of a Person*, 68 J. PHIL. 5 (1971). *See also id.* at 30.

that A controlled him. In B's thought he "actually" decided to assassinate C and did it all by himself. In the counterfactual world wherein no device existed in B's brain, B could have decided to abort the assassination plan. At this stage, Fischer and Ravizza made a strong argument against the necessity of the existence of genuine alternative for us to hold people morally responsible. They thought that since B had guidance of his own behavior, B should be morally responsible for his assassination action. But, how much guidance control must a person have to be responsible for her actions? They argued that a person's guidance control should achieve the level of moderate reasons-responsiveness so that she would be morally responsible for her action. They explained that there are three processes in the mechanism of reasons-responsiveness: (1) recognize the reason, (2) choose according to the reason and (3) act by the choice. According to the strength of reasons-responsiveness, they defined three kinds. Strong reasons-responsiveness (SRR) means the condition: "if K were to operate and there were sufficient reason to do otherwise, the agent would recognize the sufficient reason to do otherwise, and thus choose to do otherwise, and do otherwise." They argued that it is not necessary for people to be strongly reasons-responsive to be held responsible. For example, weak-willed people would be held morally responsible.[27] Weak reasons-responsiveness (WRR) required that "[t]here exist *some* possible scenario (or possible world) in which there is a sufficient reason to do otherwise, the agent recognizes this reason, and the agent does otherwise." However, as they admitted, it is intuitively unconvincing to hold a severely mentally ill morally responsible just because he might do otherwise when there is a strange or unusual sufficient reason.[28] They finally

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27 *See* FISCHER & RAVIZZA, *supra* note 24, at 41-43, 63.

28 *See id.* at 44, 63, 65-68. They assume that the laws of nature in the other possible worlds are the same as in the real world.

adopted moderate reasons-responsiveness (MRR) as the acceptable middle ground between SRR and WRR. MRR consists of two parts: one is weak reactivity to reasons (choice by the reason and reactivity by the choice) and the other is regular receptivity to reasons recognition. They put a higher requirement than that of WRR for receptivity to reasons because "the agent … must exhibit an understandable pattern of reasonsrecogni-tion, in order to render it plausible that his mechanism has the 'cognitive power' to recognize the actual incentive to do otherwise." As regards reasons-reactivity, only the displaying of some reactivity to show the agent's "executive power" is enough.[29] In addition, morally responsible agents must be able to respond to "moral reasons."[30] This is the way smart animals and children can be differentiated from morally responsible agents since smart animals and children have difficulty recognizing moral reasons. Sometimes moral agents do not reflect every time before they do anything, they just react according to their habitual patterns. Fischer and Rivizza urged us to note the historical aspect of the moral agents' forming, retention and expression of their habits or traits. If they have guidance control in these processes, they can be held responsible for their actions.[31]

Skipping the technical discussion of moral responsibility of consequence and omission, and arguments against the direct challenge from incompatibilism,[32] I

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29 *See id.* at 75.

30 *See id.* at 76.

31 *See id.* at 85-89, 194-196.

32 Mainly the argument for incompatibilism is called "Transfer of Non-Responsibility," which contains three propositions: "(1) If *p* obtains, and no one is … responsible for *p*; (2) if *p* obtains and *q* obtains, and no one is … responsible for the fact that if *p* obtains then *q* obtains; then (3) *q* obtains and no one is … responsible for *q*." *Id.* at 152. Fischer and Ravizza proposed a counter-example which I summarize here to falsify the Transfer of Non-Responsibility" principle, "A was assigned to induce an avalanche to destroy the enemy, and

now shift my focus to the least thoroughly analyzed aspect in their theory. I observed that in their book they used the terms of psychopath, kleptomania, compulsive and phobic disorders, delusional psychosis, panic, and insane without exploring substantial contents of these terms.[33] Who has the authority to explain the contents of these terms and to decide what kind of persons and actions are compatible with the description given by these terms? It is very "natural" for us to think of psychiatrists and psychologists as probable candidates. Finally, after a comprehensive construction of a formal theory of compatibilism Fischer and Ravizza seemed to leave open the question of substantial capacity of mind to other experts. They might succeed in dealing with the battle between determinism and indeterminism, but they did not yet cross the barrier into the inside of mind. The convergence of the discussions related to moral responsibility and insanity is unavoidable. We still need to go back to the discussions in the U.S. literature of M'Naghten rule, Durham rule, irresistible impulse and the two-pronged test of the American Law Institute Model Penal Code to retrieve the materials to analyze moral responsibility. In the following subsection I will discuss the contents of these rules and analyze the problems in them.

2.4 Insanity Defenses and the Dilemma with Them

If we trace the contents of insanity defenses from M'Naghten rule to the U.S. Insanity Defense Reform Act 1984 (IDRA 1984), it is interesting to find that the

she did it on time T1, and the enemy was destroyed on T3. However, B was hiding behind A without A's knowing and was ordered to take over A in case A would have not done her job." Then we know, (1) A is not responsible for B's presence; and (2) A is not responsible for the fact that if B is present then the enemy would be destroyed; but still (3) A is responsible for the destruction of the enemy. *See id.* at 152-156.

33 *See id.* at 41-42, 83.

threshold of criminal responsibility swung like a pendulum. After almost 150 years, IDRA 1984 retook the track of M'Naghten rule, allowing only cognition test as the criterion of insanity.[34]

In 1843, Daniel M'Naghten was accused of murder of Drummond whom he mistook as Robert Peel, then the English Prime Minister. He complained that he had been persecuted and followed by the Tories and was made to assassinate the Prime Minister.[35] Even though the jury found him not guilty by reason of insanity due to his lack of control, the famous M'Naghten rule proposed by Lord Chief Justice Tindal in the U.K. focused only on the defendant's cognition. There are three major parts in this rule:

(1) [T]o establish a defense on the ground of insanity, it must be clearly proved that, at the time of committing the act, the party laboring under such a defect of reason, from disease of the mind, as not to know the nature and quality of the act he was doing; or, if he did know it, that he did not know he was doing what was wrong.[36]

(2) [H]e must be considered in the same situation as if the facts with respect to which the delusion exists were real. For example, if under the influence of his delusion he supposes another man to be in the act of attempting to take away his life, and he kills that man, as he supposes, in self-defense, he would be exempted from punishment.[37]

(3) [T]he medical men, under the circumstances supposed, cannot in strictness be asked his opinions in terms above state, because each of those questions in-

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34 *See* GARY B. MELTON ET AL., PSYCHOLOGICAL EVALUATIONS FOR THE COURT: A HANDBOOK FOR MENTAL HEALTH PROFESSIONALS AND LAWYERS 190-93 (2d ed. 1997).

35 *See* Rex v. MacNaghten, (1843) 8 Eng. Rep. 718; *see also* REZNEK, *supra* note 3, at 19.

36 NIGEL WALKER, CRIME AND INSANITY IN ENGLAND 100 (1968).

37 *Id.* at 99.

volves the determination of truth of the facts deposed to, which it is for the jury to decide, and the questions are not mere a question upon a matter of science, in which case such evidence is admissible.[38]

M'Naghten rule is worth more detailed analysis since it set up the paradigm for later insanity defense tests. Almost all the basic components of insanity defense tests are mentioned in it: disease of mind, severely impaired cognitive capacity of facts or the moral values of the fact, causal relationship between disease of mind and the criminal act. The second part of M'Naghten test requires the defendant to justify his behavior in the delusional counterfactual world. Actually, not many defendants can pass this part. This might be the reason why irresistible impulse test that focused on impaired volitional control was proposed. The last part of M'Naghten test is a nice try to separate the practice of "natural science" from moral evaluation. In my following discussion of psychopathology and psychiatric diagnoses, I will argue that this strategy could not reach its goal.

In 1883, James Fitzjames Stephen, a British lawyer, expressed in his book - History of the Criminal Law of England, that an action should not be considered a crime if the agent was "prevented either by defected mental power or by any disease affecting his mind from controlling his own conduct, unless the absence of the power of control has been produced by his own default."[39] After this comment, in Parsons v. State (1887) in the United States,[40] the following rule was given:

(1) if by reason of the duress of such mental disease, he has so far lost the power to choose between the right and the wrong, and to avoid doing the act in

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38 *Id*. at 102.

39 STEPHEN J.F., A HISTORY OF THE CRIMINAL LAW OF ENGLAND, LONDON: MACMILLAN (1883), *cited in* NORMAN J. FINKEL, INSANITY ON TRIAL 28 (1988); also *cited in* WALKER, *supra* note 36, at 106.

40 *See* Parsons v. State, (1887) 81 Ala. 577, 2 So. 854 .

question, as that his free agency was destroyed;

(2) and if, at the same time, the alleged crime was so connected with such mental disease, in the relation of cause and effect, as to have been the product of it solely.[41]

Stephen drew the time slice of responsibility backward to the defendant's previous fault at inducing the state of incapacity at the later material time. We often observe this kind of rationale in cases of intoxication. In 1922, a committee in England proposed that a criminal defendant could be irresponsible if he committed the crime under the irresistible impulse cause by mental illness. However, the courts interpreted it as the policemen-at-the-elbow law, which means the impulse is so irresistible that the defendant would have committed the crime even if the policeman had been at the defendant's elbow.[42] We can easily guess out that few mentally ill offenders would be so impulsive to commit a crime in front of a policeman. Its application was actually very limited.

