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Jeffrey J. Rachlinski

Cornell Law School, jjr7@cornell.edu

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COMMENT: IS EVOLUTIONARY ANALYSIS OF LAW SCIENCE OR STORYTELLING?

Jeffrey J. Rachlinski*

ABSTRACT: In recent years, some legal scholars have argued that legal scholarship could benefit from a greater reliance on theories of human behavior that arise from biological evolution. These scholars contend that reliance on biological evolution would successfully combine the rigor of economics with the scientific aspects of psychology. Complex legal systems, however, are uniquely human. Law has always been the product of cognitive processes that are unique to humans and that developed as a response to an environment that no longer exists. Consequently, the evolutionary development of the cognitive mechanisms upon which law depends cannot be rigorously modeled or studied empirically.

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To organize and govern human actions effectively, the law requires an accurate account of human behavior. Traditionally, legal scholars and reformers have looked to the social sciences to provide this account. In recent years, however, some scholars have argued that the law has overlooked evolutionary biology as a source of insights.¹ These scholars rely on evolutionary psychology

*Jeffrey J. Rachlinski is Professor of Law at Cornell Law School. The author thanks the sponsors, organizers, and participants in this symposium for their thoughts on this work, and he especially thanks Russell Korobkin for his comments on this paper.

1. See generally Symposium, *Law, Human Behavior and Evolution*, 8 *J. CONTEMP. LEGAL ISSUES* 1 (1997).

and sociobiology to connect evolution to human behavior, thereby facilitating its application to the legal system.²

Law lacks its own theory of human behavior. Consequently, just as an isolated ecosystem is vulnerable to colonization by an exotic species, the law remains vulnerable to colonization by any new behavioral theory.³ Evolutionary theorists see no limits to the scholarship they can produce. They have creatively applied evolutionary theory to family law, sexual harassment, criminal law, and health and safety regulation.⁴ Applications to torts, contracts, and property cannot be far behind.

Part of the attraction of the evolutionary analysis of law lies in its scientific pedigree. Its close connection to biology lends it the gloss of empiricism and theoretical rigor that the hard sciences enjoy. In effect, evolutionary analysis of law promises to blend the best features of law-and-economics scholarship with the growing literature applying behavioral decision theory to law.⁵ Like law and economics, evolutionary analysis uses simple, elegant principles to predict human responses to legal rules. Like behavioral decision theory, evolutionary analysis appeals to scientific principles governing human behavior, rather than assumptions.

Evolutionary analysis of law, however, relies on an account of human behavior that is too indirect to be scientific. Human behavior is largely the product of intricate cognitive processes such as human language, memory, and judgment. These processes, in turn, play a central role in the development of law. The role that evolutionary forces have played in the development of cognitive processes, and thus in the development of law, is not readily observable. Consequently, evolutionary theories needed to explain law are not subject to empirical testing, and hence, not scientific.

The difficulty this creates for evolutionary analysis of law is that we do not (and cannot) know the environmental conditions that produced human cognitive processes with any rigor or precision. Although evolutionary biologists

2. See Russell Korobkin, *A Multi-Disciplinary Approach to Legal Scholarship: Economics, Behavioral Economics, and Evolutionary Psychology*, 41 JURIMETRICS J. 177 (2001).

3. See Robert Cooter & Daniel L. Rubinfeld, *Economic Analysis of Legal Disputes and Their Resolution*, 27 J. ECON. LITERATURE 1067, 1068 (1989) (contending that law and economics has spread “[l]ike the rabbit in Australia”).

4. See Margaret Freidlander Brinig & F.H. Buckler, *Parental Rights and the Ugly Duckling*, 1 J. L. & FAM. STUD. 41 (1999) (family law); Gertrud M. Fremling & Richard A. Posner, *Status Signaling and the Law, with Particular Application to Sexual Harassment*, 147 U. PA. L. REV. 1069 (1999) (sexual harassment); Owen D. Jones, *Evolutionary Analysis in Law: An Introduction and Application to Child Abuse*, 75 N.C. L. REV. 1117 (1997) (family law); Owen D. Jones, *Sex, Culture, and the Biology of Rape: Toward Explanation and Prevention*, 87 CAL. L. REV. 827 (1999) (criminal rape law); Paul H. Rubin, *How Humans Make Political Decisions*, 41 JURIMETRICS J. 215 (2001) (health and safety).

