PICKING AT MORALS: ANALYTICAL JURISPRUDENCE IN THE AGE OF NATURALIZED ETHICS

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I. INTRODUCTION

Morality has a central place in the field of jurisprudence and legal theory. Though the precise relationship between law and morality is deeply controversial among jurists and scholars, morality as a concept has nevertheless been instructive in how lawyers and judges think about law.1 In many ways, morality embodies a universal code of personal and societal values that guide human behavior and seems to parallel the law’s ideals of justice, fairness, and integrity. Thus, it is not surprising that some scholars, particularly from the natural law tradition, assert that morality is an essential condition for any valid system of law.2 Other scholars disagree. For legal positivists, laws do not have to embody and incorporate moral ideals because laws are, by nature, socially contingent and independent of moral ideals.3 Yet other scholars, while believing that laws and morals are

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1 On the highly controversial issue of abortion for example, the Supreme Court upheld the Partial-Birth Abortion Ban Act of 2003, an Act that bans abortions that involve partial delivery of a living fetus only to end the fetus’s life, as constitutional. One of the determining factors that led a young Roberts court to uphold the ban on a specific method of abortion and reframe the abortion debate was the effect that a late term abortion would have on the emotional and mental state of the expectant mother and society as a whole. As the Court stated, the State “has an interest in ensuring so grave a choice [as late-term abortion] is well informed. It is self-evident that a mother who comes to regret her choice to abort must struggle with grief more anguished and sorrow more profound when she learns, only after the event, what she once did not know: that she allowed a doctor to pierce the skull and vacuum the fast-developing brain of her unborn child, a child assuming the human form …. The State’s interest in respect for life is advanced by the dialogue that better informs the political and legal systems, the medical profession, expectant mothers, and society as a whole of the consequences that follow from a decision to elect a late-term abortion.” Gonzales v. Carhart, 550 U.S. 124, 159–60 (2007). The Supreme Court also recently decided, in a same sex marriage case, that the institution of marriage is central to the human condition and the right to marry must be equally extended to same sex couples. Citing Confucius and Cicero, Justice Kennedy stated that marriage transforms “strangers into relatives binding families and societies together” and should be a right that is extended to same sex couples because of the dignity that the institution affords all who choose to “define themselves by their commitment to each other” in order to fulfill “yearnings for security, safe haven, and connection that express our common humanity.” Obergefell v. Hodges, 135 S. Ct. 2584, 2594–600 (2015).


distinct concepts, argue that the interpretation and application of the law must be consistent with a given community’s moral principles.4

Morality and ethics in analytical jurisprudence have conventionally been viewed as a priori standards that are deduced from pure reason5 or discoverable by inductive logic.6 In legal discourse, morality remains an abstract and indiscriminate concept that is often used as a reference to standards of propriety against which human behavior is judged, and as Professor Lon Fuller specified, would include various benchmarks such as one’s “inner voice of conscience, notions of right and wrong based on religious belief, common conceptions of decency and fair play, [and] culturally conditioned prejudices.”7 Among legal circles, the word “morality” is seldom taken to mean more than a postulated philosophical and theoretical standard for evaluating human conduct.8

The fact that morality takes on a metaphysical character in legal discourse has never been considered a problem as the study of law and legal institutions in analytical jurisprudence itself relies on conceptual analyses as the principal method of analysis.9 And one cannot fault the discipline for its lack of a clearer definition or analytical tools to provide

4 RONALD DWORKIN, LAW’S EMPIRE 1 (1986) (“There is inevitably a moral dimension to an action in law”). See also RONALD DWORKIN, FREEDOM’S LAW 2 (1996) (discussing a law against pornography, for example, must be read in relation to the moral principle that it is wrong for the state to sensor speech).

5 PAUL GUYER, KANT 212–14 (Brian Leiter ed., 2006) (discussing Kant’s conception of the highest good to “preserve and promote human freedom and thereby to treat ourselves and others always as ends and never merely as means” is consistent with the observation of moral laws. To Kant, for moral laws to have binding force, the realization of the highest good must be possible. However, for the highest good to be possible “we must suppose that both immortality and the existence of God (the ‘highest original good’) are actual. The possibility of the binding force of the supreme principle of morality, as a moral command, thus requires us to believe in the truth of certain theoretical propositions, that is, assertions of the existence of some object or state of affairs, even though those theoretical propositions can have no theoretical proof.”).

6 JOHN S. MILL, A SYSTEM OF LOGIC, RATIOCINATIVE AND INDUCTIVE, BEING A CONNECTED VIEW OF THE PRINCIPLES OF EVIDENCE AND THE METHODS OF SCIENTIFIC INVESTIGATION 519–22 (rejecting theoretical search for morality and introducing in place inductive reasoning marked by human experience).

7 Lon L. Fuller, Positivism and Fidelity to Law - A Reply to Professor Hart, 71 HARV. L. REV. 630, 635 (1958).


9 See H.L.A. Hart, The Concept of Law 7, 97–107, 181, 207 (1961) (explaining that the most influential figure in twentieth-century jurisprudence, Professor H.L.A. Hart, is often credited for the philosophizing of law as a concept, bridging the gap between legal thought and deep philosophical study, and elevating practical thinking about law to a specialized discipline of analytic philosophy through his work. The concepts of duty, obligation, authority, rules, and moral enforceability were analyzed without recourse to any empirical inquiry or descriptive theories - although ironically, Professor Hart introduces his book The Concept of Law as “an essay in descriptive sociology.”). See also Frederick Schauer, (Re)Taking Hart, 119 Harv. L. Rev. 852, 857–62 (2006) (crediting Hart for contemporary tendencies to “equate jurisprudence with the philosophy of law” and for “making jurisprudence a subject for philosophers” as Hart developed “his own jurisprudence in a way that preserved a philosophical distinctiveness reflecting the conceptual analytic style of 1940s, 1950s, and 1960s Oxford philosophy.”). See also Brian Leiter, Rethinking Legal Realism: Toward a Naturalized Jurisprudence, 76 Tex. L. Rev. 267, 270 (1997) (noting that mainstream Anglo-American jurisprudence – “the tradition running from Bentham and Austin in the nineteenth century, to Dworkin and Raz in the present” – have been impervious to the influence of Legal Realism as a descriptive (rather than conceptual) claim about the law because of Hart’s “devastating critique of the Realists in Chapter VII of The Concept of Law [which in turn] rendered Realism a philosophical joke in the English-speaking world.”).
morality as a concept more tangible meaning when the discipline itself
draws primarily from the social sciences and humanities, academic
disciplines whose own view of morality are predominantly based on the
moral philosopher’s long-held belief that empirical science is irrelevant,
and even dangerous, to one’s understanding of moral philosophy.11 In more
recent years, however, moral philosophers have begun to draw lessons from
cognitive psychology, neuroscience, and evolutionary biology to study,
understand, and address philosophical questions.12 This trend towards
 collaboration between psychologists and biologists with philosophers has
been especially strong in the fields of ethics and moral philosophy13 and has
generated significant, albeit still exploratory, insights into our moral
psychology.14

This naturalistic turn in philosophy, symbolized by the collaboration
among moral philosophers and natural scientists, has produced new
methodological15 and ontological16 approaches to the study of morality and

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10 Howell E. Johnson, Analytical Methods for Lawyers, 53 J. OF LEGAL EDUCATION 321
(September 2003) (commenting on how pedagogical emphasis in law schools has not changed for over
a century even though curricular offerings have expanded. Teaching law has, according to Professor
Johnson, continued to be “on careful parsing of authoritative texts supplemented, depending on the
teacher’s predilections, with argumentation based on an array of academic disciplines drawn principally
from the social sciences and humanities.”) (emphasis added).

11 See WALTER SINNOTT-ARMSTRONG, Introduction to MORAL PSYCHOLOGY (VOLUME 1) THE
EVOLUTION OF MORALITY: ADAPTATIONS AND INNATENESS xiii (Walter Sinnott-Armstrong ed., 2008)
(attributing this rift to Professor G.E. Moore’s diatribe against the naturalistic fallacy). See also F.S.C.
Northrop, Law, Language, and Morals, 71 YALE L. J. 1017, 1023–24 (1962) (explaining that the
naturalistic fallacy consists of the notion that non-empirical and evaluative conclusions cannot be drawn
from factual and natural premises. Hence, the word “good” as an evaluative term cannot be reduced to
empirical psychological states such as “pleasure” or “pain.” To do so would be to commit the
naturalistic fallacy.). Compare G.E. MOORE, PRINCIPIA ETHICA 90 (Thomas Baldwin ed., 1993), and
DAVID HUME, A TREATISE OF HUMAN NATURE 245–46 (T.H. Green & T.H. Grose eds., 1874)
(supporting that Moore’s naturalistic fallacy is closely related to David Hume’s claim that statements
about what ought to be normatively cannot be derived from statements about what is empirically,
known among philosophers as the “is-ought problem.”).

12 Sinnott-Armstrong, supra note 11, at xiii (dating this trend towards collaboration between
philosophy and the sciences to have started around the 1990s). See also Leiter, supra note 9, at 286–88
(noting that naturalism in philosophy, wherein philosophical problems are considered better solved
through empirical theories than a priori “armchair methods” of philosophizing, grew in the second half
and gained prominence in the last quarter of the 20th century).

13 Sinnott-Armstrong, supra note 11, at xiii (explaining other areas of philosophy besides
ethics and moral philosophy, which have seen this trend towards collaboration are the philosophy of
mind, epistemology, and the philosophy of science).