The popularity of M'Naghter rule was challenged in 1950s, the time when most of the states in the U.S. still followed M'Naghten rule in determining insanity. Durham rule was established in 1954 by Judge David Bazelon in Durham v. United States,[43] wherein he instructed the jury "Unless you believe beyond a reasonable doubt either that he was not suffering from a diseased or defective mental condition, or that the act was not such a product of such abnormality, you must find the accused not guilty by reason of insanity. … He would still be responsible for his unlawful act if there was no causal connection between such abnormality and the act."[44] Durham rule made no attempt to specify the severity of mental illness or

41 *See* FINKEL, *supra* note 39, at 31.

42 *See* KAPLAN ET AL., *supra* note 2, at 1315.

43 *See* Durham v. United States, 214 F.2d 862 (D.C. Cir. 1954).

44 FINKEL, *supra* note 39, at 35.

defect; neither did it explain what is product or causation. Therefore, in the era of high trust in psychiatrists Durham rule became a smooth channel for psychiatrists to influence the verdict. Under the traditional scientific paradigm of determinism, almost every criminal conduct is related to some mental illness or defect. Paradoxically, sometimes the criminal conduct became the proof of the existence of "mental illness or defect." Moore argued, "If mentally ill persons are excused because of their lack of 'free will', then psychiatry could be of no help, for its theoretical commitment is that none of us enjoy the freedom the mentally ill are supposed to lack."[45] Durham rule symbolized the peak of the triumph of psychiatry. The following insanity defenses gradually strip psychiatry of its authority in the courts.

In 1972, Durham rule was rejected in United States v. Brawner,[46] which adopted instead the two-pronged test of the American Law Institute Model Penal Code.[47] Model Penal Code section 4.01 provides:

(1) Persons are not responsible for criminal conduct if at the time of such conduct, as a result of mental disease or defect, they lacked substantial capacity either to appreciate the criminality (wrongfulness) of their conduct or to conform their conduct to the requirement of the law. (2) The term "mental disease or defect" does not include an abnormality manifested only by repeated criminal or otherwise antisocial conduct.[48]

Model Penal Code restricts the range of psychiatric diagnoses that can be pre-

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45 MICHAEL S. MOORE, LAW AND PSYCHIATRY: RETHINKING THE RELATIONSHIP 231 (1984). Psychoanalysis is criticized as being a discipline of philosophy instead of medical sciences; however, no less deterministic than the other medical discipline, it emphasizes overdeterminism by childhood experience and libido in its major theoretical theme.

46 *See* United States v. Brawner, 471 F.2d 969 (D.C. Cir. 1972).

47 KAPLAN ET AL., *supra* note 1, at 1182.

48 *Id*.

sented in insanity defense. It discards the word "product" which caused much interpretation arbitrariness. However, the pendulum did not stop here. After the Hinckley verdict, the U.S. Congress, professional groups, such as ABA (American Bar Association) and APA (American Psychiatry Association) and many states joined the tide of insanity law reform to handle the public outcry against insanity defense abuse.[49] In the U.S. federal IDRA 1984, the burden of proof for insanity is shifted to the defendant, and the range of insanity defense is restricted to cognition test only.[50] Since nobody knows if the defendant has no capacity to control or does not want to control, abolishing this volitional test would save much trouble of the judicial system at the cost of sacrificing a few defendants who might pass the police-at-the-elbow test. In this act, the defendant would not be criminally responsible if, due to his severe mental disease or defect, the defendant cannot appreciate the nature and quality of his act or the wrongfulness of his act. The so-called severe mental disease or defect is restricted to psychosis only.[51]

Within 150 years the pendulum of insanity defense swung from the cognition-oriented M'Naghten rule to the two-pronged (cognition and volition) test in Model Penal Code, and then back to the IDRS that accepts only the cognition test. The

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49 Actually the public outrage toward the Hinckley verdict may be more related to the dramatic image presented to the public: the victim is the president, Hinckley's infatuation with Jodie Foster etc. According to empirical study, the frequencies of insanity defense raised in the courts in different states have been quite low, which are around or below 1% except for Montana's that ranged from 5.5% to 8%. The success rate of the insanity defenses ranged from 10% to 50%, but the absolute number of defendants who successfully pleaded not guilty by reason of insanity has been very low. *See* MELTON ET AL., *supra* note 34, at 187-88. In 1995, there are only about 20 states still adopting Model Penal Code two-pronged test, *see id.* at 193.

50 *See* MELTON ET AL., *supra* note 34, at 201-02.

51 *See* Miller, *supra* note 3, at 199, 207.

swing phenomenon induced sometimes by changing societal atmosphere proved that to seek a satisfactory coherent solution for moral responsibility in insanity defenses may be a mirage. I find that Moore's worry about the free will problem in psychiatry could be lessened when we adopt the theory of compatibilism developed by Fischer and Ravizza. They stressed the importance of history in ascribing moral responsibility, which would cover the issues of self-induced intoxication. They required that a moral agent should be held morally responsible if he demonstrates some level of reasons-reactivity at the material time. Although volitional test was abolished in the federal and many states in the U.S., the minimal requirement of guidance control in Fischer and Ravizza's theory could most of the time still be satisfied. Except for the situation of omission, the defendants' unlawful actions betray their minimal reactivity to their reasons no matter how bizarre those reasons are. The fundamental problem, which could not be resolved by the theory of Fischer and Ravizza and the pendulum swing of insanity reform, is rooted in psychopathology and psychiatric diagnoses related to receptivity of reasons. Fischer and Ravizza sometimes adopted psychiatric terms without deeper inquiry into their value assumption and philosophy of mind. As stipulated in the last part of M'Naghten rule, the medical men are not allowed to express their moral evaluation on the fact of the crime, which should be the job of the jury. However, psychiatry is often criticized as a discipline carrying much value-laden vocabulary and not qualified as science. Can we trust psychiatry to offer us "the mere fact of the disease of mind" without smuggling in moral values in advance? I guess not. Value is always implied in judgments of normal and abnormal. In the other way, if psychiatry succeeds in strengthening its scientific foundation through behavioral genetics and other molecular biology, does this success help psychiatry to play a neutral role in the discourse in the court? The answer cuts in two directions. It is possible that psychiatry might lose its power to convey information of disease of mind that can

be grasped by the common sense. The other possibility is that behavioral genetics may serve as new scaffolding for value-laden psychopathology to adhere to, whereby the contents of the language of psychopathology is transformed. Psychiatry used to observe human mind from the pathological side, the operation of which is similar to law. If you cannot justify or offer a convincing excuse for your unlawful behavior then you are responsible. If you have no psychopathology observed, then it is most probable that you are "mentally normal." However, these disciplines all have their implicit assumption of philosophy of mind. Therefore, in understanding the discourse of moral responsibility we must not overlook what role philosophy of mind plays in that discourse.

In the following section I will sketch different theories of philosophy of mind. We might be shocked to find that there are diversified interpretations of mind that are incompatible with the common sense interpretation of mind. Observing this way, we could have a clearer idea of whether mental disease is disease of mind and whether behavioral genetics can offer a stronger theory of disease of mind.

3. WHAT WE CAN LEARN FROM PHILOSOPHY OF MIND

What is mind? What is the relationship between mind and body? These are very difficult questions and it is not possible to give a thorough discussion here. However, it is worthy of a sketch to make a theoretical bridge between the paradigms of psychiatry and common sense.

Maybe most of the people do not care what mind is since the answer carries no practical value to their lives. They can have different versions of the explanations of mind depending on the problems at hand and the context. To live in a world with multiple values, this pragmatic attitude may be necessary or convenient for most people. Just take a look in the dictionary and you would be surprised to

find there so many definitions of the term "mind."[52] But, when we narrow our focus on moral responsibility, we are concerned with what persons are laudable or condemnable for. We are forced to give answers that are intimately related to what we think mind is. Therefore, it is necessary to make sketch of philosophy of mind here.

3.1 Folk Psychology

I use the term folk psychology to represent the theory of mind often used in our daily lives. In common law system, the jury makes the common sense judgment of the legal-moral responsibility of the defendants. In Rawls's theory of justice, there is a basic assumption antecedent to the original position. Under the veil of ignorance we reach consensus through our appraisals of ourselves and other people.[53] We must have some basic concepts of other people's mind sets, or else it is not possible for us to communicate, to understand and to predict others' behavior. Of course, most people would not think of their philosophy of mind first before they make their judgment about others or themselves. They just do it. However, from linguistic analysis, we can make an induction of the theory of mind used by most people. We often use the terms desire, control and intention to describe and assess people's behavior and make our moral appraisal based on the conclusion thereof. This model of mind is also adopted very often by microeconomics, sociology, anthropology and psychology, so some scholars call it folk psychology or

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52 *See* A.S. REBER, THE PENGUIN DICTIONARY OF PSYCHOLOGY 460-461 (1995). There are eight different definitions of mind ranging from mental phenomenon, consciousness, mental process, brain, mentality, special gift and spirit or self, to emergent characteristics from a biological system. In its legal sense, "mind" means only the ability to will, to direct, to permit, or to assent. *See* BLACK'S LAW DICTIONARY 686 (1991).

53 RAWLS, *supra* note 13, at 118-19.

common sense psychology.[54]

Botterill argued that there are three core principles in folk psychology:[55]

(1) Action Principle: An agent will act, based upon her belief, to satisfy her current strongest desire, or at least increase the possibility of its satisfaction.

