



THE  
FAIRNESS  
INSTINCT

THE ROBIN HOOD MENTALITY  
AND OUR BIOLOGICAL NATURE

L. SUN

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AND OUR BIOLOGICAL NATURE

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 **Prometheus Books**

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*For Crystal, Shine, and Orien,*

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*from whom I have learned the best practical knowledge about fairness.*

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## THE ROOTS OF THE ROBIN HOOD MENTALITY

*We love Cinderella stories, cheer for underdogs, hate cheaters and traitors, punish bullies and evildoers, cherish rags-to-riches yarns, wish heroes get the girls and live “happily ever after,” and pray for divine intervention after massive disasters—earthquakes, hurricanes, tsunamis, terrorist attacks. These are all shoots—expressions even—of our fairness instinct. Fairness is an overarching topic that has intrigued philosophers and social thinkers in both Eastern and Western societies for millennia. Yet only in recent decades have its biological roots, as a part of our DNA, come to light. Never before have we had such a clear understanding about how fairness works and why it is so intimately involved in our lives and society.*

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## INTRODUCTION, OR, WHO IS ROBIN HOOD?

The “person” in *Time* magazine's 2011 “Person of the Year” is “the protester.” It is the tenth time since its founding in 1927 that *Time* has recognized a class of people instead of an individual. From the Arab Spring to the Occupy Wall Street (OWS) movements, from Russia to India, the protesters in 2011 around the globe shared two commonalities: Facebook and a desire for fairness—the new and the old. The new social-networking tool made manifesting the old fairness sentiment all the more rapidly, all the more contagious, and all the more potent.

Whether at home in the United States or abroad, these protest movements largely hinge on widespread disaffection that stems from what many perceive as growing political, social, and economic inequalities. In many ways, the OWS movements epitomized these global convulsions provoked by the public ire over the corporate bailouts, the widening gap between rich and poor, and the basic unfairness in tax policies, the last of which continues to be a divisive issue in America. While the “Occupy Wall Street” slogan seems to have slipped from parlance after the 2012 election season, the “99%” slogan continues to gain in potency.

Contrast this to just four years earlier, how mute such rhetoric was in the election of 2008. Even after the massive Wall Street sell-off in September 2008, the likes of which hadn't been seen since the Great Depression, Republican John McCain was still vilifying Democrat Barack Obama as a modern-day Robin Hood for Obama's proposal to raise the income tax on the rich. Obama, McCain warned, wanted “socialism” and would go so far as to wage “class warfare” to “spread the wealth.” McCain's pitch was apparently based on his take that Americans disliked playing Robin Hood. Such a public mentality—even if true at the time—would soon retreat.

In March 2009, the stock market continued its downward spiral, and the resulting financial tsunami wiped out American jobs en masse. In the meantime, executives at AIG were pocketing large annual bonuses—some \$165 million in total. Americans—liberals and conservatives, Democrats and Republicans—were furious. Only a few months earlier, the insurance behemoth was on the verge of bankruptcy. AIG would have gone belly-up if not for the timely infusion of \$182 billion in bailout money, courtesy of American taxpayers. For the American public, rewarding fat bonuses to rich executives at a difficult time seemed equivalent to robbing people of their possessions. Amid national outcry, the US Congress on March 19 passed an urgent bill to levy a staggering 90 percent tax on all similar payouts, only days after the news about the bonuses broke. Considering that Congress had been partially paralyzed by partisanship for years, it was surprisingly efficient in passing the special bill, intended to seize the bulk of the money from the bonus recipients. Among the supporters of the bill were eighty-five Republicans, who would otherwise hold lower taxes among their conservative principles. Due to mounting public pressure, their decision was more about political survival than political principle, for the time being.

Company executives at AIG felt victimized. Despite the fact that 80 percent of AIG was owned by the government, the bonuses at the time accounted for only 0.076 percent of the company's value, a minute proportion, making it hard to claim they were entirely from taxpayers. Also, the bailout agreement had been set up well before the bailout. It was a contract that should, in principle, be honored. Furthermore, AIG was not the only company handing out extravagant bonuses

compensations, and golden parachutes to executives. All major financial firms either taken over by the government or resuscitated by TARP moneys—Fannie Mae, Freddie Mac, Goldman Sachs, Citibank, Bank of America, Wells Fargo—had done the same thing.

For AIG, it was unfortunate to be situated in the bull's-eye of public fury, but the political storm left a trail of questions in its wake. Why did bonuses and executive compensations suddenly matter so much in the psyche of the American public? Why was the voice against lavish pay packages for company executives so feeble before the election? Why, in a short four-month period, was there a so change in public opinion? What was the powerful force behind this dramatic turn of events? The key to these mind-boggling questions lies in our Robin Hood mentality—a metaphor for our sense of fairness.



Who, then, is Robin Hood? The answer seems obvious for most of us. Fleshed out in ballads and folklores, Robin Hood is a legendary hero who robs the rich and gives to the poor. He is a savior for the poor and powerless. He opposes tyranny and fights against rich clerics and officials who are hated for their abysmal greed and wicked corruption. The legendary Robin Hood, agrees historian Maurice Keen, “displays many of the characteristics traditionally associated with fictional knightly heroes—courage, courtesy, loyalty, generosity, a free and open bearing.”<sup>1</sup>

Robin Hood is the hero of countless poems, songs, plays, novels, and comic books. Movies make Robin Hood all the more vivid: forty-nine Robin Hood films and TV series—nearly one in every two years, on average—have been produced since 1908.<sup>2</sup> In the age of information, Robin Hood has gained a new life on the Internet. The University of Rochester, for instance, maintains a special website dedicated to scholarly studies of literature, history, and folklore of Robin Hood.<sup>3</sup>

But there is a dilemma. A popular hero is usually well known for his name, birthright, and social stature. Yet exactly the opposite is true for Robin Hood. In fact, little is known as to who he really was beyond the stories in pop-cultural products. Even the “basic” facts about him are controversial at best. Is Robin Hood even the legendary hero's true name? Some believe the name Robin was derived from among others, Robyn or Robert, both common in medieval England. The last name might be Hode or Hude, in addition to Hood. Robin Hood might simply be a generic name for fugitives and outlaws, such as Hereward the Wake, Eustace the Monk, Fulk Fitzwarin, and William Wallace, who all gained some fame among English folks at the time.<sup>4</sup>

Another controversy concerns the time Robin Hood lived. John Major, a sixteenth-century Scottish historian, believes that Robin Hood was active in 1193 or 1194, when King Richard's brother, John, attempted a coup against Richard. *Wikipedia*, the open-source encyclopedic website, refers to the earliest mentioning of Robin Hood in 1228.<sup>5</sup> In the absence of solid evidence, the dates of 1193 and 1228 could each be correct, depending on Robin Hood's age. Thomas Gale, dean of York between 1650 and 1702, thought Robin Hood died “on the 24 Kalends of December 1247.”<sup>6</sup> Keen believes “it is very reasonable conjecture” that Robin Hood was still alive in 1266.<sup>7</sup> “Considering the silence of chroniclers and poets alike before that time, it would seem very unlikely that he could have lived earlier than, say, the first quarter of the thirteenth century.”<sup>8</sup>

