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Evolutionary Psychology and Global Security

William von Hippel

School of Psychology, University of Queensland, St. Lucia, Australia

ABSTRACT

Peace and global security are human endeavors, and thus their attainment depends as much on psychology as it does on governance and technology. In this paper I outline 3 ways our evolved psychology is an obstacle to achieving international cooperation and peace. First, humans show strong evidence of adaptations for cooperation within groups, but equally clear evidence that this cooperative nature does not extend to members of other groups. Second, humans evolved to have a *relative* sense of fairness, and thus will often reject even mutually beneficial agreements if they benefit others more than themselves. Third, humans evolved to be self-deceptive and hypocritical, believing in the unique righteousness and inevitable victory of their own cause, which tends to exacerbate conflict. Nevertheless, these obstacles are not insurmountable and an awareness of them can help in the development of strategies to increase the chances of lasting peace and security.

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Introduction

We live in a time of increasing peace and decreasing violence. There are many reasons for this fortunate state of affairs, as the establishment of democracy, strong institutions of government, international trade and tourism, and many other factors have contributed to enhanced peace.[1] Nevertheless, there are constant threats to global security. Conflicts in Europe, the Middle East, and North Africa frequently escalate, terrorist groups such as Islamic State seek to inflame religious tensions, many countries are nostalgic for a time when they had a larger influence on the world stage and make territorial claims that are inconsistent with the current international order, and xenophobic politicians show enduring popularity even in wealthy and stable countries. For these reasons, peace and the decline of violence cannot be taken for granted.

Peace and global security are human endeavors, and thus their attainment depends as much on psychology as it does on governance and technology. Our psychology is the product of socialization, norms, and culture, but also of millions of years of evolution that has shaped human nature to be predisposed to conflict *and*

CONTACT William von Hippel billvh@psy.uq.edu.au School of Psychology, University of Queensland, St. Lucia, QLD 4072, Australia.

its resolution. The goal of this paper is to consider how our evolutionary history has created a psychology that threatens global peace and security, and how modern contexts can interact with that psychology to ameliorate those threats. Our evolutionary history has also created a psychology that supports peace and security, but the focus of this paper is on psychological barriers rather than psychological proclivities toward peace.

In this paper I outline three ways in which our evolved psychology is an obstacle to achieving international cooperation and peace. First, humans show strong evidence of adaptations for cooperation within groups, but equally clear evidence that this cooperative nature does not extend to members of other groups. Second, humans evolved to have a *relative* sense of fairness, and thus will often reject even mutually beneficial agreements if they benefit others more than themselves. Third, humans evolved to be self-deceptive and hypocritical, believing in the unique righteousness and inevitable victory of their own cause, which tends to exacerbate conflict. Despite these challenges, institutions and agreements that recognize these aspects of our psychology, for example via appropriate safeguards and technological support, can short-circuit some of these evolved tendencies and increase the chances of lasting peace and security.

Humans evolved to cooperate within but not between groups

Given the limited state of the fossil record, theories regarding how and why we split from our proto-chimpanzee cousins, approximately six million years ago, rely on substantial conjecture. One account of the split between chimpanzees and our hominin line that can explain much of the data begins with the movement of the tectonic plates underlying the East Africa rift system.[2,3] This progressive change in geography created drier weather on the east side of the valley, transforming the rain forest into savannah and forcing our ancestors to spend increasingly larger time periods out of the trees. Under such circumstances our arboreal ancestors would have faced greater predation by lions, sabre-tooth tigers, hyenas, and such, due to the greater speed and power of these large animals. Increased cooperation and the ability to kill at a distance (i.e., throwing) were likely critical factors that enabled our hominin line to survive in the savannah, as the tendency and ability to engage in effective collective action would have made this move much safer in the presence of such fast and powerful predators.[4]

This brief account of early hominin evolution suggests that cooperation and collective action helped us survive and thrive away from the trees, and evolutionary pressures appear to have increased our cooperative tendencies since this time. Evidence for our hyper-cooperativeness can be seen not only in our psychology,[5] but also in physical traits such as the whites of our eyes, which communicate gaze direction much better than the brown eyes of other apes. The fact that we broadcast the direction of our attention suggests that it is to our personal advantage for other members of our group to be aware of this information.[6]