(providing an overview of studies and research on moral cognition and speculating on the direction that
work will take).

L. Rev. 1491, 1497 (2001) (stating that the methodological commitment by naturalists is a philosophical
inquiry that is “continuous with a posteriori inquiry in the empirical sciences” because of their view that
“philosophy cannot be an exclusively a priori discipline.” This could mean, per the view of Professor
W.V.O. Quine, that the empirical sciences should replace philosophy or that empirical facts should limit
philosophical theorizing per the view of Professor Alvin I. Goldman). See also Owen Flanagan, Hagop
Sarkissian & David Wong, Naturalizing Ethics, in Moral Psychology (Volume 1) The Evolution of
Morality: Adaptations and Innateness, supra note 11, at 5 (“claims of ethical naturalism cannot be
shielded from empirical testing ... the naturalist is committed to there being no sharp distinction
between her investigation and those of relevant other disciplines (particularly between epistemology
and psychology). In other words, ethical science must be continuous with other sciences.”).

16 Flanagan, Sarkissian &Wong, supra note 15, at 5 (explaining the ontological commitments
of the naturalist is an opposition to a belief in the supernatural (as opposed to the natural) and various
ethics. By studying morality against the backdrop of research in evolution, genetics, and neuroscience, for example, scientists now believe that certain moral norms that are widely considered to be immutable and universal, such as the moral norm that it is wrong to cheat on an exam, are engendered by automatic brain-triggered emotional responses, such as fear, disgust, and guilt, which have been internalized by people over time. Scientists have also discovered that a person’s ability to apply social knowledge to make appropriate moral decisions in public settings is controlled by the orbitofrontal cortex, the same part of the brain that controls decision-making, and that people who display inappropriate emotional responses in social settings have an orbitofrontal cortex that has been neurologically damaged. Such research findings from empirical testing of moral norms and moral decision-making contiguously with the natural sciences could indicate that there might be a level of ubiquity among certain moral norms. Since the appropriate moral responses to a given social situation appear to be a condition of healthy brain functions, morality might actually be biologically and neurologically demonstrated to exist as a matter of objective fact.

Yet, other branches of the natural sciences, such as cognitive science, suggest that moral decisions and moral actions are simply manifestations of our emotional frames and that these emotions, which give rise to moral decisions and moral actions, do not necessarily track objective aspects of reality. Our moral reactions are rather emotional predispositions to various situations that confront us, and these subjective reactions ultimately lead towards moral relativism. If moral decisions and moral actions are a product of our subjective emotional states, morality as a whole lacks objective truth and would therefore be unique to communities, socially

forms of ontological dualism, such as the “sharp bifurcation of humans and the rest of the natural world as well as mind-body dualism.”).  

17 It seems that the shape human societies take depends a lot on human biology. The limbic structures of the human brain provide the physical circuitry for our emotional responses to our environment. These structures work with the prefrontal lobe to attach certain emotions to specific behaviors. When an individual does something that is morally wrong, the prefrontal lobe evaluates the facts and checks them against a particular set of emotions that are internalized over a period of time. See Laurence Tancredi, Hardwired Behavior: What Neuroscience Reveals About Morality 6–7 (2005).

18 Michael S. Gazzaniga, Richard B. Ivry & George R. Mangun, Cognitive Neuroscience, The Biology of the Mind 593–95 (2014) (describing studies where patients with damage to their orbitofrontal cortex were unable to connect with the appropriate social responses that would make them aware that their actual behavior violated certain social or moral norms. For example, studies in cognitive neuroscience have shown that patients with orbitofrontal cortex damage were likely to introduce impolite conversation topics involving emotional and personal information in social interactions.).

19 Michael S. Gazzaniga, The Ethical Brain: The Science of Our Moral Dilemmas 167 (2005) (“It has been found that regions of the brain normally active in emotional processing are activated with one kind of moral judgment but not another. Arguments that have raged for centuries about the nature of moral decisions and their sameness or difference are now quickly and distinctly resolved with modern brain imaging. The short form of the new results suggests that when someone is willing to act on a moral belief, it is because the emotional part of his or her brain has become active when considering the moral question at hand. Similarly, when a morally equivalent problem is presented that he or she decides not to act on, it is because the emotional part of the brain does not become active. This is a stunning development in human knowledge because it points the way forward figuring out how the brain’s automatic response may predict out moral response.”).
constructed, and produce pluralistic societies.\textsuperscript{20} Other studies on heuristic science also suggest that morality could be socially and culturally contingent in that simple heuristics can have significant influence on moral decisions and moral actions.\textsuperscript{21} Default rules in a legal system, such as the rule that citizens are presumed to have consented to be organ donors unless they opt out of being one, may produce extraordinary differences in moral beliefs and social outlooks in given societies.\textsuperscript{22} As more psychologists devote research efforts to understanding the ways in which people make judgements under uncertain circumstances using heuristics instead of more complex principles to assess probability and risks or predict values, the theory of rational judgement and the traditional conception of morality as a rational, impartial constraint on the pursuit of personal self-interest becomes questionable.\textsuperscript{23} Consequentially, morality would lack an objective foundation.

These studies into our moral psyche and their resulting empirical findings have important consequences for analytical jurisprudence, which for the purposes of this article, is the study of the metaphysical foundations of the law where the primary concern of the analyst is the nature of law and the overarching question of “What Is Law?”.\textsuperscript{24} As the analytical jurist aims to identify criteria that establish specific attributes of a normative system

20 Jesse J. Prinz, The Emotional Construction of Morals 23–25 (2007) (discussing the time-honored trolley problem in philosophical discourse and theorizing that in deliberating moral dilemmas, we often pit one set of emotions against other sets of other emotions with the “stronger” emotions eventually winning out such that moral intuitions about moral problems can be changed by altering the scenarios in emotionally significant ways. For example, by telling subjects who are going to pull the lever that the one person, who is going to be killed to save the five others, is closer to the subject than the other five, the subject may be more willing to save the one and sacrifice the five even though subjects have conventionally chosen to sacrifice the one to save the five.).

21 Simple heuristics are processes of decision making in which human minds make quick decisions and inferences with limited time and knowledge. This form of decision making based on a model of bounded rationality allows the mind to make quick decisions without having to compute probabilities and utilities in the decision-making process. See Gerd Gigerenzer & Peter M. Todd, Fast and Frugal Heuristics: The Adaptive Tool Box, SIMPLE HEURISTICS THAT MAKE US SMART 6 (2001).

22 Gerd Gigerenzer, Moral Intuition = Fast and Frugal Heuristics, in MORAL PSYCHOLOGY (VOLUME 2) THE COGNITIVE SCIENCE OF MORALITY: INTUITION AND DIVERSITY 1–3 (Walter Sinnott-Armstrong ed., 2008) (explaining 99.9% of French and Hungarian citizens are organ donors but only 28% of Americans and 17% of British citizens choose to be organ donors. Peer pressure, obedience, and fear of being punished have been dismissed as being the cause for this discrepancy in statistics. Campaigns launched in the U.S. and U.K. to create awareness of the need for organs have also not been successful in increasing the general numbers of organ donors. Professor Gerd Gigerenzer attributes the discrepancy in numbers to the default rule in these countries. France and Hungary are presumed consent countries, where everyone is a donor unless they opt out, and U.S. and U.K. are explicit-consent countries, where no one is a donor unless they opt in.).

23 David Gauthier, Morals by Agreement, 4-17 (1986).

24 Scott J. Shapiro, Legality 3 (2011) (explaining that analytical jurisprudence tries to provide an account of how law differs from other normative systems). “Analytical jurisprudens want to determine the fundamental nature of [objects such as legal systems, law, rules, rights, authority, validity, obligation, interpretation, sovereignty, courts, proximate causation, property, crime, tort, negligence, and so on] by asking analytical questions such as: What distinguishes legal systems from games, etiquette, and religion? Are all laws rules? Are legal rights a type of moral right? Is legal reasoning a special kind of reasoning? Is legal causation the same as ordinary, everyday causation? Is property best understood as a bundle of rights? What distinguishes tort from crime? And so on.” Answering the analytical question of “What Is Law?” has significant impact on how law is understood and practiced in specific settings because “what the law is in any particular case depends critically on the answer to what the law is in general.” Id. at 25.
which would qualify it as a system of law and distinguish it from other normative systems, such as religion or ethics. Morality has a fundamental place in that understanding of the concept of law. Morality is essential to a law’s validity in that legal content must conform to moral norms before they can be considered valid and binding laws. The normative force of law, from the natural lawyer’s point of view, comes from the law’s conformity to moral norms because it is only then that law would be capable of binding the conscience of its subjects and commanding obedience. Furthermore, despite legal positivism’s prima facie commitment to the separability thesis and the separation of laws and morals, to an exclusive legal positivist, law and morality are necessarily connected in an important way in that law can only govern with legitimate authority and provide individuals with reasons for acting when it places itself in the service of morality.

As the question central to analytical jurisprudence about the nature of law is important in helping us resolve practical and specific questions about legal practice and legal interpretation, this paper leaves the question “What Is Law?” intact as it evaluates how the naturalization of ethics will change the discourse about the nature of law in analytical jurisprudence. Thus, while this paper looks at the naturalistic turn in moral philosophy and

25 Jules L. Coleman & Brian Leiter, Determinacy, Objectivity, and Authority, 142 U. PA. L. REV. 549, 557 (1993) (“Typically, analytic jurisprudence has an important normative component: It aims to set out the conditions that must be satisfied in order for something to count as law. It is normative with regard to the conditions for applying the concept; it is not normative in the sense of setting out the conditions that must be satisfied in order that legal practice be justified.”).