The third black hole surrounding Robin Hood's dubious identity is his social status. Earlier ballads put him as a yeoman. In preindustrial England, yeomen were commoners who owned small parcels of land.<sup>9</sup> They sat above peasants in the English social hierarchy. Even so, there is some ambiguity. The word *yeoman*, according to historian John Bellamy, can refer to “both household servant and freeman.”<sup>10</sup> In the fourteenth century, it referred to artisans as well. An artisan, by definition, did not



belong to the landowning class. So Robin Hood's exact social role isn't crystal clear, and folklores, historian J. C. Holt's assessment, have done little but muddy the water. "At his first appearance Robin was a yeoman. He was then turned into a nobleman unjustly deprived of his inheritance, later into an Englishman protecting his native countrymen from the domination of the Normans, and finally into a social rebel who, in the peasant's struggle against the grasping landlord, retaliates against the person and property of the oppressor."<sup>11</sup>

Even if Robin Hood's social status were beyond doubt, a yeoman, notices Keen, would be the least exciting person to ascend to the status of legendary hero. "Robin Hood the yeoman is not the kind of figure to catch the limelight of medieval historical writing. He has no part to play on the grand political stage; he is a forest robber of humble origins and his cause has to do with the conditions of the everyday social world, not with the melodramatic conspiracies which troubled the sleep of kings."<sup>12</sup> Quite to the contrary, heroes typically emerge from the lower or the upper class of society but rarely from the middle. Indeed, gallant aristocrats aside, many historic heroes—such as Spartacus, the Roman slave, and William Tell, the Swiss peasant rebel—rose from the downtrodden or the oppressed in Western societies. Sitting snugly on the middle rung of a social hierarchy, yeomen were probably the least inspiring and colorful, simply because they were too common, too plain, or too little motivated to do something dramatic. They lacked the theatrical aroma necessary for delicious yarns.

Unsurprisingly, Robin Hood was elevated to a noble in later versions of his legends. Playwright Anthony Munday named Robin Hood Earl of Huntington in 1598.<sup>13</sup> And, in 1746, William Stukeley, an officious Royal Society fellow, cooked up a spurious aristocrat pedigree for Robin Hood.<sup>14</sup> Such fudging paved the way for legitimizing the romance between Robin Hood and Maid Marian, the sister of King Richard, in a time when status mismatch was a stiff taboo for marriage in English society. With love and hatred peppering up an otherwise dull yeoman's life, we now have a chivalric hero.

Last but not least, how did Robin Hood become a lawless fugitive? One theory suggests that he was forced to become an outlaw by King Richard's evil brother John while Richard was away, leading the eastward march during the Third Crusade. Alternatively, Robin Hood was "indicted out of malice" by the sheriff of Nottinghamshire and forced to live in the woods. The sheriff's malevolence goaded Robin Hood to serve justice with his own hands. Though a popular and seemingly reasonable account, little historical evidence gives it any support. Even the bedeviled sheriff had no real match among those who ruled the area at the time. "Robin's tale...is imprecise," Holt concedes. "He is an outlaw but no one explains why. He is in conflict with the sheriff but no reason is ever given; it is simply that the sheriff represents the law and Robin stands outside it. His story is less committed to immediate circumstances."<sup>15</sup>

But regardless of the dearth of evidence regarding whether he is a real person,<sup>16</sup> Robin Hood continues to survive as a shining hero in traditional and modern media in those societies thick with English culture. Apart from Jesus Christ, few other fabled figures have enjoyed such broad, timeless appeal and influence. Why has Robin Hood been so popular for so long? Paradoxically, part of the answer lies beyond medieval England.



Hardly confined to English folklore, incarnations of Robin Hood can be found in many other Western nations and societies, including "Rob Roy" MacGregor in Scotland, Louis-Dominique Bourguignon and Robert Mandrin in France, Johannes Bückler and Matthias Weber in Germany, Diego Corrientes in Spain, Angelo Duca in Italy, Stenka Razin and Emel'yan Pugachev in Russia, Juro Janošik :

Hungary, Chucho El Roto and Jesús Malverde in Mexico, to name just a few.<sup>17</sup> All of them were credible historical figures. Like Robin Hood, they were outlaws and rebels who robbed the rich and gave to the poor. Like their English parallel, they have been hailed as folk heroes of some sort. Were they copycats of the English Robin Hood?

Eastern folklore is not short of versions of Robin Hood. In China, Korea, Japan, and other East and Southeast Asian countries, Robin Hood-like characters masquerade as martial artists or samurais with insuperable fighting skills. They, too, rob the rich and help the poor as their way of serving justice. In countless stories, ballads, legends, and fairy tales, these martial artists come to rescue people from local toughs, bullies, and villains, who are stereotypically the rich and corrupt. Such chivalric stories are so popular in China today that they represent a unique literary genre of their own in books, movies, and TV series, usually with predictable plots and endings. Apparently banal to the creative mind, they nonetheless claim large numbers of readers and viewers, enjoying a substantial share in the media and entertainment market. Westerners can get a glimpse of this genre in movies ranging from those starring Bruce Lee to more recent Chinese ones such as *Crouching Tiger, Hidden Dragon* and *Hero*, which all reflect a general theme otherwise completely missing in the West—if not for the sake of Robin Hood. How can we resolve the dilemma of why there have been so many different versions of Robin Hood in so many cultures for so long, if Robin Hood is only a fictional figure? Is this a mere coincidence between Western and Eastern cultures?

Today, while throngs of Chinese are fixated upon their kung-fu Robin Hoods, Americans are engrossed in Robin Hoods of their own creation, regardless of vast differences in history and culture. Revenge stories have dominated the silver screen with such classic films as *Ben-Hur* (1959), the *Godfather* trilogy, the *Death Wish* series, *Carrie* (1976), *Unforgiven* (1992), *Braveheart* (1995), and *Gladiator* (2000), to name only a few. The stereotypical heroes in American Western movies epitomized by Gary Cooper, John Wayne, and Clint Eastwood are largely variants of Robin Hood. And, in their upgraded versions, cowboys are replaced by testosterone-charged idols in the bodies of Sylvester Stallone, Arnold Schwarzenegger, Chuck Norris, Steven Segal, and other macho actors. Although the musculature of these invincible men is not impressive enough, Hollywood has resorted to supernatural heroes—Superman, Spider-Man, Batman—who possess unearthly prowess to resolve problems insurmountable by our own species. What can we make of the popularity of these movies and their protagonists?

“[The Robin Hood] legend is about justice,” observed Holt decades ago. “Robin is...an embodiment of honour and an agent of retribution... Robin also foreshadows the world of superman and the comic strip.”<sup>18</sup> The broad appeal and off-the-chart box-office success of many of these surreal movies can hardly be entirely explained by their artistic creativity and dazzling special effects; it also lies in the themes of the yarns that resonate in the viewers: a desire for fairness and justice.



A secular value of universal appeal, fairness is omnipresent and often sacred, to a degree that major religions—Buddhism, Judaism, Christianity, Islam—claim it as a religious virtue. Most, if not all, societies—ancient or modern, tribal or industrial—have some notion concerning equality and fairness in economic, social, and political status.

Probably *the* most essential rule in social engagement, fairness has shaped human relationships, molded human societies, and directed the course of civilization. It governs virtually all aspects of our society, from economics, politics, education, and military organization to sports and entertainment. Its long arms grip issues as small as division of family chores between a couple, gift exchanges between friends, and daily interactions with coworkers. It also underlies major social, economic, and political

issues such as taxation, gender equality, racial relationships, and international affairs.

