

PERIL INVITES RESCUE: AN EVOLUTIONARY PERSPECTIVE

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I. INTRODUCTION: THE RESCUE DOCTRINE

The legal doctrine usually entitled “peril invites rescue” or “danger invites rescue” relates to the rights of injured rescuers under the common law. This rescue doctrine is rather straightforward. Under the common law, a person who suffers injuries during a rescue attempt has a direct cause of action in negligence against any tortfeasor who, through her wrongful conduct, put another person or property at imminent risk.¹

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1. “Where defendant’s act threatens harm to the life or property of another, and a person injures himself or another in acting to avert this harm, the original wrongdoer will be liable for this latter damage.” 4 FOWLER V. HARPER ET AL., THE LAW OF TORTS § 20.5, at 160 n.41 (2d ed. 1986). See also RESTATEMENT (SECOND) OF TORTS § 445 cmt. d & illus. 4 (1965); DAN B. DOBBS, THE LAW OF TORTS § 184, at 456 (2000); RICHARD A. EPSTEIN, TORTS 266-67 (1999). “The ‘rescue’ doctrine applies though neither human life nor the rescuer’s own property are in peril as a result of [the] defendant’s acts.” 4 HARPER ET AL., *supra*, § 20.5, at 160 n.41. “Some cases have taken the view that the rescue of property did not warrant the taking of risk to life or limb, but the tendency has been to reject any rule of thumb for an inquiry into reasonableness in all the circumstances.” 3 HARPER ET AL., *supra*, § 16.10, at 484 n.4. Through what is known as the “fireman’s rule,” some professional rescuers, such as firefighters and police officers, are often excluded from recovery under the rescue doctrine for the normal hazards of their occupation. 4 HARPER ET AL., *supra*, § 20.5, at 160 n.41, § 21.1, at 208 n.28. See also DOBBS, *supra*, § 184, at 456-57. Other professional rescuers, such as doctors and hospitals, are granted restitution to encourage their aid. See RESTATEMENT (THIRD) OF RESTITUTION AND UNJUST ENRICHMENT § 1 cmt. b, illus. 4 (Discussion Draft 2000); 2 GEORGE E. PALMER, THE LAW OF RESTITUTION § 10.4, at 375-77 (1978).

Similarly, an injured rescuer has a tort claim against any rescuee who, through her own negligent actions, put herself at risk.² Recovery can be obtained even if the rescue attempt is unsuccessful.³ While rescue efforts are normally not required of bystanders,⁴ the rescuer is protected if she undertakes one, whether by spontaneous or deliberate action,⁵ even when the rescuee is contributorily negligent.⁶ The tortfeasor is said to have a duty of care with respect to rescuers because rescue attempts are foreseeable.⁷

The determination of the reasonability of the rescuer's conduct

2. "With a single exception, the cases hold that an actor whose *own* negligence causes a hazardous situation is liable to one who attempts to rescue him." Ross A. Albert, Comment, *Restitutory Recovery for Rescuers of Human Life*, 74 CAL. L. REV. 85, 92 (1986) (citations omitted); see also Louis Waller, *Rescue and the Common Law: England and Australia*, in THE GOOD SAMARITAN AND THE LAW 141, 147 (James M. Ratcliffe ed., 1981); Edward A. Kaplan, Comment, *Recovery by the Rescuer*, 28 LA. L. REV. 609, 609 (1968). Relatedly, a person already undertaking a rescue may recover against a third person who then negligently injures the rescuer. See Kaplan, *supra*, at 609, 613-14. This would fall outside the technical parameters of the rescue doctrine since the negligence in question relates directly to the rescuer.

3. See, e.g., *Wagner v. Int'l Ry. Co.*, 133 N.E. 437, 438 (N.Y. 1921).

4. See Radhika Rao, *Property, Privacy, and the Human Body*, 80 B.U. L. REV. 359, 442 (2000); Ernest J. Weinrib, *The Case for a Duty to Rescue*, 90 YALE L.J. 247, 247 (1980). For an economic analysis of the common law rule that one does not normally have the duty to rescue a stranger in distress, regardless of low costs and high benefits, see WILLIAM M. LANDES & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF TORT LAW 143-46 (1987). "Although the preceding analysis does not prove that the common law's refusal to impose liability for failure to rescue is efficient, it prevents one from concluding that the absence of such a rule necessarily is inefficient." *Id.* at 146. Furthermore, "liability might actually reduce the number of altruistic rescues by depriving people of credit for altruism (how would they prove they hadn't acted under threat of legal liability?)." *Stockberger v. United States*, 332 F.3d 479, 481 (7th Cir. 2003). The legal duties to rescue that have been advanced by commentators are careful to avoid the requirement of heroism or sacrifice. See Weinrib, *supra*, at 261.

5. See DOBBS, *supra* note 1, § 184, at 456 ("The rescue need not be spontaneous or immediate."); EPSTEIN, *supra* note 1, at 266 (recovery granted "no matter whether the rescue takes place through instinctive reaction to a person in peril or as a result of a deliberate, calculated choice"); 4 HARPER ET AL., *supra* note 1, § 21.1, at 209 ("Moreover the act of the rescuer is no less foreseeable when it is deliberate than when it is spontaneous.").

6. See, e.g., *Highland v. Wilsonian Inv. Co.*, 17 P.2d 631, 634 (Wash. 1932).

7. See, e.g., *Liming v. Ill. Cent. Ry. Co.*, 47 N.W. 66, 68 (Iowa 1890) (stating that "[d]efendant could have foretold . . . that plaintiff, being near, would use every reasonable means in attempting to save [defendant's] horses from the flames . . ."); see also 4 HARPER ET AL., *supra* note 1, § 21.1, at 208-09. As only Cardozo could put it, "[d]anger invites rescue. The cry of distress is the summons to relief. The law does not ignore these reactions of the mind in tracing conduct to its consequences. It recognizes them as normal. It places their effects within the range of the natural and probable." *Wagner*, 133 N.E. at 437. But then Cardozo seems to reconsider: "The wrongdoer may not have foreseen the coming of a deliverer. He is accountable as if he had." *Id.* at 438. Bohlen challenges the finding of rescue foreseeability, though not the holding of liability. See Frances H. Bohlen, Book Review, 47 HARV. L. REV. 556, 557 (1934) (reviewing FOWLER VINCENT HARPER, A TREATISE ON THE LAW OF TORTS (1933)). Harper and James, among others, are also dubious. See 3 HARPER ET AL., *supra* note 1, § 14.15, at 331 ("[R]escuers are treated as if they were foreseeable, although to do so may sometimes involve some stretch of the imagination.") (citation omitted).

takes emergency circumstances into account.⁸ Even false appearances of risk negligently created by the tortfeasor will support a claim when the rescuer's response is reasonable.⁹ Nevertheless, at some point generous to the rescuer,¹⁰ her conduct may be judged so unreasonable as to be contributorily negligent.¹¹

Rewards are outside the scope of the rescue doctrine. Instead, the rescuer, under ordinary tort damages, is simply returned to her *ex ante* position.¹² Perhaps this is because society does not value rescues highly. Perhaps virtue is thought to be its own reward.¹³ Perhaps, as some evidence supports, positive incentives are unnecessary to encourage rescues, at least of the heroic variety.¹⁴ Or, perhaps, this is due to the

8. See RESTATEMENT (THIRD) OF TORTS: GENERAL PRINCIPLES § 7, at 94 (Discussion Draft 1999) (“If an actor is confronted with an unexpected emergency requiring rapid response, this is a circumstance to be taken into account in determining whether the actor’s resulting conduct is that of the reasonably careful person.”). Fleming identifies the undercurrents: “Rescuers are not prudent; they are heroes.” JOHN G. FLEMING, *THE LAW OF TORTS* 157 n.48 (7th ed. 1987).

9. “It has been held that B may recover for injury incurred in a reasonable rescue attempt if the defendant negligently created an appearance that rescue was needed when it was not.” DOBBS, *supra* note 1, § 184, at 456 (citing *Solomon v. Shuell*, 457 N.W.2d 669 (Mich. 1990)).

10. See Weinrib, *supra* note 4, at 248 (“Recognizing the meritoriousness of rescue and the desirability of encouraging it, the courts have increasingly accorded favorable treatment to injured rescuers.”).

11. See, e.g., *Cook v. Johnston*, 25 N.W. 388 (Mich. 1885), *overruled by* *Felgner v. Anderson*, 133 N.W.2d 136 (Mich. 1965); *Eckert v. Long Island R.R.*, 43 N.Y. 502, 506 (1871) (“The law has so high a regard for human life that it will not impute negligence to an effort to preserve it, unless made under such circumstances as to constitute rashness in the judgment of prudent persons.”); see also *Ouellette v. Carde*, 612 A.2d 687, 690 (R.I. 1992) (“[P]rinciples of comparative negligence apply only if a defendant establishes that the rescuer’s actions were rash or reckless.”); 4 HARPER ET AL., *supra* note 1, § 21.1, at 209-10. This defense “stands no real chance of success unless the rescue attempt was utterly foolhardy.” FLEMING, *supra* note 8, at 157. See DOBBS, *supra* note 1, § 184, at 456 (stating that recovery is granted so long as the rescuer’s “actions are not wholly abnormal or hopeless”); EPSTEIN, *supra* note 1, at 134 (asserting that courts allow the rescuer “to recover so long as his actions were not ‘rash’”). The rescuer’s “hastiness might create a risk of excessive rescue, but its effects are negligible at best, for the fear of death means that any legal rule, wise or foolish, will exert at most scant influence on the ordinary bystander.” *Id.* Landes and Posner offer an efficiency analysis: “[I]f the sum of the expected costs of the accident victim and of the rescuer is less than the expected costs of the accident had no rescue attempt been made, a rational tortfeasor would gladly have promised to reimburse the rescuer for his injury” if this would induce the rescue attempt. William M. Landes & Richard A. Posner, *Salvors, Finders, Good Samaritans, and Other Rescuers: An Economic Study of Law and Altruism*, 7 J. LEGAL STUD. 83, 111 (1978). On the other hand, “the rescuer is not permitted to recover damages from the tortfeasor if the danger of the rescue attempt was disproportionate to the expected loss from the accident.” *Id.*

12. See Christopher H. White, Comment, *No Good Deed Goes Unpunished: The Case for Reform of the Rescue Doctrine*, 97 NW. U. L. REV. 507, 520-21 (2002).

13. See Melvin A. Eisenberg, *The Duty to Rescue in Contract Law*, 71 FORDHAM L. REV. 647, 682 (2002); John D. McCamus, *Necessitous Intervention: The Altruistic Intermeddler and the Law of Restitution*, 11 OTTAWA L. REV. 297, 302 (1979).

14. See Saul Levmore, *Explaining Restitution*, 71 VA. L. REV. 65, 102-04 (1985). See generally KRISTEN RENWICK MONROE, *THE HEART OF ALTRUISM: PERCEPTIONS OF A COMMON HUMANITY* (1996) (discussing four categories of self interest that motivate altruistic behavior).

existence of other forums in which rescuers are rewarded.

To the ancient Greeks, the question of rewards is not a matter of corrective justice, a goal of torts,¹⁵ but rather one of distributive justice. According to Aristotle, distributive justice “is concerned in the distributions of [public valuables such as] honour, or wealth, or such other things as are to be shared among the members of the social community”¹⁶ Under this doctrine, society is to reward the rescuer according to her merit or just deserts and not simply return her to her *ex ante* position.¹⁷ While various governments and private organizations do indeed recognize heroic deeds with awards,¹⁸ these are outside the reach of the rescue doctrine itself, which, traditionally, is entirely a private law affair.

Hence, perhaps some of the norms that surround the rescue doctrine are not manifested in the private law at all, but rather appear in the public or social arena. Rescues may indeed be greatly valued by society even though the rescue doctrine itself does not particularly reflect this. Acclaim for rescues, and even stronger positive incentives for them, may come in other guises. Some of these are addressed by evolutionary psychology.

Evolutionary psychology uses the tools of Darwinism to study behavior. The understanding of human behavior is obviously critical to the implementation of the purposes of the law. In recent years evolutionary psychology has been utilized to explicate various legal areas, including aspects of constitutional law,¹⁹ criminal law,²⁰

15. See ARISTOTLE, THE NICOMACHEAN ETHICS OF ARISTOTLE 108-11 (D.P. Chase trans., E. P. Dutton & Co., Inc. 1942).

16. *Id.* at 106.

17. See *infra* notes 158-59 and accompanying text.

18. Hyman describes “approximately 20 different entities that . . . [f]or varying periods during the nineteenth and twentieth centuries . . . recognized risky and non-risky lifesaving behavior by ordinary citizens.” David A. Hyman, *Rescue Without Law: An Empirical Perspective on the Duty to Rescue*, 84 TEX. L. REV. 653, 666-67 (2006). For descriptions of the awards, see *id.* at 720-37. See, e.g., Carnegie Hero Fund Commission, <http://www.carnegiehero.org> (last visited Sept. 7, 2006); The Holocaust Martyrs’ and Heroes’ Remembrance Authority, <http://www.yadvashem.org> (last visited Sept. 7, 2006). For consideration of public incentives for rescue, both positive and negative, see Saul Levmore, *Waiting for Rescue: An Essay on the Evolution and Incentive Structure of the Law of Affirmative Obligations*, 72 VA. L. REV. 879, 882-94 (1986).

19. See, e.g., Raymond R. Coletta, *The Measuring Stick of Regulatory Takings: A Biological and Cultural Analysis*, 1 U. PA. J. CONST. L. 20 (1998); Richard A. Epstein, *A Taste for Privacy?: Evolution and the Emergence of a Naturalistic Ethic*, 9 J. LEGAL STUD. 665 (1980); Jack Hirshleifer, *Privacy: Its Origin, Function, and Future*, 9 J. LEGAL STUD. 649, 662-63 (1980); John O. McGinnis, *The Once and Future Property-based Vision of the First Amendment*, 63 U. CHI. L. REV. 49 (1996); Norman C. Simon, *The “Evolution” of Lesbian and Gay Rights: Reconceptualizing Homosexuality and Bowers v. Hardwick from a Sociobiological Perspective*, 1996 N.Y.U. ANN. SURV. AM. L. 105, 130; Harvey Wheeler, *Bio-constitutionalism*, 35 UWLA L. REV. 460 (2003) (discussing constitutional law from evolutionary, biological, cultural, and psychological

environmental law,²¹ family law,²² labor law,²³ jurisprudence,²⁴ and other topics.²⁵ In this Article, I examine the interrelationship between the

perspectives).

20. See, e.g., DAVID M. BUSS, *THE MURDERER NEXT DOOR: WHY THE MIND IS DESIGNED TO KILL* (2005); MARTIN DALY & MARGO WILSON, *HOMICIDE* (1988); Katherine K. Baker, *What Rape Is and What It Ought Not to Be*, 39 JURIMETRICS J. 233 (1999) (arguing that a combination of evolutionary biology and social norms must be utilized to reduce the prevalence of rape); Deborah W. Denno, *Gender Differences in Biological and Sociological Predictors of Crime*, 22 VT. L. REV. 305 (1997); Oliver R. Goodenough, *Biology, Behavior, and Criminal Law: Seeking a Responsible Approach to an Inevitable Interchange*, 22 VT. L. REV. 263 (1997); Cheryl Hanna, *Ganging Up on Girls: Young Women and Their Emerging Violence*, 41 ARIZ. L. REV. 93, 115-16 (1999) (discussing the relationship between female violence and the evolutionary psychology of mate selection); Owen D. Jones, *Sex, Culture, and the Biology of Rape: Toward Explanation and Prevention*, 87 CAL. L. REV. 827 (1999); Randy Thornhill, *The Biology of Human Rape*, 39 JURIMETRICS J. 137, 138-39 (1999); Owen D. Jones, *Realities of Rape: Of Science and Politics, Causes and Meanings*, 86 CORNELL L. REV. 1386 (2001) (reviewing RANDY THORNHILL & CRAIG T. PALMER, *A NATURAL HISTORY OF RAPE: BIOLOGICAL BASES OF SEXUAL COERCION* (2001)).

21. See, e.g., E. Donald Elliott, *The Tragi-Comedy of the Commons: Evolutionary Biology, Economics and Environmental Law*, 20 VA. ENVTL. L.J. 17, 20-21, 25 (2001) (arguing that environmental law is better understood from the perspective of evolutionary biology, not economics); Roger D. Masters, *Environmental Pollution and Crime*, 22 VT. L. REV. 359, 359-60 (1997) (asserting that a study of evolutionary biology may “provide[] unique insights into the environmental factors in human behavior”); William H. Rodgers, *Where Environmental Law and Biology Meet: Of Panda’s Thumbs, Statutory Sleepers, and Effective Law*, 65 U. COLO. L. REV. 25, 56 (1993) (“Applications of evolutionary modeling have been especially attractive to students of environmental law, perhaps because they are familiar with the subtleties of stochastic change endemic in the natural world.”).

22. See, e.g., Margaret F. Brinig & F.H. Buckley, *Parental Rights and the Ugly Duckling*, 1 J.L. & FAM. STUD. 41, 49-50 (1999) (claiming that evolutionary psychology can help explain why certain children are abused); Owen D. Jones, *Evolutionary Analysis in Law: An Introduction and Application to Child Abuse*, 75 N.C. L. REV. 1117 (1997). See generally David J. Herring, *Foster Care Placement: Reducing the Risk of Sibling Incest*, 37 U. MICH. J.L. REFORM 1145 (2004) (citing studies that show that sexual aversion might be developed between non-siblings who live in close proximity to one another during early childhood).

23. See, e.g., KINGSLEY R. BROWNE, *BIOLOGY AT WORK: RETHINKING SEXUAL EQUALITY* (2002); Kingsley R. Browne, *Sex and Temperament in Modern Society: A Darwinian View of the Glass Ceiling and the Gender Gap*, 37 ARIZ. L. REV. 971 (1995); Gertrud M. Fremling & Richard A. Posner, *Status Signaling and the Law, with Particular Application to Sexual Harassment*, 147 U. PA. L. REV. 1069 (1999); Julie A. Seaman, *Form and (Dys)Function in Sexual Harassment Law: Biology, Culture, and the Spandrels of Title VII*, 37 ARIZ. ST. L.J. 321 (2005).

24. See, e.g., JOHN H. BECKSTROM, *EVOLUTIONARY JURISPRUDENCE: PROSPECTS AND LIMITATIONS ON THE USE OF MODERN DARWINISM THROUGHOUT THE LEGAL PROCESS* (1989); *NEUROSCIENCE AND THE LAW: BRAIN, MIND AND THE SCALES OF JUSTICE* (Brent Garland ed., 2004); *THE SENSE OF JUSTICE: BIOLOGICAL FOUNDATIONS OF LAW* (Roger D. Masters & Margaret Gruter eds., 1992); BRIAN SKYRMS, *EVOLUTION OF THE SOCIAL CONTRACT* (1996); E. Donald Elliott, *The Evolutionary Tradition in Jurisprudence*, 85 COLUM. L. REV. 38 (1985); Herbert Hovenkamp, *Evolutionary Models in Jurisprudence*, 64 TEX. L. REV. 645 (1985); Owen D. Jones & Timothy H. Goldsmith, *Law and Behavioral Biology*, 105 COLUM. L. REV. 405 (2005); Owen D. Jones, *On the Nature of Norms: Biology, Morality, and the Disruption of Order*, 98 MICH. L. REV. 2072 (2000); Bailey Kuklin, *Evolution, Politics and Law*, 38 VAL. U. L. REV. 1129 (2004); J.B. Ruhl, *The Fitness of Law: Using Complexity Theory to Describe the Evolution of Law and Society and Its Practical Meaning for Democracy*, 49 VAND. L. REV. 1407 (1996); Amy L. Wax, *Against*

rescue doctrine and the altruistic behavioral dispositions postulated by evolutionary psychologists.²⁶ Having already introduced the doctrine, I will next survey some of the basic principles of evolutionary psychology, emphasizing components that may pertain to rescue attempts: kin selection, reciprocal altruism, and sexual selection. I will then turn to the New York rescue cases to see if they conform to the predictions of evolutionary psychology. While the cases do not reveal enough relevant information to draw detailed conclusions, in broad outline they do somewhat support the predictions. This being the case, I conclude by considering the use of evolutionary thinking to formulate legal rights and remedies to implement adopted purposes of the law.

II. EVOLUTIONARY PSYCHOLOGY

Evolutionary psychology seeks to “[u]nderstand[] the human mind/brain mechanisms in evolutionary perspective.”²⁷ It focuses on why the mind is designed as it is, how it is organized, the functions and

Nature—On Robert Wright’s The Moral Animal, 63 U. CHI. L. REV. 307 (1996) (book review).