5. See Korobkin, *supra* note 2.

overcome this obstacle through direct observation of contemporary organisms, this methodology is not feasible for those interested in law. At least seven million years of evolution separate humans from our closest relatives, the chimpanzees, the bonobos, and the gorillas.⁶ This means that at least fourteen million years of development separate humans from these three nearest species.⁷ The fossil record of human ancestors is sparse and tells us little about the cognitive processes that our ancestors developed in response to the environment that they faced.⁸ The cognitive processes that have produced contemporary legal systems exist only in human beings. These gaps in our knowledge mean that the cognitive skills that enabled humans to develop a legal system are nearly impossible to analyze from an evolutionary perspective.⁹

The unavoidable lack of knowledge about the evolution of human cognition means that evolutionary analysis of law cannot deliver on its promises of scientific validity. To be truly scientific, it must reject assumptions and rely solely on empirical observations. Evolutionary analysis of law, however, necessarily incorporates assumptions about the ancestral environment and how the cognitive processes that this environment produced translate into behavior. By contrast, behavioral decision theory makes no assumptions about human behavior, relying instead on smaller theories built up from observed phenomenon.¹⁰

These difficulties undermine the rigor of evolutionary analysis of law, especially as compared to economics. Economists assume that human behavior reflects an effort to maximize utility in any environment. When economists' theories fail to predict behavior, they simply adjust their assumptions. By contrast, evolutionary theorists assume that human behavior reflects past attempts to maximize reproductive fitness and then make further assumptions to translate this past into the present. When their theories fail to predict behavior accurately, it can never be clear which assumptions failed: the assumptions about the past or the assumptions about how this past translates into the present. Evolutionary analysis always will require more assumptions than economics. Rather than being the best of two worlds, it relies on the weakest features of economics and psychology.

To be sure, an evolutionary analysis could provide a successful foundation for studying humans if researchers can specifically identify the problems that human ancestors had to solve and test the resulting theories by observing the behavior of contemporary animals that have to solve the same problems. These requirements, however, are rarely, if ever, true of human cognitive processes.

6. See Richard C. Lewontin, *The Evolution of Cognition: Questions We Will Never Answer*, in THINKING: AN INVITATION TO COGNITIVE SCIENCE 107, 122 (Daniel N. Osherson & Howard Lasnik eds., 1990).

7. See *id.*

8. See *id.*

9. See *id.* at 128–29.

10. Korobkin, *supra* note 2.

Humans are the only species alive today (or ever, to our knowledge) that responded to their environment by developing complex linguistic and cognitive skills. We know little about the environment that produced these skills and have no contemporary organisms with which to compare human cognition.

The gap in evolutionary knowledge of human cognition produces several difficulties with evolutionary analysis of law. It undermines the value of the “law of law’s leverage,” as described by Professor Owen Jones.¹¹ Jones asserts that law’s ability to affect human behavior is weakest when “a predisposition contributing to [target] behavior was adaptive . . . in past environments.”¹² But with no real idea what ancestral forces produced most of the cognitive processes that today give rise to our complex society and its legal system, Jones’ theory, even if true,¹³ is difficult to apply.

The lack of knowledge about the evolution of human cognition also means that evolutionary analysis of human cognitive skills results in backwards reasoning from observed phenomena, rather than forward prediction of an unobserved phenomenon. For example, consider Professor Paul Rubin’s evolutionary analysis of people’s tendency to overestimate the likelihood of an adverse outcome after learning about the occurrence of a similar tragedy.¹⁴ Rubin reasons that human ancestors spent their whole lives in a similar location in small groups. Under such conditions, misfortunes are likely to repeat themselves, and thus, stories of misfortune should be heeded closely. In a society with world-wide coverage of disasters, however, the same reasoning process leads to overestimation of the likelihood of disasters that people learn about through the news. This is a clever account of the overestimation phenomenon, but social scientists have no way of determining whether it is accurate. The account also fails to identify the cognitive mechanisms that produce the phenomenon. Consequently, the account is unlikely to identify the cures and consequences of the phenomenon. Furthermore, it is unlikely that evolutionary analysis of human behavior by itself