Furthermore, fairness is the foundation for justice—the most important moral principle in human societies. For French anarchist Pierre-Joseph Proudhon, government was disposable; justice was not:

Justice, under various names, governs the world—nature and humanity, science and conscience, logic and morals, political economy, politics, history, literature and art. Justice is that which is most primitive in the human soul, most fundamental in society, most sacred among ideas, and what the masses demand today with most ardour. It is the essence of religions and at the same time the form of reason, the secret object of faith, and the beginning, middle and end of knowledge. What can be imagined more universal, more strong, more complete than justice?<sup>19</sup>

Indeed, fairness underpins many landmark events in both Eastern and Western societies. In the West, we have adopted the blindfolded Roman goddess Justitia—Lady Justice—as the symbol of fairness and justice. The American Revolution was an uprising against the unfair taxes imposed by the British. The French Revolution of 1789 was rooted in the widening economic gap between rich and poor, as were Russian revolutions in the beginning of the twentieth century. So, too, were the sweeping Communist movements in China, Southeast Asia, Latin America, and Africa—despite the disastrous consequences. These latter examples illustrate that our relentless quest for equality, fairness, and justice may lead to outcomes that are not always desirable. In fact, the sense of fairness can lead to great friendship, partnership, long-term collaboration, team spirit, and global peace, on one hand, and suspicion, ill will, anger, retaliation, feuds, and mass violence, on the other.



What are fairness and justice? The answer varies. Some use the two words interchangeably, whereas others make clear distinctions. Justice, in the most generic term, “concerns what people are due according to a recent textbook.”<sup>20</sup> A more specific definition is given by political philosopher Michael Sandel, who simply stamps it in the title of his book: *Justice: What's the Right Thing to Do?* Justice guides our moral judgments, decisions, and actions. As a main concern in our society, the issue of justice seeps into all spheres of our social lives: political, economic, social, legal. Distributive justice, for instance, concerns how key resources and opportunities are allocated in society. It has played a major role in all human societies and will thus be the focus of this book.

For time immemorial people have been seeking to define justice and the ways to implement it to create a better society. Such intellectual pursuits are evident in the texts of Lao Zi and Kong Zi (Confucius) in the East, and the Talmud, as well as the writings of Aristotle and Plato, in the West. In fact, all of Confucianism is hinged on two core values: beneficence (*ren*) and justice (*yi*), which are the backbone of the government and moral system of a society. Confucius cautions that when a profit is up for grabs one must consider whether grabbing it is the just thing to do. Early Indians, likewise, saw justice at two levels, *niti* and *nyaya*. The former “relates to organizational propriety as well as behavioural correctness,” explains Nobel laureate economist Amartya Sen, whereas the latter “is concerned with what emerges and how, and in particular the lives that people are actually able to lead.”<sup>21</sup>

In the West, meanwhile, ancient Greeks such as Theognis and Plato consider justice the sum of all virtues. It makes people act rationally and dutifully in such everyday affairs as keeping promises and paying debts. Aristotle holds that reward should be based on merit, in terms of political status.<sup>22</sup> In his words, “all men agree that what is just in distribution must be according to merit.”<sup>23</sup> In a similar vein, justice, for Byzantine Emperor Justinian, “is giving to each person what is due to each.”<sup>24</sup>

Where does justice come from? As early as the first century BCE, the Roman orator Cicero

considered justice to be natural and universal for humans.<sup>25</sup> But almost four centuries later, Augustine believed that justice is based on values specific to Christians; that is, no justice will prevail in people who fail to put their faith in the Christian God. It is surprising that, even within the vast territory of the Roman Empire, which encompassed so many cultures, he missed the obvious fact that non-Christian societies dealt with daily issues fairly and justly. Still, Augustine's religious view was so influential that his conception of justice prevailed in the West until the thirteenth century, when Thomas Aquinas began to see justice as a more or less universal virtue that occurs in different cultures, religions, and political systems. Yet, until the seventeenth century, Aquinas's thought could do little to shake the concepts established by Augustine.<sup>26</sup> Immanuel Kant was a key figure in completing the paradigm shift. He affirmed that the virtue of justice has little to do with religion or culture. His take on the universal nature of justice was that each human being “exists as an end in himself and not merely as a means” and that each “has an equal right to the good things which nature has provided.”<sup>27</sup>

Aquinas's idea about distributive justice is primarily Aristotelian, centered on merit—that is, on one's political status—with little concern for the poor and needy. The Enlightenment movement turned this ancient view on its head; justice became an entitled right belonging to all in a society. John Locke, for instance, believes “justice gives every man a title to the product of his honest industry and the fruits of his acquisitions of his ancestors.”<sup>28</sup> For David Hume, “a rich man lies under a moral obligation to communicate to those in necessity a share of his superfluities.”<sup>29</sup> In his view of distributive justice, Adam Smith also addresses the needs of others, in addition to a person's merit. Although he is not overly concerned about the misery of the poor, he does put justice within the radius of the Christian social virtues. Both Hume and Smith advocate for property rights, which, they believe, would eventually be beneficial to the poor.<sup>30</sup>

In stark contrast to property rights for individuals, the concept of communal ownership of resources and wealth also enjoys a large following. Although today we tend to credit the idea to Karl Marx, its origin can be traced much further back in history. Plato, for instance, advocates it in his major work *The Republic*. In the New Testament, Jesus lives among the poor and the apostles, knit into a cohesive community, within which “distribution was made unto every man according as he had need.” This is an ideal that has been attempted by many Christian sects, such as the Franciscan order, the Anabaptist rule (1534–1535), the communities of the Diggers (1649), the Shakers, the Oneida community, and many others, including even the notorious Temple of God founded by the cult leader James Jones.<sup>31</sup> Thomas More's epic *Utopia* introduces an enticing world without private property where members share everything. Rousseau, though a contemporary of Smith and eighty years the junior of Locke, condemns the existence of private property as the fountain of inequality, violence, and social discord. When Karl Marx penned the famous words, “from each according to his ability, to each according to his need” in *Critique of the Gotha Program* in 1875, the Communist idea of distributive justice was anything but original.

Before the Enlightenment, alleviating the misery of the poor and needy was viewed as an act of benevolence or merciful charity—a moral option rather than an obligation; it is viewed as an act of justice in the modern sense of distributive justice. Today's distributive justice hinges on meeting the welfare of people in regard to food, housing, education, healthcare, and other basic needs. All people, as human beings, deserve and are entitled to some essential goods, regardless of who they are. Hence, distributive justice, in today's sense, has little to do with merit. Only after the basic needs of the people are met does the issue of merit come up.<sup>32</sup>

This modern conception of justice owes a great deal to John Rawls, who advocates two principles: the equal liberty principle and the difference principle. The former mandates that all people have basic

equal rights, including rights to free expression and association, and to holding and using personal property. The latter demands that, equal opportunity aside, social and economic inequalities be arranged to the greatest benefit of the least-advantaged of society.<sup>33</sup>

Although a persistent quest for equality and justice has placed fairness at the center of social and political movements that have profoundly transformed Western societies since the Enlightenment, an intriguing dilemma remains. On one hand, nearly all leading philosophers, including Rousseau, Humboldt, Kant, and Rawls, have laboriously tackled the issue. On the other, the lack of consensus on the meaning of justice has left us with heated debate on virtually every major social issue: taxation, affirmative action, government spending, gay marriage, universal healthcare, environmental protection, and immigration, to name just a few. Despite Rawls's influential ideas about what ideal justice should be, we are still far from reaching consensus on a vast array of practical issues. The problem lies in a seemingly simple fact: while a vast amount of effort has been poured into hunting for ideal principles of justice, fairness—the evolutionary underpinning for justice—has been overlooked. Compared with her more glitzy twin sister justice, the reticent fairness has gotten little attention. Even Rawls, whose name is forever tied to his advocacy for justice as fairness, never provided an explicit definition for fairness in his writing. The following paragraph appears his closest miss:

Immediately the question arises as to how the fair terms of cooperation are specified. For example: Are they specified by an authority distinct from the persons cooperating, say, by God's law? Or are these terms recognized by everyone as fair by reference to a moral order of values, say, by rational intuition, or by reference to what some have viewed as "natural law"? Or are they settled by an agreement reached by free and equal citizens engaged in cooperation, and made in view of what they regard as their reciprocal advantage, or good? Justice as fairness adopts a form of the last answer: the fair terms of social cooperation are to be given by an agreement entered into by those engaged in it.<sup>34</sup>

Clearly, for Rawls, fairness is a social contract among people under fair conditions.<sup>35</sup> Between the lines, Rawls was conscious of differences in people's perception of fairness. This becomes more explicit for Sen, who is among the very few thinkers who actually provide a definition of fairness. Fairness, according to Sen, "can be broadly seen as a demand for impartiality" uninfluenced by "our respective vested interests, or by our personal priorities or eccentricities or prejudices."<sup>36</sup>



Fairness is probably the most important rule that governs our daily interactions with spouses, lovers, friends, coworkers, and neighbors. Yet conflicts may still arise regardless of how well-meaning we are and how faithfully we stick to the principle of being fair. Sometimes trivial misunderstandings in conversations, gift exchanges, and other social events can mire us in suspicion and quarrels, or even lead to the dissolution of long-term relationships. The most common reason is that what is perceived as fair by one party may be deemed unfair by the other.

Take income taxes for example. Is it fair to put people with greater income into higher tax brackets in a system known as progressive taxation, which assumes that those who earn more can afford to pay with a larger proportion of their incomes? If the answer is yes, the economic advantage of those who do well is curtailed by the system, which, as some argue, is unfair. If the answer is no, why is such a policy supported by the vast majority of people, especially among "the 99%"?

Our legal systems are rife with similar controversies. Despite Rawls's repeated emphasis on "justice as fairness," people's views can still diverge markedly as to how justice should be served. For instance, can we penalize a pickpocket by death? Most would deem it far too harsh in today's democratic, industrial nations. Yet this was the reality in Dickensian Britain less than two centuries

ago. What about stoning a person to death for the crime of adultery? Westerners would clearly say no, but many in conservative Muslim nations would find this punishment fair.

People perceive fairness differently in the moral dimension as well, where skewed and double standards are all too common. This is a major reason why ruthless robbers such as the James Brothers, Billy the Kid, and Bonnie and Clyde can gain the aura of modern Robin Hoods in America. The same can be said for Fidel Castro. Despite often being portrayed as a dictator in Western media, he is revered by many in Latin America as a hero with the courage to stand against the United States, the Goliath in the world. Even more remarkably, Osama bin Laden has been hailed as a hero in some Arab communities. In the wake of the 9/11 tragedy, while most people in the world were shocked, aggrieved, and saddened by the massive loss of innocent lives, there were instances of jubilation and celebration in the streets of Iran, Iraq, and Palestine, and in the chat rooms and blogosphere on the Internet. In Iran, interestingly, spontaneous street celebrations aside, there were also candlelight vigils in solidarity with the United States.

So it is a fascinating and important question: why are our views of fairness and justice so diverse? Apparently, people's views vary along a variety of axes—biological, social, economic, religious, and other cultural aspects as well. Our sense of fairness, therefore, is expected to reflect these differences. Yet, traditionally, fairness has been approached as an ideological issue. Philosophers and social thinkers, while diligent in pursuit of universal moral standards for a perfect society, tend to overlook the vast differences in our individual senses of fairness. Aware of such peculiarities, Sen, Rawls, and many others have come close to discovering the rich lode underneath the variations in fairness perception. But, somehow, they let go of the golden opportunity.

Moral philosophy and moral psychology are distinct territories in our quest for fairness and justice.<sup>37</sup> Over two centuries ago, Rousseau had already made a distinction between our theoretic and practical pursuits by pointing to a simple fact: “we shall not be obliged to make man a philosopher before he is a man.”<sup>38</sup> The common confusion between justice as abstract ideology and fairness as concrete perception makes philosopher Robert Solomon lament, “We have over-intellectualized our feelings about justice, with the result that our feelings have become as confused as our theories, if indeed they have not been eclipsed by them.”<sup>39</sup>

Indeed, subconscious intuitions, rather than conscious moral reasoning,<sup>40</sup> weigh heavily in judging fairness in everyday life. More often than not, it is our intuitive emotions, not reasoned philosophies that compel us to take action. That's why political debates can get emotional and, at times, stray off the course of civility. Emotions aside, how often do we see fairness issues settled by debate? Yet how often is the diversity of our fairness opinions given serious thought? This familiar experience speaks for the importance of understanding fairness in terms of behavior and psychology—a vital aspect missing from traditional approaches to fairness and justice issues.

Fortunately, recent studies in biology, psychology, anthropology, and economics have unveiled a much clearer and richer image of the nature of fairness. In addition to undergirding our concepts of justice, fairness indeed has its profound biological origins, rooted in our genes. Under this new light, our disagreements regarding what fairness is reflect as much about our biological nature as they do about our culture. That's why our attempts to reach a consensus on fairness are so often doomed to become wild goose chases. Such vain efforts would have been saved had we seen the gaping fault line between fairness as cultural ideology and fairness as biological instinct.



After we shift our perspective on fairness from ideology to biopsychology, the Robin Hood enigma described earlier is an enigma no more. It is clearly no coincidence that Robin Hoods, albeit with

different names, exist in both Eastern and Western societies. Robin Hood echoes a common theme in human history—people yearn for justice when oppressed by a system of law and unfair social institutions that are stacked against them. As long as our social system is imperfect—if there is such a thing as a perfect one—we question its fairness and legitimacy; we want to change it. It is this human desire that makes peoples across the world crave Robin Hoods, heroes who will bring fairness and justice to their lives.

This universal desire is the creative force behind Robin Hood stories. “The identity of the man matters less than the persistence of the legend,” remarks Holt. As societies, values, and times change so do the stories. “New tales were added to the story. New characters were introduced to the plot. Fresh historical contexts were invented. Minor features of the older tales were expanded into major themes; important elements in the earlier tales were later jettisoned. The legend snowballed, collecting fragments of other stories as it rolled along. The central character was repeatedly remodeled.”<sup>41</sup>

We are now in a good position to take a shot at the question of whether Robin Hood is real. Several scholars have offered their insights. “[Robin Hood's] struggle is part of man's ageless war against abuse,” writes Keen, “and his story is more vivid and human than that of any participant in the struggles of, say, the Norman conquest or the reign of King John, because it is more universal.”<sup>42</sup> He then elaborates:

The outlaws of legend, if they undeniably belong to the world of mortal men, have equally undeniably been enlarged and romanticized to more than life-size in the minds of the people who heard and loved the ballads which recounted their deeds. Indeed, though their activities are corporeal enough, their stories do not have quite the ring of true history. The theme of the righting of wrong done, of the lightening of the load of the peasant and the defeat of social injustice, which invests all the outlaws' acts with a king of chivalry, does not really belong to the history of highway robbery. No robber ever could have lived as the Robin Hood of legends did; he is an ideal, not an actual figure.<sup>43</sup>

Along the same logic, it makes sense that Robin Hood is a yeoman. “His story belongs essentially to the common people, whose hero par excellence he was.”<sup>44</sup> Behind Robin Hood and his stories are ordinary people who shared the desire for fairness and justice. “The characteristic plot of the Robin Hood ballads, and indeed of all the later outlaw stories, is very simple. It is a tale in which wicked men meet a merited downfall, and the innocent and the unfortunate are relieved and rewarded. As the wicked are always the rich and powerful and the innocent the victims of poverty and misfortune, the story may be said to be in essence stories of social justice.”<sup>45</sup>

This also explains why the popular appeal of the hero never wanes. In fact, Robin Hood continues to capture our admiration and fascination. As a case in point, adding to the popularity of Kevin Costner's 1991 movie *Robin Hood*, Bryan Adams romanticized the hero with his record-breaking song “Everything I Do, I Do It for You.” It stayed at the top of the charts in the United States, Britain, Germany, France, Australia, and many other countries in the 1990s. Just nine years later, another big Hollywood star, Russell Crowe, became the lead actor in a movie with the same title and almost exactly the same plot. The charm of Robin Hood is indeed timeless.