26 See Jules L. Coleman, The Architecture of Jurisprudence, 121 YALE L. J. 2 (2011). To the natural lawyer, morality is essential to the very nature of law and provides laws with the authority to “bind the conscience” of people. Id. at 18. To exclusive positivism, which considers only social (and not evaluative or moral) facts as determinative of legal content, law and morality are still necessarily connected in a different yet important way. Although morality is not essential in determining the content of law and exists outside of the law, morality nevertheless encompasses the law and incorporates it in that morality will determine the law’s place by ensuring that it’s the law’s specific place to serve and pursue moral aims. As Professor Coleman states it, “[N]ecessarily, law is an instrument in the service of morality.” Id. at 52–53.


28 See Lon L. Fuller, Positivism and Fidelity to Law: A Reply to Professor Hart, 71 HARV. L. REV. 630, 660–61 (1958) (“But I think it demonstrable that the most serious deterioration in legal morality under Hitler took place in branches of the law like those involved in the informer cases; no comparable deterioration was to be observed in the ordinary branches of private law. It was in those areas where the ends of law were most odious by ordinary standards of decency that the morality of law itself was most flagrantly disregarded. In other words, where one would have been most tempted to say, ‘This is so evil it cannot be a law,’ one could usually have said instead, ‘This thing is the product of a system so oblivious to the morality of law that it is not entitled to be called a law.’ I think there is something more than accident here, for the overlapping suggests that legal morality cannot live when it is severed from a striving toward justice and decency.”).


30 Coleman, The Architecture of Jurisprudence, supra note 26, at 49 (“one should act on the basis of the law’s reasons only when morality counsels that one do so … acting on the basis of the law’s directives is required by morality only when doing so ‘serves’ morality that is, makes it more likely that one will conform to the requirements of morality than one otherwise would. Law serves morality insofar as it creates new moral reasons for acting, identifies the action called for by the balance of reasons, or makes concrete, in a given set of circumstances, what morality requires. To the extent that law serves morality, morality provides a place for law.”).

its effect on the question of what law is, this paper is not concerned with the question of whether jurisprudence as the philosophical study of law should be naturalized to focus on the realities of legal practice and whether or not legal realism as a naturalized theory of law might be a suitable candidate for serious legal philosophy. Instead, the focus of this project is the effect naturalized ethics has on the concept of law central to analytical jurisprudence. The examination of morality in this paper is also less concerned with the ontology of morality as socially existing moral facts and is more concerned with the method of explaining the existence of moral facts and moral knowledge through empirical research on our moral psychology in the natural sciences.

This paper is structured to explain the place and significance of morality in natural law and exclusive legal positivism, examine research findings about our moral psychology, and evaluate what these findings mean for the discourse about law and morality and by extension, about the concept of law, in analytical jurisprudence. Thus, Part 1 of this paper lays out the natural lawyer’s and exclusive legal positivist’s response to the question of whether law and morality are necessarily connected and how that connection most importantly provides laws with their validity or legitimacy. Part 2 examines studies on our moral psychology in the fields of evolutionary biology, cognitive science, and neuroscience which tend to suggest that moral knowledge and moral facts are socially constructed and subject to various biases and heuristics. Some research findings, such as the finding that disruption to the right temporoparietal junction affects an individual’s ability to ascribe moral blame for a perpetrator who intends to cause but fails to cause harm, would however suggest that there is some degree of objectivity and ubiquity to certain forms of moral expectations that are necessitated by undisturbed brain functions. Part 3 evaluates how these studies into our moral psychology affect the concepts of legal validity and legitimacy.

II. PART 1: THE CONNECTION BETWEEN LAW AND MORALITY

Morality and law are alike in many ways. Laws and morals both share similar vocabularies that emphasize core concepts of rights and duties that provide personal freedom and impose social responsibilities and obligations. Yet, the renowned legal positivist, Professor H.L.A. Hart, saw the “many different relations between law and morals” and stressed that

32 Brian Leiter, Rethinking Legal Realism: Toward a Naturalized Jurisprudence, 76 Tex. L. Rev. 267, 275 (1997) (arguing that legal realists have laid the foundation for a “naturalized jurisprudence predicated on a pragmatic outlook”).
33 Liane Young, Joan Albert Camprodon, Marc Hauser, Alvaro Pascual-Leone & Rebecca Saxe, Disruption of the Right Temporoparietal Junction with Transcranial Magnetic Stimulation Reduces the Role of Beliefs in Moral Judgments, 107 Proc. Nat’l Acad. Sci. U.S.A. no.15 6753 (2010) (showing that disruption to the right temporoparietal junction (RTPJ), an area involved in mental state reasoning, by magnetic stimulation affects an individual’s ability to consider the mental state of a perpetrator in making judgements about perpetrators who intended but failed to do harm).
despite these connections between law and morality, there was “nothing that can be profitably singled out as the relation between them.” Jurisprudence, as it were, was and still is treated as a separate discipline from moral philosophy and ethics. Law was considered identifiable by purely social facts alone and can be analyzed by studying actual legal institutions and legal rules without the need to deduce legal precepts from normative ideals or metaphysical first principles. Analytical jurisprudence, in particular, distanced itself from the disciplined study of theoretical and normative ethics and focused instead on essentially conceptual and descriptive theories of law that were cordoned off from moral inquiries.

One can ponder if Professor Hart’s claim that there is “nothing which can be profitably singled out for study as the relation” between law and morality really holds true. Many legal scholars juxtapose the iniquity seen in contemporary society against natural law principles that emphasize ultimate human good which is safeguarded through positive law. Positive laws that fall short of fundamental ideals in natural law, such as the rule of law, the inalienable rights of individuals, and the endeavor to seek social/economic justice, draw attention to the tyrannical governments and governmental abuses of power, which resulted in such laws and the impact of such laws on the fundamental liberties and natural rights of individuals. For example, after World War II, we see Gustav Radbruch asserting that Nazi statutes that deprived ordinary citizens in Germany the basic quality of life and justice, which all legal systems governed by the rule of law should protect, could not be considered proper laws because the inequities of these statutes caused them to deviate from “the very nature of law.” Despite Radbruch’s well-known pre-World War II commitment to legal positivism and the idea that legal and moral analyses, like empirical and normative inquiries, are distinctive methodologies that must be kept separated, Radbruch nonetheless turned to natural law teachings to highlight how far Nazi laws fell from the ideal standard for legal rules.

Martin Luther King, Jr., in his “Letter from a Birmingham Jail,” written when he was imprisoned for nonviolent demonstrations against segregation, also sought to highlight the iniquities of racial segregation in the South by arguing that the false senses of superiority for the segregator and inferiority for the segregated created by segregation laws produce injustices and should be disobeyed because they are “morally wrong.”

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36 Id. at 181.
40 JOHN AUSTIN, THE PROVINCE OF JURISPRUDENCE DETERMINED 276-80 (1832).
43 Martin Luther King, Jr., Letter from a Birmingham Jail, in PHILOSOPHICAL PROBLEMS IN THE LAW 78–82 (David M. Adams ed., 2005) (“an unjust law is a human law that is not rooted in eternal and natural law. Any law that uplifts human personality is just. Any law that degrades human
This is a distinct natural law view that considers a rule compliant with moral standards a valid rule and therefore a justified rule that one must observe, endorse and obey. Hence when a law is morally defective, it is not justified and thus should not be obeyed.

The connection between law and morality in analytical jurisprudence should not be underestimated. To natural lawyers, the creation of positive law by the law-maker must be in accordance with an order that is congruous with “free choice, practical reasoning and morality” so that laws that are eventually passed are for the sake of the common good. To legal positivists who reject the proposition that morality be used to set standards for the law and that law be oriented only towards the virtues of truth and clarity, which Professor Hart saw as the “sovereign virtue in jurisprudence,” morality is still relevant to the concept of law albeit in a slightly different context from that of the natural lawyer. To the legal positivist, the view that social—and not moral—facts contribute to legal content does not necessarily suggest that the social facts that we choose to identify a law with will not make that law conform to specific moral standards. As Professor Joseph Raz states it, “[t]he claim that what is law and what is not is purely a matter of social fact still leaves it an open question whether or not those social facts by which we identify the law or determine its existence do or do not endow it with moral merit.” In this sense, even if law does not incorporate morality as legal content as the natural lawyer would have it, morality would nevertheless incorporate the law and provide us with sound reasons to act on the law’s directives or commands.

A. NATURAL LAW AND LEGAL VALIDITY

Natural law provides the first stage of moral evaluation of a law in analytical jurisprudence. The assessment of the relationship between law and morality and the moral evaluation of law with natural law occur at a rudimentary level, where the focus of legal inquiry is whether a social rule may properly be called a law when that rule is inherently immoral. For natural lawyers, the creation of a rule and the establishment of a system of rules must be intrinsically moral. Besides setting an aspiration of what personality is unjust. All segregation statutes are unjust because segregation distorts the soul and damages the personality.”).  