(2) Perception Principle: When an agent in some way notices a situation S, and p is a prominent perceptual fact related to S, then the agent obtains the knowledge of p.

(3) Inference principle: Given any rational thinker would infer q based on the connection of p and the other knowledge owned by the agent, when an agent recognizes p she would recognize.

That is to say, the basic assumption of folk psychology is that a person is a free and rational agent; a person must have the abilities to decide and act, and use the above abilities rationally and non-arbitrarily.[56] However, what is rationality? Nozick defined rationality in the following:[57]

> To speak of something, an action or belief, as rational is to assess the reasons for which it was done or held (and also the way in which the person took account of the reasons *against* doing or believing that). If reasons are, by their nature, general, and if principles capture the notion of acting *for* such general reasons - so that the person is committed to acting thus in other relevantly similar circumstances also - then to act or think rationally, one must do so in accordance with principles.

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54 REBER, *supra* note 52, at 293. Whether folk psychology is a scientific discipline is still not conclusive, I would use it here for the convenience of discussion.

55 George Botterill, *Folk Psychology and Theoretical Status*, *in* THEORIES OF THEORIES OF MIND 105, 105-18 (Peter Carruthers & Peter Smith eds., 1996).

56 *See* F. Ferre, *Self-Determination*, 10 AM. PHIL. Q. 165 (1973).

57 ROBERT NOZICK, THE NATURE OF RATIONALITY 40 (1993).

From the perspective of cultural study and anthropology, different societies would have different moral principles to judge people's actions no matter what the objective truth values of these principles are. What they need is some common sense consensus in their own societies.[58]

Donald Davidson offered an interpretational theory of mind, which is compatible to folk psychology.[59] He argued that mind is the process of ascribing propositional attitudes by the agents in order to understand other people's behavior. The agents interpret each other according to their interpretation theories. The way we construct our interpretation theory is just like the construction of longitudinal and latitudinal lines on the surface of the earth. In fact, these lines do not exist; they are created to facilitate our spatial orientation. Likewise, we use several construct dimensions, such as association, causality, foreseeability, and intention etc., to give meaning to other people's behaviors and predict their developments. Therefore, the concepts we use in our interpretation of other people's minds do not necessarily coincide with the structures or functions of our physical bodies.

However, is folk psychology the best way to explain our mind? In the past, our ancestors believed that the earth was flat and the center of the universe. How-

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58 Although this may relate to fierce arguments between moral relativism and absolutism, I would leave it here without further discussion.

59 JOHN HEIL, PHILOSOPHY OF MIND: A CONTEMPORARY INTRODUCTION 152-53 (1998). Another scholar of interpretation theory of mind, Daniel Dennett, proposed that there are three stances to analyze mind - intentional stance (thought, desire), design stance (biological systems in our body) and physical stance (chemistry and physics). These three stances do not have relationship of structure and function between each other. Every stance has it goal of analysis and no conflict would exist between them. However, Dennett's analysis was criticized for his utilizing representation theory to classify mind into four levels, wherein simple creatures own the mind of the most basic level. Therefore, the possibility exists that there would be some creatures without the qualia of mind. *See id.* at 158-61; *see also* JOHN SEARLE, THE REDISCOVERY OF THE MIND 121-22 (1992).

ever, following scientific discoveries, they changed their ideas about what the earth and universe is. Is there any other philosophy of mind that could take the place of folk psychology? If there is, the practice of ascribing moral responsibility and the study of ethics should be reformed and shaped by the new paradigm of mind.[60] In the following subsection, I will selectively introduce several theories of philosophy of mind.

3.2 Sketch of Philosophy of Mind

3.2.1 Dualism

In the genealogy of philosophy of mind, Descartes established the original model of dualism. He argued that a person is composed by two parts. One is mind, which is non-spatial, private and carrying the distinct mental qualities. The other is material body, which is spatial, public and carrying the material qualities. He proposed a behavioral theory that is very compatible with our common sense, that is, mind and body will interact with and influence each other.[61] For example, that a person walks on bare foot and steps on a stone is a material event. That she feels pain and would like to check her foot is a mental event. However, in his mind-body interaction theory, there is a fatal flaw. In modern science, the theory of conservation of energy stands valid against any experimental change through now. In this theory, only the material events can interact with each other. Therefore, the assumption of Descartes' dualism is wrong.[62]

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60 The model of mind might turn out to be nothing but a metaphor. We may have different metaphors of mind in different contexts in history. Therefore, no absolute truth is in any metaphor of mind. Then, the question about what mind is would be transformed into how to understand mind in different contexts.

61 *See* HEIL, *supra* note 59, at 21-22.

62 *See id.* at 20-26.

Lowe objected the Descartes dualism and proposed his version of non-Cartesian dualism. He argued that the set of the parts of a thing does not represent the whole. However, it is the whole contains the parts. Even though a person A lost his leg or got a stroke, we still call him A. Lowe thought that a person's self cannot be represented by the body (including brain); it is self that contains the body. The mental causation argued by Descartes does not sustain since when we trace back to the past there might be several mental states. Lowe made a metaphor of spider-web to explain body-mind problem. A web is secreted by a spider, but it is not equal to the spider. After the web is produced, the spider has to follow the web in its movement on the web. Therefore, when we treat the spider as the metaphor of body, the web represents the mind. Self is the complex interaction process of body and the environment. Self does not initiate the causal chain, but it shapes the causal chain.[63]

Even though Cartesian dualism is notorious from the perspective of philosophy of mind, the utilization of mind-body and psychological-physical contrasts is so well accepted that Cartesian dualism becomes an indispensable ideology in current culture. Dualism is the philosophy of mind that merges best with folk psychology.

3.2.2 Behaviorism and Identity Theory

Both behaviorism and identity theory are theories of materialism. Skinner, the famous behaviorist, argued that we can use conditioning theory to explain people's behavior. In his model, human behavior is nothing but the long chains of stimulation and responses. Accordingly, it is a waste of time to explore what is in the black

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63 *See* JOHNATHAN E. LOWE, SUBJECTS OF EXPERIENCE 80-82 (1996); *see also* HEIL, *supra* note 59, at 43-46.

box of mind.[64] Chomsky, from the perspective of linguistics, argued that even Skinner himself could not meet the requirements of his own proposition. For example, in Skinner's world when we observe a red chair, we say red because we receive the stimulation of "something with the quality of red;" we say chair because we receive the stimulation of "something with the quality of a chair." Beneath this kind of design is emptiness. Stimulation becomes something contained by the biological body, since we "sense the world from our response." In addition, Skinner could not avoid the words referring to mind in his writing. It is very hard to use the word "disposition" to represent "would do." For example, when I ran away from a wild bull after I saw it maybe I had the disposition to run after the visual stimulation of the bull. However, I may have suddenly stopped, for example, because I was afraid that this might induce the bull to chase me. Without the words referring to mind, it is very hard to explain the change of behavior.[65]

As a scholar embracing identity theory, Smart argued that sensation is a brain process. This is just like we say lightning "is" electric discharge. Therefore, sensation and brain process are of strict identity. So-called mental process is nothing but the brain process; that is, a thing cannot be related to itself.[66] In contrast to dualists, scholars of identity theory argue that we do not have to observe or to get access to our experience. What happens in our brain process is our experience; we need not to do any introspection, that is, we do not need words to describe our mental activities. However, according to identity theory our colorful world would be nothing but the brain process after the stimulation of different wave lengths of light. Color, taste, and sound are illusion. The richness of our experience is reduced

64 *See* B.F. Skinner, *Behaviorism at Fifty*, 140 SCI. 951, 951-58 (1963).

65 *See* HEIL, *supra* note 59, at 61-64.

66 *See* J.J.C. Smart, *Sensations and Brain Processes*, 68 PHIL. REV. 141 (1959).

to dry description of equations, which I doubt could catch the core of mind.[67] Unless we could do without experience terms such as colors, sounds, emotions, thoughts, etc., for the time being the language of materialism seems to throw out more than it could put in the basket of the phenomena of mind. Furthermore, identity theory that emphasizes the match of types of physical states and mental states has been challenged by the arguments of multiple realizability, which means that one mental state might be realized by multiple physical states.[68] The strength of identity theory was thus weakened.

3.2.3 Functionalism

Functionalists try to characterize mental states in terms of causal roles they play in determining how a subject behaves in different situations. There are three types of causal relationships: (1) the environment can cause the subject to have some mental state; (2) one mental state can causally interact with the other mental state within the same subject; (3) a mental state can causally lead to the bodily behavior. Therefore, mental states carry some function, like software, and brain is just like the hardware of the computer. Different types of hardware can run the same type of software, just like different brains could have causal relationship to the same pain phenomenon, which is called “multiple-realizable.” When we try to interpret a person’s mental abnormality we can analyze from the level of brain, but we also can analyze from the level of mental states. Ontologically, mental states supervene on and are realized on the biological entities, even other non-biological devices. Although higher level mental state must take lower level material state as the base, mental states, such as thoughts and sensations could not be reduced or

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67 *See* HEIL, *supra* note 59, at 72-74.