There is a moral equivocation, though. When we savor Robin Hood stories or read them to our children, how many of us are aware that Robin Hood is a lawless poacher, an incorrigible robber, a shameless extorter, a ruthless bandit kingpin, a heartless kidnapper, and a cold-blooded murderer? Robin Hood prefers a society without law. He treats the rich as the wicked, as if wealth necessarily corrupts and transforms a person from good to evil. Do we really welcome such a heroic savior in our society? If not, why do we still cherish the very idea of robbing the rich and giving to the poor regardless of Robin Hood's brutality and savagery?

Perhaps something deep within our psyche shares Robin Hood's version of fairness and justice. *A*

we watch or read his story, we become the embodiment of Robin Hood ourselves. His blood flows through us; his emotions infect us; his primeval sense of justice lives in us. Such a subconscious desire for justice is the emotion behind the appeal of many books and movies; it is a universal theme. When justice is unserved, we feel vexed and unsettled. We experience a compulsive urge to set things right.

One outlet for this urge is spectator sports. Inside a noisy stadium, we can cheer for the scrappy underdog (David with his sling) and boo the towering Goliath. Excepting diehard fans, who are always loyal to their team, we tend to despise the powerful franchises, simply for their star-studded rosters backed by big bucks. Among those that best fit this latter role are the New York Yankees and the Los Angeles Lakers. Part of their unwitting and unwilling duty is to entertain us by satisfying our desire to see giants fall.

In a more peaceful yet no less forceful realm, Cinderella stories and rags-to-riches tales constitute the bulk of all films and TV programs. From *My Fair Lady* to *Pretty Woman*, from *American Idol* to the overnight fame of Susan Boyle, they reflect our compassion for the weak, good, kind, and hardworking people whose lives are, in our view of a just world, unnecessarily hard. We empathize with them; we love to see them succeed and thrive. We hope that true lovers get married, poor and kindhearted people win the lottery, bullies are vanquished, and villains suffer their just deserts. And of course, the hero always gets the girl, and, from then on, they live happily ever after, a trite finale whose appeal never seems to fade. Yet underneath the worn-out veneer of these stories lies our deeply engrained desire for fairness. In this sense, we are all Robin Hoods.

While we may be disappointed by the lack of substantive evidence for the reality behind the Robin Hood legend, it appears to matter little. We have stumbled onto something much larger than the legendary folk hero—the Robin Hood who lives inside us all. Our brief venture as historical detectives has paid off richly, albeit in an unexpected way.

While leaving the search for Robin Hood's true identity to professional historians, this book invites you to tour the scientific wonderland of fairness and its social ramifications. It attempts to answer such questions as where our sense of fairness comes from, which emotions and actions emerge from our fairness instinct, how powerful and prevalent fairness can be in our social interactions, and how we can harness it to improve human relationships at all levels.

Let's start our tour. The first stop is the evolutionary genesis of our fairness sense.



## THE MAKING OF ROBIN HOOD

Up until the 1970s, why fairness is universally valued in human societies remained an unanswered question, despite persistent efforts by generations of philosophers. Unbeknownst to most social thinkers of the time, a silent revolution was brewing in the scientific community. As biologists started examining animal social behavior through the lens of evolution, they opened an inquiry into many human behaviors we had taken for granted—the origins of which had stumped philosophers for centuries. In 1987, Richard Alexander, a University of Michigan biologist, triggered an intellectual storm with his work *The Biology of Moral Systems*, which marked the entry of science in the debate over the nature of morality. The motive for his thought-provoking book, Alexander wrote, was the impasse in the traditional pursuit of moral issues:

I believe that something crucial has been missing from all of the great debates of history, among philosophers, politicians, theologians, and thinkers from other and diverse backgrounds, on the issues of morality, ethics, justice, right and wrong. Why have the greatest minds throughout history left such questions seemingly as unresolved as ever?...Part of the answer is that those who have tried to analyze morality have failed to treat the human traits that underlie moral behavior as outcomes of evolution—as outcomes of the process, dominated by natural selection, that forms the organizing principle of modern biology.<sup>1</sup>

He went on to lay out the argument that morality is an evolved set of behavioral rules and norms aimed at resolving a central issue in social living: conflict of interest.

Alexander's thesis, as provocative as it was, was still in need of solid evidence because, at the time, not many studies had been specifically designed and conducted to examine moral behavior in animals. Fortunately, soon after the publication of Alexander's work, the gap between his theories and the evidence began to narrow, thanks to a flurry of new findings in social animals such as dogs, wolves, and primates. Still, after well over a decade of research, decisive evidence for any prototypes of morality in animals—including fairness and justice—was still missing.

The September 2003 publication of the short paper “Monkeys Reject Unequal Pay,” appearing in the science journal *Nature*, immediately caught people's attention. Two Emory University researchers, Sarah Brosnan and Frans de Waal, reported a surprising discovery in the brown capuchin monkey, native to the jungles of Central and South America.

The monkeys in Brosnan and de Waal's study were trained to use stones and pebbles as tokens in exchange for food rewards from researchers. To test whether the monkeys possessed a sense of fairness, Brosnan and de Waal designed an innovative experiment. They paired up the monkeys and gave each of them a rock as token money. If a monkey returned the rock, it was rewarded with either a grape, which they considered a highly valuable food item, or a slice of cucumber, which was not so desirable. The researchers found that when two monkeys in a pair were given the same rewards for rock tokens—either grapes or slices of cucumber—both were willing to participate in the exchange game. However, when the rewards were unequal—that is, one monkey got a grape while the other received a slice of cucumber—the shortchanged monkey often refused to cooperate in the exchange. Some even threw the cucumber slices back at the researchers in protest. Robin Hood would have been amused that his vision of justice concurs with that of capuchin monkeys.

The study proved significant. It settled the long-standing question of whether animals have a sense of fairness. Additionally, it added a solid piece of scientific evidence to the age-old philosophic

contention that the sense of fairness is a universal human trait. The first conclusion is evident. The second and more crucial point, however, may take a bit of explaining. After all, how can a universal moral sense in humans get support from a simplistic prototype found in one of our distant cousins? Unknown to Aquinas and many of his theoretical compatriots, the answer lies in a philosophical rule called parsimony, a logical principle that guides us to choose the best explanation when faced with several choices. The principle holds that when many alternative theories exist, the best is the one that works for the greatest number of situations yet is based on the fewest assumptions. Also known as the law of parsimony, economy, or succinctness,<sup>2</sup> the principle has a colorful alias, Occam's razor. The name is derived from the fourteenth-century English theologian William of Ockham. His formulation was that "entities must not be multiplied beyond necessity."<sup>3</sup> Plainly stated, the simplest explanation is the best. "Razor" here is likened to a tool to cut away any undue contingencies.