44 RAZ, supra note 3, at 150 (stating that natural lawyers adopt the view that “a valid rule” means a justified one, a rule that one is justified, indeed required, to observe and endorse”).  
47 RAZ, supra note 44, at 38–39 (Professor Raz goes on to say, “[i]f they do, it has of necessity a moral character. But even if they do not, it is still an open question whether, given human nature and the general condition of human existence, every legal system which is in fact the effective law of some society does of necessity conform to some moral values and ideals,” indicating that positive laws will often satisfy moral standards even if morality is not necessarily incorporated into those laws themselves as legal content).  
good laws should look like; natural law also insists that the rule in itself must be moral. A rule that does not have a moral purpose thus fails as a legal rule. When a rule fails as a legal rule by natural law standards, the rule will not be treated as a valid rule of law and cannot have normative force to give rise to a legal or moral duty to obey it because its deficiency in morality deprives it of a reason for action. Furthermore, a judge who applies or enforces an unjust law and contradicts the natural law requirement that valid laws be essentially moral may be considered to be acting unlawfully and culpable of wrongdoing when he applied or enforced an invalid law.

From the vantage point of classical natural law theory, as expounded by Plato, Aristotle, Augustine, and Aquinas, morality and law are both intrinsically entwined. Law, by its very nature, embodies an essential moral force that cannot be expelled if a rule is to be properly called a valid law and be legally binding. To the classical natural law theorist, law concerns itself with the common good of society: its primary interests would be in its community’s well-being. Therefore, because law provided reasons for action, law was thus seen as “an ordination of reason for the common good.” To be a valid and legally binding law, a legal rule must conform to right reason and seek justice because, as Aquinas viewed it, an “unjust law

50 Id. at 41 (Professor Lon Fuller calls this place of perfect legal system a “utopia of legality” wherein “all rules are perfectly clear, consistent with one another, known to every citizen, never retroactive … constant through time, demand only what is possible, and are scrupulously observed by courts, police, and everyone else charged with their administration”).

51 Classical natural law conceived by early thinkers such as Aquinas puts forth these propositions:

that law establishes reasons for action;

that its rules can and presumptively (defeasibly) do create moral obligations that did not exist of the rules;

that that kind of legal-moral obligation is defeated by a posited rule’s serious immorality or injustice; and

that judicial and other paradigmatically legal deliberation, reasoning, and judgement includes, concurrently, both natural (moral) and (purely) positive law.


52 Id. (“since justice is the very point of having and respecting law at all, this particular law’s deficiency in justice deprives it of the decisive significance which all laws purports to have. It is thus law only in a sense that should be judged - especially when law is regarded, as by Hart himself, as a kind of reason or purported reason for action - to be a distorted and secondary non-central sense.”).

53 Translation of the Court of Appeal’s Grudge Informer Case, in David Dyzenhaus, The Grudge Informer Case Revisited, 83 N.Y.U. L. REV. 1000, 1033–34 (2008) (The Bamberg Court of Appeal opined obiter that laws which prescribed an affirmative conduct prohibited by “divine or human law in the opinion of all civilized nations” violated the laws of nature and compelled the “inference that the judge that applies them acts unlawfully himself and is thus culpable.”).

54 Professor Raz explains the normative effect of a valid rule: “A legally valid rule is one which has legal effects. To avoid misunderstanding, these statements should perhaps be augmented to read: A legally valid rule is one which has the normative effects (in law) which it claims to have. If it is a legal rule purporting to impose and obligation on X then X is under this obligation because the rule is a legal rule. It is a rule purporting to confer a right or a power on Y then Y has the right or power in virtue of the fact that the rule is a legal rule.” RAZ, supra note 44, at 149.

... does not have the character of law but rather that of an act of violence." St. Augustine goes a step further and asserted that "a law that is unjust is considered to be no law at all." Justice, therefore, is an essential component of law to natural lawyers, as is morality. For classical natural law theory, therefore, good morals, when established by right reason in men, will inspire men to act for the common good. Laws passed in the pursuit of the common good will embody the virtues of justice and morality and will therefore be valid laws with normative effect. Where classical natural lawyers looked to divine guidance for human judgment in the law-making process, contemporary natural lawyers have relied less on the divine to set their moral benchmark. Instead, they replaced external guidance from the divine with an internalized form of practical reasonableness encapsulating man's innate capacity to reason, distinguish right from wrong, and choose the right course of action. Professor Fuller, for example, offered the two moralities of duty and aspiration to demonstrate what a "utopia of legality" and the law's "inner morality," as a benchmark of the perfect law and legal system, would look like. In a similar fashion, Professor John Finnis has insisted that laws must uphold moral values and principles but instead of deriving these moral principles and values from the eternal law, he identified them through "objective [or practical] reasonableness" and chose them as valuable goods which ultimately support humanity's well-being.

The significance of morality—whether derived from divine or eternal law or discovered through practical reason—in natural law theory is that law's conformity with morality justifies the obligations and duties that law impose and provides a reason for action that would not exist but for the

56 Id. at 48. Professor Finnis notes that classical political theory often draws a distinction between "central and perverted or otherwise marginal instances of an analytical concept or term." Thus, Professor Finnis notes that Aquinas "never says simply "unjust law is not law" but rather "unjust law is not straightforwardly or unqualifiedly [simpliciter] law" or "is a perversion of law," and similar statements." Finnis, Natural Law Theories, supra note 51.

57 ST. THOMAS AQUINAS ON POLITICS AND ETHICS, supra note 55, at 53 (citing St. Augustine, On Free Choice, I, 5). The assertion "a law that is unjust is considered to be no law at all" might be a slogan-form locution about the law in short-hand. Finnis, Natural Law Theories, supra note 51.

58 ST. THOMAS AQUINAS ON POLITICS AND ETHICS, supra note 55, at 58 ("Since human moral conduct is directed by reason which is the basic principle of human action, those moral actions that are in accord with reason are called good, and those that depart from reason are called evil.").

59 Patrick McKinley Brennan, Law, Natural Law, and Human Intelligence, 55 CATH. U. L. REV. 731, 741–43 (2006) ("According to the classical position, in promulgating the natural law, the divine legislator works through human nature itself; our participation in the eternal law occurs through our given natures.").

60 George, Natural Law and Positive Law, supra note 45, at 154 ("the role of moral norma in practical reasoning is captures in the tradition of natural law theorizing by the notion of recta ratio - "right reason." Right reason is reason unfettered by emotional or other impediments to choosing consistently with what reason fully requires.").

61 FULLER, THE MORALITY OF LAW, supra note 49, at 39–42 (1964). To Professor Fuller, the morality of aspiration is most "plainly exemplified in Greek philosophy. It is the morality of the Good Life, of excellence, of the fullest realization of human powers,..." The morality of duty, on the other hand, "lays down the basic rules without which an ordered society is impossible, or without which an ordered society directed toward certain specific goal will fail its mark." Id. at 5–6.


63 Id.

64 Id. at 100–03.
law. If individuals are required to be law-abiding for the sake of the common good, but where an act, such as the duty to pay taxes to the government, is stipulated by law to be obligatory, the only way to be law-abiding is to perform the obligatory act, i.e., pay the government taxes that it imposes, as stipulated by the law. Thus, we need to do the act stipulated by the law—pay the government taxes—when the act—the duty to pay the government taxes—has been legally stipulated to be obligatory. The law, when justified according to morality, provides us with a reason to abide by these tax laws and willingly surrender money to the government so that at the end of the day, we may realize for ourselves things, such as national defense and accessible healthcare, which we would never have been able to realize for ourselves without the law making it obligatory for us to pay the government taxes.

In natural law theory, these laws with the common good as ends, are necessary to coordinate social behavior and attain group cohesiveness by compelling the “recalcitrant citizen” through sanctions and giving the law-abiding citizen “special conclusory force” to their practical reasoning to act for the common good. Thus positive laws are essential to any society, whether that society be formed by communities of robbers or saints. Morality, to the natural lawyer, seeks, strives for, and preserves the common good by compelling the enactment and enforcement of positive law through the institutions of political government. The natural lawyer would consider positive law that is not in harmony with morality’s demand for justice, equality, and fairness invalid and thereby incapable of binding the conscience of people. These people who are the subject of such a law will not be under an obligation to abide by it.

65 Professor Finnis explains the schema for understanding the schema for justifying obligation-imposing legal rules in this simplified form:

We need, for the sake of the common good, to be law abiding;

But where ⊙ is stipulated by law to be obligatory, the only way to be law-abiding is to do ⊙;

Therefore, we need [it is obligatory for us] to do ⊙ where ⊙ has been legally stipulated to be obligatory.

FINNIS, NATURAL LAW AND NATURAL RIGHTS, supra note 62, at 316.

66 Id. at 317–18 (“the formulae expressive of legal obligation have their specific intelligibility from the fact that they are self-consciously designed not only to fit the recalcitrant citizen’s sanction-dominated practical reasonings, but also and most characteristically to fit into and to give special conclusory force to the practical reasonings of those who see and are generally willing to act upon the need (for the common good) for authority.”).

67 George, Natural Law and Positive Law, supra note 45, at 160 (“It is tempting to think of authority and law as necessary only because of human malice, selfishness, inconsistency, weakness, or intransigence. The truth, however, is that law would be necessary to coordinate the behavior of members of the community for the sake of the common good even in a society of saints. Of course, in such a society legal sanctions - the threat of punishment for law-breaking would be unnecessary; but laws themselves would still be needed. Given that no earthly society is a society of saints, legal sanctions are - quite reasonably - universal features of a legal system. They are not, however, essential to the concept of law.”).