68 *See* Hilary Putnam, *The Nature of Mental States*, *in* THE NATURE OF MIND 197 (David Rosenthal ed., 1991).

identical to material state.[69]

However, functionalism has encountered several criticisms. First, if all functional states have to depend on each other to decide their causal roles, then circular causation might happen. Functionalists would reply that we must examine the causal role of a mental state in the causal network. Therefore, the mental state of pain must be understood in the whole event of pain. Thus, circular causation would not happen. Second, human beings may not be the only creatures or "devices" that would have mental states. It might happen that a computer "has thoughts," a paramecium "feels pain." Some scholars opposed this kind of universal functionalism, which would recognize the discipline – computational psychology.[70] However, other functionalists would reply that when computers "evolve" to a certain complex level and could afford the roles played before only by human beings, what we have to reform is the outdated philosophy of mind. The choice should not be to oppose computational psychology.[71] If we accept the arguments of functionalists, we might someday "hold computers morally responsible" for what they have done. Fortunately, this would not happen in a short time. The final challenge to functionalism is that according to their theory there might exist some zombie that could do meaningful behaviors, but have no qualia – no qualities of consciousness experience. If someday we can connect all the computers in Mainland China, maybe this network would express some "functional states," which would not have subjective

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69 *See* HEIL, *supra* note 59, at 91-94; *see also* GEORGE GRAHAM, PHILOSOPHY OF MIND: AN INTRODUCTION 253-254 (2d ed. 1998).

70 *See* Ned Block, *Troubles in Functionalism*, *in* 1 READINGS IN PHILOSOPHY OF PSYCHOLOGY 268, 268-305 (Ned Block ed., 1980).

71 *See* Patricia Kitcher, *Narrow Taxonomy and Wide Functionalism*, 52 PHIL. SCI. 78, 78-97 (1985).

experience; however, do we want to name it as "mind?"[72]

3.2.4 Eliminativism

Daniel Dennett adopted an instrumentalist approach to mind and advocated treating the daily use of folk psychology as an "intentional stance," which one takes towards others to "explain and predict their behavior by ascribing beliefs and desires to them … The decision to adopt the [intentional] strategy is pragmatic and not intrinsically right or wrong."[73] Eliminativists Patricia Churchland and Paul Churchland agreed with Dennett that intentional stance is nothing but a strategy to measure the real world. Trying to rescue materialism of identity theory, they argued that the terms of mental states used in folk psychology are tools established by people through common sense and consensus. But, theory is theory. Someday a better materialism theory might replace folk psychology in our daily practice. There are two ways of looking at theoretical evolution. First, a new theory would be developed to interpret the old theory, or the old theory would be reduced to a new theory. That is, there still exist some correspondence between old theory and new theory. Second, the old theory would be discarded and a brand new theory would be adopted. For example, we have abandoned the explanation that heat is the flow of calories. The Churchlands argued that neuroscience would finally take the place of the "outdated" folk psychology and the terms such as intention, desire and thoughts would be discarded.[74] In addition, folk psychology did not offer good answers or would never offer answers to the following phenomena such as mental illness, the function of sleep and dreams, memory, difference of intelligence, vision

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72 *See* Block, *supra* note 70, at 268-305.

73 Daniel Dennett, *Intentional Systems*, *in* BRAINSTORMS: PHILOSOPHICAL ESSAYS IN MIND AND PSYCHOLOGY 3, 7 (1978).

74 *See* HEIL, *supra* note 59, at 168-69.

and the mechanism of body movements.[75] Therefore, folk psychology would be defeated by empirical science in the long run.

Some might argue that the content of theory embraced by the eliminativists is itself belief. The paradox is that the eliminativists "believe" that they should eliminate the term "belief," that is, eliminativists would get a contradiction if they eliminate the terms describing mental states. A metaphor offered in Wittgenstein's Tractatus Logico-Philosophicus might offer some answer:[76]

My propositions serve as elucidations in the following ways: anyone understands me eventually recognizes them as nonsensical when he has used them – as steps – to climb beyond them. (He must, so to speak, throw away the ladder after he has climbed up it.) He must transcend these propositions, and then he will see the world aright.

In spite of this, I guess this ladder (folk psychology) might not be thrown away in the foreseeable future, considering the huge and daunting epistemological task needed to replace folk psychology.

3.3 Do We Still Want Folk Psychology

Even though folk psychology is criticized by the Churchlands, there are several reasons that folk psychology would not be abandoned in the near future:[77]

(1) Actually folk psychology was used during the interaction of normal rational people. The rules of folk psychology are not established to explain mental

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75 *See* Paul Churchland, *Eliminative Materialism and the Propositional Attitudes*, 78 J. PHIL. 67, 67-90 (1981).

76 Ludwig Wittgenstein, *Tractatus Logico-Philosophicus* § 6.54 (D.F. Pears & B.F. McGuinness trans., 1961) (1921), *construed in* HEIL, *supra* note 59, at 170-71.

77 *See* J.D. Trout, *The Philosophy of Psychology*, *in* THE PHILOSOPHY OF SCIENCE 605, 605-14 (Richard Boyd et al. eds., 7th prtg. 1997).

abnormality which is beyond the reach of common sense. In addition, almost every scientific discipline would have some unresolved marginal or abnormal situations. For example, professional psychology and neuroscience could not offer good answer to creative imagination.[78] Therefore, the problem of explanation limitation folk psychology encounters is shared by all the other scientific disciplines.

(2) Cognitive sciences and social sciences that utilize the model of folk psychology (intentional state attribution) succeed in different areas such as decision analysis, attitude investigation, game theory, consumer behavior theory, microeconomics etc.

(3) The terms used in folk psychology might not be specific enough, but the terms used in professional science might not be better. For example, species is an important concept in evolutional psychology. However, it is hard to specify what the identity condition "species" refers to is.[79] Take another example, even for the term psychological state, there exist arguments between externalists and internalists.[80]

Therefore, the attack on folk psychology might help us understand the limitation of folk psychology, but folk psychology would not be refuted. Unfortunately, since folk psychology does not have good language to describe mental abnormality, the practice of ascribing moral responsibility nowadays tends to count on concepts used by psychiatry and professional psychology. But we must ask a serious ques-

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78 STEPHEN STICH, FROM FOLK PSYCHOLOGY TO COGNITIVE SCIENCE: A CASE AGAINST BELIEF 213 (1983).

79 *See* Trout, *supra* note 77, at 605-14.

80 *See generally* 2 HILARY PUTNAM, *The Meaning of "Meaning"*, *in* MIND, LANGUAGE AND REALITY 215, 215-71 (1975). Putnam proposed a famous thought experiment of Twin-earth, wherein he took an externalist approach and argued that psychological states must be understood within the contexts; that is "Meanings' just ain't in the head."

tion here. Can psychiatry or professional psychology do a good job? If psychiatry wants to do a good job at communicating between "normal and abnormal," it should keep its language as close to the language of folk psychology as possible. Thus, the demand of translation between psychiatry (dealing with abnormal) and folk psychology (dealing with normal) could be reduced. This might be achieved by keeping the language of psychopathology without being replaced by that of genes and neurotransmitters.[81] This argument seems to be against the effort of psychiatry to improve its scientific credits by taking into the vocabulary of biology and neuroscience. However, the development of psychiatry into a "neutral science" would be much welcome by the lawyers and concerned public since they finally might not worry the moral judgment in the testimony of psychiatric or psychological experts. I doubt that psychiatry can be really "neutral" because it was not meant to be "neutral" from the beginning.[82] I will argue in the following section that "mental abnormality" is itself a result of value judgment. Though, psychiatry is still a branch of medical science and should not be excluded from the discourse of the

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81 Without knowing what "norms" of transmitter concentrations referring to "good" guys are, no one can judge whether a person is a "bad" guy only based on the absolute concentrations of some neurotransmitters in a person's system. However, even if we know the norms, it is still problematic whether "good or bad" has high correlation with neurotransmitter concentrations.

82 In the dialect offered by the postmodernists, the dialogue between forensic psychiatrists and defendants reflects the discourse of the given repressive order in society. Forensic psychiatrists distort the defendants' multi-valued language and transform it into the understandable uni-valued master language of society in the courts. This process of constructing legal-moral responsibility surely is strongly value-laden. *See* Bruce Arrigo, *The Chaotic Law of Forensic Psychology: The Postmodern Case of the (In) Sane Defendant*, *in* CHAOS, CRIMINOLOGY AND SOCIAL JUSTICE: THE NEW ORDERLY (DIS)ORDER 139, 140-54 (Dragan Milovanovic ed., 1997). However, the transition of morality from modernity to post-modernity is not obvious since the oppressive nature of law will never change.

court. But, psychiatrists must understand their value-laden practice which needs scrutiny form other disciplines.

Of course, we have a second choice; that is, never mind about a person's mental states and just hold him/her responsible. Utilitarians might welcome this decision because what they care is to bring forth the largest amount of welfare to society even at the expense of the few innocent. Judging from current discourse of legal systems and culture, the practice of ascribing moral responsibility under the assumed image of rational, sincere person would still prevail for many years.[83] The complete shifting to utilitarians' punishment model is not possible by now.

4. PSYCHIATRIC DIAGNOSIS, PSYCHOPATHOLOGY AND MORAL RESPONSIBILITY

4.1 Approaches to Psychiatric Diagnosis and Psychopathology

Three major approaches are there to construct psychiatric diagnosis. The first is the perspective approach recommended by Mchugh and Slavney. Accordingly, there are four perspectives in the taxonomy of psychiatry:[84] Diseases: pathological entities, which are clinical syndromes with implied organic mechanisms and etiology, such as schizophrenia, depression and dementia.