Though not without flaws, the parsimony principle has a solid footing in probability theory. It tells us that, everything being equal, the more specific a story is, the less likely it is true. This is precisely what we experience when using an Internet search engine. The more specifications a query has, the fewer results will pop up. In other words, a possible event, when chained to more conditions, becomes less probable. For example, it is quite easy to pick the most likely event out of the following three: the condition of time becomes increasingly specific:

1. The world will end.
2. The world will end in the 2180s.
3. The world will end at 12:32 PM, May 4, 2188.

Thus, probability theory not only illustrates the legitimacy of Occam's razor, it also bolsters William of Ockham's esthetic credo, shared with a multitude of scholars since the heyday of the Athenian civilization: simplicity is elegance.<sup>4</sup>

While there may be many explanations for a sense of fairness found in both humans and their primate cousins, the principle of parsimony tells us that the simplest answer is the most likely. In that case, if a trait is seen in both humans and animals that are closely related to humans, say chimps, the most likely—most parsimonious—explanation is that the trait had already existed before humans and chimps parted in their evolutionary lineages. This historical scenario, known in Darwin's words as "common descent," elucidates why we can better understand ourselves by studying a broad range of animals. Common descent, backed by the parsimony principle, allows us to look into human nature in ways we had barely thought possible until recently. We can do this by comparing aspects of behavior and psychology—such as aggression, territoriality, emotion, personality, and mate preference—between ourselves and animals. Indeed, recent studies in monkeys and apes have hugely advanced our knowledge about a wide range of behaviors: consciousness, tool use, language, and culture, all of which were widely—but wrongly—conceived of as uniquely human only a few decades ago. Brosnan and de Waal's discovery of fairness in the capuchin monkey has further blurred the line between humans and other animals in a new territory: the sphere of morality.



Based on the parsimony principle, the evolutionary arrival of fairness might have occurred before the primate lineage branched off from other mammals tens of millions of years ago.<sup>5</sup> The question for us now is why fairness popped up in the first place. What might have spurred the emergence and evolution of fairness in animals? And what function does fairness serve? Part of the key to answering these questions lies in monkeys like the capuchin. But monkeys are complex animals—not only a

they highly intelligent; they are also highly social. Which of the two—mental capacity or close-knit social life—hosts the evolutionary wellspring of fairness?

Unfairness evokes strong and spontaneous emotional reactions—ranging from mild discontent and envy to resentment and outright hatred—in humans, and possibly in other primates as well. The emotions goad us to take action in an attempt to curb the perceived injustice. It appears that this chain of responses, involving complex cognitive processes. In the world of Brosnan and de Waal's capuchins, a monkey has to be able to compare its reward with what its peer gets for the same “service”—exchanging rocks with humans. For the monkey, the reward of its peer sets the bar for its expected gain. The gap between the actual and expected is then used in judging whether the reward is acceptable or not—that is, whether the reward is fair or unfair. All of these steps are hinged on a basic sense of quantity, by which the magnitude, if not the precise amount, of the deviation between the actual and expected rewards can be fathomed.<sup>6</sup> Simply put, fairness judgment requires some ability in quantitative cognition.

This requirement poses little barrier for a wide variety of animals, ranging from insects to mammals, including some that are not considered “brainy.” Many have a keen sense of quantity, or, in psychological lingo, mathematical cognitive ability. This is especially evident in mate choice among females able to sense nuance in the quality of potential mates. Some female butterflies swoon for males with dazzling iridescence while avoiding the less colorful. In the guppy, a tiny freshwater fish, females shun drab suitors for bright males with the most orange spots. In the Túngara frog in Panama, females favor males whose love songs are studded with low and loud chucks. Peahens prefer peacocks with long tail feathers decked with beautiful eyespots, rejecting would-be consorts with shorter tails.

Birds in particular often have a clear, sometimes finicky numerical sense. This trait is likely related to, and perhaps evolved from, the mundane task of counting eggs in their nests. It is not in a bird's nature to brood in earnest until the number of eggs reaches a certain point. Several species of eagles, for instance, lay only one egg; pigeons, two; robins, three to four; starlings, five; mallards, typically seven to ten. This is no secret to avid birders, who at times use clutch size—the number of eggs when the nest is full—as a species-specific character. Many birds, such as parrots, ducks, and chickens, can be tricked into laying more eggs if some are removed from their nests before the characteristic clutch size is reached.<sup>8</sup> It appears that these birds keep counting and, within their reproductive limitations, adding more eggs to make up for the mysteriously disappearing ones. This mental loophole can be exploited by breeders, who incubate extra eggs by artificial means.

The accuracy of a bird's numerical sense depends on its natural history. In the American coot, hens often stealthily lay eggs in others' nests—a phenomenon called brood parasitism, seen in well over a hundred species of birds—in the hope that they can fool the unwary hosts to work as free nannies. These parasitic hens can thus raise extra chicks without assuming the laborious motherly duties themselves. Under the pressure of widespread brood parasitism, natural selection favors coot hens that have keen numerical senses and greater visual sharpness to recognize spot patterns on eggs. Equipped with these cognitive acuities, they can, with impressive accuracy, count and identify their own eggs while rejecting those snuck in by others.<sup>9</sup>

Mammals are even more closely scrutinized by scientists for their numerical sense. Behavioral studies have revealed that rats and monkeys have varying levels of quantitative ability. Many have at least some basic numerical sense, often represented as mental magnitudes. This means the animals can comprehend, if not precisely, what is more and what is less. Several species of monkeys even show rudimentary skills in simple arithmetic such as addition, subtraction, and putting numbers in order.<sup>10</sup> This numerical sense is often relevant to survival. For example, chimps cue on pant-hoarse vocalization to assess the size of an enemy troop. Only when they are sure they outnumber the

opponents will they launch an attack. It seems that mammalian brains are far more sophisticated than what is minimally required to perform simple quantitative comparisons.

The neural processes of quantitative cognition and comparison are complex. Fortunately, they are among the best understood, involving special kinds of neurons in the midbrain that, when stimulated, release the neurotransmitter dopamine. These dopamine neurons are responsive to information collected by the brain that is related to rewards.<sup>11</sup> A closer look shows that these neurons come in two types. One decides how to act. It gets excited by rewards and is inhibited by punishments. The other type makes no distinction between rewards and punishments; this type responds only to the size of the stimulus—large reactions for large stimuli, small reactions for small stimuli—and so decides whether and how intensely to act.<sup>12</sup> Putting the scenario in the context of Brosnan and de Waal's capuchins, the first type of dopamine neuron prompts the monkeys to either accept or reject the rewards by comparing what their peers get—equal or better, accept; worse, reject. The second type determines how strongly they should react (accept or *gladly* accept; reject or *angrily* reject, for instance) according to what they expect and what they actually get.