68 See, e.g., SIR LESLIE STEPHENS, THE SCIENCE OF ETHICS 143 (1882) (“If a legislature decided all blue-eyed babies should be murdered, the preservation of blue-eyed babies would be illegal; but legislators must go mad before they would pass such a law, and subjects be idiotic before they could submit to it”). Thus, even if a legislature were to pass a law requiring that all blue-eyed babies be
B. EXCLUSIVE LEGAL POSITIVISM AND LEGITIMACY

While natural law theory focused on morality as the essential component in the concept of law that makes laws binding and provides people with reason for action, legal positivism focused instead on purely social facts to describe the concept of law. In legal positivism, the social thesis prescribes that what the law is is a matter of social fact and that morals, which to the natural lawyer provide law with its normative force, are not essential for a social rule to be called law. To a legal positivist, rules become laws by “the activities of human beings” and not because morality determined that a rule satisfied the demands of justice or fairness. A law’s moral worth does not depend on conformity to basic moral norms but is instead dependent on it’s society’s moral conditions. Thus, normative decisions about the appropriate legal content for specific laws is usually left to the legislature (as the branch of government that posits laws) and these policy decisions would seldom be questioned by the courts particularly if the legislature acts within its constitutional authority.

Legal positivism’s commitment to the separation of law and morality is an acknowledgment of the fact that many laws that are passed today are sometimes inherently immoral in the unfairness and injustice they produce but the legal positivist would not come close to suggesting that these laws are invalid and non-binding laws as a natural lawyer would. In fact, many
unfair and unjust laws are accepted by the general population and enforced as legal rules, which would be consistent with positivism’s account of law as a social and political fact. The concept of immoral law, as Professor Coleman states it, is not incoherent to legal positivism. As many countries with a written constitution, such as the United States, determine a law’s validity and its normative force by referring to its constitution, which would normally lay out the legislature’s authority to pass laws for the benefit of the state and its people, the significance of morality to the concept of law in any practical sense would be watered-down.

However, the fact that morality is not essential in determining a law or a legal system’s validity in legal positivism does not necessarily mean that morality is completely irrelevant to legal positivism. Positivism’s vision of the relationship between law and morality is instrumental in nature in that law must be seen to serve a moral end even if the law in itself wants moral merit. Professor Coleman separates legal positivism’s response to law’s connection to morality into two groups—exclusive legal positivism and inclusive legal positivism. Exclusive legal positivism identifies with the view that “only social facts determine the content law” and that “[l]aw has the content that it does in virtue of facts about individual (or group) behavior and attitudes; that is, in virtue of social facts.” Inclusive legal positivism, on the other hand, identifies with the view that both “normative and social facts contribute to legal content. According to this view, what the law is—how it is that it has the content that it does—can depend on either or both social and as well as normative facts.” As inclusive legal positivism views morality and social facts as possibly contributing to legal content, it entertains the untenable position that for officials, such as judges, to be bound by moral considerations, law must incorporate morality to make the official bound by it. But as Professor Coleman points out, this “attributes to law a power that law simply could not possess. Morality’s role in determining what a judge ought to do cannot depend on what the law has to say about it.” The more tenable view on the connection between law and morality is exclusive legal positivism’s view that only

75 Roger Berkowitz, Democratic Legitimacy and the Scientific Foundation of Modern Law, 8 THEORETICAL INQUIRIES L. 91, 96 (2007).
76 Coleman, The Architecture of Jurisprudence, supra note 26, at 9. See also, Green, supra note 46, at 1058 (stating that while “Fuller is interested in the morality that makes law possible; Hart is also interested in the immorality that law makes possible.” (emphasis added)).
77 M’Culloch v. State of Maryland, 17 U.S. 316, 326–27 (1819) (“The constitution, therefore, declares, that the constitution itself, and the laws passed in pursuance of its provisions, shall be the supreme law of the land, and shall control all state legislation and state constitutions, which may be incompatible therewith; and it confides to this court the ultimate power of deciding all questions arising under the constitution and laws of the United States. The laws of the United States, then, made in pursuance of the constitution, are to be the supreme law of the land.”).
79 Id. at 47.
80 Id. at 48.
social facts contribute to legal content. This view allows for the acknowledgement of valid laws based purely on social facts while subjecting officials to moral obligations regardless of the content of the law.\textsuperscript{81}

Since exclusive legal positivism has the more tenable view that morality, while external to the content of law, still binds officials, it follows from this view that laws cannot incorporate morality internally but must instead serve morality in such a way that morality can bind officials who apply and enforce the laws of a legal system.\textsuperscript{82} To exclusive legal positivism, morality is an external fact that cannot and does not have any effect on the content and validity of laws. Rather, morality is an end which, if law serves,\textsuperscript{83} provides laws with legitimate authority to grant people authority and rights under the law and, in a similar vein, impose obligations and duties on them.\textsuperscript{84} The overarching moral premise that legitimizes the law’s authority also gives officials of a legal system and people governed by the same system practical reasons to act in accordance with the law’s directives and orders.\textsuperscript{85} Legitimacy requires that individuals who are subject to the law not only recognize the law as valid; beyond the recognition and acceptance of legal rules as valid and binding, these individuals must also adopt an attitude that regards the law as morally justified (and therefore legitimate) and act according to its directives.\textsuperscript{86}

In a more recent account of the concept of law, Professor Scott Shapiro argues that laws—“the fundamental rules of a legal system”—are plans.\textsuperscript{87} While Professor Shapiro recognizes that it is “doubtful … that the social facts necessary for the existence of a shared plan will always generate

\textsuperscript{81} Id. at 49.

\textsuperscript{82} Id. (stating that because “morality applies regardless of the content of the law, it cannot be up to law to determine the nature and scope of morality’s application to action governed by law. If anything, rather than law incorporating morality, as the inclusive legal positivist would have it, morality “incorporates” law … If we must always do what morality requires us to do, then the only time we would be permitted to act on the basis of considerations that appear to be non-moral is when morality itself counsels us to do so … acting on the basis of the law’s directives is required by morality only when doing so ‘serves’ morality - that is, makes it more likely that one will confirm to the requirements of morality than one otherwise would.”).

\textsuperscript{83} Id. at 52 (“exclusive legal positivism is the conclusion of an argument that relies on the premise that law and morality are necessarily connected in a distinctive way. Here, the idea is that the place of law is in general determined by morality, and that specifically its place to serve morality. Necessarily, law is an instrument in the service of morality.”).

\textsuperscript{84} A law or a legal system claiming to impose duties and confer rights would only be considered to have legitimate authority “only if and to the extent that their claim is justified and they are owed a duty of obedience.” Joseph Raz, Authority and Justification, 14 PHIL. & PUB. AFF. 5 (1985).

\textsuperscript{85} Id. at 13 (“The fact that an authority requires performance of an action for its performance which is not to be added to all other relevant reasons when assessing what to do, but should exclude and take the place of some of them.”).

\textsuperscript{86} It is only when individuals acknowledge that the law has authority over them by accepting the directives of the law as having authoritative force that the law’s authority becomes legitimate. As Professor Raz states it: “the normal and primary way to establish that a person should be acknowledged to have authority over another person involves showing that the alleged subject is likely better to comply with reasons which apply to him (other than the alleged authoritative directives) if he accepts the directives of the alleged authority as authoritative binding and tries to follow them, rather than by trying to follow the reasons which apply to him directly.” Id. at 18-19.

\textsuperscript{87} Shapiro, Legality, supra note 24 at 119 (“The existence conditions for law are the same as those for plans because the fundamental rules of a legal system are plans.”).
morally acceptable legal arrangements,” he is still committed to the exclusive legal positivist view that the necessary connection between law and morals i.e., that the law’s legitimate authority is dependent on the law’s service of a moral aim, provides officials of a legal system with the authority to impose moral obligations on people to obey the law. 88 Another way of making the point is to say that the power of officials in a legal system to impose moral obligations on people to obey the law does not follow from that law’s validity. 89 Instead, the power of officials to impose on individuals the moral obligation to obey the law stems from a shared plan for social governance—the “master plan” in Professor Shapiro’s terminology—setting out a “morally legitimate scheme of government.” 90

C. THE ESSENTIAL DIFFERENCE BETWEEN NATURAL LAW AND EXCLUSIVE LEGAL POSITIVISM

Both natural law theory and exclusive legal positivism share one feature in their views about the relationship between law and morality. In the analysis of the connection between law and morality, natural lawyers and exclusive legal positivist believe that there is a necessary connection between law and morality. Law and morality are normative orders that relate to each other in a significant way. However, natural lawyers and exclusive legal positivists see that connection in very different ways. To the natural lawyer, the relationship between law and morality is, in part, intrinsic. Morality is essential to legal content and the law’s very nature, in fact its very validity, is dependent on morality being an intrinsic part of it. To the exclusive legal positivist, the relationship between law and morality is functional or instrumental and morality exists as an extrinsic feature of the legal order. Law, instead of incorporating morality, serves morality. 91

As the exclusive positivist sees the law as working in the service of morality, the exclusive legal positivist insists on the separation of law and moral in their definition of what law is. 92 It is only by keeping moral arguments separate from what law is that it would be possible for a legal system to correct moral problems in society. 93 And for the law to correct moral problems in society, it must act with legitimate authority by not

88 Id. at 184 (“We might analogize the law to a game. If one has no reason to play a game, one has no reason to respect its rules. Likewise, if one has no moral reason to participate in or support a particular legal system, one has no moral reason to recognize its demands. As a result, the authorization of a master plan and the ability to dispose others to comply cannot by themselves confer moral legitimacy on the one authorized. Unless the master plan sets out a morally legitimate scheme of governance, those authorized will merely enjoy legal authority but will lack the ability to impose moral obligations to obey”) (emphasis added).
89 Id. at 188 (“legal authority does not entail the power to impose moral obligations to obey and hence does not require the approval of principles of political morality”).
90 Id. at 184.
91 Coleman, The Architecture of Jurisprudence, supra note 26 at 55 (“Whereas both are committed to necessary connections between law and morality, they have very different accounts of the nature of that relationship. The exclusive positivist is committed to the view that the relationship is instrumental: law necessarily serves morality. The natural lawyer holds that the relationship is at least in part intrinsic: morality is intrinsic to the nature of law”).
92 Id. (“there must be something of a firewall between law and morality”).
93 SHAPIRO, LEGALITY, supra note 24 at 213-4.
imposing on officials of a legal system and people in its society what the law considers to be moral. To do so, as we have seen, would deprive people with right reason to action and thereby vitiate the law’s claim to legitimate authority. For this reason, for the exclusive positivist, the connection between law and morality must entail the thesis that only social facts can contribute to law.