Nonetheless, our cooperative nature appears to have evolved to extend only to members of our own groups, and not to members of other groups. Evidence for our selective, within-group cooperation can be found in numerous places, but perhaps the clearest distinction is the one between humans and common chimpanzees. When we compare levels of physical conflict within groups of hunter-gatherer human populations (who have no recourse to formal laws, police, etc.) to that of chimpanzee groups, we find that chimpanzees are anywhere from 150 to 550 times more likely than humans to resort to physical aggression within their groups.[7] In contrast, when we examine acts of between-group aggression and violence, we find that rates are very similar between human foragers and chimpanzees.[8]

This selective extension of cooperation primarily to members of one's own group would likely have been a prudent choice for our ancestors, as other groups of hominins would rapidly have become their most important competitors.[9] This state of affairs has remained in place through to modern humans, as substantial anthropological evidence shows that humans living today in small-scale societies are often in a state of conflict with other groups.[10] Such conflict typically manifests itself in small scale skirmishes and raids, rather than the pitched battles that are common in modern warfare. Nonetheless, such raids are deadly, particularly over the long term, and they benefit successful war parties through the theft of transportable wealth such as cattle and the reproductive potential of captured women.[11,12] Consequently, intergroup conflict has been sustained in part because it leads to greater reproductive success for members of successful war parties.[13]

In addition to the competition for resources posed by members of other groups (known as realistic group conflict), ancestral societies also faced the risk that different groups have exposure to different pathogens, and thus could potentially serve as a disease vector. Our modern psychology appears to have responded to this threat with strategies that enhance intergroup separation, as pathogen-rich environments are associated with more ethnocentrism,[14] languages,[15] and religions,[16] suggesting that groups are less likely to inter-mingle when pathogen risk is high. The effects of pathogens on attitudes, behaviors, and beliefs that favor one's own group also tend to be stronger when the pathogens rely on human-to-human transmission (e.g., hepatitis), than when the pathogens are transmitted from animals to humans (e.g., malaria).[17] It is thus possible that pathogen threats are an additional underlying source of what is known as symbolic group conflict, or the threat posed by groups that have different practices and beliefs (which not only call into question one's own cultural or religious practices, but also have the potential to lead to different disease transmission).

The result of these evolutionary forces is a human nature that is predisposed to cooperation within groups but not outside them. This is not to say that conflict and competition are not common within groups as well, as indeed they are, but as a general rule we cooperate well with members of our own groups. Because the threat posed by other groups is substantial, we cooperate particularly well with our fellow group members when we are in competition with other groups (thereby making our own group more effective in intergroup competition).[18] Human leaders often take

advantage of this aspect of our evolved psychology, and highlight the potential threat posed by other groups to turn their followers' attention away from their group's internal problems or their own poor leadership. This strategy enhances within-group loyalty and cooperation, thereby strengthening the leader's position, but these gains come at an ongoing cost of disrupted relationships with other groups (resulting in lost commerce and increased conflict). Thus, rather than extending readily to members of other groups, our cooperative nature is often associated with between-group conflict, particularly when group leaders value their privileged position in the group more than they value the group's goals.[19]

Despite the substantial obstacles that these aspects of our evolved psychology pose to intergroup cooperation, even mutually suspicious groups can and do cooperate with each other to achieve superordinate goals such as peace and security. Current and historical small-scale societies show numerous instances of intergroup cooperation, often in coalitions against other more powerful groups, but also in service of inter-marriage and trade.[20] As a consequence, intergroup attitudes are probably most accurately described as an automatic bias in favor of our own group coupled with an ambivalence toward other groups, which manifests itself as a readiness to either like or dislike them depending on whether they are currently perceived as a threat or an opportunity.[21] The default presence of ambivalence rather than negativity toward other groups is critical, however, as it allows us to notice opportunities when they emerge and form non-zero sum cooperative ventures across group boundaries. Treaties and alliances are thus most effective when all parties share a common goal so that the intergroup threat is defused and cheating is perceived as impossible or of no potential benefit (more on this point below).