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83 The utilitarian model of punishment is observed most frequently in prison correction programs and punishment and treatment of severe offense criminals, such as sexual violent predators. Based on this model, the U.S. Supreme Court upheld the constitutionality of the state statutes of civil commitment of sexual violent predators in two cases recently; one was *Kansas v. Hendricks*, 521 U.S. 346 (1997), the other was *Seling v. Young*, 531 U.S. 250 (2001).

84 PAUL MCHUGH & PHILLIP SLAVNEY, THE PERSPECTIVES OF PSYCHIATRY 14 (2d ed. 1998).

(1) Dimensions: some characteristics related to mental states that can be measured quantitatively, such as intelligence in the realm of cognitive function, and reactivity or introversion/extroversion in the realm of affective function;

(2) Behaviors: the target of this perspective is the goal-directed behaviors in human;

(3) life, such as eating, drinking, sleeping, and having sex. In a teleological sense, these behaviors are assumed to carry natural functions good to the people;

(4) Life Story: this perspective focuses on life narratives of patients, which include historical life events, the settings, the sequences and the outcomes. Examples include grief and adjustment disorder.

The second approach dichotomizes psychiatric diagnosis into psychological and biological domains. Based on this mechanical view, biological problems would be dealt with by biological measures; psychological ones need psychological interventions. These days, the popularity of psychotherapeutic intervention is diminishing under the challenge from the paradigm of rigorous scientific rules.[85] In addition, more and more biological studies have tried to explore human behaviors, especially violent ones. The differentiation between psychological and biological domains seems to be vanishing.[86]

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85 There were once fierce arguments about what the effective treatment for a depressive patient was in a case *Osheroff v. Chestnut Lodge* (1987), wherein Osheroff, a depressed nephrologist, sued Chestnut Lodge claiming that Chestnut Lodge only offered him useless and even harmful intensive psychotherapy without pharmacotherapy or relevant information to it. In the debate, psychotherapists were criticized for their incapability of supporting their practice with scientific evidence. *See* Gerald Klerman, *The Psychiatric Patient's Right to Effective Treatment: Implications of Osheroff v. Chestnut Lodge*, 147 AM. J. PSYCHIATRY 409, 409-18 (1990).

86 Some scholars tried to prove that effectiveness of psychotherapy could be shown through the change in the structure and strength of connections among neurons. *See* Eric Kandel, *A*

The third approach is revealed in the arguments of "nature and nurture." In this line of thought, nature and nurture act in synergism instead of opposing to each other. For example, according to Hubel and Wiesel, brain development is shaped in many ways by the environment. Therefore, if critical stages of some basic brain development tasks fail to be activated in time, the efficacy of learning diminishes.[87] Basically, no matter it is nature or nurture, the assumption in these arguments is determinism (genetic determinism and environmental determinism).

Combining with the above approaches, psychopathology plays a core role in constructing psychiatric diagnoses because it is necessary to first recognize what "abnormal mental states and behaviors" are. The history of psychiatry shows that most of the work of setting up the paradigm of psychopathology was finished in early 20th century by Emil Kraepelin (1856-1926), Eugene Bleuler (1857-1940), and Karl Jaspers (1883-1964) among others.[88] They developed psychiatric nosology based on their experience with individual patients. Jaspers stressed the phenomenological approach to construct the science of psychopathology out of patients' subjective experience.[89] Therefore, decades of evolution have rendered

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New Intellectual Framework for Psychiatry, 155 AM. J. PSYCHIATRY 457, 457-69 (1998).

87 For reference to the introduction of their work, *see* EDWARD HUNDERT, PHILOSOPHY, PSYCHIATRY, AND NEUROSCIENCE—THREE APPROACHES TO THE MIND: A SYNTHETIC ANALYSIS OF THE VARIETIES OF HUMAN EXPERIENCE 226-37 (1989). Of course, the kind of work would be very attractive to policy makers who want to reduce the cost of special education to some children with developmental delay.

88 PHILOSOPHICAL PERSPECTIVES ON PSYCHIATRIC DIAGNOSTIC CLASSIFICATION 69 (J.Z. Sadler et al. eds., 1994). In the US, Adolf Meyer (1866-1950) upheld the concern against the hasty classification of patients without treating the patients as whole persons. *See id.* at 77.

89 *See id.* at 150-51. Of course, there is a wide variety of phenomenological approaches. In one extreme, the holistic approach would observe and understand the patient as a whole instead of itemizing the findings of psychopathology of the patients as constellation of symptoms. Jaspers' approach was a compromise through which he wanted to vividly represent the pa-

psychopathology an amazing mixture of commonsensical and technical terms, which is prominently shown in the "atheoretical" approach in recent versions of Diagnostic and Statistical Manual of Mental Disorders (DSM).[90] The commonsensical oppositions between outer and inner, other and self, and body and mind have been kept implicitly. For example, the definition of mental disorder in DSM-IV says, "[E]ach of the mental disorders is conceptualized as a clinically significant behavioral or psychological syndrome or pattern that occurs *in* an individual … *not merely an expectable or culturally sanctioned response to a particular event* …. [i]t must currently be considered a manifestation of a behavioral, psychological or biological dysfunction."[91] Therefore, the use of culture or social norm through value judgment in common language is unavoidable in understanding patients' psychopathology and psychiatric diagnoses. Some extreme examples are diagnoses in DSMs that aroused fierce political and ethical challenges, such as the homosexuality, ADHD and premenstrual syndrome.[92] Moreover, in several countries governments abused psychiatric commitment to control dissidents. No wonder psychiatry has become the most stigmatized medical discipline and was criticized as not belonging to medicine.[93]

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tients' mental states.

90 *See id.* at 135-38.

91 KAPLAN ET AL., *supra* note 2, at 302.

92 These are typical cases of over-medicalization and so-called psychiatric imperialism. Feminists opposed over-medicalization of natural menstruation cycle. Even though this issue is still controversial, we cannot deny underlying potential huge financial profit for pharmaceutical industry.

93 The most notorious case happened in previous Soviet Union. *See* ALAN STONE, LAW, PSYCHIATRY and MORALITY 3-40 (1984). Recently, the P.R.C. has been accused of committing many members of Fa-Lun-Gong into psychiatric hospitals.

4.2 Values and Psychiatry

Szasz argued that mental illness does not have biological basis as in traditional medical sciences. Accordingly, mental illness is modernity's master metaphor. Psychiatry "serves as the moral underpinning of the western social order." Mental illness is definitely not brain disease.[94] Mental illness should not be considered in the discourse of moral responsibility. Therefore, Szasz would rather put mentally ill offenders in jails than in mental hospitals since he thought liberty and autonomy of the patients has the paramount value. However, except for the extreme psychiatric diagnoses, I do not think Szasz can make a sweeping argument against the whole practice of psychiatry.

To handle his critiques, three important questions need to be answered:

(1) Does psychiatry really have no biological basis?

(2) Is psychiatry the only "medical discipline" that has value judgment in it practice and diagnosis?

(3) If psychiatry carries value judgment in its discourse of psychopathology, should we abandon psychiatry in the discourse of moral responsibility?

For question (1), there is abundant evidence showing that psychiatry is making progress in biological studies, such as psychopharmacology and neuroscience. So, I would not spend more space on this question.

As regards question (2), we should turn our gaze to other medical disciplines. For example, hyperthyroidism is a disease of abnormally high thyroid hormone concentration in our body, which impairs regulation of metabolic rate. The reason why we call hyperthyroidism a disease is that it is "bad" and not wanted. We would never say we get a "bad concentration" of some component unless we have some norm or criteria to compare with. The construction of the norm or criterion is based

94 *See* Szasz, *supra* note 5.

on our value judgment regarding what "good" or "bad" outcome would appear at a certain concentration of that component. Medical scientists do not find the "good concentration" first and then decide who are diseased. On the contrary, based on common expectation in patients' social contexts and demographic characteristics, they observe if the patients suffer and cannot do what they could before. What is "good" or "bad" for people's body or mind is all embedded in our social or cultural norm. Fulford argued that physical and mental illnesses are all value-laden, but the difference between them is that we have more consensuses in the value-judgment of bodily function.[95] In the word "function," we always imply some performance levels that our body or mind are supposed to achieve; it is hard to deduce from the pure fact we have dysfunction without appealing to some ideas of good function or bad function.[96] Therefore, the answer to question (2) is that psychiatry is not the only value-laden medical discipline. Following the answer to question (2), my answer to question (3) is no. The focus should be on how to reach consensus in value judgments of psychiatry. Although we prefer democracy, democracy does carry some serious drawbacks, such as the tyranny of majority, inefficiency, etc. Many people believe that democracy, among current available political institutions, offers the best chance for people to voice their preferences. Following Habermas, I think

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95 *See* K.W.M. Fulford, *Commentary on "Aristotle's Function Argument and the Concept of Mental Illness"*, 5 PHIL. PSYCHIATRY & PSYCHOL. 215, 215-20 (1998).