For the natural lawyer, because law and morality are intrinsically or constitutively connected, the law is justified in its imposition of duties and obligations, which would not have existed in society but for the law acting for the common good. By implication, this would mean that for the natural lawyer, the law’s moral merit must be apparent to people so that they are able to choose to comply with what the law legally and morally requires. To the natural lawyer, the law must be obviously congruous with the demands of morality so that officials and people to whom law applies are able to see that the demands of the law is justified in its pursuit of the common good, decide for themselves what the law requires, and obey it. Thus, as Professor Coleman points out, “in order to determine what the law requires, those to whom it is directed must be able to ‘see through’ the law to the principles that justify it. Rather than positing a firewall between law and morality (as do the exclusive legal positivists), the natural lawyer takes the law to be translucent—if not transparent—regarding the principles that would justify it.”

III. PART 2: MORAL PSYCHOLOGY IN EVOLUTIONARY BIOLOGY, COGNITIVE SCIENCE, AND NEUROSCIENCE

Research into our moral psychology in the fields evolutionary biology, cognitive science, and the neuroscience since the 1990s has revealed some important insights into the ontology and epistemology of morality. Studies in these fields suggest that the modalities of morality in human beings, as opposed to animals who lack a similar capacity to differentiate moral from immoral acts, developed through evolutionary processes, are socially contingent, and possibly, emotionally constructed. These modalities

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94 See supra note 80.
95 See supra note 81.
96 See supra note 66.
97 See supra note 65.
100 Leda Cosmides and John Tooby, Can a General Deontic Logic Capture the Facts of Human Moral Reasoning? How the Mind Interprets Social Exchange Rules and Detects Cheaters, in MORAL PSYCHOLOGY (VOLUME 1), id. at 53-119 (presenting research that suggests that the architecture of human cognition developed algorithms that allowed for adaptively engaging in social exchanges and reciprocity based on an evolved ability to engage in deontic reasoning about entitlements and obligations).
101 Owen Flanagan, Hagop Sarkissian, and David Wong, Naturalizing Ethics, in MORAL PSYCHOLOGY (VOLUME 1), id. at 19 (stating that most moral knowledge is local and that only some is global). See also Jesse J. Prinz, THE EMOTIONAL CONSTRUCTION OF MORALS 191-2 (2007) (documenting moral differences across cultures with respect to blood sports and infanticide).
work to shape the content of moral norms and produce specific moral norms in society. Take for example the moral norm against having sexual relations with close family members. We are quick to judge someone who commits incest harshly because engaging in sexual relationships with close family members seem so immoral. However, there is a non-moral reason for our harsh judgment on incestuous relationships. From an evolutionary perspective, the behavior of others, such as those who engage in sexual relations with close family members that could produce children with congenital physical and intellectual malformation, would negatively impact our own survival and inclusive fitness in harsh environments. In addition to the fact that morality could be shown to essentially be relative to the society in which it exists, morally significant actions can also be influenced by simple heuristics and determined by the unique environment we find ourselves in.

Despite these studies that suggest that morality, moral judgments, and moral intuitions are highly subjective and specific to particularized societies and communities, there are also studies that indicate that there is a certain degree of objectivity to moral thinking and moral behavior. As an example, Professor Paul Bloom has shown that babies as young as three months old are capable of judging good and bad behaviors as well as feel empathy and compassion towards others, thereby suggesting that some moral foundations are inherent to us at birth. These research into our moral psychology indicate that on one level, moral values are highly subjective and dependent on various influences in our culture and environment. Yet, at the same time, there is evidence that some basic moral values, such as the desire to be kind to those who are less fortunate than we are, permeate cultural, social, and temporal boundaries. These findings, as we will see in Part 3 of this paper, have significant effect on the discourse in analytical jurisprudence about the connection between law and morality.

A. MORALITY AS BIOLOGICALLY ADAPTIVE

From the perspective of evolutionary biology, morality is adaptive and develops with its society or community. Documented cases within the social sciences, such as social and cultural anthropology, sociology, and history, have shown that moral norms, moral sentiments, and moral values evolve over time and are shaped by the needs and desires of the society in which they exist. These values are not arbitrary, but rather are the result of natural selection and survival of the fittest. Thus, morality is not simply a product of cultural conditioning, but rather a result of our biological evolution.

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102 Prinz, The Emotional Construction of Morals, id. at 229 (proposing that the practice of cannibalism in the Aztec culture passed from generation to generation because of “an anxiety-inducing set of religious beliefs and emotionally evocative rituals” and stating that “[t]his cocktail of material factors, religious beliefs, and emotion is a potent force in the formation, transmission, and maintenance of [moral values values”).


104 Gerd Gigerenzer, Moral Intuition = Fast and Frugal Heuristics, in MORAL PSYCHOLOGY (VOLUME 2) THE COGNITIVE SCIENCE OF MORALITY: INTUITION AND DIVERSITY, supra note 22 at 3.


106 Id. at 5.
intuitions are often specific to their societies and highly dependent on epoch, traditions, and cultured habits that have no significant connection to ethics, justice, or notions of right and wrong. For example, gladiator sports of ancient Rome were eventually banned by Christian emperors but they were banned not because they were cruel and would have had a negative effect on society. Rather, the sport was banned because they “presupposed that salvation could be achieved through military valor” which “conflicted with the eschatology that Christians were trying to teach.” Evolutionary biology may explain how morality tended to be specific to its society without being necessarily related to propriety or decorum.

Today, there is evidence in evolutionary biology to support the hypothesis that our moral psychology and our tendency to pass moral judgments on other people could be a byproduct of psychological programs in our brain that evolved over time to ensure the survival of our species. The moral sense that we possess today could be an adaptation of our early ancestral predisposition towards the effects of certain actions on our ability to survive that had nothing to do with the ethical value of the act we have come to judge as commendable or condemnable. Today, most people regard incest as morally wrong. However, Professor Debra Lieberman presents evidence and argues that these moral sentiments towards incest are actually biological processes adapted over time to distinguish kin from non-kin, regulate sexual behaviors towards family members, and instill inbreeding avoidance measures to assure the survival of our species by passing on the strongest genes to the next generation. We “monitor third-party behavior across a number of domains that impacted our inclusive fitness (either positively or negatively) in ancestral environments” not to pass moral judgment per se but rather “to reduce the probability of mating with one’s close genetic relations.”

A separate study by Professor Geoffrey Miller theorizes that moral virtues such as “intelligence, wisdom, kindness, bravery, honesty, integrity, and fidelity” advertise good genes and good parenting abilities as a form of “costly signaling” to assist us in sexual selection of a suitable mate. These traits, considered to “often have a moral or quasi moral status,” convey information to a potential mate that one possesses “good mental health, good brain efficiency, good genetic quality, and good capacity” that would allow for “cooperative sexual relationships and investing in

108 Id. at 188.
110 Lieberman, Moral Sentiments Relating to Incest, supra note 103 at 188.
111 Id. at 188-9.
112 Geoffrey Miller, Kindness, Fidelity, and Other Sexually Selected Virtues, in MORAL PSYCHOLOGY (VOLUME 1), supra note 11 at 209.
113 Costly signaling theory theorizes that “[i]f a signal is so costly that only high-health, high-status, high-condition animals can afford to produce it, the signal can remain evolutionary reliable.” Id. at 215.
children"114 to be sustained over a long period of time. These traits are also not “culturally or evolutionarily arbitrary."115 For example, 79% of all sampled cultures (49 out of 62 cultures) considered a secure, stable, low-conflict, and mutually respectful romantic attachments a normative ideal thereby suggesting that mate selection and morality are tightly woven across cultures. Our expectation that our chosen mate possesses specific moral virtues relates deeply to our biological and emotional need for stability, mutual respect, and love and protection of offsprings in our intimate relationships. Moral virtues in this context work as a proxy for biologically less visible qualities in a mate.

Science today can explain that the moral sense that we possess and the moral judgments that we pass are biologically and evolutionarily hardwired into our brains. Behaviors, activities, and traits that we consider to be moral or immoral may actually be a by-product of adaptive processes that do not have anything to do with morality as conventionally envisioned or conceptualized by theologians and philosophers. Sometimes, moral sentiments are so hardwired into our psyche that we are not able to explain or provide reasons for why we hold on to these sentiments so strongly.116 It bears mentioning that these sentiments may not always convey accurate information about the virtue or vice, or the morality or immorality, of an act. Sometimes strongly held moral sentiments say nothing at all about the morality or immorality of an act.