25. See, e.g., Lawrence A. Frolik, *The Biological Roots of the Undue Influence Doctrine: What’s Love Got to Do With It?*, 57 U. PITT. L. REV. 841 (1996); Thomas Earl Geu, *Chaos, Complexity, and Coevolution: The Web of Law, Management Theory, and Law Related Services at the Millennium*, 65 TENN. L. REV. 925 (1998); Jack Hirshleifer, *Economics From a Biological Viewpoint*, 20 J.L. & ECON. 1 (1977); Erin Ann O’Hara & Douglas Yarn, *On Apology and Consilience*, 77 WASH. L. REV. 1121 (2002); Jeffrey E. Stake, *Darwin, Donations, and the Illusion of Dead Hand Control*, 64 TUL. L. REV. 705 (1990); Ryan M.T. Iwasaka, Note, *From Chakrabarty to Chimeras: The Growing Need for Evolutionary Biology in Patent Law*, 109 YALE L.J. 1505 (2000). For an extensive list of books and law review articles that relate evolutionary psychology to the law, see SEAL, Society for Evolutionary Analysis in Law, <http://www.sealsite.org> (last visited Oct. 2, 2006).

26. There are other (overlapping) explanations for the altruism behind the rescue doctrine. One is the cognitive decision model of bystander intervention, an arousal: cost-reward model. See Barbara A. Fritzsche et al., *To Help or Not to Help: Capturing Individuals’ Decision Policies*, 28 SOC. BEHAV. & PERSONALITY 561, 561-62 (2000). Social psychologists also advance: (1) the normative approach, which “maintains that altruistic behavior is dictated by societal norms”; (2) the social exchange approach whereby “an individual’s behavior is guided by the principle of maximizing profits and minimizing costs in order to obtain the most profitable outcome in any human interaction”; (3) the developmental approach, which “views altruism as a learned behavior”; and (4) the socio-biological approach under which “an external threat to the existence of any society or group increases both individuals’ hostility toward the threatening outgroup, and individuals’ solidarity within the group.” Viola C. Brady, Note, *The Duty to Rescue in Tort Law: Implications of Research on Altruism*, 55 IND. L.J. 551, 556-59 (1980); see also MONROE, *supra* note 14, at 7-9 (discussing the sociocultural, economic, evolutionary, and psychological approaches to altruism). Monroe dismisses or discounts these explanations, especially for daring rescues. See *id.* at 121-36 (sociocultural), 137-60 (economic), 161-78 (evolutionary), and 179-94 (psychological). But her evolutionary analysis reveals limits to her understanding of its theory. See, e.g., *id.* at 143, 150, 152 (implying that natural selection requires conscious awareness of motives); *id.* at 152 (ignoring indirect reciprocal altruism).

27. DAVID M. BUSS, *EVOLUTIONARY PSYCHOLOGY: THE NEW SCIENCE OF THE MIND* 3 (1999) [hereinafter BUSS, *EVOLUTIONARY PSYCHOLOGY*].

organized structures of its component parts, and its observable behavioral response to environmental input, particularly the social environment.²⁸ Of special relevance to the rescue doctrine are the first and last foci. But to understand the psychology stemming from evolution, one must start with the basic principles of evolution.

A. Principles of Evolution

The modern theory of evolution begins, of course, with Charles Darwin and his seminal tract of 1859, *The Origin of Species*.²⁹ Gaining insight from the observation of Malthus that organisms tend to reproduce at a rate greater than can be supported by their environment,³⁰ he mused over why some organisms survive and reproduce while others perish.³¹ A key factor is luck. Lightning bolts, for example, are blind to the nature of their bull's-eyes.³² Beyond luck, those organisms that have qualities that allow them to better cope with their environment and produce progeny are likely to leave more offspring than their lesser endowed conspecifics. Similarly, the offspring are also likely to leave more descendants themselves if they share the qualities of their parents that made them successful. Hence, from this brief, nearly self-evident scenario, one can identify the three main elements of the theory of evolution: variation, differential fitness, and heritability.³³ Organisms vary in their qualities: Some qualities increase the chances of leaving descendants, and some of these qualities are passed on to the descendants. This process usually works very slowly, taking many,

28. *Id.*

29. CHARLES DARWIN, *THE ORIGIN OF SPECIES*, in *THE ORIGIN OF SPECIES & THE DESCENT OF MAN* 1 (6th ed. 1872) (New York, Modern Library, 1859).

30. See HELENA CRONIN, *THE ANT AND THE PEACOCK: ALTRUISM AND SEXUAL SELECTION FROM DARWIN TO TODAY* 271 (1991) ("Darwin was also well primed to notice how widespread superfecundity was from the writings of Thomas Malthus and several other authors whom Darwin admired (some of them in the Malthusian tradition) . . ."); MICHAEL RUSE, *THE EVOLUTION WARS: A GUIDE TO THE DEBATES* 40 (2000) ("Finally, after months of searching . . . Darwin read a well-known political-economic tract . . . the *Essay on a Principle of Population*, by the Reverend Thomas Robert Malthus . . .").

31. See RUSE, *supra* note 30, at 40-41.

32. Which is not to say that lightning is irrelevant to Darwinian evolution; organisms that learn to avoid lightning are more likely to survive and reproduce. On the other hand, crashing meteorites, as the dinosaurs found, are more difficult to endure.

33. See, e.g., BUSS, *EVOLUTIONARY PSYCHOLOGY*, *supra* note 27, at 7 ("variation, inheritance, and selection"); DANIEL C. DENNETT, *CONSCIOUSNESS EXPLAINED* 200 (1991); STEPHEN JAY GOULD, *Prologue* to *BULLY FOR BRONTOSAURUS: REFLECTIONS IN NATURAL HISTORY* 11, 11-13 (1991); Richard C. Lewontin, *Adaptation*, *SCI. AM.*, Sept. 1978, at 212, 220. For different delineations of the elements, see, e.g., WILLIAM H. DURHAM, *COEVOLUTION: GENES, CULTURE, AND HUMAN DIVERSITY* 21-22 (1991); STEVEN ROSE, *LIFELINES: BIOLOGY BEYOND DETERMINISM* 181 (1997).

many generations for significant change in the gene pool. Eventually, the change, if beneficial under the circumstances, may lead to the creation of a new species. Evolutionists estimate that nearly all the significant distinguishing characteristics of humans, both physical and behavioral, emerged up to millions of years ago while our ancestors were hunters and gatherers on the African savanna.³⁴

The agent of this engine of evolution is the gene. In the well-known modern metaphor, it is the “selfish” gene.³⁵ The gene is “selfish” in the sense that it is more likely to endure through a line of organisms if it transmits to them qualities that tend to preserve the gene. In this regard, the gene is competing with other alleles, or variations of the gene, that are also in the relevant gene pool.³⁶ A gene may have several alleles, perhaps even many.³⁷ Those alleles that are better at securing the reproductive success of their organisms are likely to spread in the gene pool to the detriment of the others. But since the spread of an allele generally turns on the success of its multigene organism, the allele promotes its own endurance by cooperating with all the genes that constitute the recipe for its organism.³⁸ Overall, the gene, or rather the

34. See, e.g., CHRISTOPHER BADCOCK, *EVOLUTIONARY PSYCHOLOGY: A CRITICAL INTRODUCTION* 12 (2000) [hereinafter BADCOCK, *EVOLUTIONARY PSYCHOLOGY*] (the “environment of evolutionary adaptedness”). See generally Charles Crawford, *Environments and Adaptations: Then and Now*, in *HANDBOOK OF EVOLUTIONARY PSYCHOLOGY: IDEAS, ISSUES, AND APPLICATIONS* 275 (Charles Crawford & Dennis L. Krebs eds., 1998) [hereinafter HANDBOOK]. On the other hand, “500 generations of intense crises-level selection can have a decided impact on heritable characteristics.” JAMES L. GOULD & CAROL G. GOULD, *SEXUAL SELECTION: MATE CHOICE AND COURTSHIP IN NATURE* 254 (1997). With common estimates of human generations varying between three and five per century, this “rapid” change still requires at least 10,000 years, which was about when humans first began to leave the life of hunters and gatherers to turn to agriculture. See JARED DIAMOND, *GUNS, GERMS, AND STEEL: THE FATES OF HUMAN SOCIETIES* 115 (1997). Yet there is some evidence that selection has increased the natural immunity of humans to tuberculosis during the last centuries of rapid urbanization and thus exposure. See MICHAEL RUSE, *TAKING DARWIN SERIOUSLY: A NATURALISTIC APPROACH TO PHILOSOPHY* 116 (2d ed. 1998) [hereinafter RUSE, *TAKING DARWIN*]. One wonders what the AIDS epidemic is doing to the African gene pool. For rates of evolution, see generally GEORGE C. WILLIAMS, *NATURAL SELECTION: DOMAINS, LEVELS, AND CHALLENGES* 53-54, 64, 128-42 (1992) [hereinafter WILLIAMS, *NATURAL SELECTION*] and for the view that human evolution is accelerating, see CHRISTOPHER WILLS, *CHILDREN OF PROMETHEUS: THE ACCELERATING PACE OF HUMAN EVOLUTION* (1998).

35. This metaphor was made famous by RICHARD DAWKINS, *THE SELFISH GENE* (1976) [hereinafter DAWKINS, *SELFISH GENE*].

36. “In traditional genetic modeling, two genes in a gene pool are either allelic or not, and it is only allelic genes that are clearly in competition with each other.” WILLIAMS, *NATURAL SELECTION*, *supra* note 34, at 29. “Even a rather slight net advantage of one over the other will give an almost deterministic shift in the relative frequencies of the two alleles.” *Id.*

37. See, e.g., WILLIAM H. CALVIN, *A BRAIN FOR ALL SEASONS: HUMAN EVOLUTION AND ABRUPT CLIMATE CHANGE* 301 (2002) (“Perhaps 20 percent of your expressed genes have a different allele on the other chromosome . . .”); ROBERT PLOMIN ET AL., *BEHAVIORAL GENETICS: A PRIMER* 188 (2d ed. 1990) (“[I]t appears that at least a third of all loci are polymorphic.”).

38. Dawkins compares genes to rowers who must be able to cooperate with the other rowers

allele, is competitive with respect to those that would displace it, but cooperative with those that would advance it.

B. Altruism

The existence of altruism may be the most difficult problem confronting evolutionary psychology.³⁹ For if the gene is selfish, inducing its organism to advance only its own interests, how can one account for altruism whereby the organism chooses to further the interests of another?⁴⁰ There are two primary explanations for this

in the boat. See DAWKINS, *SELFISH GENE*, *supra* note 35, at 40-41. "To survive in the long run, a gene must be a good companion." RICHARD DAWKINS, *RIVER OUT OF EDEN: A DARWINIAN VIEW OF LIFE* 5 (1995). See JOHN C. AVISE, *THE GENETIC GODS: EVOLUTION AND BELIEF IN HUMAN AFFAIRS* 107-11 (1998) (describing genes as "members of intraorganismal social groups"); BOBBI S. LOW, *WHY SEX MATTERS: A DARWINIAN LOOK AT HUMAN BEHAVIOR* 19-20 (2000) (depicting groups of genes as a "parliament [interacting to] produce complex effects").

39. Wilson declares altruism as "the central theoretical problem of sociobiology." EDWARD O. WILSON, *SOCIOBIOLOGY: THE NEW SYNTHESIS* 3 (1975); see also CRONIN, *supra* note 30, at 253 (observing that altruism certainly "poses a problem for the Darwinian view of nature"); FRANS B.M. DE WAAL, *GOOD NATURED: THE ORIGINS OF RIGHT AND WRONG IN HUMANS AND OTHER ANIMALS* 117 (1996) [hereinafter DE WAAL, *GOOD NATURED*] ("To give the human conscience a comfortable place within Darwin's theory without reducing human feelings and motives to a complete travesty is one of the greatest challenges to biology today."); Neven Sesardic, *Recent Work on Human Altruism and Evolution*, 106 *ETHICS* 128 (1995) (discussing the evolutionary "paradox of altruism"). Altruism and cooperation have been deeply studied by evolutionary biologists for several decades. See *THE ADAPTED MIND: EVOLUTIONARY PSYCHOLOGY AND THE GENERATION OF CULTURE* 161 (Jerome H. Barkow et al. eds., 1992) [hereinafter *ADAPTED MIND*]. Arguably, the problem has been solved. See BADCOCK, *EVOLUTIONARY PSYCHOLOGY*, *supra* note 34, at 72 ("[T]he greatest triumph of modern evolutionary theory has been to explain altruism as an epitome of natural selection at the level of the individual gene."); Jack Wilson, *The Accidental Altruist: Biological Analogues for Intention*, 17 *BIOLOGY & PHIL.* 71, 72 (2002) [hereinafter Wilson, *Accidental Altruist*] (noting that advances in understanding evolution and altruism undermine the claim that altruism is a serious challenge to Darwinism). For an excellent history of the theoretical problems and solutions, see Alexander Rosenberg, *Altruism: Theoretical Contexts*, in *THE PHILOSOPHY OF BIOLOGY* 448 (David L. Hull & Michael Ruse eds., 1998) [hereinafter *PHILOSOPHY OF BIOLOGY*]. See generally *PHILOSOPHY OF BIOLOGY*, *supra*, Part VII ("Altruism").

40. "An altruistic act is one that confers a benefit on someone at a cost to the other." ROBERT TRIVERS, *SOCIAL EVOLUTION* 41 (1985) [hereinafter TRIVERS, *SOCIAL EVOLUTION*]. See C. DANIEL BATSON, *THE ALTRUISM QUESTION: TOWARD A SOCIAL-PSYCHOLOGICAL ANSWER* 4-7 (1991); MONROE, *supra* note 14, at 6-7; SAMUEL P. OLINER & PEARL M. OLINER, *THE ALTRUISTIC PERSONALITY: RESCUERS OF JEWS IN NAZI EUROPE* 4-6 (1988); JAMES R. OZINGA, *ALTRUISM*, at xv, 5 (1999). But then, "[t]rue altruism, in the sense of giving more than one gets, should . . . never evolve, because individuals demonstrating such behavior would be, by definition, less fit than their selfish competitors." DAVID P. BARASH, *SOCIOBIOLOGY AND BEHAVIOR* 79 (1977). See DANIEL C. DENNETT, *FREEDOM EVOLVES* 195 (2003) [hereinafter DENNETT, *FREEDOM EVOLVES*] ("Is an altruist rather like a mule [which is sterile], a more or less chance coming together of features that is perfectly possible but systematically unlikely to perpetuate itself?"). Yet this depends on the definition of "true altruism." "[A]ltruism, as used in everyday language, does not always have to include danger or any kind of disadvantage. The philosopher Auguste Comte coined the term to mean concern for the welfare of others." ERNST MAYR, *THIS IS BIOLOGY: THE SCIENCE OF THE LIVING WORLD* 251 (1997). "The [altruistic] act is done for the benefit of another. Helping him is

the *aim*, one's own feelings are the inducement; one's own disadvantage forms no part of the idea." Mary Midgley, *Gene Juggling*, in *SOCIOBIOLOGY EXAMINED* 108, 115 (Ashley Montagu ed., 1980). For an analysis of the "everyday notion of altruism," see Philip Kitcher, *Psychological Altruism, Evolutionary Origins, and Moral Rules*, 89 *PHIL. STUD.* 283, 284-88 (1998), and for an analysis of some of the non-equivalent definitions in the literature, see Benjamin Kerr & Peter Godfrey-Smith, *Individualist and Multi-level Perspectives on Selection in Structured Populations*, 17 *BIOLOGY & PHIL.* 477, 485-92 (2002). One may distinguish psychological altruism, which looks to motives, from evolutionary altruism, which looks to enhanced fitness of others at the actor's expense. See BATSON, *supra*, at 33-34, 43-58; ELLIOTT SOBER, *Did Evolution Make Us Psychological Egoists?*, in *FROM A BIOLOGICAL POINT OF VIEW* 8, 8-9 (1994); Francisco J. Ayala, *The Biological Roots of Morality*, 2 *BIOLOGY & PHIL.* 235, 249 (1987) (comparing "biological" and "moral" altruism); David C. Lahti, *Parting with Illusions in Evolutionary Ethics*, 18 *BIOLOGY & PHIL.* 639, 641-42 (2003) (distinguishing "ostensible" versus "intentional" altruism); Wilson, *Accidental Altruist*, *supra* note 39, at 72-77. See generally ELLIOTT SOBER & DAVID SLOAN WILSON, *UNTO OTHERS: THE EVOLUTION AND PSYCHOLOGY OF UNSELFISH BEHAVIOR* (1998); Alejandro Rosas, *Psychological and Evolutionary Evidence for Altruism*, 17 *BIOLOGY & PHIL.* 93 (2002); 10 *SOC. PHIL. & POL'Y* 1-245 (1993) (issue on altruism). "To identify such emotions in humans [associated with altruism] is difficult because in any given instance of altruistic-seeming behavior, the motivational waters are likely to be muddied by other factors." CHRISTOPHER BOEHM, *HIERARCHY IN THE FOREST: THE EVOLUTION OF EGALITARIAN BEHAVIOR* 201 (1999). "These motivational clouds have made it easy for many to claim that genuine human altruism can be dismissed—that basically all altruistic-appearing behavior is reducible to individual genetic self-interest as represented by inclusive fitness." *Id.* at 202. Arguably, the general ethical principle that "'ought' implies 'can,'" when combined with the psychological egoism that declares that humans are by nature purely self-interested, leads to the conclusion that individuals would be motivationally incapable of acting against their own self-interest, thereby putting some notions of altruism at risk. See, e.g., William K. Frankena, *Obligation and Ability*, in *PHILOSOPHICAL ANALYSIS: A COLLECTION OF ESSAYS* 148, 148 (Max Black ed., 1963); see also JODY S. KRAUS, *THE LIMITS OF HOBBSIAN CONTRACTARIANISM* 96 (1993). For the conceptual problems regarding personal psychological satisfaction from altruistic acts, see SOBER & WILSON, *supra*, at 2-3, 199-222. To answer the question: "If evolutionary altruism is absent in nature, why should psychological altruism be present in human nature?" they rely on the theory of group selection, a controversial theory which they undertake to advance. *Id.* at 6-7; see also *infra* note 42. However, "[g]roup selection favors within-group niceness and between-group nastiness." SOBER & WILSON, *supra*, at 9. See KEVIN N. LALAND & GILLIAN R. BROWN, *SENSE AND NONSENSE: EVOLUTIONARY PERSPECTIVES ON HUMAN BEHAVIOUR* 265 (2003) ("Selection between cultural groups may engender hostility and aggression to members of other groups, fear of strangers, slanderous propaganda concerning outsiders, and so on."). This is not auspicious for altruism towards strangers. Monroe found that "[a]ltruism is not pursued for the psychic benefit it brings the altruist." MONROE, *supra* note 14, at 143. Ruse, however, asserts that "today's students of the evolution of social behavior ('sociobiologists') argue that moral (literal) altruism might be [and is] one way in which biological (metaphorical) 'altruism' could be achieved." M. Ruse, *Evolutionary Ethics: A Phoenix Arisen*, in *ISSUES IN EVOLUTIONARY ETHICS* 225, 229 (Paul Thompson ed., 1995). "Literal, moral altruism is a major way in which advantageous biological cooperation is achieved." *Id.* In sum, "while the specific evolved mechanisms underlying altruism are still not fully understood, there is strong evidence that such mechanisms do exist. . . ." JEROME H. BARKOW, *DARWIN, SEX, AND STATUS: BIOLOGICAL APPROACHES TO MIND AND CULTURE* 282 (1989). However, despite biological mechanisms supporting altruism, "the intensity and form of altruistic acts are to a large extent culturally determined." EDWARD O. WILSON, *IN SEARCH OF NATURE* 82 (1996). Moreover, there may be "a limited supply of altruism," in which case "altruism is a kind of expendable resource or capital." RUSSELL HARDIN, *TRUST AND TRUSTWORTHINESS* 110 (2002). In sum, "[g]enuine, or pure, altruism is an elusive concept, an ideal that always seems to evaporate just when you get in position to reach out to grab it." DENNETT, *FREEDOM EVOLVES*, *supra*, at 194. For

behavior: kin selection (inclusive fitness) and reciprocal altruism.⁴¹ A third explanation also warrants attention, especially with regard to the rescue doctrine: sexual selection.⁴² I consider these three in turn.⁴³

1. Kin Selection (Inclusive Fitness)

Success for the selfish gene is measured by the number of its copies in the gene pool. An obvious way to increase copies is for the organism to produce direct descendants that share the particular gene. But this is

an insightful analysis of altruism in the evolutionary context, see JANET RADCLIFFE RICHARDS, *HUMAN NATURE AFTER DARWIN: A PHILOSOPHICAL INTRODUCTION* 154-83 (2000) (Chapter 7: “Selfish Genes and Moral Animals”).