96 Wakefield argued that we can appeal to biological evolution to obtain what is natural function for survival to make causal, rather teleological, explanation of dysfunction. Because natural selection does not obey human social or cultural norm, we can understand dysfunction as deviating from naturally selected function. Though, he admitted that the judgment on what disease or disorder is an evaluation process. That is, anyway we have to make value judgment on what is good body or mind. *See* Jerome Wakefield, *Aristotle as Sociobiologist: The "Function of a Human Being" Argument, Black Box Essentialism, and the Concept of Mental Disorder*, 7 PHIL. PSYCHIATRY & PSYCHOL. 17 (2000).

that democracy needs public fields of communication and moral discourses so as to facilitate examinations of moral judgments and practices.[97] Tracing the history of psychiatry we found that in democratic countries the courts and the mass media create a forum for the public to examine the practice of psychiatry. In the past, we need disenchantment from fantasy of psychiatry's efficacy and caution of abuse of psychiatry's power; now we need de-stigmatization of psychiatry. Psychiatry could offer some insight into the discourse of moral responsibility. Assume a forensic psychiatric expert is not fooled by a malingerer, he can offer evidence to the court how "abnormal" he thinks the defendant is. Then the jury will decide if they want to excuse the defendant who is "abnormal" to such an extent. There must be some confidence in that the psychiatrists are sharing the similar morality and common sense with the public, which they actually do. It is why the discourse of psychiatry can be communicated and utilized in the court room for ascribing moral responsibility. Of course, over-mediclization of the social problem always haunts all medical disciplines. After we pierce the veil of psychiatry, we can understand more about its limitation without overreacting to its implied moral practice.

4.3 What Kind of Mind Do We Have

After the long discussion from determinism, indeterminism, philosophy of mind and psychiatry, I think it's time for me to describe a model of mind through complexity theory. In 1948, Weaver contended in his book *Science and Complexity* that we should investigate the dynamics of organized complexity.[98] John von

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97 Of course I do not hope that in the long run we would have or allow only one kind of moral discourse, neither do I think that we must reach universal consensus that implies the end of communication. *See* WILLIAM RASCH NIKLAS LUHMANN'S MODERNITY: THE PARADOXES OF DIFFERENTIATION 31-33 (2000).

98 *See* Warren Weaver, *Science and Complexity*, 36 AM. SCIENTIST 536 (1948), *cited in id.* at 34

Neumann offered a very great description to the phenomenon of complexity, which he thought was a paradox at that time: "one gets a strong impression that complication or productive potentiality in an organization is degenerative, that an organization which synthesized something is necessarily more complicated, or a higher order than the organization it synthesized." However, the evidence of evolution shows us that today species of living entities are much more complicated and variable than their simple ancestors. Therefore he postulated there is a "complexity barrier", above which "synthesis of automata can proceed in such a manner that each automaton would produce other automata which are more complex and of higher potentialities than itself."[99] This opened a brand new field of systems theory. We can generate a complex system from several simple subsystems, wherein the quantitative change can bring forth the qualitative change. The brain itself is a complex system. It shows self-organization at different levels: (1) "during the development, self-organization fashions the brain from a series of feedback and selection process between neurons;" (2) "living brain cells self-organize to create spatial and temporal order, which reveals dissipating characters;" (3) "self-organization constantly rewrites the huge numbers of neurons to store memory, to tailor its performance to its environment and create a host of other properties."[100] The brain is not chaotic because it still has complex patterns which are more ordered than merely probabilistically predictable. Following this line of thought I would propose that our mind is naturally a complex system that emerges from dynamic interactions between brain and the environment. This approach is similar to Lowe's spi-

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(2000).

99 *See* JOHN NEUMANN & ARTHUR BURKS, THEORY OF SELF-REPRODUCING AUTOMATA 78-80 (1966).

100 *See* ROGER HIGHFIELD & HIGHFIELD COVENEY, FRONTIERS OF COMPLEXITY: THE SEARCH FOR ORDER IN A CHAOTIC WORLD 281-82 (1996).

der-web framework and emergentism, which maintains that properties not found in the components of an entity, could emerge at the level of that entity. But, mind is more dynamic and changeable. This complex system can exert influence on the body and the environment, but at the same time it needs the stimulation to maintain and shape itself. That is, mind can build itself on itself and perform self-reorganization, just like an autopoietic system. If no interaction with the environment or the body is continued, consciousness will stop function to a certain extent temporarily (such as sleeping, in a reversible complex pattern) or disintegrate gradually (such as dying, reaching an irreversible pattern). Scientific evidence has showed that the level and quality of consciousness would change during long-term sensory deprivation.[101] Therefore, brain and environment are necessary to mind, but not sufficient to mind. No linear relationship exists between biology and mind, neither between environment and mind. However, mind still has complexity patterns that can be anticipated, facilitated, and predicted in some rough ways. Therefore, moral rules evolved to induce people's minds to fall into patterns of mind preferred by society. In a disordered world, we still have some orders. Out of biological and environmental systems, moral systems developed. In the past, psychiatry described mind and, under the construct of morality, was deeply rooted in society. However, as a marginal scientific branch, it is striving to get rid of its color of moral values and adopt the rules of traditional science. Unfortunately, in this way it gradually loses its advantage of touching on the mind of people, and at the same time smuggling the value more implicitly into the new scientific language, such as behavioral genetics. In the following section, I would briefly introduce the development of behavioral genetics and reveal the hidden value judgment and the risks in its discourse. And finally get back to its implication in the discourse of moral

101 KAPLAN ET AL., *supra* note 2, at 167.

responsibility.

5. BEHAVIORAL GENETICS AND MORAL RESPONSIBILITY

5.1 The Evolution of Behavioral Genetics

Observing from the development of genetics in 20th century, Condit classified the rhetoric of genetics into four stages:[102] (1) 1900-1935, which is the eugenic era. Genes were looked upon as the "germ-plasm," which runs in family from generation to generation. Mental illnesses were thought as the products of the germ-plasm, which need to be eradicated by the states.[103] (2) 1940-1954. In this era, genes were thought to be the outer boundary of human development, wherein the environment can operate. Family genetics was the popular practice at that time. (3) 1956-1976. After the discovery of DNA, genes were treated as fragmented information codes, which need transcription and are manipulable. The environment was thought to be playing a more important role in shaping human development. (4) 1980-1995. Genes, now more often called genome, have been thought as the blueprint of human development. With more understanding of delicate gene-gene and gene-environment interactions, confidence increases in predicting the norm of humans through human genome investigation. This is the era of resurgence of the rhetoric of eugenics, but more implicitly than its old partner.

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102 *See* CELESTE CONDIT, THE MEANINGS OF THE GENE: PUBLIC DEBATES ABOUT HUMAN HEREDITY 210-14 (1999).

103 Most famous events were the Nazi Holocaust and the involuntary sterilization of mentally retarded persons in the U.S. *See* Mark Rothstein, *Genetic Determinism: Its Effect on Culture and Law*, *in* BEHAVIORAL GENETICS: THE CLASH OF CULTURE AND BIOLOGY 89, 98-99 (Ronald Carson & Mark Rothstein eds., 1999).

Because of new development of molecular genetics and the encouragement of the Human Genome Project (HGP), a new tide of digging out genes that "determine" human behaviors developed. For example, in *The Bell Curve*, the notorious book by Herrnstein and Murray, "IQ is substantially heritable … The genetic component of IQ is unlikely to be smaller than 40 percent or higher than 80 percent."[104] The discovery of gene-linkages in schizophrenia was another dramatic issue since the first several so-called breakthrough reports were withdrawn due to its methodology flaws.[105] The last and most controversial include the peculiar discovery of a family with a point mutation of the gene for MAO A which is related to abnormal behavior,[106] and the discovery of so-called gay gene at Xq28 by Hamer et al.[107] However, recently a Canadian study group challenged Hamer's result,[108] and Hamer admitted that he purposely selected families that seemed to have maternal inheritance involved.[109] These new findings actually aroused more debates than offering solid evidence that there really exist some patterns of inherited behavioral traits.

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104 RICHARD HERRNSTEIN & CHARLES MURRAY, THE BELL CURVE: INTELLIGENCE AND CLASS STRUCTURE IN AMERICAN LIFE 105 (1994).

105 *See* Kenneth Schaffiner, *Complexity and Research Strategies in Behavioral Genetics*, *in* BEHAVIORAL GENETICS: THE CLASH OF CULTURE AND BIOLOGY, *supra* note 103, at 61, 64-67.

106 *See* H. Brunner et al., *Abnormal Behavior Associated with a Point Mutation in the Structural Gene for Monoamine Oxidase A*, 262 SCI. 578, 578-80 (1993).

107 *See* Dean Hamer et al., *A Linkage between DNA Markers on the X Chromosome and Male Sexual Orientation*, 261 SCI. 321, 321-27 (1993).

108 *See* George Rice et al., *Male Homosexuality: Absence of Linkage to Microsatellite Markers at Xq28*, 284 SCI. 665, 665-67 (1999).

109 WILLIAM CLARK & MICHAEL GRUNSTEIN, ARE WE HARDWIRED: THE ROLE OF GENES IN HUMAN BEHAVIOR 246 (2000).

5.2 What Is Wrong with Behavioral Genetics

Before the development of molecular genetics, behavioral geneticists mainly used twin and adoption studies to elucidate the heritability of human behavioral traits. Using twin study, behavioral geneticists try to compare the difference of degrees of similarity among mono-zygotic twins, di-zygotic twins. On the other hand, they used adoption studies to discern environmental influence. However, there are several inborn drawbacks in their research designs:[110]

(1) Heritability is used to assess the contribution of inheritance to behavioral trait variance, but it cannot show the inheritance of general traits. For example, for some antisocial behaviors behavioral geneticists may locate some heritability, but it would be "no heritability" for smiling or crying.