This minimalist view of the two types of dopamine neurons is inadequate for a sense of fairness, however. Otherwise, many animals, especially birds and mammals, would act as if they all knew the fairness principle of “equal pay for equal work” in its primordial version—simply because they have similar dopamine neurons. If the experiment with capuchin monkeys tells us anything about the sense of fairness, it is in the tantrums they throw when shortchanged. Here, emotions are critical in signaling what they perceive as fair or unfair. But emotional signals like tantrums have to be understood by peers in context—for example, the context of carving up a hunting spoil. Otherwise, the barrage of negative sentiments unleashed by the feeling of injustice would be wasted. Worse still, since negative emotions—such as envy, anger, resentment, and hatred—are harmful to the body, they would stand little chance of evolutionary success if there were no benefit to offset the cost. When offended, we humans might experience a rush of hormones and a surge in blood pressure while we twist our face into a snarl. All this would be worthless, or even confusing, if people around us could not make out why—that is, the cause and context of our display.<sup>13</sup> So, too, in the animal kingdom; an animal with a sense of fairness employs its emotions to get its message across to its peers. To do so requires a crucial cognitive component that transcends the ability to count or measure—empathy, the ability to perceive the feelings of its peers. In other words, to have a sense of fairness, an animal must be capable of experiencing the emotions of its social partners.

How does the brain experience the feelings of a peer? In the vast jungle of the 100 billion neurons in the human brain, scientists have tracked down a special type, called mirror neurons, that underlie the ability to experience empathy. These neurons occur in many areas of the human brain and are activated when a person sees, and is triggered to imitate, the behavior of another. Mirror neurons, as the name indicates, allow us to feel other people's emotions by mentally swapping our perspective with the perspectives of those around us. These “mind-reading” cells seem to be crucial for empathy because they “allow us to grasp the minds of others not through conceptual reasoning,” explains neurobiologist Giacomo Rizzolatti, “but through direct simulation,” that is, “by feeling, not by thinking.”<sup>14</sup>

Mirror neurons were found in monkey brains—the premotor and parietal cortices in particular—early as the 1990s. Like humans, monkeys respond to the emotions and assess the intentions of their social partners.<sup>15</sup> But there is another layer of biological intricacy underlying empathy in humans and apes. In addition to mirror neurons, scientists have discovered another type of neurons, spindle cells in the prefrontal cortex, just behind our forehead. Not surprisingly, the brain region is directly wired to, and presumably receives information from, the dopamine neurons in the midbrain.<sup>16</sup> Spindle cells

also appear critical for empathy. In people with autism, spindle cells are found in a different location in the brain. Consequently, the lack of empathy—the most debilitating mental deficiency among autistic people—may be related to abnormal neural wiring, leading to difficulty with social interactions. Interestingly, spindle cells are also present in several species of whales, indicating that these intelligent animals may also have the capacity for empathy.<sup>17</sup>

Although optimism abounds regarding our understanding of the neurobiological foundation of empathy, there is much to learn about the roles of mirror neurons and spindle cells, and their link with empathy. Although we have yet to know what minimal level of complexity in neural networks is necessary for the emergence of a sense of fairness, existing evidence points to fairness being an evolved behavioral trait that connects humans with other species, especially primates.



If empathy itself is bound up with social life, how important is social living to the evolution of fairness? Before answering this question, let us ask a more basic one: Why are some animals social while others are solitary? A common approach to this question uses a cost-benefit analysis borrowed from economists. The costs of social living include a heightened level of competition for resources—food, shelter, water, mates—and a higher risk of contracting germs and parasites from peers. The benefits, however, can also be sizeable. They include coordination and collaboration in searching and hunting for prey (as in wolves and lions), sharing food (as in many monkeys and apes), defending against predators (as in meerkat sentinels), protecting territories, and mutual cleaning and comforting to name a few.

Cost-benefit analysis is quite useful for understanding evolution. Natural selection mandates that, all things considered, if the benefits of social living are less than the costs, animals should live alone. But clearly, many animals stick together in groups; why, if they do not profit from the company of others? To be social implies that, by living with peers, they gain more than they would by living alone.<sup>18</sup> Observation of social animals demonstrates that the benefits of social living—coordinated hunting, food sharing, joint defense, or mutual protection—pivot on cooperation among partners. Cooperation is, therefore, the main drive of social living. Without it, how can it be possible to have an organized society with stable members?

The necessity of cooperation for social living is best illustrated by what I call pseudo-social animals—gazelles, wildebeests, zebras, buffalos—on the savannas of Africa. These animals rarely cooperate with each other; stable social bonds seldom occur beyond mother-young relationships. Attracted to food or water, their congregations can be impressive, but they will disband and disperse in every direction once their hunger and thirst are sated or they are chased by hungry predators. This is not the kind of society that favors cooperation. Without cooperation, the benefits of social living cannot outpace the costs; society dissolves.

Social living brings conflict of interest between peers to the fore, however. If not properly resolved, conflict of interest can be the downfall of any society. It can derail cooperation and dissolve hard-won relationships, as many experience in marriages, friendships, associations, and joint business ventures. For this reason, conflict of interest may be the mother of all moral problems and the hub of the biological quest for morality that Alexander argued for. To enjoy the “sweet spot” of cooperation, many social animals, humans included, have evolved a battery of strategies for conflict resolution. When physical disputes occur, animals will often go to great lengths to repair wounded relationships. Wolves in a pack lick each other for reconciliation, and monkeys and apes engage in mutual grooming—much more than usual—after an outbreak of fights. Although we are not entirely sure about other primates, humans, at least, are equipped with a special emotional tool—feelings of guilt—to help keep

relationships in working order. Often displayed after violating moral rules in general, and particularly when treating peers unfairly, guilt motivates us to restore peace and harmony with our social partners. These are just a few examples indicating the importance of affable relationships for lasting cooperation.

Cooperation is propelled by two biological engines: kin selection and reciprocity. Kin selection—theory developed by biologist William Hamilton in 1964—explains how altruistic behavior toward genetic relatives, which at first glance may seem costly for the altruist, will eventually be a benefit. Put simply, altruists help themselves—that is, they increase the chance that genes they carry will be passed on to the next generation—by helping their genetic kin. This can be illustrated using a hypothetical example. Say I have a sister, who on average shares 50 percent of her genes with me. Kin selection, as a form of natural selection, shows that it makes no difference whether I help to pass on the genes in myself or those in my sister. As long as more copies of the same genes make it into the next generation, they stand a better chance of thriving in the future. Thus, as long as the cost of my sacrifice—any sacrifice, from lending a hand to laying down my life—exceeds twice the benefit for my sister (as she carries a half of my genes), it is a better deal for me to make the sacrifice than to give my sister the cold shoulder. To make me give up my life, I need to save more than two siblings to gain a genetic advantage for my sacrifice. All in all, my sacrifice is ultimately self-serving.

According to Hamilton's kin selection theory, the more genes blood kin share, the more likely they are to stick together and cooperate. This explains why humans tend to be much more dedicated to our close relatives, such as children, brothers, and sisters, than distant ones, such as cousins and nephews.

In ancient China, kin were so meticulously sorted out that relatives as distant as five or six generations up and down the lineage tree were identified in large clans, often with hundreds of clansmen living together. For any man, the imperial government legally recognized six degrees of kinship—more substantial than ever existed in the West—based largely on genetic closeness.<sup>20</sup> One major motive behind this system was the inheritance of family assets—land, houses, money—after the death of a clan patriarch. Not surprisingly, valuable properties were carefully divided and distributed in proportion to the degree of kinship. By sticking together, a clan could outnumber and outdo rival clans in scrambling for resources and providing security.<sup>21</sup> This Chinese example illustrates how kin selection works and why genetic relationships are important in human social living.