41. See Paul Thompson, *Introduction to ISSUES IN EVOLUTIONARY ETHICS*, *supra* note 40, at 1, 32 (“Inclusive fitness and reciprocal altruism are the two dominant sociobiological explanations of the existence of altruism.”).

42. “Three phenomena—kin selection, reciprocity, and sexual selection, or how we interact with family, friends, and mates—lie at the heart of why we behave as we do in many circumstances.” LOW, *supra* note 38, at 33. There are other, often related, evolutionary explanations for altruism and cooperation. For example, Frank argues for the benefits of personal reputation. “A person’s reputation is meaningful on the assumption that, given impulse-control problems, people with genuine moral sentiments are better able than others to act in their own interest.” ROBERT H. FRANK, *PASSIONS WITHIN REASON: THE STRATEGIC ROLE OF THE EMOTIONS* 91 (1988). “People with good reputations . . . can cooperate successfully with one another in ventures where cheating is impossible to detect. Genuine altruism can emerge, in other words, merely on the basis of having established a reputation for behaving in a prudent way.” *Id.* For more, see JOHN CARTWRIGHT, *EVOLUTION AND HUMAN BEHAVIOR: DARWINIAN PERSPECTIVES ON HUMAN NATURE* 88-89 (2000) (typing altruism as gene-level, vehicle-level, induced, and meme-led); SOBER & WILSON, *supra* note 40; TRIVERS, *SOCIAL EVOLUTION*, *supra* note 40, at 49-52; Christopher Boehm, *The Natural Selection of Altruistic Traits*, 10 *HUM. NATURE* 205 (1999) (proposing paths that depend on pleiotropic effects or group selection); Christophe Boesch, *Cooperative Hunting Roles Among Tai Chimpanzees*, 13 *HUM. NATURE* 27 (2002) (“Cooperation between individuals may have evolved via mutualism, kin selection, or reciprocity.”); Jack Hirshleifer, *There Are Many Evolutionary Pathways to Cooperation*, 1 *J. BIOECONOMICS* 73, 86-89 (1999); Randolph M. Nesse, *How Selfish Genes Shape Moral Passions*, in *EVOLUTIONARY ORIGINS OF MORALITY: CROSS-DISCIPLINARY PERSPECTIVES* 227, 229-30 (Leonard D. Katz ed., 2000); Hudson Kern Reeve, *Acting for the Good of Others: Kinship and Reciprocity with Some New Twists*, in *HANDBOOK*, *supra* note 34, at 43, 44 (basing mechanisms for costly human behavior on kinship, by-product mutualism—or pseudoreciprocity—and behavioral reciprocity); John Strate, *Altruism and Good Samaritan Law*, in *HUMAN NATURE AND PUBLIC POLICY: AN EVOLUTIONARY APPROACH* 181, 188-91 (Albert Somit & Steven A. Peterson eds., 2003) (theories include: kin selection theory; genetic similarity theory; direct reciprocity; indirect reciprocity theory; and group selection); John Tooby & Leda Cosmides, *Friendship and the Banker’s Paradox: Other Pathways to the Evolution of Adaptations for Altruism*, in *EVOLUTION OF SOCIAL BEHAVIOUR PATTERNS IN PRIMATES AND MAN* 119 (W.G. Runciman et al. eds., 1996); David Sloan Wilson & Kevin M. Kniffin, *Multilevel Selection and the Social Transmission of Behavior*, 10 *HUM. NATURE* 291 (1999); Wilson, *Accidental Altruist*, *supra* note 39, at 72 (means are group selection, kin selection, and reciprocal altruism); Scott Woodcock & Joseph Heath, *The Robustness of Altruism as an Evolutionary Strategy*, 17 *BIOLOGY & PHIL.* 567 (2002) (analyzing the broad set of evolutionary mechanisms capable of supporting altruism).

43. “To anticipate a common objection raised by many social scientists and others, let me grant at once that the intensity and form of altruistic acts are to a large extent culturally determined. Human social evolution is obviously more cultural than genetic.” Edward O. Wilson, *Human Decency Is Animal*, *N.Y. TIMES*, Oct. 12, 1975, (Magazine), at 38, 41.

not the only way. Because some other members of the species have the same gene, unless it is a unique mutation, the selfish gene may also succeed by assisting the conspecifics with the shared gene to leave their own direct descendants.⁴⁴

The more closely an organism is related to a conspecific, the more probable an identical copy of any one of its genes will be in the other organism. Children inherit, on the average, half of their genes from each parent, and share half of their genes with each sibling. They share one-quarter of their genes with their aunts, uncles and grandparents, and one-eighth with their first cousins, the overlap being determined by counting each step up to the nearest common ancestor(s) and then down to the relative in question. Because of this genetic commonality, the selfish gene can promote its own success, to some extent, by promoting that of its relatives.⁴⁵ In the words of a famous evolutionary biologist, a person should be willing to sacrifice herself to save the lives of at least two siblings or eight cousins.⁴⁶ This notion is known as kin selection, or, more generally, inclusive fitness.⁴⁷

For kin selection to work directly, an organism must be able to recognize its kin, and even the degree of kinship.⁴⁸ To work indirectly,

44. Conspecifics share most of the same genes, perhaps well over 99% of the roughly 20,000-25,000 genes in humans. *See, e.g.*, DEAN HAMER & PETER COPELAND, *LIVING WITH OUR GENES* 18 (1998) (noting that all humans have 99.9% of the same DNA); CARL SAGAN & ANN DRUYAN, *SHADOWS OF FORGOTTEN ANCESTORS: A SEARCH FOR WHO WE ARE* 415 (1992) (“We humans hold at least 99.9% of our DNA sequences in common.”); *see also* Nicholas Wade, *Count of Human Genes Drops Again*, N.Y. TIMES, Oct. 21, 2004, at A22 (20,000-25,000 human genes).

45. *See* JOHN MAYNARD SMITH, *DID DARWIN GET IT RIGHT?* 187 (1989) [hereinafter SMITH, *DID DARWIN*] (“[A] gene which reduces the probability of survival of an individual carrying it but produces a corresponding increase in the fertility or probability of survival of relatives can increase in frequency.”). John Maynard Smith, *The Evolution of Animal Intelligence*, in *MINDS, MACHINES AND EVOLUTION* 63, 64 (Christopher Hookway ed., 1984) (“Animals do behave differently towards different conspecifics, both in cooperative interactions and in mate selection, and the criteria used in discrimination are correlated with actual genetic relationship.”).

46. *See* SMITH, *DID DARWIN*, *supra* note 45, at 187 (observing that J.B.S. Haldane “announced that he was prepared to lay down his life for two brothers or eight cousins”). “[C]ooperation among relatives is favored if, and only if, the benefit of the act multiplied by the relatedness of the actors is greater than or equal to the costs.” LEE DUGATKIN, *CHEATING MONKEYS AND CITIZEN BEES: THE NATURE OF COOPERATION IN ANIMALS AND HUMANS* 43-44 (1999) (“Hamilton’s Rule”). *See generally* BUSS, *EVOLUTIONARY PSYCHOLOGY*, *supra* note 27, at 222-49; W.D. HAMILTON, *NARROW ROADS OF GENE LAND* 11-82 (1996). For evidence of kin selection among animals, *see* TRIVERS, *SOCIAL EVOLUTION*, *supra* note 40, at 169-202.

47. Technically, the two may be distinguished. “The overall ability of [an] individual . . . to get her genes . . . into future generations is termed her *inclusive fitness*. The evolutionary process that maximizes the ability to treat others according to their genetic similarity to oneself is termed *kin selection*.” GEORGE C. WILLIAMS, *PLAN AND PURPOSE IN NATURE* 44 (1996) [hereinafter WILLIAMS, *PLAN AND PURPOSE*]; *see also* BUSS, *EVOLUTIONARY PSYCHOLOGY*, *supra* note 27, at 12-13.

48. While they cannot directly recognize kin, even very young children do well at identifying

various mechanisms are available for kin discrimination, including location, familiarity, phenotype matching and recognition alleles (“green beards”).⁴⁹ For most animals, strong evidence of a close relationship with others comes from finding themselves being raised in the same nest or den, or being nurtured by the same conspecific. Especially in human ancestral times, others in the vicinity, and those who are familiar, are more likely to be related than distant strangers.⁵⁰ While one cannot directly sense another’s genes, one can perceive other suggestive qualities, such as similar physical characteristics.⁵¹ Another identifying mechanism is the “green beard altruism effect” labeled by Richard Dawkins.⁵² If a gene or genes for helping also produce a recognizable feature, a “green beard” in Dawkins’s parlance, then altruism toward other persons who also have green beards would likely be directed toward relatives (who are disposed to reciprocate). As a heuristic or rough guide for these mechanisms,⁵³ which is independent of conscious motivation, a person should take risks to rescue others to the extent that they are familiar or similar in appearance.⁵⁴

kinship relationships. See Lawrence A. Hirschfeld, *Is the Acquisition of Social Categories Based on Domain-Specific Competence or on Knowledge Transfer?*, in *MAPPING THE MIND: DOMAIN SPECIFICITY IN COGNITION AND CULTURE*, 201, 220-22 (Lawrence A. Hirschfeld & Susan A. Gelman eds., 1994).

49. CARTWRIGHT, *supra* note 42, at 80-81; see R. PAUL SHAW & YUWA WONG, *GENETIC SEEDS OF WARFARE: EVOLUTION, NATIONALISM, AND PATRIOTISM* 39 (1989) (spatial proximity, early experience, and phenotypic matching); Charles Crawford, *Psychology*, in *THE SOCIOBIOLOGICAL IMAGINATION* 303, 310-11 (Mary Maxwell ed., 1991) [hereinafter *SOCIOBIOLOGICAL IMAGINATION*] (spatial distribution, association, phenotype matching, and recognition alleles).

50. See CARTWRIGHT, *supra* note 42, at 80 (“location” and “familiarity”). Once location and familiarity clues no longer reliably identified kin, perhaps broader altruism eventuated. De Waal speculates, “as so often, the impulse became dissociated from the consequences that shaped its evolution, which permitted it to be expressed even when [genetic] payoffs were unlikely. The impulse thus was emancipated to the point where it became genuinely unselfish.” FRANS DE WAAL, *THE APE AND THE SUSHI MASTER: CULTURAL REFLECTIONS BY A PRIMATOLOGIST* 330 (2001).

51. “[M]any higher animals can recognize individuals by personal attributes, and this permits some discrimination towards very close relatives, possibly to the distance of nephews and grandchildren.” W.D. HAMILTON, *Selection of Selfish and Altruistic Behaviour in Some Extreme Models*, in *NARROW ROADS OF GENE LAND*, *supra* note 46, at 198, 211. See C.R. BADCOCK, *THE PROBLEM OF ALTRUISM: FREUDIAN-DARWINIAN SOLUTIONS* 75 (1986) [hereinafter *BADCOCK, PROBLEM OF ALTRUISM*] (“phenotypic matching”); CARTWRIGHT, *supra* note 42, at 80-81 (“phenotype matching”).

52. See DAWKINS, *SELFISH GENE*, *supra* note 35, at 96-97.

53. “The heuristics used by humans, as we argue in this book, are adaptive strategies that have evolved in response to the need to draw inferences and make decisions with bounded knowledge and limited time.” GERD GIGERENZER ET AL., *SIMPLE HEURISTICS THAT MAKE US SMART* 171 (1999). Many of the behaviors sustained by the rough generalizations discussed elsewhere in this Article may also be thought of as unconscious heuristics.

54. Relatedly, de Waal refers to the “similarity principle.” “Besides age and socioeconomic status, the similarity principle in humans includes political preference, religion, ethnic background,

But I overgeneralize by implying that all equally distant relatives have the same value to the selfish gene under inclusive fitness. Because the selfish gene is furthered by actions that increase the chances of leaving more copies in the gene pool,⁵⁵ relatives who are unlikely to accomplish or assist this are of lesser evolutionary value. For example, parents who are beyond their reproductive years cannot add copies to the gene pool, except to the extent that their efforts and resources advance the reproductive success of relatives.⁵⁶ Kin selection would then lead to

IQ level, education, physical attractiveness, and height.” DE WAAL, GOOD NATURED, *supra* note 39, at 26. “[T]hese matching rules probably relate to prospects for cooperation: the more traits and interests one shares with another person, the easier it will be to get along, and the broader the basis for a give-and-take relationship.” *Id.* at 26-27. Moving down this road in the opposite direction, one can see xenophobia and associated emotions at the far end. For example, Edward O. Wilson refers to “our [dangerous] proneness toward ethnocentricity, xenophobia, [and] territoriality” Edward O. Wilson, *Comparative Social Theory*, in 1 THE TANNER LECTURES ON HUMAN VALUES 49, 68 (Sterling M. McMurrin ed., 1980); *see also* DEL THIESEN, BITTERSWEET DESTINY: THE STORMY EVOLUTION OF HUMAN BEHAVIOR 296 (1996) (“The common evolutionary adaptations of strong kinship ties were nepotism, ethnocentrism, tribalism, social bonding, obedience to authority, nationalism, patriotism, territorially [sic], enemy thinking, xenophobia, jingoism, and reciprocal social exchange.”). Critics of evolutionary psychology find these observations to be grounds for condemnation. *See, e.g.*, ROSE, *supra* note 33, at 207 n.19; Joseph Alper et al., *The Implications of Sociobiology*, in THE SOCIOBIOLOGY DEBATE: READINGS ON ETHICAL AND SCIENTIFIC ISSUES 333, 336 (Arthur L. Caplan ed., 1978); Martin Barker, *Biology and Ideology: The Uses of Reductionism*, in AGAINST BIOLOGICAL DETERMINISM 9, 14-15, 26 (Steven Rose ed., 1982).

55. For the genetic component of altruism to increase in frequency, complex calculations are required, including the assessment of: “(1) the value of any aid to its potential recipient . . . ; (2) the probability of risk to the donor of the aid . . . ; and (3) the probability that the recipient of the aid does indeed bear a copy of the gene for altruism.” BARKOW, *supra* note 40, at 48.

56. *See id.* at 50-52 (discussing the “fitness-investment potential” of a relative in need); HENRY PLOTKIN, EVOLUTION IN MIND: AN INTRODUCTION TO EVOLUTIONARY PSYCHOLOGY 86 (1997) (noting that being as altruistic towards parents as towards children is “biological nonsense because our offspring (on average, of course) are biologically more fit than our parents, that is, they are likely to survive longer and reproduce more offspring in the future”). The caveat is offered as an explanation for the Darwinian puzzlement of why women live so many years beyond their reproductive years. *See* DAVID F. BJORKLUND & ANTHONY D. PELLEGRINI, THE ORIGINS OF HUMAN NATURE: EVOLUTIONARY DEVELOPMENTAL PSYCHOLOGY 240-41 (2002); Gillian Ragsdale, *Grandmothering in Cambridgeshire, 1770-1861*, 15 HUM. NATURE 301, 301-02 (2004) (referring to the “[m]any theories [that] have been proposed to account for the human female post-reproductive life span”). Under the “grandmother hypothesis,” older women who provide assistance to their daughters’ children promoted the fitness of their descendants, thereby leading to selection for longevity. *See, e.g.*, Mhairi A. Gibson & Ruth Mace, *Helpful Grandmothers in Rural Ethiopia: A Study of the Effect of Kin on Child Survival and Growth*, 26 EVOLUTION & HUM. BEHAV. 469 (2005); Kristen Hawkes et al., *The Grandmother Hypothesis and Human Evolution*, in ADAPTATION AND HUMAN BEHAVIOR: AN ANTHROPOLOGICAL PERSPECTIVE 237 (Lee Cronk et al. eds., 2000); Kim Hill & A. Magdalena Hurtado, *The Evolution of Premature Reproductive Senescence and Menopause in Human Females: An Evaluation of the “Grandmother Hypothesis”*, in HUMAN NATURE 118 (Laura Betzig ed., 1997). Older men may also be of reproductive value by passing along accumulated knowledge. *See* RICHARD A. POSNER, AGING AND OLD AGE 26-29 (1995). One would think that older men could also provision descendants (as gatherers, if not hunters) and older women could also teach the younger.

the investment in relatives not only to the degree they are related,⁵⁷ and the costs to the donor, but also to the extent of their prospects for reproduction and assistance of kin.⁵⁸

Insofar as kin selection drives the rescue doctrine, the following prediction would obtain as a first approximation: the closer the relation of the rescuee, the greater the risk that is “rational” to assume,⁵⁹ and hence the more the law should protect the risky undertaking. Since the degree of relationship may be difficult to discern, as a surrogate the law might encourage rescues of persons to the extent they are familiar or similar to the rescuer. By refining these predictions to take into account the reproductive potential of the rescuee, one would expect the doctrine to protect greater risk for saving kin in their prime procreative years than those who are beyond them or the young who may not reach them.⁶⁰ The

57. “[R]espondents in both the United States and Japan were surveyed about how they would likely respond if they could only save one of three [related] people in a burning house. . . . Once again, the closer the genetic relationship, the greater the reported inclination to help.” DAVID P. BARASH, *REVOLUTIONARY BIOLOGY: THE NEW, GENE-CENTERED VIEW OF LIFE* 71 (2002) (citing Eugene Burnstein et al., *Some Neo-Darwinian Decision Rules for Altruism: Weighing Cues for Inclusive Fitness as a Function of the Biological Importance of the Decision*, 67 J. PERSONALITY & SOC. PSYCHOL. 773 (1994)). A group of researchers who questioned people about who they would rescue from a burning building found “[t]hat women were helped a little more often than men; that the young were helped more often than the old; that closer kin . . . were helped more often than remoter kin . . .; and that any tendency to help ‘acquaintances’ was slight.” Laura Betzig, *Introduction: People Are Animals*, in HUMAN NATURE, *supra* note 56, at 1, 3.

58. See, e.g., Kermyt G. Anderson, *Relatedness and Investment in Children in South Africa*, 16 HUMAN NATURE 1, 2 (2005). Hamilton’s rule offered the basic insight into kin selection. It “is that natural selection favors mechanisms for altruism when $c < rb$.” In this formula, c is the cost to the actor, r is the degree of genetic relatedness between actor and recipient, and b is the benefit to the recipient.” BUSS, *EVOLUTIONARY PSYCHOLOGY*, *supra* note 27, at 224. For the opinion that the costs and benefits of kin altruism are poorly studied, see PAUL R. EHRLICH, *HUMAN NATURES: GENES, CULTURES, AND THE HUMAN PROSPECT* 312 (2000); SHAW & WONG, *supra* note 49, at 39-40. “Indeed, careful psychological experiments suggest that much of human helping behavior is divorced from any real prospect of reproductive or other reward.” EHRLICH, *supra*. But this may be due to the fact that altruistic tendencies accrued in ancestral environments when most encountered conspecifics were relatives, see *infra* notes 68 and 147, or because of other evolutionary misfires, see *infra* note 135 and accompanying text.

59. Of the 116 acts of heroism recognized by the Carnegie Hero Fund Commission between 1989 and 1995 that resulted in the death of the rescuer, thirty-two percent of them were attempts to rescue biological relatives. See Ronald C. Johnson, *Attributes of Carnegie Medalists Performing Acts of Heroism and of the Recipients of These Acts*, 17 ETHOLOGY & SOCIOBIOLOGY 355, 357 (1996).

60. “If altruism has a basis in kinship selection, then rescuers should be more likely to risk their lives for younger rather than for older biological relatives.” *Id.* at 360. “This is the case [among Carnegie heroes], with 52 younger versus 6 older biological relatives rescued, but may be explainable in terms of the greater needs of younger relatives (usually young children) rather than greater willingness to take risks on the part of the rescuer.” *Id.* Beckstrom refers to “a study in which grandparents were asked ‘who you would save’ and were then required to choose between children and grandchildren. Children (related by one-half) were preferred until they were beyond the reproductive age, at which point there was a tendency to prefer grandchildren (related by one-

doctrine would also favor the rescue of those who are supportive of the rescuer's, or her kin's, reproductive success. Greater refinement would factor in other considerations that pertain to the rescuee's mating and aid-giving prospects, some of them morally distasteful, such as her attractiveness, personality, intelligence, virtue, education, wealth, and social status.⁶¹ Yet we should not expect the law to draw lines with such subtlety especially in light of some of our espoused community values, which include egalitarianism and unselfishness. But even if the law fails in principle to take into account the nuances of the rescuer's interests under kin selection, we would expect the rescuer to do so, consciously or otherwise; for natural selection is unkind to those who neglect their genetic interests. Consequently, the facts of the actual cases under the rescue doctrine should reflect the evolutionary forces of kin selection to the extent that other, nonparallel factors are absent. One of these possible other factors, reciprocal altruism, is taken up next.