(2) In a heritability study, it is very hard to control the environment, which would bring about important bias. For example, in the adoption study the administration system would never randomly assign adoptees to adoption families.

(3) Results of heritability studies were population-based. Therefore, they could change if populations are different. In addition, heritability results are presented in probabilities, which could not apply directly to individuals.

(4) It is not possible to differentiate the causal pathways through heritability studies. Based on my previous discussion, brain as a complex system performs self-organization and receives activation from the environment. Accordingly, if my model is acceptable, it is not possible to delineate exactly into what direction brain would develop merely by knowing the genes for brain development.

With the advance of statistics and molecular genetics, behavioral genetics can

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[110] *See* D.T. Wasserman et al., *Behavioral Genetics*, *in* 1 ENCYCLOPEDIA OF ETHICAL, LEGAL, AND POLICY ISSUES IN BIOTECHNOLOGY 117, 117-127 (T. Murray & M.J. Mehlman eds., 2000).

use LOD score[111] to calculate the log (with the base of 10) of the ratio of the likelihood of recombination fraction to the likelihood of free recombination. In general, if the value of LOD score is larger than 3, it means that there exists a significant linkage between some locus on the genome and a behavioral trait. It then raises the probability that the behavioral trait is transmitted by a nearby gene. However, this methodology also has its pitfalls:[112]

(1) It is necessary to estimate the penetrance of certain genotype, that is, the probability of the expression of a phenotype corresponding to a certain genotype. If we overestimate the penetrance the estimated LOD score might error both ways.

(2) Sometimes we could not rule out phenocopies of family members who do not have the concerned genotype, but have phenotypes similar to the ones having the concerned genotype. The estimation of phenocopy rate would be another source of error.

(3) In linkage studies of complex diseases, unknown transmission pattern, uncertain diagnosis, family size, and genetic heterogeneity[113] would all lead to more

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111 LOD score, the log of odds score, is a statistical estimate of whether two loci are likely to lie near each other on a chromosome and are therefore likely to be inherited together. *See* National Human Genome Research Institute, http://www.genome.gov/glossary.cfm?key=LOD%20score (last visited on July 17, 2006).

112 *See* H. Coon, *Genetic Diseases of Complex Diseases*, *in* ON THE WAY TO INDIVIDUALITY: CURRENT METHODOLOGICAL ISSUES IN BEHAVIORAL GENETICS 191 (Michele LaBuda & Elena Grigorenko eds., 1999).

113 Genetic heterogeneity is the production of the same or similar phenotypes (observed biochemical, physiological, and morphological characteristics of a person determined by his/her genotype) by different genetic mechanisms. There are two types: (1) allelic heterogeneity—when different alleles at a locus can produce variable expression of a condition; and (2) locus heterogeneity—the term used to describe disease in which mutations at different loci can produce the same disease phenotype. *See* http://www.stjude.org/glossary (search "G") (last visited on July 17, 2006).

errors.

All the above are methodological problems that we should be aware of when we read behavioral genetics study reports. In addition to internal validity problems, behavioral genetics need replication of its results to confirm their external validity, that is, their generalizability.[114] We never know if the finding in one study can be applied to all similar situations without replication of the initial study. Therefore, the "gay gene" debate is still very far from reaching closure.

Similar methodological problems may be encountered in other scientific studies, but why is behavioral genetics so special? I guess that is because of (1) the overconfidence in the new achievement of genetic technology, (2) some behavioral geneticists did not expressed clearly the limitation of their studies, (3) strong policy implication in the management of some troublesome situations, and among others.[115] The phenomenon that many people expect too much from behavioral genetics might come from the interaction of science and culture. Nelkin and Lindee argued:

> Genetic explanations of behavior and disease appear to locate social problems within the individual rather than in society, conforming to the

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[114] *See* Robert Elston, *P Values, Power, and Pitfalls in the Linkage Analysis of Psychiatric Disorders*, *in* GENETIC APPROACHES TO MENTAL DISORDERS 3, 18-19 (Elliot Gershon & Robert Cloninger eds., 1994).

[115] For example, Stolberg reported a Chicago program aiming at prevention of crimes, which included 8600 children without letting them know that they were included in a study. Some children received prevention counseling, which was called "leadership training." The reason why the government would take the risk of ethical challenges from the society, was that the study might bring fruitful results. The prediction accuracy and the effect of intervention are not promising, but clear difference in criminal offense rates existed between "the most aggressive" and "the least aggressive" groups. *See* S. Stolberg, *Fear Clouds Search for Genetic Roots of Violence*, L.A. TIMES, Dec. 30, 1993, at part I: A1; Dec. 31, 1993, at part II: A1.

> ideology of individualism. They also provide the equivalent of moral redemption or absolution, exonerating individuals by attributing acts that violate the social contract to the DNA, an independent force beyond the influence of volition.[116]

It is no surprise that the HGP gained the support of the Congress by appealing to the mythology and traditional values of American people, such as exploring the unknown "genetic-frontier", hunting down the "bad" genes, and the patriotism in advanced genetic research.[117] However, further confusion with the discourse of moral responsibility is rendered by the incongruity between what people think behavioral genetics offers and what it really can. People find that they are "hard-wired" by behavioral genes; however, they would be lucky because they might "re-adjust their wires" if they support scientists to develop more advanced biotechnology. The paradox here is "are we hard wired to readjust our wires?"[118] In the fol-

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116 DOROTHY NELKIN & M. SUSAN LINDEE, THE DNA MYSTIQUE: THE GENE AS A CULTURAL ICON 194 (1995).

117 *See* A.D. Dreger, *Metaphors of Morality in the Human Genome Project, in* CONTROLLING OUR DESTINIES: HISTORICAL, PHILOSOPHICAL, ETHICAL, AND THEOLOGICAL PERSPECTIVES ON THE HUMAN GENOME PROJECT 155 (P.R. Sloan ed., 2000). The Human Genome Project was described to be beneficial to the U.S., and the rhetoric of mythology of Frontier seemed to give the congress the imperative to beat the other countries in the game of exploring (even occupying) the unknown land of genome, which would not only bring health but also wealth to the U.S.

118 The most extreme argument for genetic determinism I have observed is offered by Reg Morrison, "the universality of belief in the autonomy of the human spirit – the mind-body duality – is a powerful indication that this belief originates in our genetic makeup … Because culture constitutes such an effective genetic feedback mechanism, we must conclude that the morality we so diligently pursue in the name of personal or tribal integrity is no more than a shrewdly fashioned genetic propaganda device, a device specifically designed to heighten our mystical gullibility and conceal from us the real source of our behavior – our

lowing subsection I will integrate my discussion in philosophy of mind, psychiatry and behavioral genetics to analyze the implication of behavioral genetics in the discourse of moral responsibility.

5.3 Moral Responsibility and Behavioral Genetics

Some scholars worried that new finding of behavioral genetics would compromise the ascribing of criminal responsibility of the defendants. They focused on the clash between genetic determinism and the image of persons as autonomous moral agents.[119] For example, Garcia argued that Strawson's optimism shown in the theory of compatibilism is based on the out-of-date differentiation of "ought" talk and "is" talk without paying enough attention to what the real world is shown through advanced scientific discovery.[120] He doubts the Strawsonian optimism when Strawsonian compatibilists embrace the determinism depicted by behavioral genetics and declare that the discourse of moral responsibility would not be influenced. Although I am not as convinced as Garcia by the world depicted by behavioral genetics, I think Garcia's concern hits the weakest point of the model of compatibilism established by Fischer and Ravizza. As I pointed out in the previous sections, they left the discourse of disease of mind in reasons-recognition untouched. Behavioral genetics could smuggle incompatibilism into the arguments of compatibilism by explaining our psychopathology as determined genetically, which

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genes." REG MORRISON, THE SPIRIT IN THE GENE: HUMANITY'S PROUD ILLUSION AND THE LAWS OF NATURE 173 (1999).

119 *See* Marcia Baron, *Crime, Genes and Responsibility*, *in* GENETICS AND CRIMINAL BEHAVIOR 199, 201-23 (David Wasserman & Robert Wachbroit eds., 2001); *see also* Van Inwagen, *Genes, Statistics and Desert*, *in* GENETICS AND CRIMINAL BEHAVIOR, *supra*, at 225, 225-42; *see also* J.L.A. Garcia, *Strong Genetic Influence and the New "Optimism"*, *in* GENETICS AND CRIMINAL BEHAVIOR, *supra*, at 273, 273-302.

120 *See* Garcia, *supra* note 119, at 274.

renders compatibilism not substantially different from incompatibilism. This would destroy the strength of Fisher and Ravizza's version of compatibilism because reasons-recognition would be hard-wired from the beginning. Guidance control would be nothing but a mirage. However, as we interpret psychiatry and behavioral genetics in systems theory's perspective, the smuggling problem would vanish. So-called challenges by behavioral genetics to the belief in freedom of will or autonomy would not be a real threat. Receptivity of reasons is no longer hard-wired as mind works as a natural kind of complex system that emerges from the dynamic interaction between the biological system and the environment system. Mind could not be reduced to the simplistic language of behavioral genetics. Fisher and Ravizza did not address whether receptivity of reasons is determined or not. According to my model, receptivity of reasons was not completely determined or undetermined by behavioral genetics. Thus, my model could complement their compatabilism model. Furthermore, systems theory might create a third possibility of world view other than determinism and indeterminism such that the discourse of moral responsibility would not be trapped in the clash between compatibilism and incompatabilism.