11. Owen D. Jones, *The Evolution of Irrationality*, 41 JURIMETRICS J. 147, 169 (2001).

12. *Id.*

13. The accuracy of Jones’ theory is also in some doubt. Examples of simple interventions that undo the products of evolution are common. For example, the hair of most human beings turns grey after a few decades of life. Why this is, we cannot say for sure, but it is so common that it must have some adaptive feature (most likely, the human body allocates its resources in some way such that hair will simply grow in grey after a certain age.) Despite the strong genetic component, this characteristic is easily remedied with a few dollars worth of hair dye. Likewise, behaviors that have no direct connection to our evolutionary past can be stunningly resistant to change. For example, human ancestors never encountered crack cocaine (it was only introduced in the last two decades), but cocaine addiction is extremely resistant to the law’s influence.

14. Rubin, *supra* note 4, at 207.

would have led social scientists to predict that people overestimate the likelihood of tragedies that they have learned about in the news.¹⁵

The tendency of evolutionary analysts to work backwards from observed phenomenon frequently makes their conclusions seem obvious. Even the evolutionary analysis of human mate selection, an area where evolutionary theorists might claim some advantage, does not seem to produce insights more profound than concluding that men are apt to be more promiscuous than women. Indeed, one recent paper applying evolutionary analysis to law expends a great deal of effort to reach the conclusion that women prefer not to be sexually harassed in the workplace.¹⁶ The lack of knowledge about the social and cognitive past of human beings so limits the analysis that perhaps it is capable of accurately predicting only fairly obvious, or otherwise well-documented, phenomena.

To be sure, a few social scientists have used evolutionary analysis to create and test nonobvious hypotheses about human behavior, with some success.¹⁷ Almost any theory about human behavior, however, can produce interesting and nonobvious hypotheses. Familiarity with a body of existing empirical research almost invariably allows a researcher to produce valuable hypotheses. Furthermore, because social scientists have more information about contemporary human behavior than about the environment that produced human beings, it is unlikely that evolutionary analysis can produce more insights than theories based entirely on contemporary empirical studies of human behavior.

Given the uncertainties associated with evolutionary analysis, it is hard to see how it can be of much benefit to law. Legal scholarship already includes an abundance of untested theories of human behavior and lacks a dedication to empirical research. To the extent that evolutionary analysis of law produces a greater interest in collecting data, it will have salutary effects on legal scholarship. So far, however, evolutionary analysis has mostly brought more theorizing. Worse yet, for some, evolutionary analysis might serve as a seductive substitute for collecting data. Like economics, evolutionary analysis allows legal scholars to claim to be adopting rigorous principles without concerning themselves with any empirical analysis. Whereas economists openly admit to making assumptions, however, evolutionary theorists claim to be applying science. This claim can assuage consumers of this work that empiricism is unnecessary inasmuch as the science is supposedly already built into the analysis.

Far from being science, evolutionary analysis, as it exists now in legal scholarship, is mostly about creating untested accounts of how humans got to

15. Indeed, evolutionary analysis did not lead to this observation; careful assessment of existing literature and clever empirical research did. See Paul Slovic et al., *Facts Versus Fears: Understanding Perceived Risk, in JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES* 463 (Daniel Kahneman et al. eds., 1982).

16. See generally Fremling & Posner, *supra* note 4.

17. See generally THE ADAPTED MIND, *supra* note 11.

be the way they are. These accounts are really no different from “just so” stories. They are entertaining, fun to tell, and are often more engaging than painstakingly developed empirical accounts of human behavior. However, these stories are untestable and hence, unscientific. Without the ability to identify the environmental pressures that produced human cognition or the ability to compare human cognition to that of similar species, evolutionary analysis of law inevitably will lack precision and empirical support. As such, it is unlikely to provide most areas of law with anything more than a new kind of rhetoric. In short, “[w]e should not confuse plausible stories with demonstrated truth. There is no end to plausible storytelling.”¹⁸

18. Lewontin, *supra* note 6, at 129.