2. Reciprocal Altruism

Evolutionarily beneficial risk taking also reaches beyond kin. Reciprocal altruism is the notion that reproductive success can be improved by mutual support, even among nonrelatives.⁶² For example,

fourth).” JOHN H. BECKSTROM, *SOCIOBIOLOGY AND THE LAW: THE BIOLOGY OF ALTRUISM IN THE COURTROOM OF THE FUTURE* 112 (1985) (citing DANIEL G. FREEDMAN, *HUMAN SOCIOBIOLOGY* 115 (1979)). Even the perception of risk is affected by various factors, some of which produce an evolutionary advantage. “For example, if children are at risk, then the perception of risk is higher than an analyst would calculate.” Peter Strahlendorf, *Traditional Legal Concepts from an Evolutionary Perspective*, in *THE SENSE OF JUSTICE: BIOLOGICAL FOUNDATIONS OF LAW* 128, 147 (Roger D. Masters & Margaret Gruter eds., 1992). “A study of fantasy dilemmas . . . found results indicating that when decisions involve life or death they are made to benefit close kin ahead of distant kin, young over old, healthy over sick, wealthy over poor, and premenopausal over postmenopausal females.” LEWIS PETRINOVICH, *HUMAN EVOLUTION, REPRODUCTION, AND MORALITY* 174 (1995). In non-life-threatening situations, propriety dominates kin selection, since “the young and old are helped rather than those of intermediate age, the sick rather than the healthy, poor rather than wealthy, and females rather than males.” *Id.* at 174-75.

61. The characteristics of males that are attractive to females, and vice versa, are discussed in greater detail the section on sexual selection. See discussion *infra* Part II.B.3.

62. The notion does not refer to strong altruism since the “altruistic” party expects to receive a reciprocal benefit. In the seminal article on reciprocal altruism, Trivers defines “altruistic behavior . . . as behavior that benefits another organism, not closely related, while being apparently detrimental to the organism performing the behavior, benefit and detriment being defined in terms of contribution to inclusive fitness.” Robert L. Trivers, *The Evolution of Reciprocal Altruism*, 46 Q. REV. BIOLOGY 35, 35 (1971) [hereinafter Trivers, *Reciprocal Altruism*]. “Approximate synonyms for reciprocal altruism include *cooperation*, *reciprocation*, and *social exchange*.” BUSS, *EVOLUTIONARY PSYCHOLOGY*, *supra* note 27, at 254. See BADCOCK, *EVOLUTIONARY PSYCHOLOGY*, *supra* note 34, at 102-06; BADCOCK, *PROBLEM OF ALTRUISM*, *supra* note 51, at 37-47; TRIVERS, *SOCIAL EVOLUTION*, *supra* note 40, at 361-94; Sarah F. Brosnan & Frans B.M. de Waal, *A Proximate Perspective on Reciprocal Altruism*, 13 HUM. NATURE 129 (2002) (distinguishing three types of reciprocity with increasing cognitive complexity: symmetry-based,

the farmer who raises a bumper crop one year may improve her long term prospects by giving the excess to less fortunate neighbors in the expectation that they will reciprocate when their situations are reversed.⁶³ In historical times, a contract could legalize this expectation, but reciprocal altruism does not require the long arm of the law. Informal cooperation will do, but, as in the prisoner's dilemma, the risk of defection is a major hurdle.⁶⁴

There are three preconditions for reciprocal altruism.⁶⁵ First, giving must be somewhat costly and receiving must be beneficial. If our farmer above has such a bumper crop that some of it will just spoil anyway, or the neighbors also have all they need, giving them the excess is not altruistic. Second, there must be a lapse of time between the two acts. Otherwise, the mutual behavior is merely concurrent cooperation or

attitudinal and calculated reciprocity); Trivers, *Reciprocal Altruism*, *supra*, at 35. Some are offended by the implications of reciprocal altruism. *See, e.g.,* OZINGA, *supra* note 40, at 10 ("Reciprocal altruism is simply another way in which the significance of human sharing behavior is denigrated."). Ozinga has the same view of altruism driven by kin selection. *See id.* at 12 ("the argument of small minds"). But de Tocqueville found Americans to be proud of their enlightened self-interested behavior. "The Americans . . . enjoy explaining almost every act of their lives on the principle of self-interest properly understood. It gives them pleasure to point out how an enlightened self-love continually leads them to help one other . . ." 2 ALEXIS DE TOCQUEVILLE, *DEMOCRACY IN AMERICA* 146 (Henry Reeve trans., 1st Schocken ed. 1961) (1834), *quoted in* JON ELSTER, *ALCHEMIES OF THE MIND: RATIONALITY AND THE EMOTIONS* 359 (1999).

63. Reciprocal altruism has been found among certain vampire bats that must feed on blood every sixty hours or so. Those that are needy are fed by even unrelated neighbors in the caves to which they retire. *See* BUSS, *EVOLUTIONARY PSYCHOLOGY*, *supra* note 27, at 257-59 ("[T]he closer the association between the bats—the more often they were sighted together—the more likely they were to give blood to each other."); CRONIN, *supra* note 30, at 258 ("[I]n such transactions [among female vampire bats], there is plenty of scope for Tit-for-Tat-like cooperation."); LOW, *supra* note 38, at 152-53 ("Perhaps this system is facilitated by the fact that the same physical amount of blood makes a smaller 'hours-to-starvation' difference to a well-fed bat compared to a hungry bat: the cost of helping is low, and the benefit to being helped is great."); TRIVERS, *SOCIAL EVOLUTION*, *supra* note 40, at 363-66. Reciprocity has also been found among baboons, chimpanzees, ravens, and blue jays. *See, e.g.,* BUSS, *EVOLUTIONARY PSYCHOLOGY*, *supra* note 27, at 259-61; TRIVERS, *SOCIAL EVOLUTION*, *supra* note 40, at 368-82; Craig B. Stanford, *The Ape's Gift: Meat-Eating, Meat-Sharing, and Human Evolution*, in *TREE OF ORIGIN: WHAT PRIMATE BEHAVIOR CAN TELL US ABOUT HUMAN SOCIAL EVOLUTION* 95, 113 (Frans B.M. de Waal ed., 2001); S. Milius, *Trust That Bird?: A Bit of Future-Think Lets Jays Cooperate*, *SCI. NEWS*, Dec. 14, 2002, at 373. But beyond these instances, "three decades of intense research have produced almost no clear examples of reciprocity in animals . . ." GEOFFREY MILLER, *THE MATING MIND* 301 (2000). *See* Brosnan & de Waal, *supra* note 62, at 132 ("Examples of reciprocity are scarce among nonhuman animals because demonstrating it is difficult."). For explanations, see Peter Hammerstein, *Why Is Reciprocity So Rare in Social Animals? A Protestant Appeal*, in *GENETIC AND CULTURAL EVOLUTION OF COOPERATION* 83 (Peter Hammerstein ed., 2003).

64. "The prisoner's dilemma mimics reciprocal altruism . . ." TRIVERS, *SOCIAL EVOLUTION*, *supra* note 40, at 390. For the application of game theory to the evolution of social exchange, including reciprocal altruism, see Leda Cosmides & John Tooby, *Cognitive Adaptations for Social Exchange*, in *ADAPTED MIND*, *supra* note 39, at 163, 170-79.

65. *See* DE WAAL, *GOOD NATURED*, *supra* note 39, at 24.

trade, which does not require the actor to trust the other to reciprocate later. Third, the giving must be conditioned on later receiving, if needed. Simply donating some of the bumper crop to a needy person may be altruistic in a strong sense, but it is not reciprocal altruism.⁶⁶

These three preconditions require sophisticated cognitive abilities to facilitate the cooperative understandings and avoid cheating. “Humans must be able to recognize other individuals; remember the history of interactions with them; communicate values, desires, and needs to others; recognize them in others; and represent the costs and benefits of a variety of items of exchange.”⁶⁷ Frequent interactions help.⁶⁸ What is more, “[i]f reciprocal altruism is selected for, and cheating selected against, then the former should be associated with feeling good and the latter with feeling bad; cheating should also be associated with feeling afraid since cheaters will, if caught, be punished.”⁶⁹

The reciprocation for the original act need be neither symmetrical

66. “Reciprocal altruism differs from other patterns of cooperation in that it is fraught with risk, depends on trust, and requires that individuals whose contributions fall short be shunned or punished, lest the whole system collapse.” *Id.*

67. BUSS, *EVOLUTIONARY PSYCHOLOGY*, *supra* note 27, at 264 (citing Cosmides & Tooby, *supra* note 64, at 163); *see* RICHARD D. ALEXANDER, *THE BIOLOGY OF MORAL SYSTEMS* 95 (1987) [hereinafter ALEXANDER, *BIOLOGY*] (“Systems of indirect reciprocity as expressed in humans require memory, consistency across time, the application of precedents, and persistent and widely communicated concepts of right and wrong. They become, automatically, what I am here calling moral systems.”) (citation omitted); Henk de Vos & Evelien Zeggelink, *Reciprocal Altruism in Human Social Evolution: The Viability of Reciprocal Altruism with a Preference for “Old-Helping-Partners”*, 18 *EVOLUTION & HUM. BEHAV.* 261, 262-63 (1997) (listing capacities and conditions for reciprocal altruism). *See generally* Cosmides & Tooby, *supra* note 64. In one of many supporting studies, de Waal presents evidence “that the reciprocal exchange of social services among chimpanzees (*Pan troglodytes*) rests on cognitive abilities that allow current behavior to be contingent upon a history of interaction.” Frans B.M. de Waal, *The Chimpanzee’s Service Economy: Food for Grooming*, 18 *EVOLUTION & HUM. BEHAV.* 375, 375 (1997).

68. *See* DE WAAL, *GOOD NATURED*, *supra* note 39, at 24 (“Reciprocal altruism does not work for individuals who rarely meet or who have trouble keeping track of who has done what for whom: it requires good memories and stable relationships, such as are found in the primates.”); TRIVERS, *SOCIAL EVOLUTION*, *supra* note 40, 361 (“Where individuals interact infrequently, this narrow strategy [of cheating] is expected to predominate, but where interactions are frequent, a cheater will suffer lost future altruism if altruists respond to non-reciprocation by withholding future aid.”). Frequency of interaction also reduces the complication of drawing “interest” during a time lag before reciprocation. “For longer intervals, in order to be repaid precisely, the initial altruist must receive more in return than he himself gave.” Trivers, *Reciprocal Altruism*, *supra* note 62, at 46.

69. MARC D. HAUSER, *WILD MINDS: WHAT ANIMALS REALLY THINK* 237 (2000). Because of this need for sophisticated cognitive skills, Hauser notes that not many animals have the wherewithal, and puzzles remain. *See id.* at 238-39. But Axelrod asserts that even bacteria have the needed abilities. *See* ROBERT AXELROD, *THE EVOLUTION OF COOPERATION* 174 (1984) [hereinafter AXELROD, *EVOLUTION*] (After listing the preconditions for reciprocal altruism, Axelrod notes that “these requirements for recognition and recall are not as strong as they might seem. Even bacteria can fulfill them . . .”).

nor direct. The practice will not collapse simply because, say, a person rescued from drowning may not be in a position to later save her rescuer from drowning.⁷⁰ First, this rescuee could later reciprocate by, perhaps, saving the rescuer from starvation. Second, the rescuee need not personally aid the rescuer at all if another person undertakes the task out of gratitude or with the expectation that logs might roll.⁷¹ Reciprocal altruism can work indirectly: the drowning rescuee, say, feeding a starving person, who pushes an inattentive person off railroad tracks, who gives another person emergency first aid, who pulls the original rescuer, or her child, from a house fire.⁷² A common practice of mutual aid sustains reciprocal altruism. This indirect reciprocity, however, is subject to cheating, especially among those who interact infrequently when risks are substantial, and thus is difficult to evolve.⁷³ Under these conditions, “expensive helping behaviors may occur only or primarily

70. Cf. ROSE, *supra* note 33, at 202 (questioning the likelihood of the rescuee being in a position to later save the rescuer from drowning).

71. Even if the rescuer perishes during the rescue, “through his close kin, [he] may be compensated An individual who dies saving a friend, for example, may have altruistic acts performed by the friend to the benefit of his offspring.” Trivers, *Reciprocal Altruism*, *supra* note 62, at 52.

72. See ALEXANDER, *BIOLOGY*, *supra* note 67, at 84 (reciprocal benefits to relatives); BADCOCK, *EVOLUTIONARY PSYCHOLOGY*, *supra* note 34, at 105-06 (“Multi-party interactions”); LOW, *supra* note 38, at 152 (“A helps B at some cost, B helps C, C helps A, and so on.”); Trivers, *Reciprocal Altruism*, *supra* note 62, at 39. A mathematical model of cooperation based on indirect reciprocity has found it to be stable despite the threat of defectors if individuals adequately monitor the prior cooperative behavior of others. See BADCOCK, *EVOLUTIONARY PSYCHOLOGY*, *supra* note 34, at 100-02. “Systems of indirect reciprocity may be institutionalized in social roles as divisions of labor In effect, people may implicitly negotiate deals in which they routinely make certain kinds of contributions to their groups in exchange for contributions others make to them.” Dennis L. Krebs, *The Evolution of Moral Behaviors*, in *HANDBOOK*, *supra* note 34, at 337, 345.

73. “Indirect systems, however, are hard to evolve, for at any moment, the balance of costs and benefits is likely to be uneven (A has helped B, at some cost; B has not yet helped anyone). If individuals interact only rarely or occasionally, such indirect reciprocity is extremely vulnerable to cheating: perhaps you help me, but we may never again interact and I never reciprocate.” LOW, *supra* note 38, at 152. Both points are puzzling. First, one would think that opting into a practice of reciprocal altruism, direct or indirect, is like buying an insurance policy against future emergencies. Simply because one never collects on the policy does not mean one does not get what was paid for, i.e., the security of knowing one is more likely to be rescued if needed. See JOHN RAWLS, *A THEORY OF JUSTICE* 338 (1971) (observing that Kant suggested that the ground for proposing the duty of mutual aid is that, “[w]hile on particular occasions we are required to do things not in our own interests, we are likely to gain on balance at least over the longer run under normal circumstances”); Ken Binmore, *A Utilitarian Theory of Political Legitimacy*, in *ECONOMICS, VALUES, AND ORGANIZATION* 101, 116 (Avner Ben-Ner & Louis Putterman eds., 1998) (“[T]ribes that implicitly internalized [the failure to see the insurance contract aspect of reciprocal altruism] would eventually lose the evolutionary race.”). Second, even if particular individuals interact only rarely, it would seem that indirect reciprocal altruism would work so long as rescuees would later aid others in distress. But this last proviso is a sticking point. One of the main inducements to deliver aid when needed may be negative social sanctions, which a prior rescuee who is a stranger may not face.

among kin, or individuals may mirror the behavior of others, for example, in a tit-for-tat manner: I'll start by cooperating, but if you default, I will, too.⁷⁴

As for all cooperative endeavors, freeriding is a risk. And as studies of the prisoner's dilemma make clear, cooperation for the duration of an extended interaction runs up against the urges of immediate, self-interested behavior.⁷⁵ "Yes, Jill rescued me from drowning last year, but I would rather not put myself at risk by attempting to save her now from drowning, especially since no one else is around to see." "While Bea, who kept me going last year when my own crop failed, herself raised a poor crop this season, I sure want to use my own excess production this year to buy a new tractor, so I'll make excuses and only give her a little."⁷⁶

74. LOW, *supra* note 38, at 153; *see also* ROBERT WRIGHT, *THE MORAL ANIMAL: THE NEW SCIENCE OF EVOLUTIONARY PSYCHOLOGY* 200-02 (1994). Hence, it has been argued that "simple, clear-cut, direct behavioral reciprocity is probably far rarer in the real world than we realized." LOW, *supra* note 38, at 153. Even a tit-for-tat strategy, though generally a very robust one, is vulnerable to such things as mistakes and imperfect information. *See* AXELROD, *EVOLUTION*, *supra* note 69, at 175-77; LOW, *supra*, at 153. Memory of prior interactions between the two parties can solve these problems, but this does not help indirect reciprocal altruism. *See id.* In the end, mainly "[k]in, short-term mutualists, [and] long-term repeated interactors are likely to cooperate." *Id.* at 154. *See* Robert M. Sapolsky, *Cheaters and Chumps: Game Theorists Offer a Surprising Insight into the Evolution of Fair Play*, NAT. HIST., June 2002, at 20, 24 ("So game theory shows that at least three things facilitate the emergence of cooperation: playing with relatives or pseudorelatives [i.e., those who feel related], repeated rounds with the same individual, and open-book play [in which players know of their opponent's prior gaming behavior]."). The Goulds argue that a tit-for-tat culture could evolve once two individuals likely to interact frequently adopt the strategy. "By focusing their interactions on one another, they acquire more fitness than their selfish colleagues. As a result, the genes that program reciprocal altruism will spread and may take over the group and spread from there to the population at large." GOULD & GOULD, *supra* note 34, at 246.

Once the decision is made to help another, then one must decide how much help to give, or in the context of the rescue doctrine, how much risk to take. Consistent with the predictions of reciprocal altruism (and kin selection), among the Carnegie medal winners between 1989 and 1995, "[d]eaths were more likely to occur in rescuers of persons they knew than of those they did not know." Johnson, *supra* note 59, at 355.

75. "What the Prisoner's Dilemma captures so well is the tension between the advantages of selfishness in the short run versus the need to elicit cooperation from the other player to be successful in the longer run." ROBERT AXELROD, *THE COMPLEXITY OF COOPERATION: AGENT-BASED MODELS OF COMPETITION AND COLLABORATION* 6 (1997) [hereinafter AXELROD, *COMPLEXITY*]. *See generally* WILLIAM POUNDSTONE, *PRISONER'S DILEMMA* (1992).

76. Trivers distinguishes between gross cheating, in which "the cheater fails to reciprocate at all and the altruist suffers the cost of whatever altruism has been dispensed without compensating benefits," and subtle cheating, which "involves reciprocating but always attempting to give less than one was given, or more precisely, to give less than the partner would give if the situation were reversed." TRIVERS, *SOCIAL EVOLUTION*, *supra* note 40, at 387. When multiple exchanges involving diverse goods in varying circumstances take place over a long period, "the problem of computing the relevant totals, detecting imbalances, and deciding whether they are due to chance or to small-scale cheating is a difficult one." *Id.* *See* Trivers, *Reciprocal Altruism*, *supra* note 62, at 46 (using similar language). Because "[t]he human altruistic system is a sensitive, unstable one . . . a degree of

Prime mechanisms to combat freeriding tendencies are norms, social mores, religious and moral feelings, and emotions in general.⁷⁷ Those who fail to reciprocate may experience shame or guilt,⁷⁸ or suffer ostracism or moralistic aggression from indignant onlookers.⁷⁹ Gratitude, sympathy and personal satisfaction are also among those emotions that effectively reduce the cost of reciprocation.⁸⁰

Still, the norms, emotions, and practices of mutual aid are not enough to assure reciprocal altruism. Various other factors come into play. The stranger who is just passing through is unlikely to be in a position to reciprocate to anyone in the community, even if she is so disposed because, say, the rescue generates warm emotions in her.⁸¹ The person with limited resources, physical or material, may be unable to

cheating is adaptive, [and] natural selection will rapidly favor a complex psychological system in each individual regulating both his own altruistic and cheating tendencies and his responses to these tendencies in others." *Id.* at 48. See William Michael Brown & Chris Moore, *Is Prospective Altruist-Detection an Evolved Solution to the Adaptive Problem of Subtle Cheating in Cooperative Ventures?: Supportive Evidence Using the Wason Selection Task*, 21 *EVOLUTION & HUM. BEHAV.* 25, 25 (2000) ("[I]t is argued that non-kin altruism may be an evolutionarily stable strategy if altruists can detect one another and form mutually beneficial social support networks.").

77. See, e.g., JON ELSTER, *NUTS AND BOLTS FOR THE SOCIAL SCIENCES* 113 (1989) (discussing emotions); JOHN MAYNARD SMITH, *THE THEORY OF EVOLUTION* 199 (3d ed. 1975) (discussing norms); Robert H. Frank, *Economics*, in *SOCIOBIOLOGICAL IMAGINATION*, *supra* note 49, at 91, 96-102 (discussing emotions); Trivers, *Reciprocal Altruism*, *supra* note 62, at 52 (discussing norms). For a more detailed discussion of the normative and emotional mechanisms behind reciprocal altruism, see Bailey Kuklin, *The Morality of Evolutionarily Self-Interested Rescues* (unpublished manuscript, on file with the Hofstra Law Review).

78. See, e.g., BADCOCK, *EVOLUTIONARY PSYCHOLOGY*, *supra* note 34, at 104; ANTONIO R. DAMASIO, *DESCARTES' ERROR: EMOTION, REASON AND THE HUMAN BRAIN* 176 (1994); ELSTER, *supra* note 77, at 113; VICTOR S. JOHNSTON, *WHY WE FEEL: THE SCIENCE OF HUMAN EMOTIONS* 84 (1999); STEVEN PINKER, *HOW THE MIND WORKS* 404 (1997); Trivers, *Reciprocal Altruism*, *supra* note 62, at 50.