On the other hand, the moral rule system evolving from the dynamic interaction among individuals and environment could neither be reduced to the discourse of behavioral genetics. Although genes that encode the initial development of brain are necessary to our behaviors, they are not sufficient for our meaningful behaviors. Psychiatry, as a scientific discipline dealing with disease of mind, must start from the examination of human meaningful behaviors in the social and cultural contexts. The value judgment carried in the practice of psychiatry is no difference from the other medical disciplines. The search for probabilistic relationship between genetics and behaviors would facilitate our understanding of some stable patterns of the complex mind systems. However, except for some rare mind sys-

tems wherein there are very limited patterns available, such as Huntington's disease, Lesch-Nyhan syndrome, PKU, etc., the prediction of human behaviors is never a linear projection from genes.[121] Over-emphasis on the mechanical utility of behavioral genetics in the discourse of psychiatry would in the long run erode the richness and meaningfulness of psychiatry's interpretation of human mind. This trend of practice may be more "scientific," but it is farther from the truth of human mind. Szasz's ideal model of biological diseases may be itself a "myth" of linearity model in traditional science, which is simple and useful, but only a rough approximation of the biological system. Human mind is neither a determined mechanical device, nor a chaos where only luck matters. The ascription of moral responsibility according to folk psychology and moral rules is the emergent phenomenon in the interaction among individual minds and environment. "Deterministic" or not, this practice can never be replaced by the language of behavioral genetics. With this understanding, I would say Garcia is too "pessimistic" since he still holds the linear understanding of moral responsibility and behavioral genetics.

Now that minds and moral rules are all complex systems, is it possible for human beings to exert some level of control on their own behaviors and social institutions? The answer is yes according to the model of complexity system, which is capable of self-organization and autopoiesis. Human mind can develop itself and reconstruct itself through its interaction with others and the environment, the process of which is similar to human body's digestion of foods and absorption and growth. As conscious parts of society people can collectively change moral rules through information spreading and communication. That is, through the establishment and of political institutions which reflects the underlying morality and power structure, people more or less have some capability of influencing their external

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[121] ROBERT PLOMIN ET AL., BEHAVIORAL GENETICS 37 (3d ed. 1997).

environment, such as culture and other social control systems, which collectively would feedback on people's mind and their subsequent behaviors. Since morality is a complex system with several or many possible stable patterns, which are outgrown from the interaction among people and environment, morality is relativistic and contextually based.[122] Power distribution is the internal structure of it.[123] However, it does not mean that the currently available moral system is the best for society and should be maintained forever. Through the capabilities of self-organization and development of complex systems, there are other possibilities of moral systems and political institutions after we ruled out the failed experiments in history such as Communism and Fascism. The continuing dialect between biotechnology and bioethics is one of the most prominent examples, showing their intertwined characters.

The above discussion of compatibilism addressed historical consideration of moral responsibility. In that case, people would be held morally responsible for their own actions that led to their subsequent morally irresponsible behaviors. The typical case is the self-intoxicated driver in a traffic accident, who has prior knowledge of risk of drinking too much. Although behavioral genetics cannot offer us a

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122 For example, "[a]utonomy could be either a socially expected orientation, encouraged and rewarded, or an extreme form of deviance and disrespect for one's peers and kin. Context, hence is likely to make a large difference." David Mechanic, *The Social Context of Health and Disease and Choices among Health Interventions*, *in* MORALITY AND HEALTH 79, 90 (Allan Brandt & Paul Rozin eds., 1997).

123 Harman offered an interesting explanation about how the unequal human endowment, given by initial natural and social lottery, would tend to sustain itself because of unequal bargaining positions and power distribution. However, this would not be a static situation. Competing moral arguments would be resolved when "some new, consistent consensus is reached." *See* GILBERT HARMAN & JUDITH THOMSON, MORAL RELATIVISM AND MORAL OBJECTIVITY 20-31 (1997). The procedures to reach the consensus would of course be diverse, ranging from moral persuasion, democracy, economic sanctions, or wars.

linear prediction of human behavior, it does have the potential to equip us with more control upon ourselves with better knowledge of the possible behavior pattern we might develop in the future. This progressive attitude is reflected in the study of meteorology. Even though we now have very tiny control in weather, however, we want to know whether we should carry an umbrella or wear a coat when we go outside. The study of behavioral genetics can show us the probability of developing some behavioral traits in the future. In the trend of "medicalization of American culture,"[124] people would carry heavier moral responsibility to prevent their "foreseeable abnormal behavior patterns" in the future. The paradox in the knowledge of behavioral genetics is that knowing your "being hard wired" can give you a chance to adjusting the wiring of yourself with the help of biotechnology. We should be responsible for our own health by taking more exercise, refusing drugs, tobacco, dangerous sexual practice and doing what is good to our mind.[125] This is the core concept of responsibility of negligence. We are expected not to overlook the burden of diseases we bring forth through poor health practice since health care resources are limited. The patients and families of mental illness might be relieved to know it is "not their fault" that they have the potential to develop some behavioral traits disliked by society.[126] However, they should not forget that paradoxically it "is" their fault not to do something to stop the development of psychopathology in advance when the biotechnology is available. Those who carry the genes correlated to

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124 *See* Allan Brandt, *Behavior, Disease, and Health in the Twentieth-Century United States*, *in* MORALITY AND HEALTH, *supra* note 122, at 53, 65.

125 *See id.* at 72.

126 Although National Alliance for the Mentally Ill (NAMI) took the finding of the genetic basis of mental illness as patients' and families' hopeful excuse from blame, some were concerned with the public impression of their being born with flaws. *See* Dorothy Nelkin, *Behavioral Genetics and Dismantling the Welfare State*, *in* BEHAVIORAL GENETICS: THE CLASH OF CULTURE AND BIOLOGY, *supra* note 103, at 156, 167.

the development of psychopathology would be discriminated as though they are "sinners," who are "destined" to be excluded from society even though without fault. Carrying those "bad" genes, they no longer appear like the "common" people.[127] Moral responsibility does not go away with the new discourse offered by behavioral genetics. It might cut at different stages and even make responsibility harder and heavier.

6. CONCLUSION

We live in a world where most people use the words "knowing" and "control" to express our moral appraisal of each other's behavior even though we use different daily languages. We still have some trust in the prediction and understanding of each other's actions. This is also the language used by a lot of social sciences such as microeconomics, game theory, decision analysis, consumer behavior theory, etc. Traditional scientific approach is to study the parts of a phenomenon and observe the causation networks among the parts and the whole. However, the deterministic LaPlace dream was gradually broken since the discovery of quantum theory, principle of uncertainty, Gödel's incomplete theorem and theory of complexity. Nonetheless, we do not live in an absolutely indeterministic chaotic world. We still observe order from the disordered world. Scientific language such as biological psychiatry and behavioral genetics surely would help us understand human behavior, but they do not fit in with the discourse of moral responsibility since they lack the

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127 Studies confirm the existence of genetic discrimination by, among others, employers, insurers, adoption agencies, blood banks, and schools. *See* L.N. Geller, *Individual, Family, and Societal Dimensions of Genetic Discrimination: A Case Study Analysis*, 2 SCI. & ENGINEERING ETHICS 71 (1996); *see also* P.R. Billings et al., *Discrimination as a Consequence of Genetic Testing*, 50 AM. J. HUM. GENETICS 476 (1992); *see also* A.S. Jaeger & W.F. Mulholland JR., *Impact of Genetic Privacy Legislation on Insurer Behavior*, 4 GENETIC TESTING 31 (2000).

richness and meaningfulness of human mind systems, which are capable of self-organization and autopoiesis. The value-laden language in psychopathology is not a fatal flaw for psychopathology, but a symbol showing that psychopathology is still connected to folk psychology. It seems to me that psychopathology (the study of abnormal mind) and folk psychology (the study of normal mind) can compensate for each other in facilitating our understanding of human mind and behavior. Their borders are blurred and they cannot cover all the scopes of mind. But they are what we have got the best approximation of the knowledge of mind in the discourse of moral responsibility.[128] Although some scholars are very confident that behavioral genetics could discover the secret of human behavior, the utility of behavioral genetics in the discourse is still limited in the foreseeable future. Perhaps in the future, scientific discovery would change the image of persons and the language used in discourse of moral responsibility. Through the spreading and intake of scientific knowledge, new patterns of social norm and moral rules would outgrow from the interaction among human minds and environment. In addition to discrimination in health insurance and employment, behavioral genetics might create new moral responsibility to prevent the onset of psychopathology for those people carrying "bad" genes. Based on the study of the rhetoric used in lobbying for the HGP and public understanding, I think scientists should be sincere and afford more moral responsibility to their advocacy of so-called "value-neutral" science.

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[128] Reflecting the clash between quantum theory and traditional Newtonian physics, in his Physics and Philosophy, Weiner Heisenberg wrote, "The violent reaction to the recent development of modern physics can only be understood when one realizes that here the foundation of physics has started moving; and this motion has caused the feeling that the ground would be cut from under science." It seems that all knowledge forms a system, a network that no one discipline is the exact basis of another. Capra argued that our knowledge of the world depends on our methodology, and that we can only approximate the world epistemologically. *See* FRITJOF CAPRA, THE WEB OF LIFE: A NEW SYNTHESIS OF MIND AND MATTER 38-42 (1996).

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