While kin selection is an elegant explanation of how self-sacrifice works between those who share their genetic makeup, altruistic behavior is also common between genetic strangers in many societies where kin and non-kin are mixed. Without the binding force of kin selection, how is this possible? Evolutionary biologist Robert Trivers developed a theory to account for this paradox in 1971. He proposed that, besides kin selection, another pillar for cooperation is reciprocity, which is exemplified in the common saying, “You scratch my back, and I’ll scratch yours.” Trivers's reasoning is straightforward and elegant: if two parties can each gain more by working together than by going alone, cooperation will prevail.<sup>22</sup> Indeed, reciprocity among social partners is common in primates ranging from literal back-scratching to more sophisticated coalitions and alliances. Since reciprocity can occur regardless of genetic relationship, it is therefore more ubiquitous than kin selection in promoting cooperation. By extension, members of a group of kin, held together by the dual glues of kin selection and reciprocity, are more prone to cooperate and more eager to come to each other's aid than members of a group without blood ties. Here, the common saying “blood is thicker than water” is still valid.

Kin selection, though often a more potent force for cooperation than reciprocity, only works for a small circle of blood relatives. It is obviously ineffective as a means for promoting cooperation in groups where most of the members have no blood ties. Reciprocity, on the other hand, shows no such

constraint and is often the main driver for large-scale cooperation among humans, for example, teamwork, charity, patriotism, and international alliance. Accordingly, reciprocity should be given its due in our search for the connection between social living and fairness.



Before moving on, let's first return to the question of why reciprocity is normally a weaker force than kin selection in promoting cooperation. Far from being foolproof, reciprocity has a major loophole—is extremely vulnerable to cheating. Reciprocity is supposed to be a mutual process, swapping favors between partners. But the time lapse between donating and receiving a favor opens an ominous window for recipients to shirk their duty and fail to reciprocate. If a favor is not returned, the original donor suffers a net loss. Clearly, one has to be wary when picking partners. Cooperation without assessing the likelihood of reciprocation is, in ecologist Garrett Hardin's words, “promiscuous altruism,” and makes the cooperator an easy mark, likely to be preyed on by cheaters. For this reason even Pierre-Joseph Proudhon, the father of anarchism, who pegged his faith to kindness in human nature, universal brotherhood, and eradication of government, approached altruism with guarded precaution: “If everyone is my brother, I have no brothers.”<sup>23</sup>

Cheating is like a blood-sucking parasite that saps the vitality of cooperation. Reciprocity, to stand any chance of survival, needs some potent antidotes. These antidotes, in Trivers's prescription, include long life spans and stable group memberships. A long life span can provide ample opportunities for social animals to interact and discover the sweet spot of reciprocity; stable group membership helps build trust and deter cheating. In the best scenario, everyone knows everyone else within the group. Cheaters, like the fabled boy who cried wolf, cannot fool others for long after everybody in the community becomes aware of their duplicity. In other words, face-to-face interactions inhibit cheating. Not surprisingly, people tend to be more trustful of one another and behave more honestly in villages and towns than in large cities. Small communities, albeit often lacking in diversity and dynamism, typically enjoy lower crime rates and less frequent cheating than large metropolises.

Humans are not alone in these considerations. Vampire bats, contrary to their ghastly name, show ample reciprocity within trusted circles. After years of observation, biologist Gerald Wilkinson found that if a bat does not suck blood for seventy-two hours after a big meal, or after just three nights in a row of failed hunting, it will starve to death. Although vampire bats work hard for their nightly meals, a successful hunt for blood is far from certain. In fact, a third of bats younger than two years old will fail on any given night. To prevent starvation by spreading the risk, cavemates that roost in close vicinity operate a food-sharing system. The successful and satiated bats regurgitate blood to the famished. Bats in a trusted circle mostly know one another, in addition to being, to some degree, genetically related. This system protects the cooperating bats from cheaters, also known as free riders—those who might come to share blood, but either do not return the favor at all, or return it less often than they should.<sup>24</sup>

In vampire bat communities, cheaters, if detected, may suffer a dire consequence—death by starvation. Thus, cheating is easily deterred by simple rejections of food-sharing requests. In most situations, however, stronger measures are needed to reinforce the trust between cooperating partners. Just as penalties—such as higher interest rates and potential legal actions—are vital for the smooth running of our credit system, some basic behavioral rules are essential to ensure harmony in animal societies. For cooperation to work, transgressions against these rules must incur penalties in the form of costs to the transgressors. Here, the cliché “necessity is the mother of invention” is a good description for the emergence of moral behavior in animal societies. The need is cooperation; the inventor, mutation followed by natural selection.

Fairness, in particular, can arise as a set of behavioral rules to resolve conflicts of interest, and evolves through penalties when these rules are breached. Violators can bear a variety of unpleasant consequences, including losing the benefits of cooperation and likely suffering physical retaliation. The victims of unfairness, accordingly, have two ways to fend for themselves: leave the group or fight back. Both will exact costs from the violators. However, many highly social animals have evolved to the stage where they can no longer survive alone. For them, leaving the group is rarely a possibility. Fighting back—the only option left for the injured party—offers a range of punishment choices, from expressing nuanced displeasure or dissolving alliances to physical retaliation such as chasing and biting, commonly seen in primates. More often than not, however, violators will fall back into line with merely a cross facial expression or a grumble from the victims, allaying the need for further consequential actions. A simple display of emotions resulting from a perceived injury is often enough to convince a violator to stick to the rules of fair play.

As it takes at least two for fairness to matter, solitary animals, even the brainy ones, have no need to develop a sense of fairness. For example, what use would a sense of fairness be for the tiger, a large solitary species outside the breeding season? Despite its intelligence, a sense of fairness has little utility for an animal that does not live socially. Hence, social living is a necessary ingredient for a species to evolve a sense of fairness. Without social living, fairness becomes irrelevant—it confers no adaptive advantage, and so natural selection has no power to boost its evolution.



Through the lens of evolution, we've now identified an abundance of new insights into a long-standing controversy that has been raging since the days of the ancient Greek philosophers: the origin of fairness in humans. Before the discovery of fairness in nonhuman social animals, some scholars considered fairness a divine endowment; others thought it had to be acquired through moral teaching. As scientific evidence accumulates, it is increasingly clear that fairness—both in animals and humans—is an adaptive trait that evolved for settling conflicts of interest, the inevitable consequence of social living. This new perspective has its philosophical roots among a particular school of thinkers, the social contractarians—including Rousseau, Kant, and Rawls—who believe fairness is a social agreement, as it embodies a distinct feature of social contracts. Fairness often invokes tradeoffs between different preferences. Animals may give up some benefit, such as cucumber slices in the case of the capuchin monkey, in exchange for fairness. Likewise, humans are generally content with making some sacrifices in order to increase fairness and justice in society.<sup>25</sup> But agreement on what actually constitutes fairness is another matter.

As we have seen throughout the animal kingdom, social living occurs when the benefits outweigh the costs for all members of the group over their lifetimes. Yet a social group is made up of many individuals, each bidding for its own highest possible net gain. Such fitness maximization is mandated by natural selection—a blind force that punishes individuals for putting in even a mildly subpar effort in passing down copies of genes to the next generation. To realize the best outcome of social living, an animal has to strive for its best to gain an edge over rivals when interests conflict. Reciprocity, too, can be rife with antagonism, where either party may attempt to outsmart the other for even a blade-thin margin in any transaction. This means that he who does not fight for his own plate will suffer and over time be gradually edged out in the evolutionary race by those who do.

In such a system, cooperative partners may be torn amid the conflicting motives of gaining more now, on one hand, and losing potential partners for future cooperation on the other. In the long run, fairness in reciprocal exchanges can satisfy both parties. As a result, this happy medium has naturally evolved to be an equilibrium point. This may explain why fairness is vital for keeping trading—the



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