79. See, e.g., AXELROD, *COMPLEXITY*, *supra* note 75, at 55; BADCOCK, *PROBLEM OF ALTRUISM*, *supra* note 51, at 39; Robert Boyd & Peter J. Richerson, *Punishment Allows the Evolution of Cooperation (or Anything Else) in Sizable Groups*, 13 *ETHOLOGY & SOCIOBIOLOGY* 171 (1992); Michael E. Price et al., *Punitive Sentiment As an Anti-free Rider Psychological Device*, 23 *EVOLUTION & HUM. BEHAV.* 203, 206 (2002); Trivers, *Reciprocal Altruism*, *supra* note 62, at 49.

80. See, e.g., BADCOCK, *EVOLUTIONARY PSYCHOLOGY*, *supra* note 34, at 104; PINKER, *supra* note 78, at 404; TRIVERS, *SOCIAL EVOLUTION*, *supra* note 40, at 388-89; Robert H. Frank, *Regulating Sexual Behavior: Richard Posner's Sex and Reason*, in *LAW AND EVOLUTIONARY BIOLOGY* 149, 156 (Lawrence A. Frolik ed., 1999).

81. While the inducement to help a person in peril because one likes her is absent for strangers, "[s]election may also favor helping strangers or disliked individuals when they are in particularly dire circumstances." Trivers, *Reciprocal Altruism*, *supra* note 62, at 48. "Since humans respond to acts of altruism with feelings of friendship that lead to reciprocity, one such mechanism might be the performing of altruistic acts toward strangers, or even enemies, in order to induce friendship." *Id.* at 52. On the other hand, the impulse to save strangers may simply "be explained as 'misfirings' of the disposition to behaviour of the broadly 'reciprocal altruist' kind . . ." FLORIAN VON SCHILCHER & NEIL TENNANT, *PHILOSOPHY, EVOLUTION AND HUMAN NATURE* 144 (1984).

reciprocate.⁸² The elderly and infirm may have a shortened window of opportunity.⁸³ On the other hand, the person with a history of altruistic behavior is more likely to reciprocate,⁸⁴ as are friends and acquaintances.⁸⁵ The same may hold true for the prominent social, business or political leader, or any person who trades on her reputation.⁸⁶ The young and the venturesome may even want to face the risks of a future rescue. In sum, a wide range of responses to the call for reciprocal altruism can be expected, with certain identifiable qualities of each person affecting her probable amenability.

Perhaps the persons most likely to engage in rescues because of a heightened expectation of reciprocation would be, all else being equal, fellow householders and near neighbors. The rescuee is more likely to be around to reciprocate, if needed. Normative sanctions are probably strongest and most effective with regard to locals. At the same time, fellow householders and near neighbors, especially in ancestral

82. See TRIVERS, SOCIAL EVOLUTION, *supra* note 40, at 362 (“Of course, any asymmetries among the individuals in their ability to affect each other will decrease the possibilities for altruistic exchanges.”).

83. See *id.* at 388-89. With each of these examples, I generalize, sometimes grossly. For example, though the elderly may not be in a position to reciprocate, their descendants might be. For a family or community that reveres the elderly, the rescue of an older person may be more likely to trigger indirect reciprocation than the rescue of a young person. On the other hand, the elderly and infirm have less to gain from altruistic acts, and also less to lose by reciprocating. See Trivers, *Reciprocal Altruism*, *supra* note 62, at 46.

84. Yet one must not forget the “fundamental attribution error” (“FAE”), which occurs “[w]hen people infer that the actor’s behavior and mental state correspond to a degree that is logically unwarranted by the situation . . .” Paul W. Andrews, *The Psychology of Social Chess and the Evolution of Attribution Mechanisms: Explaining the Fundamental Attribution Error*, 22 EVOLUTION & HUM. BEHAV. 11, 13 (2001). “Because it appears as if people generalize from the actor’s behavior and ignore the situational context in which behavior occurs, the FAE is often described as a tendency to underattribute the cause of behavior to situations and overattribute it to dispositional traits.” *Id.*; see also RICHARD NISBETT & LEE ROSS, HUMAN INFERENCE: STRATEGIES AND SHORTCOMINGS OF SOCIAL JUDGMENT 30-32 (1980); Lee Ross & Craig A. Anderson, *Shortcomings in the Attribution Process: On the Origins and Maintenance of Erroneous Social Assessments*, in JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES 129, 135 (Daniel Kahneman et al. eds., 1982).

85. “Altruism would be expected to be more frequent in a milieu in which an individual’s acts of altruism were known to the other people in that milieu.” Johnson, *supra* note 59, at 360. “The majority of altruistic acts receiving [Carnegie hero] awards are performed by rural or small-town residents [where this conduct is more likely to be known and reciprocated by others], as would be expected from reciprocal altruism theory.” *Id.* at 360-61.

86. See ALEXANDER, BIOLOGY, *supra* note 67, at 85 (“Indirect reciprocity involves reputation and status, and results in everyone in a social group continually being assessed and reassessed by interactants, past and potential, on the basis of their interactions with others.”); BARKOW, *supra* note 40, at 54 (“If I have the reputation of aiding others, there is a considerable chance that someone will eventually aid me . . .”); Richard D. Alexander, *Biological Considerations in the Analysis of Morality*, in EVOLUTIONARY ETHICS 162, 179 (Matthew H. Nitecki & Doris V. Nitecki eds., 1993) (discussing reputational benefits of beneficence).

environments, may well be relatives.⁸⁷ If so, reciprocal altruism and kin selection would reinforce one another.⁸⁸

To reconnoiter, insofar as reciprocal altruism, or cooperation more generally, is beneficial to a community, courts should be generous in protecting rescuers irrespective of who the various parties happen to be. Even the rescue of strangers unlikely to reciprocate may be salutary to the community overall by furthering a broad practice of cooperation and mutual support, and encouraging alliances with other groups. Nonetheless, the actual cases under the rescue doctrine should reflect the interests of the rescuers, which may differ from the community at large. While the community may gain from expanding the practice of undertaking rescues, the individual rescuer (and her kin) must absorb many of the losses that result from harms to the rescuer and failures to reciprocate. Even when the rescuer successfully recovers for injuries under the rescue doctrine, she still must bear the opportunity and transaction costs of the litigation. For the rescuer, these potential losses would probably outweigh the benefits to her from the diffuse gains to the community. So under reciprocal altruism, one would expect that rescuers would usually direct their efforts to those who are more likely to stimulate reciprocation, direct or indirect, to them or their kin. But before we complete the tally of evolutionary benefits to rescuers, we must account for the urges of the genes pursuant to sexual selection.

3. Sexual Selection

Another evolutionary component that affects behavior is, as Darwin

87. Anthropological studies have found that help to others and the expectation of reciprocation for gift giving correlate to the degree of relationship to the recipient. See RICHARD JOYCE, *THE EVOLUTION OF MORALITY* 46 (2006).

88. "This *kin altruism* or nepotism can be viewed as a special case of reciprocal altruism, with costs reduced in accordance with genetic closeness." JOHNSTON, *supra* note 78, at 86. "Indeed, given the favorable benefit-to-cost ratio that is inherent in kin altruism, it likely served as the stepping-stone necessary for acquiring and refining the feelings needed for effective use of reciprocal altruism." *Id.* See BARKOW, *supra* note 40, at 55-57 (arguing, contrary to Trivers, that reciprocal altruism needed kin selection for an "initial kick" to get started); Krebs, *supra* note 72, at 337, 357 ("[S]ystems of reciprocity may have needed the benefits of kin selection to kick start them."). If both kin selection and reciprocal altruism have operated, "[o]ne might expect, for example, a lowered demand for reciprocity from kin than from nonkin, and there is evidence to support this. The demand that kin show some reciprocity suggests, however, that reciprocal-altruistic selection has acted even on relations between close kin." Trivers, *Reciprocal Altruism*, *supra* note 62, at 46 (citations omitted). Because the mental mechanisms behind altruistic behavior may have been selected in an ancestral environment of family and close comrades, which is no longer our exclusive environment, human dispositions for reciprocal altruism today might be evolutionarily too strong. See Avner Ben-Ner & Louis Putterman, *Values and Institutions in Economic Analysis*, in *ECONOMICS, VALUES, AND ORGANIZATION*, *supra* note 73, at 3, 32; Charles Crawford, *The Theory of Evolution in the Study of Human Behavior: An Introduction and Overview*, in *HANDBOOK*, *supra* note 34, at 3, 26 [hereinafter Crawford, *Theory of Evolution*].

called it, “sexual selection.”⁸⁹ This stems from the competition among conspecifics for resources. In this regard, sexual organisms compete for mating opportunities.⁹⁰

The competition among conspecifics of the same sex occurs because males and females supply different resources to the reproductive process.⁹¹ Females usually contribute the more valuable resources.⁹² First of all, they provide eggs, which are high in nutrients, while males supply sperm, which are low. In fact, the very definition of male and female turns on which one produces the more valuable input to fertilization.⁹³ Second, among mammals, the greater initial investment of females extends to internal fertilization and gestation, and thereafter to lactation.⁹⁴ Finally, for humans, it seems that historically and prehistorically, nurturing has also been largely left to females.

89. See DARWIN, *THE DESCENT OF MAN, in THE ORIGIN OF SPECIES & THE DESCENT OF MAN*, *supra* note 29, pt. II, ch. VIII. Darwin saw “that there are two kinds of selection, one for general viability leading to survival and the maintenance or improvement of adaptedness, and this he called ‘natural selection,’ and another that leads to greater reproductive success, and this he called ‘sexual selection.’” ERNST MAYR, *ONE LONG ARGUMENT: CHARLES DARWIN AND THE GENESIS OF MODERN EVOLUTIONARY THOUGHT* 164 (1991). “From a gene survival viewpoint, there is really no difference between natural and sexual selection, since any such behavior or structure will be favored over generations only if it contributes to the survival of the genes of those who possess it.” JOHNSTON, *supra* note 78, at 149.

For theories as to why sexual reproduction began, see AVISE, *supra* note 38, at 126-29; GOULD & GOULD, *supra* note 34, at 6-69; TRIVERS, *SOCIAL EVOLUTION*, *supra* note 40, at 315-30; WILLIAMS, *PLAN AND PURPOSE*, *supra* note 47, at 79-96.

90. Sexual selection “has two forms: intersexual selection (often typified by female choice of males) and intrasexual selection (often typified by the male-male competition for access to females).” DONALD E. BROWN, *HUMAN UNIVERSALS* 103 (1991); see also DAVID M. BUSS, *THE EVOLUTION OF DESIRE: STRATEGIES OF HUMAN MATING* 3 (1994) [hereinafter BUSS, *EVOLUTION OF DESIRE*]; GOULD & GOULD, *supra* note 34, at 86; LOW, *supra* note 38, at 22-23; Crawford, *Theory of Evolution*, *supra* note 88, at 10.

91. The seminal paper on “parental investment theory” is by Trivers. See Robert L. Trivers, *Parental Investment and Sexual Selection*, in *SEXUAL SELECTION AND THE DESCENT OF MAN 1871-1971*, at 136 (Bernard Campbell ed., 1972). “Each sex . . . is governed by individual reproductive advantage, sometimes in conflict with that of the other, and sex differences have evolved because of an underlying difference in the work each invests—or fails to invest—in the raising of offspring.” TRIVERS, *SOCIAL EVOLUTION*, *supra* note 40, at 301. For challenges to this view, see ANNE FAUSTO-STERLING, *MYTHS OF GENDER: BIOLOGICAL THEORIES ABOUT WOMEN AND MEN* 179-204 (2d ed. 1992).

92. “These asymmetries between the sexes tend to produce two outcomes: (1) greater male-male than female-female competition for mates and (2) greater female than male ‘choice’ among willing mates.” Jones & Goldsmith, *supra* note 24, at 430. “Trivers’ supply-and-demand logic explained why, in most species, males court and females choose.” MILLER, *supra* note 63, at 86. Nevertheless, “[m]ales seem to devote at least as much energy [as females] to producing offspring, but this effort is more often expended in fighting and displaying than in large zygotes and care of the young.” GOULD & GOULD, *SEXUAL SELECTION* *supra* note 34, at 239.

93. See, e.g., BUSS, *EVOLUTION OF DESIRE*, *supra* note 90, at 19; GOULD & GOULD, *supra* note 34, at 69; MILLER, *supra* note 63, at 85.

94. See BUSS, *EVOLUTION OF DESIRE*, *supra* note 90, at 19-20.

The sex that invests less in reproduction competes, as for other scarce resources, for the one that invests more.⁹⁵ The degree of disparity in resource commitment affects the competition and behavior. Among humans—a largely “pair-bonding” species⁹⁶—males generally invest much in their offspring, though not as much as women.⁹⁷ One reason men invest so much is that women will not mate with them otherwise.⁹⁸ Even so, males may gain much evolutionarily, and lose little beyond the risks of disease and social sanctions, by casual mating beyond the primary relationship.⁹⁹ On the contrary, women usually have little to gain from indifferent promiscuity since their investment requirements severely limit their number of offspring. Obtaining matings is usually not a problem for females; raising their children to be successful breeders is. Hence, males are disposed to seek quantity in matings while the females seek quality.¹⁰⁰ This mating game, in which males and

95. See, e.g., David M. Buss, *The Psychology of Human Mate Selection: Exploring the Complexity of the Strategic Repertoire*, in HANDBOOK, *supra* note 34, at 405, 410-11 [hereinafter Buss, *Human Mate Selection*]. Because “[s]exual competition is demonstrably more intense among males than among females . . . ; as a general consequence the entire life strategy of males is a higher-risk, higher-stakes adventure than that of females.” RICHARD D. ALEXANDER, *DARWINISM AND HUMAN AFFAIRS* 241 (1979) [hereinafter ALEXANDER, *HUMAN AFFAIRS*]. Numerous studies have shown that men are greater risk-takers than women. See BADCOCK, *EVOLUTIONARY PSYCHOLOGY*, *supra* note 34, at 14; Christopher R. Badcock, *PsychoDarwinism: The New Synthesis of Darwin and Freud*, in HANDBOOK, *supra* note 34, at 457, 464 [hereinafter Badcock, *PsychoDarwinism*].

96. For “pair-bonding” species, in which the male and female investments in producing and raising offspring are comparable, as for some fish and birds, “male-female bonds are long-lasting, physical and behavioral distinction between the sexes is small, male competition for females is low, and differences among males in reproductive success are small.” MELVIN KONNER, *WHY THE RECKLESS SURVIVE: AND OTHER SECRETS OF HUMAN NATURE* 7 (1990). These four qualities tend towards the opposite poles for species in which the male investment is low, as where they do little else than supply sperm. See GOULD & GOULD, *supra* note 34, at 146-49; LOW, *supra* note 38, at 50-51. For the general varieties of mating strategies, see GOULD & GOULD, *supra*, at 137-73; LOW, *supra*, at 47-51. For an argument that humans may not be entirely a pair-bonding species, see CARTWRIGHT, *supra* note 42, at 102-03; MILLER, *supra* note 63, at 224-25.

97. Anthropologists report that “[w]omen have done more child care than men in every human society on record.” KONNER, *supra* note 96, at 7.

98. The adaptive benefits for a man who will commit to marriage are: “(1) increased odds of succeeding in attracting a mate; (2) increased ability to attract a more desirable mate; (3) increased paternity certainty; (4) increased survival of his children; and (5) increased reproductive success of children accrued through paternal investment.” BUSS, *EVOLUTIONARY PSYCHOLOGY*, *supra* note 27, at 133. More generally, “[e]volution has favored women who prefer men who possess attributes that confer benefits and who dislike men who possess attributes that impose costs.” BUSS, *EVOLUTION OF DESIRE*, *supra* note 90, at 21.

99. “If there is any chance the female can raise the young, either alone or with the help of others, it would be to the male’s advantage to copulate with her.” ROBERT TRIVERS, *Parental Investment and Reproductive Success*, in *NATURAL SELECTION AND SOCIAL THEORY* 56, 74 (2002). “By this reasoning one would expect males of monogamous species to retain some psychological traits consistent with promiscuous habits.” *Id.*

100. See, e.g., MILLER, *supra* note 63, at 86. “Because women in our evolutionary past risked enormous investment as a consequence of having sex, evolution favored women who were highly

females choose one another on the basis of differing criteria, is the essence of sexual selection.¹⁰¹

Even though men and women have somewhat different reproductive interests and strategies,¹⁰² the traits they seek in a mate very largely overlap. In modern times, the characteristics of a mate generally preferred by females are, in order: kindness and understanding; intelligence; exciting personality; good health; adaptability; physical attractiveness; creativity; good earning capacity; college graduate; desire for children; good heredity; good housekeeper; and, religious orientation. Men's general preferences are the same, except they rate physical attractiveness as third rather than sixth, and good earning capacity as eleventh rather than eighth.¹⁰³ But there are sufficient differences in their mating interests and strategies to lead to variant preferences of concern here. This divergence will draw most of the attention.

Men are disposed to prefer young, healthy mates to increase their

selective about their mates." BUSS, *EVOLUTION OF DESIRE*, *supra* note 90, at 20. Historically females have not all bred near their reproductive capacity, and therefore also seek more than just genetic quality. See SARAH B. HRDY, *THE WOMAN THAT NEVER EVOLVED* 131-32 (1981). For doubts about ancestral mating patterns, see Sarah Blaffer Hrdy, *Raising Darwin's Consciousness: Female Sexuality and the Prehominid Origins of Patriarchy*, 8 *HUM. NATURE* 1 (1997).

101. "Given the power of sexual selection, under which each sex competes for access to desirable mates of the other sex, it would be astonishing to find that men and women were psychologically identical in aspects of mating about which they have faced different problems of reproduction for millions of years." BUSS, *EVOLUTION OF DESIRE*, *supra* note 90, at 211; see also CRONIN, *supra* note 30, at 113-249. For discussions of the biological origins of the differences in the mating strategies of males and females, see BUSS, *EVOLUTIONARY PSYCHOLOGY*, *supra* note 27, at 97-186; TIMOTHY H. GOLDSMITH, *THE BIOLOGICAL ROOTS OF HUMAN NATURE: FORGING LINKS BETWEEN EVOLUTION AND BEHAVIOR* 47-69 (1991); LOW, *supra* note 38, at 37-44; Kingsley R. Browne, *An Evolutionary Perspective on Sexual Harassment: Seeking Roots in Biology Rather Than Ideology*, 8 *J. CONTEMP. LEGAL ISSUES* 5, 12-22 (1997) [hereinafter Browne, *Evolutionary Perspective*].

102. While each sex uses different strategies to obtain resources for survival and reproduction, "how each sex accomplishes these ends relies not only (and not obviously) on differences in genes, but on differences in environment." LOW, *supra* note 38, at xiv. For general discussions of the differing mating wants of men and women, see, for example, BUSS, *EVOLUTION OF DESIRE*, *supra* note 90; LOW, *supra* note 38; MILLER, *supra* note 63.

103. GOULD & GOULD, *supra* note 34, at 258; Buss, *Human Mate Selection*, *supra* note 95, at 419-21; see also MILLER, *supra* note 63, at 330 ("When people are asked to rate personality features as positive or negative, the agreeableness feature [which is empirically associated with compassion, lovingness, sincerity, trustworthiness, and altruism] always tops the charts."); THIESSEN, *supra* note 54, at 326 (noting that the overlap in preferences of men and women is nearly total, both preferring kindness, understanding, intelligence, exciting personality, good health, and adaptability). Though Williams doubts that "advanced mental capabilities have ever been directly favored by selection," GEORGE C. WILLIAMS, *ADAPTATION AND NATURAL SELECTION: A CRITIQUE OF SOME CURRENT EVOLUTIONARY THOUGHT* 14 (1966), Miller contends that mental capabilities have "evolve[d] through sexual selection" as fitness indicators. MILLER, *supra* note 63, at 104. See generally *id.* at 99-176, 341-425.

prospects for productive children.¹⁰⁴ Strong indicators of youth and health are beauty and vivacity.¹⁰⁵ Men also want mates who are committed to them,¹⁰⁶ will be good mothers, and have good genes to pass along to their children.¹⁰⁷

Some risky rescues by women may reveal traits men seek in a mate. Directly demonstrating youthfulness in rescue situations is hard to envisage, but demonstrating fitness, which is generally associated with youthfulness, is easier, as where the rescue, even if not dangerous, is arduous.¹⁰⁸ As for the other qualities in a mate sought by men, commitment and good mothering may be intimated by some rescues, especially when the rescuee is kin or a friend. Good genes, like youth and health, are suggested by arduous rescues, or by tricky ones that require intelligence and ingenuity. Finally, whatever renown is achieved by the rescue may improve social and financial prospects for the female rescuer. With respect to the quality of daring in itself, in certain circumstances and environments, perhaps ancestral ones, bold women

104. See, e.g., BUSS, *EVOLUTIONARY PSYCHOLOGY*, *supra* note 27, at 133-45; BUSS, *EVOLUTION OF DESIRE*, *supra* note 90, at 49-58.