B. MORALITY AS FAST AND FRUGAL HEURISTICS

When Professors Daniel Kahneman and Amos Tversky introduced the prospect theory as a descriptive model of decision making under risk and as an alternative to the more well-known expected utility theory, they identified two separate phases in the decision-making process when someone makes decisions under circumstances in which the outcome is uncertain.117 The first stage of decision-making under risk is the editing phase where a decision-maker makes a preliminary analysis of the different prospects (or choices) before him or her, which most of the time “yields a simpler representation of those prospects,” and organizes and reformulates the options “so as to simplify subsequent evaluation and choice.”118 A subsequent phase of evaluation then allows the decision-maker to evaluate

114 Id. at 209.
115 Id.
116 PRINZ, THE EMOTIONAL CONSTRUCTION OF MORALS, supra note 101 at 30 (commenting on a study about moral attitudes towards consensual incest. When participants in the study were asked to provide the reason for why consensual sex between siblings, which was kept secret, enjoyed by both, and done with the use of contraceptives, was morally wrong, and couldn’t, most resorted to unsupported emotional exclamations rather than change their view about their initial moral judgement that incest between siblings was wrong.).
118 Id.
the edited prospects and “the prospect of highest value [would then be] chosen.”

According to Professors Kahneman and Tversky, “[b]ecause the editing operations facilitate the task of decision, it is assumed that they are performed whenever possible” with “some editing operations either permit[ting] or prevent[ing] the application of others.” In their seminal paper, Professors Kahneman and Tversky discussed “choice problems where it is reasonable to assume either that the original formulation of the prospects leaves no room for further editing, or that the edited prospects can be specified without ambiguity.” Subsequent literature on the subject of decision-making under risk addressed the fact that most decisions made under uncertain conditions are based upon the reliance on heuristic principles that “reduce the complex tasks of assessing probabilities and predicting values to simpler judgmental operations.” While quite useful, these heuristics can sometimes lead to “severe and systematic errors” in that decision. Heuristics provide an alternative explanation to human errors in the outcome of a decision without suggesting that the decision is necessarily irrational.

Cognitive science suggests that our moral actions, decisions, and judgements could also be subject to the same type of heuristics that lead to errors when decisions are made under uncertain circumstances. Professor Gerd Gigerenzer notes that heuristics can have a profound impact on moral actions and while the resulting moral action may be morally reprehensible in some situations and commendable in others, “the underlying heuristics, however, is not good or bad per se.” As an example, Professor Gigerenzer points out that simple rules were behind two different morally significant actions that had huge ethical impacts on the society in which they operated. In the first morally significant action, ordinary men who were a part of the Reserve Police Battalion 101 were asked to march into a Polish village and take Jewish men of working age to a work camp and kill women, children, and the elderly on the spot at the request of their commander. They were given the option of stepping out if they did not feel up to the task.

Out of 500 men, only a dozen stepped out. The rest went on to raid the village and killed the villagers they were not able to take to work camp. These men who committed the massacre were physically affected and emotionally distraught thereafter. But when asked why they committed the act, they said that they felt “the strong urge not to separate themselves from the group by stepping out, even if this conformity meant violating the

119 Id.
120 Id.
121 Id.
122 Id. Amos Tversky and Daniel Kahneman, Judgment under uncertainty: Heuristic and biases, in JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES 3 (Daniel Kahneman, Paul Slovic, and Amos Tversky eds., 1982).
123 Id.
124 Gerd Gigerenzer, Moral Intuition = Fast and Frugal Heuristics, in MORAL PSYCHOLOGY (VOLUME 2), supra note 22 at 3.
moral imperative “Don’t kill innocent people.” It appeared that for most of the men, it was easier to choose to kill innocent people than to break ranks. The social heuristic that was influential over the men’s decision was the heuristic to not break ranks. In the case of organ donors, whether people became organ donors or not depended on their country’s default rule on organ donation. Countries that had explicit-consent rules that required a person to opt in to become an organ donor, such as the United States and United Kingdom, saw less organ donors than presumed consent countries, such as France and Hungary, where everyone is a donor unless they opt out of being on. The social heuristic that applied here was that “if there is a default, do nothing about it.”

As risky prospects are first processed through an editing phase where a decision-maker makes preliminary analyses of the prospects before him or her and where simple heuristics can be highly influential in the decisive outcome of that decision-maker, how a prospect is framed in the mind of the decision-maker really matters because framing effects create the illusion that the outcome of one prospect is necessarily better than another. Our moral intuitions are also subject to framing effects in many circumstances. Professor Walter Sinnott-Armstrong has suggested that because our moral intuitions are subject to heuristics and framing effects, our moral intuitions are not in themselves justified just because they are moral intuitions. In fact, because our moral intuitions are subject to heuristics and framing effects, they are unreliable in providing normative force and therefore are not justified unless they are backed up by inferential confirmation. In Professor Sinnott-Armstrong’s view, moral intuitionism—the claim that that “some moral beliefs are justified independently of the believer’s ability to infer those moral beliefs from any other beliefs”—is false because no moral intuition can be justified non-inferentially and without reference to some other reliable belief. As the underlying heuristics for moral intuitions are sometimes questionable, the validity of moral intuitions in themselves become a contentious matter.

C. MORALITY AS AN OBJECTIVE FACT

Despite these studies showing moral norms to be socially and culturally contingent, unreliable, and evolutionarily adaptive, studies in

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125 Id. at 1-2.
126 Id. at 2.
127 Supra note 22.
128 Id. at 3.
129 Daniel Kahneman and Amos Tversky, Choices, Values, and Frames, in CHOICES, VALUES, AND FRAMES 9-10 (Daniel Kahneman and Amos Tversky eds. 2009).
131 Walter Sinnott-Armstrong, Framing Moral Intuitions, in MORAL PSYCHOLOGY (VOLUME 2), supra note 22 at 48 (“The fact that our moral intuitions seem justified does not show that they really are justified.”).
132 Id. at 52.
133 Id. at 48.
134 Id. at 74.
developmental psychology and neuroscience suggest that there is some universality and ubiquity to our moral senses. Professor Paul Bloom, who conducted a series of experiments with babies and very young children at the Yale Infant Cognition Center,\(^{135}\) believes that some aspects of morality—the capacity to be compassionate and kind to others and to judge others who lack the capacity to be compassionate and kind harshly—are hardwired into the human nature. A baby’s moral senses, as Professor Bloom puts it, “do not come from the mother’s knee, or from school or church; they are instead the products of biological evolution”\(^{136}\) and are not acquired through a learning process. In Professor Bloom’s experiments, he found that babies have a general appreciation for what would be judged good and bad behavior by adults.\(^{137}\) Babies had the capacity to empathize and would soothe a person who was in pain,\(^{138}\) they share,\(^{139}\) feel guilt,\(^{140}\) expect fairness,\(^{141}\) and prefer nice puppets to mean puppets.\(^{142}\) These studies show that at some fundamental level through evolution, we are born equipped with a rich moral sense that allows us to empathize, have compassion, prefer goodness over evil, and have a basic understanding of fairness and justice.

As babies take time to grow, their brains’ capacity for moral reasoning only develops fully much later in life. But as children grow, their understanding of morality still develops according to a “universal sequence of stages,”\(^{143}\) which would indicate that morality is ubiquitous to human nature to a certain extent. Studies in the neurosciences on adult psychopaths and “acquired sociopaths” show that children with psychopathic tendencies and adult psychopaths do not possess the capacity to distinguish moral wrongs from conventional wrongs. Unlike normal individuals, psychopaths are not able to know if an act would be considered a moral wrong.\(^{144}\) It is established in neurology that damage to specific brain circuits result in psychopathy. Trauma to the prefrontal cortex in the brain, for example, can transform a responsible railroad manager and husband into “an impulsive, irresponsible, promiscuous, apathetic individual”\(^{145}\) while damage to the prefrontal lobe and orbital frontal cortex could result in acquired sociopathic personality or pseudopsychopathy in

\(^{135}\) BLOOM, JUST BABIES, supra note 105 at 8 (Professor Bloom and his collaborators works with children as young as 3 months). For a description of the experiments that are conducted at the Yale Infant Cognition Center, see id. at 23-30.

\(^{136}\) Id. at 8.

\(^{137}\) Id. at 30.

\(^{138}\) Id. at 48 (although their attempts to soothe are far from perfect and can sometimes be egocentric in nature e.g. a toddler bringing his crying friend to his own mother instead of his friend’s mother).

\(^{139}\) Id. at 52.

\(^{140}\) Id. at 55-6.

\(^{141}\) Id. at 62-4.

\(^{142}\) Id. at 98-9.


\(^{144}\) Id. at 174-5.

\(^{145}\) Kent A. Kiehl, Without Morals, in MORAL PSYCHOLOGY (VOLUME 3) THE NEUROSCIENCE OF MORALITY, supra note 143 at 123.
patients. As a hypothesis, Professor Kent Kiehl further posits that the converging evidence in neuroscience “suggests that psychopathy is associated with a dysfunction of the paralimbic system.” These studies signify that the healthy human brain has the natural capacity to grasp objective moral values behind their actions, whether moral or immoral. The fact that damage to particular neural regions of the brain causes deviation in an individual's capacity for moral reasoning would support a claim that there is a certain objectivity to moral values.

IV. PART 3: ANALYTICAL JURISPRUDENCE AND MORAL PSYCHOLOGY

If research in the natural sciences suggest that morality is socially and culturally contingent, subject to heuristics and framing effects, and evolutionarily adaptive, the two concepts highly dependent on morality in analytical jurisprudence—validity and legitimacy—become marginal. Since these research in natural sciences hypothesize, and to some extent prove, that morality is not necessarily the ideal standard to help us differentiate right from wrong actions, morality cannot, and should not, be used to provide normative force to the natural lawyer’s concept of valid laws and the exclusive legal positivist’s concept of legitimate governance. The natural lawyer relies on morality as an essential component of law to provide laws with the power to bind people and impose on them legal and moral duties to comply with the law’s demands, making laws that are incongruous to morality’s demands defective and not deserving of the status of law. The exclusive legal positivist puts morality as the end goal that law must serve for law to claim legitimate authority over people and justify its imposition of coercive force in society. Without acting in the service of morality in order to claim legitimate authority, the law’s demands would be no different from the highway robber’s demands that money be handed over at the point of a gun.