105. See BUSS, *EVOLUTIONARY PSYCHOLOGY*, *supra* note 27, at 139. Attractiveness is also an indicator of good genes in both women and men. See, e.g., B.C. Jones et al., *Facial Symmetry and Judgements of Apparent Health: Support for a "Good Genes" Explanation of the Attractiveness-Symmetry Relationship*, 22 *EVOLUTION & HUM. BEHAV.* 417 (2001) [hereinafter Jones et al., *Facial Symmetry*].

106. To protect their parental investments in their mates' children, men want assurance that the children are their own, and not another's. This has led to men's general preference for chaste females, and perhaps even to marriage. See BUSS, *EVOLUTIONARY PSYCHOLOGY*, *supra* note 27, at 148-52. It has also led to men's proprietary claims over their wives. See, e.g., Margo Wilson & Martin Daly, *The Man Who Mistook His Wife for a Chattel*, in *ADAPTED MIND*, *supra* note 39, at 289. To partially anticipate the next paragraph, in many studies "males, more so than females, indicate that a partner's sexual infidelity is relatively more distressing than a partner's emotional infidelity. Females, more so than males, indicate that a partner's emotional infidelity is more distressing than a partner's sexual infidelity." David C. Geary et al., *Estrogens and Relationship Jealousy*, 12 *HUM. NATURE* 299, 300 (2001).

107. Along with the two problems of "identifying women of high reproductive value and ensuring paternity certainty," men confront the problems of "selecting women likely to commit to them, identifying women who will be good mothers, and perhaps even identifying women with good genes (this latter suggestion is, at the current time, highly speculative)." Buss, *Human Mate Selection*, *supra* note 95, at 416. See BARKOW, *supra* note 40, at 357 (noting that it is advantageous for men in seeking a long-term mate to "act as if they were calculating the various weights of (1) the female's youth and health (reproductive potential); (2) the quality of her genes (judged phenotypically); (3) the confidence in future paternity she inspires (her reputation); and (4) her ability to produce and control resources for parental investment"). For the meanings of "good genes," see CRONIN, *supra* note 30, at 191-201, and for challenges to the "good genes" models, see WILLIAMS, *NATURAL SELECTION*, *supra* note 34, at 106-11.

108. For example, among the "reliable guides to age and hence reproductive capability" of females are "behavioral features (e.g., sprightly and graceful gait, high energy level, alacrity)." David M. Buss, *Mate Preference Mechanisms: Consequences for Partner Choice and Intrasexual Competition*, in *ADAPTED MIND*, *supra* note 39, at 249, 250 [hereinafter Buss, *Mate Preference*].

may better protect themselves, their offspring and their mates than the meek and weak. In other situations, heroic women may simply put themselves and their families at greater risk than those who retreat.¹⁰⁹ Because men are often more physically able than women to undertake a typical risky rescue, perhaps it would be adaptive for women to defer to available men when the occasion arises.¹¹⁰

For casual matings alone, risky rescues may enhance women's opportunities even though men are not disposed to be very selective about matings outside any primary relationship.¹¹¹ A woman's manifested abilities and fame from a daring rescue may entice more desirable men to seek matings with her. In evolutionary terms, they prefer her good genes and improved prospects for possible offspring.

Women usually want more from a man than a one-night stand.¹¹² They generally prefer a mate to simply a mating in order to assure the prospects of their valuable eggs by obtaining substantial contributions

109. "It has . . . been argued that females, in general, have evolved a risk-averse strategy, placing a high value on protecting their own lives, because their offsprings' survival is highly dependent on their maternal care." BJORKLUND & PELLEGRINI, *supra* note 56, at 239. It may be useful to distinguish the daring woman, who readily accepts opportunities to confront risks, from the brave woman, who responds courageously when risks are thrust upon her or her family. The latter may be more adaptive than the former. But the taste for risk may be adaptive if a woman can pass any genetic propensity for daring deeds to her sons, or to her grandsons through her daughters.

110. Under the social role theory, "the male gender role promotes helping that is chivalrous and heroic (e.g., in front of an audience, dangerous), the female gender role promotes help that is nurturant and caring (e.g., in the form of emotional support, empathy, and self-sacrifice)." Samuel E. Fiala et al., *Lending a Helping Hand: The Effects of Gender Stereotypes and Gender on Likelihood of Helping*, 29 J. APPLIED SOC. PSYCHOL. 2164, 2166 (1999). See Darren George et al., *Gender-Related Patterns of Helping Among Friends*, 22 PSYCHOL. WOMEN Q. 685, 686 (1998). When risk is absent from morally-compelling circumstances, "[i]t was found that across many problem settings women spend more time helping, give higher quality help, and feel more empathy and sympathy in response to their friends' problems." *Id.* at 685. One commentator compares the explanatory powers of the social role theory and sexual selection, and concludes "that evolutionary theory accounts much better for the overall pattern of sex differences and for their origins," John Archer, *Sex Differences in Social Behavior: Are the Social Role and Evolutionary Explanations Compatible?*, 51 AM. PSYCHOLOGIST 909, 909 (1996), though one of the founders of the social role theory remains unpersuaded, see Alice H. Eagly, *Sex Differences in Social Behavior: Comparing Social Role Theory and Evolutionary Psychology*, 52 AM. PSYCHOLOGIST 1380, 1380-81 (1997).

111. "[W]omen maintain high standards in the short-term mating context, in contrast to men, whose standards plummet." Buss, *Human Mate Selection*, *supra* note 95, at 424. For men's short-term mating psychology, see *id.* at 412-14, and for what men seek in short-term mating, see *id.* at 423-24.

112. Women's reproductive advantages through long-term mating are: "immediate material advantage to the woman and her children, enhanced reproductive advantage for her children through acquired social and economic benefits, and genetic reproductive advantage for her children if variations in the qualities that lead to resource acquisition are partially heritable." *Id.* at 416. "Genetic models of female mate choice can be broken down into four groups: direct benefit, good gene, runaway selection, and sensory bias models." LEE ALAN DUGATKIN, *THE IMITATION FACTOR: EVOLUTION BEYOND THE GENE* 32 (2000). For explication, see *id.* at 32-48.

from the male after conception.¹¹³ David Buss identifies five adaptive problems for women seeking a mate and their hypothesized solutions. First, in “[s]electing a mate who is able to invest,” they prefer “[g]ood financial prospects, [s]ocial status, [o]lder age, [a]mbition/industriousness, [and] [s]ize, strength, [and] athletic ability.”¹¹⁴ Second, in “[s]electing a mate who is willing to invest,” they prefer “[d]ependability and stability, [l]ove and commitment cues, [and] [p]ositive interactions with children.”¹¹⁵ Third, in “[s]electing a mate who is able to physically protect self and children,” they prefer “[s]ize (height), [s]trength, [b]ravery, [and] [a]thletic ability.”¹¹⁶ Fourth, in “[s]electing a mate who will show good parenting skills,” they prefer “[d]ependability, [e]motional stability, kindness, [and] [p]ositive interactions with children.”¹¹⁷ Fifth, in “[s]electing a mate who is compatible,” they prefer “[s]imilar values, [s]imilar ages, [and] [s]imilar personalities.”¹¹⁸ Just as for men’s wants in a mate, good health is also a preferred trait.¹¹⁹ A man’s attractiveness and youth, in themselves, are of no substantial value to a woman.¹²⁰ As predicted, other than for good

113. “It is noteworthy that female adultery and male failure to provide resources historically have been grounds for divorce in many cultures, while the reverse is far less frequent.” Buss, *Mate Preference*, *supra* note 108, at 253.

114. BUSS, *EVOLUTIONARY PSYCHOLOGY*, *supra* note 27, at 105 (because Buss presents these data in the form of a table, punctuation has been added). For example, studies have found “that high income men report greater frequency of sex than all others do. . . . [and] have more biological children than do low-income men. . . .” Rosemary L. Hopcroft, *Sex, Status, and Reproductive Success in the Contemporary United States*, 27 *EVOLUTION & HUM. BEHAV.* 104, 104 (2006).

115. BUSS, *EVOLUTIONARY PSYCHOLOGY*, *supra* note 27, at 105.

116. *Id.* Notice that male physical prowess is preferred for the first reason as well as this third reason.

117. *Id.*

118. *Id.*

119. While Buss does not list good health as a trait in his chart of women’s adaptive mating problems and solutions, he discusses its importance and provides five reasons for its fitness value, including the reduction in risk of debilitation, death, contagion, and poor genes for offspring. *See id.* at 118-20. In particular, “[o]ne of [a female’s] demands is for a male who is disease-resistant, a male able to provide her offspring with good genes.” THIESSEN, *supra* note 54, at 123.

120. But, “[g]enetic quality . . . must be inferred from an organism’s phenotype since it can’t be assessed directly. Attraction, therefore, may be an adaptive preference for phenotypes that imply high genetic quality.” Paul Wehr et al., *Stabilizing and Directional Selection on Facial Pseudomorphosis*, 12 *HUM. NATURE* 383, 384 (2001). “The hypothesis is that high attractiveness in a male is a signal to the female of disease resistance.” THIESSEN, *supra* note 54, at 126. For support, see, for example, Jones et al., *Facial Symmetry*, *supra* note 105, at 417. “If female tastes were also heritable, as they probably would be, a female choosing a mate who appealed to her would effectively be choosing genes for her sons, which would make them appealing to the next generation of females.” Badcock, *PsychoDarwinism*, *supra* note 95, at 472. *See also* BARKOW, *supra* note 40, at 58-59; CRONIN, *supra* note 30, at 201-04; RICHARD DAWKINS, *THE BLIND WATCHMAKER: WHY THE EVIDENCE OF EVOLUTION REVEALS A UNIVERSE WITHOUT DESIGN* 195-220 (1987). This has been called the “sexy son” theory. *See* BUSS, *EVOLUTION OF DESIRE*, *supra* note 90, at 91; MATT RIDLEY, *THE RED QUEEN: SEX AND THE EVOLUTION OF HUMAN NATURE* 142-

health, studies confirm that women prefer these qualities in a mate more so than do men.¹²¹

Some of the traits preferred by women in a mate may be revealed or enhanced by men in the context of the rescue doctrine. A person undertaking a risky rescue may display strength, athleticism, bravery,¹²² health, and perhaps, kindness, and even positive interactions with children, if a child is the rescuee or indirectly benefits from the rescue.¹²³ When the rescuee is a loved-one, relative or friend, the rescue effort could also demonstrate dependability, love and commitment. Any community approbation from the rescue raises social status,¹²⁴ which

43 (1993); Daniel J. Kruger et al., *Proper and Dark Heroes as Dads and Cads*, 14 HUM. NATURE 305, 307 (2003).

Women generally prefer men older than themselves (but not old, which has offsetting risks) because age is associated with increased resources, maturity, stability and reliability. *See* BUSS, *EVOLUTIONARY PSYCHOLOGY*, *supra* note 27, at 111-14.

121. *See, e.g.*, BUSS, *EVOLUTION OF DESIRE*, *supra* note 90, ch. 2, at 19-48 (“What Women Want”); BUSS, *EVOLUTIONARY PSYCHOLOGY*, *supra* note 27, at 104-30 (discussing women’s preferences in mates). In recent times, the qualities preferred in a man may be changing in some societies. A study of personal advertisements found that around half the women sought family commitment and deemphasized wealth and status. “This seems to be pointing to a shift in what women of reproductive age need for successful reproduction in modern economies. Where it was once resources, it is now increasingly the social input into the business of rearing children: help with child-care, a contribution to the socializing of the children.” ROBIN DUNBAR, *GROOMING, GOSSIP, AND THE EVOLUTION OF LANGUAGE* 187 (1996). Men, however, have not gotten the message. They still mainly promote their wealth and status. *See id.*

122. Notice that bravery or daring in a man may offer multiple benefits to a mate. First, it indicates that the man is more likely to stand up against outside forces to protect the woman and her children. Second, especially in the days of hunting and gathering, it may exhibit the likelihood of being a better provider. *See* Susan Kelly & R.I.M. Dunbar, *Who Dares, Wins: Heroism Versus Altruism in Women’s Mate Choice*, 12 HUM. NATURE 89, 100 (2001). For example, among the Ache of Paraguay, “showoff” men who are more successful hunters receive more attention from group members and fare better reproductively; more women are willing to mate with them.” LOW, *supra* note 38, at 115. It has been found in some traditional societies that “[t]he best hunters enjoy social respect and increased sexual favors, either by acquiring more wives or by receiving attention from the wives of other men.” Kelly & Dunbar, *supra*. Finally, since daring is a quality that is difficult to fake, it signals to women a strong genetic constitution and other useful qualities, i.e., “good genes,” that would be beneficial to their offspring. Under the “handicap principle,” for a signal to be reliable, it must be costly, as is bravery, for otherwise it could be deceptive. *See* AMOTZ ZAHAVI & AVISHAG ZAHAVI, *THE HANDICAP PRINCIPLE: A MISSING PIECE OF DARWIN’S PUZZLE*, at xiv, 40, 59-60, 229-30 (1997). “[S]exual selection is a subset of the process we call signal selection.” *Id.* at 91; *see also id.* at 149-50. Altruism is costly signaling. *See id.* at 225-27. For other theories akin to the handicap principle and recent evidence, *see* CARTWRIGHT, *supra* note 42, at 145-47; GOULD & GOULD, *supra* note 34, at 192-95; Robert M. Sapolsky, *What Do Females Want?*, NAT. HIST., Dec. 2001-Jan. 2002, at 18.

123. Similarly, “many have suggested that acts of altruism may function as displays of cooperative intent that observers may use in making decisions about social partner choice.” Andrews, *supra* note 84, at 23.

124. Notice that anonymous rescues will not be reinforced by sexual selection. The daring must be known to draw the beneficial attention of others. But then, why are there so many anonymous gift donors? “A London socialite once remarked to me that she knew many anonymous

may result in improved financial prospects as well.¹²⁵ For a woman seeking a mate, what's not to like in a rescuer?¹²⁶

For a woman seeking a mating, there also is something to like in a rescuer, mainly, his good genes. Insofar as the displayed qualities sought by a woman in a mate are heritable, she would also prefer them in a mating in order to pass them along to her descendants, assuming, that is, that the disposition was not for foolish risks that would lower the fitness

donors. They were well known within their social circle—the set of people whose opinion matters—even though their names may not have been splashed across the newspapers.” MILLER, *supra* note 63, at 323. *But cf.* OLINER & OLINER, *supra* note 40, at 1 (noting that some of the rescuers of Jews refused to identify themselves after the war “because they did not want public recognition for doing what they thought was their simple human duty”). On the other hand, Monroe “found no one at all in any of [his] samples who said they act altruistically in order to win the approval of someone, even an important role model,” nor “with the expectation of any delayed reward or reciprocal benefit.” MONROE, *supra* note 14, at 150, 152. Nevertheless, any genetic disposition for this behavior will be selected under evolutionary principles irrespective of conscious motivation. *See, e.g.*, Elliott Sober & David Sloan Wilson, *A Critical Review of Philosophical Work on the Units of Selection Problem*, in PHILOSOPHY OF BIOLOGY, *supra* note 39, at 198, 199 (“[A]ltruism and selfishness are defined by the fitness effects of a behaviour; they have nothing essentially to do with psychological motives.”); Elliott Sober, *What Is Evolutionary Altruism?*, in PHILOSOPHY OF BIOLOGY, *supra* note 39, at 459, 460-62 (distinguishing “vernacular altruism”, which requires conscious motives, from “evolutionary altruism,” which does not); David Sloan Wilson, *On the Relationship Between Evolutionary and Psychological Definitions of Altruism and Selfishness*, in PHILOSOPHY OF BIOLOGY, *supra* note 39, at 479-80 (“[B]ehaviours that are altruistic in the evolutionary sense can be psychologically either selfish or altruistic.”). Similarly, for a status-signaling theory of gift-giving, see ERIC A. POSNER, *LAW AND SOCIAL NORMS* 55-62 (2000).

125. For an analysis of the encouragement of cooperation by granting status as a social reward mechanism, see Chaim Fershtman & Yoram Weiss, *Why Do We Care What Others Think About Us?*, in *ECONOMICS, VALUES, AND ORGANIZATION*, *supra* note 73, at 133. “[S]ocially minded preferences are evolutionarily stable only if social rewards are neither excessive nor negligible.” *Id.* at 149.

126. Well, for one thing, the rescue attempt may demonstrate rashness. For example, “[w]hen Harry Ramos died while trying to help an incapacitated stranger, named Victor, escape from the burning World Trade Center, the world turned him into a hero. His wife, Migdalia, was angry.” Mary Williams Walsh, *Impulse to Help Allows a Wife to Understand*, N.Y. TIMES, Dec. 10, 2001, at B1. “[S]he was left alone with two children, a half-built house, a six-figure mortgage, a flood of bills and questions that would not go away about why her husband put a stranger ahead of his family.” *Id.* While at her mother’s apartment just three weeks later, “a fire broke out. She found herself running into a smoke-filled stairway, intent on saving her mother’s elderly neighbor. Suddenly, she understood why her husband had done as he did.” *Id.* It was not from cool reason. *See id.* As exemplified by this tale, even if not rash, “[b]rave, risk-prone men may be subject to a higher mortality rate than risk-averse males.” Kelly & Dunbar, *supra* note 122, at 101. “This risk is reflected in the ratings: the brave, whether professional or voluntary, were less highly rated as long-term partners than as short-term liaisons or friends, which might reflect female awareness of the increased risk involved in allying herself with a risk-prone mate.” *Id.* In a recent study, “[b]oth females and males preferred heroic physical risk takers as mates, with the preference being stronger for females. Contrary to predictions, for nonheroic physical risks (such as risky sports), both males and females preferred risk avoiders over risk takers as mates.” G. William Farthing, *Attitudes Toward Heroic and Nonheroic Physical Risk Takers as Mates and as Friends*, 26 *EVOLUTION & HUM. BEHAV.* 171, 171 (2005).

of her posterity.¹²⁷ Even when she has a mate, she may seek an outside mating to overcome her own mate's inferior genes or infertility, accrue resources, obtain protection, or replace her mate.¹²⁸ A daring rescue may manifest, or bring in its train, some of the preferred traits.

In the list above of qualities sought by women in men, there is no mention of altruism, though kindness, love, commitment and dependability may overlap it to some extent. Women seek daring men, not altruistic ones. In one supporting study, "[b]ravery in a male was shown to be the stronger factor influencing female choice of short-term partners, long-term partners, and male friends, with altruism playing a lesser part in their choice."¹²⁹ But one would think that women would

127. Male descendants with a fit penchant for risky rescues would be "sexy sons," attractive to women. *See supra* note 120.

128. Thus, even for a woman, a one-night stand may have benefits. A woman can increase her long-term reproductive success by casual mating with a man with better genes than her husband, if she can assure support of the children, as by deceiving her husband into raising the offspring as his own or obtaining maintenance from the cuckold. *See, e.g.*, BUSS, *EVOLUTION OF DESIRE*, *supra* note 90, at 90-91. *But cf.* Donald Symons, *The Double Standard*, in *ETHICS* 105, 107-08 (Peter Singer ed., 1994) ("Adultery may also function to increase the genetic quality of a woman's offspring, but this probably is a minor (or rare) function, since it seems unlikely that the detectable genetic differences among males are often great enough to repay the investment of time, energy, and risk that adultery entails."). For additional adaptive benefits to women of short-term mating, see BARKOW, *supra* note 40, at 338-39 (1989) (better genes, genetic diversity, reproduction if mate is infertile, resource accrual, protection, mate replacement if disabled); BUSS, *EVOLUTIONARY PSYCHOLOGY*, *supra* note 27, at 176-82 (resource accrual, better genes, mate switching, mating skills acquisition, mate manipulation); Buss, *Human Mate Selection*, *supra* note 95, at 417-18, 424-25. *See generally* TRIVERS, *SOCIAL EVOLUTION*, *supra* note 40, at 330-60. For support that women do seek matings outside their marriages, see BUSS, *EVOLUTION OF DESIRE*, *supra* note 90, at 191-94; *see also* NANCY L. SEGAL, *ENTWINED LIVES: TWINS AND WHAT THEY TELL US ABOUT HUMAN BEHAVIOR* 39 (1999) ("Nonpaternity rates are estimated to be between 5 and 30%, so a substantial minority of children are not related to presumed fathers.").

129. Kelly & Dunbar, *supra* note 122, at 89. "Altruism was deemed important in long-term relationships and friendships, but for short-term liaisons, non-altruists were preferred to altruists." *Id.* The authors of this study, after considering whether this female choice is impelled by kin selection, reciprocal altruism or other drives, surmise that "if heroic acts bring greater reproductive success to the actor, then a . . . less noble explanation for the evolution of heroic behavior may be that heroism, even in the absence of altruism, is attractive to women because it acts as a marker for good quality genes." *Id.* at 91. Along with marking good genes, bravery advances the female's protection and provisioning. *See id.* at 100-01.

Interestingly, for the Christians who risked their lives to rescue Jews from the Nazis, "a zest for adventure and the workings of chance both were important in the initiation of rescue behavior." Perry London, *The Rescuers: Motivational Hypotheses About Christians Who Saved Jews from the Nazis*, in *ALTRUISM AND HELPING BEHAVIOR: SOCIAL PSYCHOLOGICAL STUDIES OF SOME ANTECEDENTS AND CONSEQUENCES* 241, 249 (J. Macaulay & L. Berkowitz eds., 1970) [hereinafter *HELPING BEHAVIOR*]. The relevant structural personality characteristics of the rescuers were: "(a) A spirit of adventurousness, (b) an intense identification with a parental model of moral conduct, and (c) a sense of being socially marginal." *Id.* at 245. The first trait seems more daring than altruistic. Those with the third trait could increase their attractiveness by the demarginalization that would normally come from a daring rescue, though probably not from rescuing Jews in Nazi Germany. Because these rescues were not legitimized, and even were socially risky, the underlying

still value altruism in a mate as well as daring. For the man who is altruistic within the senses of kin selection and reciprocal altruism would improve the prospects for his mate's genes, along with his own.¹³⁰ To the extent that altruism has a genetic component, a woman seeking a mating would also value it for parallel reasons to pass to her descendants. Even though the rescue of a stranger unlikely to reciprocate goes beyond these two evolutionary forces, it still demonstrates the attractive trait of daring and, perhaps, a strong form of altruism.¹³¹

One sex is aware of the preferences of the other.¹³² Each strives to become more desirable. Care and hard work can help. So might deceit

conduct has been called "autonomous altruism" to distinguish it from the socially approved "normative altruism." See David Rosenhan, *The Natural Socialization of Altruistic Autonomy*, in *HELPING BEHAVIOR*, *supra*, at 251, 252 (giving as additional examples the active southern abolitionists and those who worked in leper colonies when leprosy was believed to be highly communicable). Even London's second trait may partially dissolve into the third since the identification with a moralistic parent "seemed, in fact, to be more often positively related to social marginality." London, *supra*, at 249.

130. This may be why "altruism was considered more important in a partner for long-term relationships and—especially—friendship than for short-term sexual liaisons." Kelly & Dunbar, *supra* note 122, at 98. The preference for altruism in long-term relationships would not relate to kin selection, because for him it is his kin that are important, not her kin (unless they are kin in common). Krebs points out that it is in a person's interest to look for a mate with the disposition to care for her mate and kin, not to care indiscriminately for everyone. See Krebs, *supra* note 72, at 351-52. "It is conceivable that eligible mates who are disposed to care indiscriminately could, through such behaviors, elevate their status, and therefore their attractiveness as mates, but the fitness losses to the partner incurred by a mate's extrafamilial caring would virtually always seem to outweigh the gains." *Id.* at 352. I wonder if this is true in the context of the rescue doctrine. The occasional, or one-time, rescue might well raise status and create familial benefits above potential fitness losses. Furthermore, even somewhat indiscriminate care might achieve benefits through reciprocal altruism.

131. Kin selection and reciprocal altruism struggle to explain altruistic acts towards strangers. While they may still do the work, as where the practice of altruism became ensconced at a time when most people encountered were kin or neighbors, today's world of interacting strangers would select against general altruism impelled by these two forces alone. Singer believes this would drive out altruism towards strangers. See PETER SINGER, *THE EXPANDING CIRCLE: ETHICS AND SOCIOBIOLOGY* 139 (1981). He explains its existence as a result of the human capacity to reason which may "bring[] with it an appreciation of the reasons for extending to strangers the concern we feel for our kin and our friends . . ." *Id.* See ERNST MAYR, *TOWARD A NEW PHILOSOPHY OF BIOLOGY* 81-85 (1988) (discussing how reason and culture lead humans to extend altruism beyond inclusive fitness). Sexual selection may counter such reasoning. As Miller bluntly puts it, "[h]uman altruism is not an evolutionary paradox. It is a sexual ornament." MILLER, *supra* note 63, at 339.

132. For example, "[m]en are clearly aware that bravery and the willingness to take risks are qualities that women find attractive." Kelly & Dunbar, *supra* note 122, at 101. One recent study adds a caveat. In it, "both males and females accurately predicted the opposite sex's preferences for heroic risk takers as mates. However, males failed to predict females' preferences for nonheroic physical risk avoiders." Farthing, *supra* note 126, at 171. For a woman, "[r]isk taking without some practical purpose may be seen, in fact, as an undesirable trait for a mate because it undoubtedly increases the likelihood that he will be seriously injured or killed and thus unable to continue providing for and protecting the woman and her children." *Id.* at 179-80. Perhaps males are nonheroic physical risk takers to impress other men. "In other words, if physical risk taking by

and packaging. Consider the stereotypical male braggart touting his prowess, bravery and wherewithal, and quick with false avowals of love and commitment. Consider the cosmetic and fashion industries.¹³³ These evidence the different mating strategies of men and women.¹³⁴

In sum, why do men and women have these divergent mating preferences, strategies, and personality dispositions? It is because those who did so in the past left more descendants than those who did not. These characteristics are selected adaptations.¹³⁵

Let me speculate on how the behavioral characteristics informed by sexual selection would play out in the context of the rescue doctrine. The quick and obvious conclusion is that the nature of the rescuers, the rescuees, and the surrounding circumstances should reflect the opportunities provided by the particular rescues to display or enhance the qualities preferred by the other sex. Men would be drawn to rescues that suggest, for example, daring, strength, athleticism, health, kindness, dependability, love, and commitment, and that augment status and wealth. Women would be interested in rescues that imply such qualities as youth, health, commitment, good mothering, intelligence, and that produce fame.

In musing on prototypical rescue situations, it seems that more of the qualities sought by women in a mate or mating are associated with

males is a costly signal of their valuable traits, the signal is directed primarily to other males as potential friends or coalition partners rather than to females as potential mates." *Id.* at 177. It may also deter other males from taking advantage. *See id.* at 180.

133. *See* Browne, *Evolutionary Perspective*, *supra* note 101, at 24 (citing a study showing that "observers tend to find women who use cosmetics more attractive than those who do not").

134. *See* EDWARD O. WILSON, *CONSCIENCE: THE UNITY OF KNOWLEDGE* 169 (1998) ("With considerable success, the nuances of this concept [of mating strategy] have been used by scientists to predict patterns of mate choice and courtship, relative degrees of sexual permissiveness, paternity anxiety, treatment of women as resources, and polygyny . . ."); William Irons, *Anthropology, in* *SOCIOBIOLOGICAL IMAGINATION*, *supra* note 49, at 71, 86-89 (offering anthropological support for predictions of differing parental and mating strategies). For interesting discussions of the different mating strategies, see *ADAPTED MIND*, *supra* note 39, pt. III ("The Psychology of Mating and Sex"), and for studies documenting the differing mating strategies of men and women, see, for example, BUSS, *EVOLUTION OF DESIRE*, *supra* note 90; Buss, *Mate Preference*, *supra* note 108.

135. Let us not overemphasize the differences between men and women. "Males and females are still more similar than different, sharing nearly every gene, enzyme, neuron, physical structure, and motivation. There may be variations in how traits are expressed, but they remain similar, even indistinguishable." THIESSEN, *supra* note 54, at 326. "'Tendencies,' 'inclinations,' 'statistical variations,' 'probabilities,' 'overlaps,' 'averages,' and 'uncertainties' are the descriptive terms of most sexual differences." *Id.* Stephen Jay Gould, one of the harshest critics of sociobiology, briefly summarizes the behavioral effects "[f]rom this basic dichotomy of evolutionary purpose" between men and women, and concludes that the basic argument is correct. STEPHEN JAY GOULD, *The Diet of Worms and the Defenestration of Prague*, in *LEONARDO'S MOUNTAIN OF CLAMS AND THE DIET OF WORMS* 251, 263 (1998). But, he cautions, "[w]e can only speak of capacities, not of requirements or even determining propensities." *Id.* at 263-64. None of the evolutionary psychologists cited in this Article would disagree.

them than are those sought by men. If so, men would be more sexually selected to engage in rescue attempts than would be women. Evidence supports this.¹³⁶

One would also predict that men and women during their reproductive years, especially the prime youthful years for obtaining mates and matings, would be more drawn to daring acts, such as rescues, than at other times in their life histories.¹³⁷ Because young men are less likely to have some of the qualities sought by women, particularly wealth and status, they tend to compensate with moxie.¹³⁸ The facts may

136. “[W]hen rescue is necessary, it is overwhelmingly men who rescue—particularly when the rescue is risky.” Hyman, *supra* note 18, at 672. Of the 676 acts garnering Carnegie medals between 1989 and 1995, “[a]bout 92 % of the acts of heroism were performed by males” Johnson, *supra* note 59, at 355. See Strate, *supra* note 42, at 191-92 (“There is ample evidence that men are more likely than others to engage in dangerous rescues. . . . Men more than women are attracted to rescue occupations that demand courage”).

Interestingly, among Carnegie medal winners, “[a] higher proportion of women rescued relatives or people they knew, and a higher proportion of males rescued people they did not know.” Johnson, *supra* note 59, at 355. See Hyman, *supra* note 18, at 674 (noting that, unlike males, “females were much more likely to rescue friends or family members than strangers.”). This suggests that female rescuers are more driven than male rescuers by kin selection and reciprocal altruism, rather than by sexual selection for which the identity of the rescuee is of less importance. Furthermore, while studies consistently reveal that men are greater risk-takers than women, “one respect where women were ready to take greater risks than men [was in] defense of their own children.” Badcock, *PsychoDarwinism*, *supra* note 95, at 464. Browne makes much of this observation in challenging the benefits of women in the military. See Kingsley R. Browne, *Women at War: An Evolutionary Perspective*, 49 *BUFF. L. REV.* 51, 80 (2001).

Yet, “[w]ith regard to bystanders, a large number of studies have found no differences between men and women in rates of helping, but a few have found differences.” Mary R. Laner et al., *Bystander Attitudes Toward Victims of Violence: Who’s Worth Helping?*, 22 *DEVIAN'T BEHAV.* 23, 27 (2001). The nature of the required help may explain differences. “Active, doing, spontaneous, and anonymous acts are more likely to be carried out by men than by women. Women are more likely to help than men (as a small number of studies have found) when helping is more planned, formal, personal, and less likely to involve direct intervention.” *Id.* So again, the helper under the rescue doctrine is more likely to be male.

137. “[N]on-risky rescues are disproportionately a ‘young person’s game’ and risky rescues even more so.” Hyman, *supra* note 18, at 677.

138. “Ancestral subordinate males who had difficulty attracting mates because they lacked social status and resources may have increased their fitness by increasing the riskiness of their behavior to obtain these attributes.” Crawford, *Theory of Evolution*, *supra* note 88. “[Y]oung males . . . show a striking sex bias in willingness to engage in behaviors that might be considered genuinely brave, but also more generally those that any rational individual would consider to be risky” Kelly & Dunbar, *supra* note 122, at 90. Beyond youth alone, “adaptive logic suggests that the greater risk taking, and hence greater death rate, should occur among men who are at the bottom of the mating pool and who therefore risk getting shut out entirely.” BUSS, *EVOLUTION OF DESIRE*, *supra* note 90, at 201. “In short, men low in desirability, as indicated by being unemployed, unmarried, and young, seem especially prone to risk taking” *Id.* See ALEXANDER, *HUMAN AFFAIRS*, *supra* note 95, at 244 (“[O]ne expects alternative strategies, such as behavior that can be considered under the general label of ‘machismo,’ or flash and braggadocio, to be concentrated in individuals or groups whose likelihood of climbing the ladder of affluence (‘using the system’ effectively) is lowest”); WRIGHT, *supra* note 74, at 262 (“In some modern

bear this out. “Men who are unemployed, unmarried, and young are greatly overrepresented in risky activities”¹³⁹ For women, there is no reason to compensate for youth. To the contrary, they wish to display it.

Yet men and women beyond their main reproductive years can be expected to engage in some types of daring rescues, perhaps even more so than younger people. Kin selection, not sexual selection, suggests this. Once a person’s abilities to produce further offspring or useful resources for existing relatives diminish, there is more evolutionary advantage for her to confront danger to rescue kin,¹⁴⁰ especially if they are in their reproductive or resourceful years.¹⁴¹ This is still not likely to lead to many Spider-Gramps and Spider-Grannies. As people age, they generally become less daring and less physically able.¹⁴² Instead, what might follow is that seniors who do undertake risky rescues are more likely to skew their efforts toward relatives than are younger rescuers,¹⁴³ especially young males eager to impress.

To summarize, the altruism driven by kin selection, reciprocal

urban neighborhoods . . . [y]oung men who kill get respect—at least within the circle of young men whose opinions they care about.”). See generally Paul H. Rubin & Chris W. Paul II, *An Evolutionary Model of Taste for Risk*, 17 *ECON. INQUIRY* 585 (1979) (presenting “a model which explains risk seeking by adolescents and risk aversion by mature males as the result of an evolutionary mechanism”). In the context of rescues, “[a] disproportionate number of Carnegie Award recipients are individuals with relatively low income, unskilled occupations, or both.” Hyman, *supra* note 18, at 678.

139. BUSS, *EVOLUTION OF DESIRE*, *supra* note 90, at 201 (citing Detroit’s homicide statistics from 1972).

140. “[T]he behaviour of a post-reproductive animal may be expected to be entirely altruistic [with respect to kin].” WRIGHT, *supra* note 74, at 173 (quoting W.D. Hamilton, *The Genetical Evolution of Social Behavior*, 7 *J. THEORETICAL BIOLOGY* 1, 21 (1964)). “Typically, self-sacrificing mothers are found in highly inbred groups, or when mothers are near the end of their reproductive careers.” SARAH BLAFFER HRDY, *MOTHER NATURE: A HISTORY OF MOTHERS, INFANTS, AND NATURAL SELECTION* 94 (1999). This parallels the “grandmother hypothesis,” under which post-reproductive women have extended longevity because they provide valuable resources for their descendants. See *supra* note 56. At the extreme are tales of elderly, nonproductive Inuit who sacrifice themselves in truly desperate times. See Wikipedia, <http://en.wikipedia.org/wiki/Inuit> (last visited Oct. 24, 2006) (discussing occasional “assisted suicide”); The Straight Dope Science Advisory Board, Staff Report, *Did Eskimos Put Their Elderly on Ice Floes to Die?* (May 4, 2004), <http://www.straightdope.com/mailbag/meskimoicefloe.html> (discussing “assisted” and “unassisted” suicide).

141. See *supra* text accompanying note 60.

142. On the “Sensation Seeking Scale,” which measures the four dimensions of thrill and adventure seeking, experience seeking, disinhibition, and boredom susceptibility, “[m]ales always exceed females, and sensation seeking in general declines in both sexes with age.” KONNER, *supra* note 96, at 132. “There is strongly suggestive evidence of a genetic predisposition” *Id.*

143. Posner, in a book often invoking evolutionary psychology, notes that “near the end of the life cycle[] [a] person may, out of altruistic concern for family or comrades, or selfish concern for his own reputation, or desire for posthumous fame or glory, sacrifice his life.” POSNER, *supra* note 56, at 58. Perhaps, “selfish” in a genetic sense, reputation, fame or glory may bring status to the kin.

altruism and sexual selection satisfies only a weak definition of “altruism.” These three forces of evolution, like all others, stem from the selfish gene.¹⁴⁴ Genetic self-interest plays out in various ways that depend on the circumstances, including the life history of the actor and the object of the altruistic act. Because evolutionary self-interest can be manifested in convoluted ways, it may be difficult to identify for particular acts of altruism. There may even be none in some situations, for predispositions were selected in ancestral environments much different from the present ones. Behavioral dispositions may also be operationally constrained by cognitive abilities that are nowadays sometimes inadequate to discern self-interest, as where one cannot directly sense kinship relationships. Furthermore, since a gene may have multiple effects (“pleiotropy”), any gene selfishly selected for evolutionary altruism may dispose the actor also to be altruistic when there is no genetic benefit.¹⁴⁵ Moreover, predispositions can be overridden or overdetermined by cultural norms that advance other interests, such as those of the group, persons in power, or a deity.¹⁴⁶ But one must not be too quick to abandon the search for self-interest.¹⁴⁷ It is everywhere else in the living world. We should presume that it lurks in the human one too.¹⁴⁸ Let us see if the actual rescue cases reveal it.

144. “This feature has caused critics to argue that the concept of altruism employed by sociobiologists is not the same one used by ethicists and the general population.” Thompson, *supra* note 41, at 32. See, e.g., VON SCHILCHER & TENNANT, *supra* note 81, at 143 (“The forms of biological altruism defined by sociobiologists bear at best a troubled relationship to the altruism of everyday moral parlance.”).

145. See BOEHM, *supra* note 40, at 220 (“Thus, [as a ‘pleiotropic subsidy’] the same gene that makes for parental investment and helping of other very close kin has a second effect: it also allows nonkin, at least those with whom strong social bonds exist, to be treated generously.”).

146. See *id.* at 245-47 (“Value Systems That Favor Altruism”). Perhaps there are genetic predispositions to follow community norms that sometimes override genetic predispositions to pursue self-interest. See Trivers, *Reciprocal Altruism*, *supra* note 62, at 52.

Some are less sanguine about the possibility of strong altruism. “The pure disinterested altruists among us—should any exist—form too insignificant a minority, despite the historical potency of their accumulated actions, to call for special confirmation in the evolutionary order. Like the necrophiliacs, the cannibals and the gifted idiots in our midst, they form a deviant residue.” VON SCHILCHER & TENNANT, *supra* note 81, at 154.

147. Conforming to Darwinian predictions based on kin selection and reciprocal altruism, anthropologists have found in pre-literate societies that relatives are recipients of giving without the expectation of reciprocity, nonrelatives who are regular interactors are expected to reciprocate, and strangers are treated with suspicion, even hostility. See RUSE, *TAKING DARWIN*, *supra* note 34, at 233-34.

148. For example, two commentators write that “[p]eople often eschew egoistically satisfying or maximizing behaviors in favor of those judged to be fair[.]” mustering these examples: “[P]eople with greater power take less than they might in ultimatum bargaining games; people choose to work for less pay in an organization where pay is distributed fairly; and, when people have control of scarce resources, they do not sell those resources at their market price . . .” Tom Tyler & Robyn M. Dawes, *Fairness in Groups: Comparing the Self-interest and Social Identity Perspectives*, in

III. THE NEW YORK RESCUE CASES

I examined the rescue cases from New York, all sixty-three of them.¹⁴⁹ In twenty-two of these cases the rescuer was denied recovery

PSYCHOLOGICAL PERSPECTIVES ON JUSTICE 87, 87 (Barbara A. Mellers & Jonathan Baron eds., 1993) (citations omitted). Conversely, people will frequently refuse an “unfair” share even if it means getting nothing. See Karl Sigmund et al., *The Economics of Fair Play*, SCI. AM., Jan. 2002, at 83, 85 (proposing that in ancestral environments it was to one’s advantage not to be known as one who would be satisfied with a low offer). Tyler and Dawes ascribe this supposedly non-self-interested behavior to a person’s identification with a group (though this does not seem to address completely their first and third examples): “Having taken on a self-identity linked to the group, people voluntarily behave in ways that benefit the group.” Tyler & Dawes, *supra*, at 102. While they refer to evolutionary theory, they find it inadequate, in light of expected variations in behavior, to lead to the conclusion that group-centered behavior will “consistently be extinguished.” *Id.* at 103. But the dismissal of evolutionary explanations is too quick. The benefits of group solidarity can be based on reciprocal altruism. Working for less in a fairly paying organization may also be acceptable because one’s relative status, important for sexual selection, is properly recognized, that is, one obtains appropriate “positional goods,” which are “goods that are sought after less because of any absolute property they possess than because they compare favorably with others in their own class.” ROBERT H. FRANK, CHOOSING THE RIGHT POND: HUMAN BEHAVIOR AND THE QUEST FOR STATUS 7 (1985). See also *id.* at 51-55 (“Properties of the Internal Wage Structure”). Finally, whether inside or outside a group, being known as an unfair person will decrease one’s attractiveness under sexual selection. This analysis partially shows that “[a]lmost any item of human social behavior can be explained in at least four different ways: in terms of evolution, physiological mechanisms, individual experience and psychology, and cultural organization.” Jerome H. Barkow, *Sociobiology: Is This the New Theory of Human Nature?*, in SOCIOBIOLOGY EXAMINED, *supra* note 40, at 171, 181.