Since the exclusive positivist maintains that laws and morals must be separated in their analysis of the concept of law to ensure that laws work in the service of morality, the exclusive legal positivist treats moral intuitions, judgments, and perspectives about the law distant. By keeping moral arguments separate from what law is, the legal positivist expects that the law and its legal system be able to address and correct moral problems in society. The legal positivist’s insistence that only social facts - and not moral facts - can contribute to the content of law provides the foundation by which laws may claim legitimate authority to govern because by keeping moral facts out of the law, officials of a legal system would not be

146 Id. at 124.
147 Id. at 148.
149 SHAPIRO, LEGALITY, supra note 93.
imposing on people, through the law, what the law considers to be moral and depriving them with the right reason to act.\textsuperscript{150} As Professor Hart explains, a “concept of law which allows the invalidity of law to be distinguished from its immorality, enables us to see the complexity and variety of the separate [moral] issues” that surround the law.\textsuperscript{151}

Keeping morality separate from the law to provide the foundation for the law’s claim to legitimate authority, however, could be the very feature of exclusive legal positivism that vitiates the law’s claim to legitimate authority. Since prospect theory predicts that people’s decisions can be affected by how prospects are presented or framed, it would be fairly easy for the law to impose its own morality on people without their realization by framing prospects. Economic actions by the state can be welcomed or admonished based on how that economic plan is introduced to the public.\textsuperscript{152} As people are considered to make persistent errors in their decision-making when they make decisions under uncertainty, there is room for governments and the law to guide people through “choice architecture” towards decisions that are perceived to be in their best interest.\textsuperscript{153} Choice architecture, even if purported to be in the best interest of the community, would still amount to state imposition of moral beliefs on people and that will operate to deny the law of its very claim to legitimacy because, by knowingly manipulating the decision-making process to nudge people toward the desirable decision, it deprives people of the right reason to act.

For the natural lawyer, on the other hand, validity is based on law and morality being constitutively connected.\textsuperscript{154} The incorporation of morality into the law would justify the law’s imposition of duties and obligations because by incorporating morality, the law would be acting for the common good and be binding. Valid, or moral, laws would thus provide people with reason for action to pursue the common good.\textsuperscript{155} To provide these reasons, laws have to be visibly just and fair to allow people with reasons to comply with what the law mandates. People must be able to “‘see through’ the law to the principles that justify it.”\textsuperscript{156} The law-maker, thus, has a duty in the natural and moral order to create just laws to fulfill a

\begin{itemize}
\item \textsuperscript{150} \textit{Supra} note 94.
\item \textsuperscript{151} \textit{Hart, the Concept of Law, supra} note 9 at 207.
\item \textsuperscript{152} People are more willing to give up a gain than to incur a loss. So, imposing a surcharge (which is seen as more of a loss) is considered to be more unfair than eliminating a discount (which is seen as more of a reduction of a gain). This distinction between perceived losses and reduction of gain “explains why forms that charge cash customers one price and credit card customers a higher price always refer to the cash price as a discount rather than the credit card price as a surcharge.” Furthermore, “a 7 per cent cut in real wages is judged reasonably fair when it is framed as a nominal wage increase, but quite unfair who it is posed as a nominal wage cut.” See, Kahneman, Knetsch, and Thaler, \textit{Anomalies: supra} note 130 at 169.
\item \textsuperscript{154} \textit{Supra} note 96.
\item \textsuperscript{155} Robert P. George, \textit{In Defense of Natural Law} 120 (“Law provide beings capable of grasping and acting on reasons with (additional) reasons for action. Where the laws are just, they provide conclusive reason for action”).
\item \textsuperscript{156} \textit{Supra} note 98.
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moral purpose so that the principles of free choice, practical reasoning,\textsuperscript{157} and morality have a place in the legal order.

As legal validity is dependent on laws incorporating morality so that they are just, much of the concept of legal validity turns on reliable and universal moral norms that will provide law with its normative force. Natural law theory presupposes an objective standard for morality and always pursues the common good.\textsuperscript{158} We, however, see that morality is far from objective, that moral judgments and decisions are often subject to heuristics, and moral intuitions adaptive, socially contingent, and unreliable. Because so many variables go into what eventually becomes a society’s common morality, it is difficult to see how positive law’s conformity to objective morality—considered in natural law theory to be self-evident\textsuperscript{159}—would justify the imposition of duties especially when the natural sciences present evidence that morality evolved and adapts with cultures and societies.\textsuperscript{160}

In addition, common morality and the common good sometimes deviate in fundamental ways from what natural law would teach about moral truths. One of the most basic forms of moral value that positive laws should pursue to be congruous with morality is the value of life.\textsuperscript{161} Life would be considered a “common good” for most communities.\textsuperscript{162} But documented cases of moral norms throughout the world show divergence in the form and practice of those moral norms. Infanticide, for example, is a common practice in cultures all over the world.\textsuperscript{163} In Inuit culture, infanticide is an acceptable practice that may be justified in extremely harsh conditions where resources are limited and where group survival may necessitate infanticide as a form of “population control.”\textsuperscript{164} Natural law theory would assert that an Inuit law imposing on families a duty to commit infanticide would be invalid, improperly called law, and not binding because it does not pursue the basic good of preserving life. Individuals who decide not to abide by such a law would be morally justified and the law cannot bind them. But to say that this rule cannot properly be called a law and is invalid because it does not pursue life as a basic good - even if people in that culture recognize and accept the rule as binding\textsuperscript{165}—ignores the fact that laws make difficult calculuses all the time. Natural law theory’s rejection of consequentialist methods of moral reasoning in favor of self-evident basic goods\textsuperscript{166} necessitates inferential confirmation that

\textsuperscript{157} Practical reasoning is the bringing in of principles of natural law into the “practical deliberation and judgment in situations of morally significant choice.” GEORGE, IN DEFENSE OF NATURAL LAW, supra note 155 at 104-5.

\textsuperscript{158} Id. at 229.

\textsuperscript{159} Id. at 85-7.

\textsuperscript{160} Supra note 110.

\textsuperscript{161} FINNIS, NATURAL LAW AND NATURAL RIGHTS, supra note 2 at 86.

\textsuperscript{162} Id at. 155.

\textsuperscript{163} PRINZ, THE EMOTIONAL CONSTRUCTION OF MORALS, supra note 101 at 189.

\textsuperscript{164} Id. at 190.

\textsuperscript{165} The rule of recognition is used by Professor Hart as the criteria for legal validity in legal positivism. HART, THE CONCEPT OF LAW, supra note 9 at 97-107.

\textsuperscript{166} GEORGE, IN DEFENSE OF NATURAL LAW 120, supra note 158.
some moral values are indeed universal, objective, and self-evident. That way, natural law theory's concept of legal validity will have a more significant role in explaining the law's normative force. Research in the field of neuroscience and developmental psychology, which show that damage to certain parts of the neural circuit in the brain results in deficiencies in effective moral reasoning and judgement, 167 might provide natural law theory with the evidentiary support it needs for its assertion that moral values are universal and ubiquitous.

V. CONCLUSION

To this point, morality in analytical jurisprudence has assumed a metaphysical and theoretical character. The role morality plays in understanding the concept of law is, however, pivotal because it provides answers to questions about law’s normativity and where concepts such as rights, duties, obligations, and sanctions obtain their normative force. Thus far, we have assumed that moral norms provide a reliable measure of right and wrong actions and decisions. We have also assumed that moral intuitions are irrefutable just because they are intuitions. But morality, as the natural science is showing us, is far more nuanced and varied than we have come to assume. Some moral norms, such as the norm that incestuous relationships are forbidden, have less to do with propriety, righteousness, or civility, and more to do with developed biological aversions to inbreeding among kins. 168 Other moral norms, such as the norm that it is wrong to kill an innocent person as with gladiatorial sports, emerged because of political reasons rather than rectitude. 169 These new aspects about morality that the natural sciences are showing us should be considered seriously in the conceptualization of law in analytical jurisprudence. Morality, if it is an unreliable source of good conscience, cannot provide laws with the normativity needed to establish legal validity from natural law's perspective or maintain legitimate authority for the exclusive legal positivist. If neuroscience and developmental psychology produce more findings on how neural circuits in the brain function to process moral facts, it may be determined that some forms of morality, such as the desire to be kind and compassionate, 170 are in fact ubiquitous. And if neuroscientists are able to one day build a map of the brain, we may be able to determine with some definiteness through brain science what sort of moral reasoning exists as a universal feature of humankind. 171 Until then, it would pay to exercise some caution in how much faith we place on morality as a standard setting norm for separating right from wrong actions for the purposes of legal analysis and conceptualizing the nature of law.

167 Supra notes 135-147.
168 Supra note 110.
169 Supra note 108.
170 Supra note 136-142.
171 Mike Howrylycz, Building Atlases of the Brain, in THE FUTURE OF THE BRAIN 14 (Gary Marcus and Jeremy Freeman eds., 2015) (“Development of large-scale brain atlases is now a major undertaking in the neuroscience”).
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