149. *Hassanein v. Avianca Airlines*, 872 F. Supp. 1183 (E.D.N.Y. 1995); *Lafferty v. Manhasset Med. Ctr. Hosp.*, 429 N.E.2d 789 (N.Y. 1981); *Guarino v. Mine Safety Appliance Co.*, 255 N.E.2d 173 (N.Y. 1969); *Colon v. Margolis*, 218 N.E.2d 300 (N.Y. 1966); *People v. Young*, 183 N.E.2d 319 (N.Y. 1962); *Rague v. Staten Island Coach Co.*, 42 N.E.2d 488 (N.Y. 1942); *Fitzpatrick v. Int’l Ry. Co.*, 169 N.E. 112 (N.Y. 1929); *Wagner v. Int’l Ry. Co.*, 133 N.E. 437 (N.Y. 1921); *Waters v. William J. Taylor Co.*, 112 N.E. 727 (N.Y. 1916); *Gibney v. State*, 33 N.E. 142 (N.Y. 1893); *Spooner v. Del., Lackawanna & W. RR. Co.*, 21 N.E. 696 (N.Y. 1889); *Eckert v. Long Island R.R.*, 43 N.Y. 502 (1871); *Gifford v. Haller*, 710 N.Y.S.2d 187 (App. Div. 2000); *Villarin v. Onobanjo*, 714 N.Y.S.2d 90 (App. Div. 2000); *Villoch v. Lindgren*, 703 N.Y.S.2d 131 (App. Div. 2000); *Butler v. County of Chautauqua*, 689 N.Y.S.2d 577 (App. Div. 1999); *Cannavale v. City of N.Y.*, 683 N.Y.S.2d 528 (App. Div. 1999); *Del Vecchio v. State*, 667 N.Y.S.2d 401 (App. Div. 1998); *George v. State*, 674 N.Y.S.2d 742 (App. Div. 1998); *Hanna v. Ford Motor Co.*, 675 N.Y.S.2d 125 (App. Div. 1998); *Sullivan v. 673 First Ave. Assocs.*, 673 N.Y.S.2d 82 (App. Div. 1998); *Tassone v. Johannemann*, 648 N.Y.S.2d 708 (App. Div. 1996); *Bottillo v. Poette*, 544 N.Y.S.2d 47 (App. Div. 1989); *Ha-Sidi v. S. Country Cent. Sch. Dist.*, 539 N.Y.S.2d 47 (App. Div. 1989); *O’Keeffe v. State*, 530 N.Y.S.2d 911 (App. Div. 1988); *Roth v. City of N.Y.*, 516 N.Y.S.2d 36 (App. Div. 1987); *Scott v. Mead*, 517 N.Y.S.2d 320 (App. Div. 1987); *Wignes v. Bottger*, 518 N.Y.S.2d 936 (App. Div. 1987); *Brogan v. Zummo*, 459 N.Y.S.2d 293 (App. Div. 1983); *Snyder v. Kramer*, 463 N.Y.S.2d 591 (App. Div. 1983); *Moore v. Shah*, 458 N.Y.S.2d 33 (App. Div. 1982); *Rodriguez v. N.Y. State Thruway Auth.*, 440 N.Y.S.2d 49 (App. Div. 1981); *Rucker v. Andress*, 327 N.Y.S.2d 91 (App. Div. 1971); *Provenzo v. Sam*, 280 N.Y.S.2d 308 (App. Div. 1967); *Eufemia v. Pacifico*, 261 N.Y.S.2d 100 (App. Div. 1965); *Lieberthal v. Engels*, 177 N.Y.S.2d 463 (App. Div. 1958); *Paul v. Flag Fish Co.*, 180 N.Y.S.2d 73 (App. Div. 1958); *Alessi v. Kew Gardens Luncheonette, Inc.*, 168 N.Y.S.2d 324 (App. Div. 1957); *Luce v. Hartman*, 168 N.Y.S.2d 501 (App. Div. 1957); *Hallett v. Stanley Stores Cleaners & Dyers, Inc.*, 94 N.Y.S.2d 622 (App. Div. 1950);

because the rescue doctrine was found not to apply for various reasons, including that it did not extend to the rescued property in question, or to rescues of the general public, or where other laws applied, the rescuer assumed the risk, or the rescuee was not in imminent peril.¹⁵⁰ These cases are left in the chart below because they still mostly involve daring behavior by the rescuer. Furthermore, sometimes the posture of the case did not directly divulge whether the danger to the rescuer was high or low, so some reading between the lines was required. As might be expected, the case reports do not reveal nearly enough information to draw strong conclusions about whether their facts are consistent with the intricate predictions of the principles of evolutionary psychology. For example, even when a family relationship between the rescuer and rescuee is mentioned, a few cases did not reveal whether the connection is by blood or marriage (e.g., uncle/niece, cousin/cousin). And since the cases extend over a period of two centuries, it was not realistic to contact the attorneys or other parties to fill in the missing data. With this caveat, the relevant discernible information is below.

THE NEW YORK RESCUE CASES

Total cases: N=63

Cases granting recovery: N=41 [in brackets]

Carney v. Buyea, 65 N.Y.S.2d 902 (App. Div. 1946); Bernardine v. City of N.Y., 51 N.Y.S.2d 888 (App. Div. 1944); Cooper v. Brooklyn & Queens Transit Corp., 292 N.Y.S. 79 (App. Div. 1936); Laufer v. Shapiro, 206 N.Y.S. 189 (App. Div. 1924); Smith v. Erie R.R. Co., 169 N.Y.S. 831 (App. Div. 1918); Hollaran v. City of N.Y., 153 N.Y.S. 447 (App. Div. 1915); O'Brien v. Erie R.R. Co., 123 N.Y.S. 1040 (App. Div. 1910); Manzella v. Rochester Ry. Co., 93 N.Y.S. 457 (App. Div. 1905); Muhs v. Fire Ins. Salvage Corps of Brooklyn, Long Island, 85 N.Y.S. 911 (App. Div. 1903); Manthey v. Rauenbuehler, 75 N.Y.S. 714 (App. Div. 1902); Healy v. Vorndrain, 72 N.Y.S. 877 (App. Div. 1901); Hirschman v. Dry-Dock, E. Broadway & Battery R.R. Co., 61 N.Y.S. 304 (App. Div. 1899); Sann v. H.W. Johns Mfg. Co., 44 N.Y.S. 641 (App. Div. 1897); Klejmont v. Sperber, 431 N.Y.S.2d 308 (Sup. Ct. 1980); Prior Aviation Serv., Inc. v. State, 418 N.Y.S.2d 872 (Ct. Cl. 1979); Sirianni v. Anna, 285 N.Y.S.2d 709 (Sup. Ct. 1967); Farber v. Bryce, 244 N.Y.S.2d 212 (Civ. Ct. 1963); Talbert v. Talbert, 199 N.Y.S.2d 212 (Sup. Ct. 1960); Landby v. New York, N.H. & H. R.R. Co., 105 N.Y.S.2d 836 (Sup. Ct. 1950); Malone v. Liss, Inc., 162 N.Y.S.2d 637 (City Ct. 1957); Pope v. State, 96 N.Y.S.2d 708 (Ct. Cl. 1950); Breslin v. State, 72 N.Y.S.2d 62 (Ct. Cl. 1947); Seldin v. Nixon Realty Corp., 275 N.Y.S. 438 (City Ct. 1934).

150. *Hassanein*, 872 F. Supp. at 1188; *Lafferty*, 429 N.E.2d at 790; *Young*, 183 N.E.2d at 319; *Waters*, 112 N.E. at 727; *Cannavale*, 683 N.Y.S.2d at 529; *Del Vecchio*, 667 N.Y.S.2d at 403; *George*, 674 N.Y.S.2d at 744; *Hanna*, 675 N.Y.S.2d at 127; *Tassone*, 648 N.Y.S.2d at 708; *Ha-Sidi*, 539 N.Y.S.2d at 49; *Wignes*, 518 N.Y.S.2d at 938; *Brogan*, 459 N.Y.S.2d at 295; *Moore*, 458 N.Y.S.2d at 33-34; *Provenzo*, 280 N.Y.S.2d at 310; *Eufemia*, 261 N.Y.S.2d at 101; *Alessi*, 168 N.Y.S.2d at 325; *Luce*, 168 N.Y.S.2d at 506; *Smith*, 169 N.Y.S. at 834; *Klejmont*, 431 N.Y.S.2d at 309; *Sirianni*, 285 N.Y.S.2d at 712; *Landby*, 105 N.Y.S.2d at 838; *Pope*, 96 N.Y.S.2d at 715.

Sex of Rescuer

Male		43 [30]
Female		16 [9]
Multiple		4 [2]
Male group	3 (8 total) [2 (6)]	
Female group		0 [0]
Mixed group	1 (2 M, 1 F) [1 (2,1)]	

Sex of Rescuer

Male		26 [21]
Female		9 [6]
Multiple		11 [8]
Male group		0 [0]
Female group		1 [1]
Mixed/general public		10 [7]
Unspecified		11 [6]
Property		6 [0]

Relationship between Rescuer and Rescuer

Family (blood or marriage)		14 [9]
Male Rescuer		8 [5]
Female Rescuer		6 [4]
Acquaintances/Co-Workers/Neighbors		16 [11]
Male Rescuer		13 [8]
Female Rescuer		3 [3]
Strangers		12 [7]
Male Rescuer		9 [6]
Female Rescuer		3 [1]
Unspecified		13 [12]
Property/General Public		8 [2]

Danger to Rescuer

Rescuer Died		14 [13]
Male		11 [10]
Female		3 [3]
Major Injury to Rescuer		23 [16]
Male		16 [11]
Female		7 [5]
Minor or No Injury to Rescuer		26 [13]
Male		20 [12]
Female		6 [1]

The strongest finding is that, as predicted, males are more likely to be rescuers than are females. Another one is, surprisingly, that acquaintances, co-workers and neighbors are about as likely to be the rescues as are family members. This might be due, at least in part, to the fact that in daily activities a person probably comes across more familiar persons than kin and hence has more chances to rescue non-kin than kin. But, as has been anticipated by evolutionary psychologists, female rescuers are proportionately more likely to rescue kin than these others.¹⁵¹ Perhaps this skewing of male and female rescues is partially due to their opportunities, as where men were historically more likely to be around co-workers than were women, and women were more likely to be around kin—and possibly neighbors—than men.¹⁵² As predicted, strangers are much less likely to be rescued even though, probably, one crosses paths with more strangers than others. Interestingly, female rescuers are about as likely as males to suffer death or major injury, thereby suggesting that their attempted rescues are equally dangerous to them.

IV. CONCLUSION

Risky rescues are encouraged by the law, honored by society, and explicable in evolutionary terms. There is no question that the rescue doctrine is well established in the law. Injured rescuers of those in peril through tortious behavior have an independent, direct cause of action against the tortfeasors, or even against rescues who endanger themselves through negligent behavior. Beyond the courtroom, society often treats rescuers as altruistic heroes. Headlines regularly evince this. That rescuers are altruists, however, is a viewpoint that seems to run afoul of the notion of the selfish gene that largely grounds evolutionary thinking. Under this notion, fitness is measured by reproductive success, that is, by the extent to which one leaves one's genes in the gene pool. Altruism, on the other hand, traditionally refers to the willingness to sacrifice personal interests for those of another person. Although it might seem that any such genetically disposed selfless behavior would be driven out of the gene pool, evolutionary psychologists have developed various theories to account for it. I have considered the three main ones: kin selection, reciprocal altruism, and sexual selection.

151. See *supra* note 136.

152. "To be sure, [the disparity between male and female rescuers] is likely affected by access and opportunity." Hyman, *supra* note 18, at 675. "However, the rescuer gender imbalance has been quite stable throughout the entirety of the twentieth century—even as female participation in the work force has increased dramatically." *Id.*

Each of the three evolutionary theories of altruism implies that rescue efforts will be routed in particular directions. Under kin selection, rescuers of relatives serve their own genetic self-interest through the reproductive success of their rescued relatives. Since procreation is the key, the rescue of a near relative without reproductive prospects is not as beneficial as the rescue of a less near one, though with fewer genes in common, with high prospects. In general, choices about whom to rescue, how much effort to expend, and the degree of risk to confront turn on the likelihood that the rescuee will enrich the gene pool with genes shared with the rescuer.

Under reciprocal altruism, a risky rescue of even an unrelated person may be genetically beneficial once one takes into account the likelihood that the rescuee will later return the favor or the rescue will induce others to do so. This may lead to conduct that seems curious or unsettling, as where the rescue of a wealthy person is preferred to that of a poor one, or the neighbor over the stranger, because the chosen rescuee will be in a better position to reciprocate later.

Finally, under sexual selection, the prospective genetic payoff of a rescue is measured by the likelihood that it will increase the rescuer's success in obtaining a better mate or matings. Here the interests of females and males differ because females, as mammals, can produce fewer offspring than can men. Men, would then probably benefit more than women from displaying, by means of risky rescues, traits attractive to those seeking matings, who are largely seeking "good" genes. When it comes to mates, on the other hand, women are disposed to prefer men who are better protectors and providers, while men desire women who are fecund. In the context of the rescue doctrine, women would be drawn to potential mates who display qualities associated with their preferences, such as strength, daring and kindness, while men would be attracted to women who reveal qualities associated with theirs, such as youth and health. The actual rescues by men and women should generally reflect the opportunities they provide to demonstrate the desired qualities. Because the traits sought by women in a mate as well as a mating seem more connected to risky rescues than vice versa, it is expected that sexual selection will induce men to undertake risky rescues more often than women.

A survey of the New York rescue cases uncovered facts consistent with some of the broad predictions from evolutionary thinking, but too little data to reveal nuances. Left out of most case accounts were relevant data, such as the ages of the rescuers and rescuees, the marriage status of the rescuer, the familiarity of the parties, and the attractiveness, wealth or prominence of the rescuee. Nevertheless, arguably enough

support for evolutionary principles in this context is apparent to consider them for legal analysis.

One place that evolutionary thinking may help the law of rescues, and other legal doctrines, is in formulating the applicable rights and remedies in light of the purposes of the law. In pursuing this, I will address only some of the prior lessons of evolutionary biology as illustrative examples of the range of considerations. Rehearsing again the diverse, tangled threads of evolutionary thinking seems unnecessary to point out the applicability of its predictions to the law.

If, say, a purpose of rescue law is to compensate the rescuer for her harms under a notion of corrective justice,¹⁵³ then the examination of evolutionary effects may prove helpful. The version of corrective justice that reigns in tort law is, basically, that if one person harms another through blameworthy—negligent—conduct, then the agent is to compensate the victim to the extent of the harm. In a broad sense, a “harm” is a “setback to interest.”¹⁵⁴ Evolutionary analysis identifies particular interests and their magnitude. For example, under kin selection, a rescuer has a greater interest in close relatives than in more distant ones, or to nonkin. Whereas, under reciprocal altruism, a rescuer has a greater interest in fellow cooperators than in strangers. While under established legal doctrine a court will not take these varying interests into account in awarding damages to the rescuer, certainly they are relevant in judging whether the rescuer was contributorily negligent—i.e., acted reasonably—in undertaking a risky rescue. Since a rescuer suffers greater harm from risks to kin than to strangers, it is rational to take greater risks to rescue kin, and so forth. And as foreseeability is an element of negligence,¹⁵⁵ these same considerations affect how foreseeable it is to the agent that particular persons will undertake risky rescues under the circumstances.¹⁵⁶

To the extent that a purpose of rescue law is, or should be, under a version of distributive justice, to reward the rescuer for her merit or just

153. Weinrib is a leading champion of this position, not only for tort law but also for all private law. See ERNEST J. WEINRIB, *THE IDEA OF PRIVATE LAW* 56-83 (1995).

154. JOEL FEINBERG, *HARM TO OTHERS: THE MORAL LIMITS OF THE CRIMINAL LAW* 33 (1984). “If I have an interest, in this sense, in the Apex Chemical Company, I have a kind of *stake* in its well-being.” *Id.* “In general, a person has a stake in *X* (whether *X* be a company, a career, or some kind of ‘issue’ of events) when he stands to gain or lose depending on the nature or condition of *X*.” *Id.* at 33-34. Of course, not all harms are found to be legally cognizable injuries.

155. See, e.g., DOBBS, *supra* note 1, § 143, at 334; PROSSER AND KEETON ON THE LAW OF TORTS § 31, at 169-70 (W. Page Keeton et al. eds., 5th ed. 1984).

156. Recall that courts are already generous in finding rescue attempts foreseeable. See *supra* note 7 and accompanying text.

deserts,¹⁵⁷ evolutionary thinking points in distinct directions.¹⁵⁸ Because it seems less virtuous to act in one's self-interest than otherwise, one's biological interest in kin diminishes the merit of undertaking risky rescues of them. Similarly, it diminishes the merit of rescues with respect to risks for fellow cooperators compared with strangers. Contrary to the arguments above from corrective justice, pursuing this conception of distributive justice points to less generosity to rescuers of kin than of strangers.

Leaving the autonomy-centered principles of corrective and distributive justice, different legal effects are suggested by the consequentialism of social welfare goals. Insofar as the rescue doctrine is to deter inefficient behavior by the tortfeasor, the relationship of the rescuer and rescuee may seem largely irrelevant. Under the Hand formula, unreasonably putting the rescuee and rescuer at risk turns on a cost/benefit analysis from the agent's viewpoint, not from the potential victim's.¹⁵⁹ For example, that a potential rescuer values kin more than strangers does not affect the agent's valuation of the benefits to her of her act. It may, however, affect the agent's calculation of the potential costs of her conduct. She has reason to believe that the kin of those at risk are more likely to undertake dangerous rescues than are strangers—so that negligent conduct toward persons at a family reunion may cause more injuries than similar conduct toward a crowd of mutual strangers.¹⁶⁰ Thus, the careless behavior at a family reunion is more likely to be inefficient, that is, detrimental to social welfare.

157. For the argument that this is currently not a purpose, see *supra* text accompanying notes 12-18.

158. There are at least six conceptions of personal desert. By way of example, I examine only one of the prominent ones, "[t]o each according to his or her virtue." See, e.g., Diana T. Meyers, *Introduction* to *ECONOMIC JUSTICE: PRIVATE RIGHTS AND PUBLIC RESPONSIBILITIES* 1, 1-2 (Kenneth Kipnis & Diana T. Meyers eds., 1985). For more on the conceptions of desert, see CH. PERELMAN, *THE IDEA OF JUSTICE AND THE PROBLEM OF ARGUMENT* 6-11 (John Petrie trans., 1963); NICHOLAS RESCHER, *DISTRIBUTIVE JUSTICE: A CONSTRUCTIVE CRITIQUE OF THE UTILITARIAN THEORY OF DISTRIBUTION* 73-83 (1966). See generally GEORGE SHER, *DESERT* (1987).

159. See *United States v. Carroll Towing Co.*, 159 F.2d 169, 173 (2d Cir. 1947). See generally DOBBS, *supra* note 1, § 145, at 340-43; PROSSER AND KEETON ON THE LAW OF TORTS, *supra* note 155, § 31, at 171-73.

160. As seen in the tort doctrine, some courts apparently recognize this increased harm to relatives by allowing recovery for the negligent infliction of emotional harm. Under this doctrine, "[w]hen the defendant was negligent and emotional harm was foreseeable and caused in fact by his negligence, most courts today do allow many recoveries for stand-alone emotional harm." DOBBS, *supra* note 1, § 308, at 836. But "[w]hen the plaintiff suffers emotional harm because a stranger creates a risk or causes an injury to another person, almost all courts apply some kind of special rule to limit the cases in which the bystander-plaintiff can recover." *Id.* § 312, at 848. Under the leading case of *Dillon v. Legg*, 441 P.2d 912, 920 (Cal. 1968), one of the factors, later made a requirement, is that the injury or threat be to a close relative. See DOBBS, *supra* note 1, § 309, at 841.

Finally, if recovery under the rescue doctrine is partially aimed at inducing potential rescuers to increase social welfare by saving others, then rescues of kin need less legal inducement than do those of strangers. The workings of evolution have already created substantial incentives for rescuing relatives. On the other hand, for dangerous rescues of strangers, more generosity in finding the rescuer's conduct reasonable, or higher damage recoveries, must do some of the incentivizing work that kin selection neglects.

To conclude, the last several decades have seen remarkable advances in evolutionary psychology. It is time for the law to pay attention to them.