Humans evolved to have a relative sense of fairness

Our sense of fairness has deep evolutionary roots, and is based on more than just perceptions about whether particular rewards are appropriate compensation for particular efforts or outcomes. Rather, our sense of fairness is acutely tied to the rewards that others in our social network are receiving for their actions. This psychology can be seen in a variety of human behaviors (more on this below), and is most famously demonstrated in monkeys by Brosnan and de Waal.[22] In their experiment they trained monkeys to return an object that was placed in their cage, and the monkeys were paid in cucumber slices for their efforts. The monkeys clearly regarded this payment as fair, given that they learned and sustained the appropriate behavior based on cucumber rewards. The critical phase of the experiment took place when monkeys witnessed another monkey receiving a grape (a preferred reward) for the same action that they were completing for a cucumber slice. If fairness is an absolute judgment, then it should not matter what reward the other monkey receives for the same task. On the other hand, if fairness is a relative judgment, then it matters a great deal what the other monkey is paid. Consistent with the logic of relativity, the monkeys often refused to participate further when another monkey was more highly rewarded for the same activity.

Subsequent experimentation has suggested that there are important complexities in how monkeys perceive relative fairness that we do not yet understand.[23] It is important to keep in mind, however, that experiments on the acceptance vs. rejection of unfair rewards provide a very strong test of the relative fairness hypothesis, as they pit fairness concerns against the desire to receive even a lower quality reward. Indeed, economists have argued that the rational response is to accept a reward no matter how unfair it is, so long as it is better than nothing. Interestingly, however, most humans violate this principle and reject highly unfair rewards in favor of no reward at all.[24] Thus, despite these complexities, an underlying concern for relative fairness seems evident in our primate cousins, and a large literature attests to the fact that humans prefer relative fairness from an early age.[25]

These results raise the question about why monkeys (and humans) are so concerned with what someone else is getting. The answer to this question likely arises from two sources. First, at a within-group level, position in the status hierarchy is a critical determinant of attractiveness as a mate. To be regarded as an acceptable partner, I not only must possess positive qualities, but I must also possess qualities that are more positive than (or at least equally positive to) my other group members. If I learn that someone in my group is receiving more than I am, then my outcome is diminished by the fact that I have now been reduced in status. Because status is inherently a relative judgment, nearly all my evaluations of self and others become relative and a product of social comparison.[26] This focus on relative reward within groups is thus primarily a product of sexual selection.[27]

These effects of social comparison within our group can be seen even in our most fundamental judgments. For example, in American society wealthier people tend to be happier than poorer people.[28] This effect of wealth on happiness is not as large as people imagine, but it is clearly evident, particularly in the lower income ranges. Nevertheless, as Americans have become richer over the last fifty years (with a doubling in purchasing power), there has been no commensurate increase in happiness. The same effect can be seen in the European Union, where purchasing power more than trebled over a thirty year span yet life satisfaction remained stable. One interpretation of these findings is that an increase in wealth does not lead to a commensurate increase in happiness when almost everyone experiences that increase in wealth, because their relative position in the status hierarchy remains unchanged. My color television makes me happy when my neighbors only have a black and white television, but once we all have a color televisions it does nothing for me (other than prevent me from dropping in happiness by being below my neighbors).[29]

Such status differences within groups are important in determining an individual's reproductive success, but status differences between groups can also be important in determining whether group members meet their basic survival needs. By the time *Homo sapiens* began colonizing the distant reaches of the globe, our ancestors were often in a state of competition over resources. Human history was thus often a story of stronger groups pushing weaker groups away from preferred hunting grounds, watering holes, fishing sites, etc.[30] Indeed, a fair portion of human expansion and exploration is probably the story of groups escaping or being forced

to abandon preferred areas by their stronger or more aggressive neighbors. Escape-driven expansion can be seen most clearly when human groups occupy precarious or dangerous living arrangements, such as dwellings high upon cliff sides. Such living arrangements undoubtedly provide protection against attack, but at an undoubted cost of lives and limbs. Thus, at least since the emergence of the comparatively sedentary living arrangements of hunter-horticulturalists and agriculturalists, relative fairness can matter as much between groups as it matters within them.[31]

Due to this fundamental importance of relative fairness, even when people are gaining a satisfactory outcome the presence of free-riders causes those who are putting in the effort to lose out in the competition for resources. Thus, cheating is a fundamental threat to relative fairness, and humans have evolved a hypersensitivity to the possibility of being cheated. This sensitivity can be seen in various aspects of human psychology, one of which is an enhanced capacity to solve logical problems when they are phrased in terms of detecting cheaters compared to when they are phrased in terms of social obligations or general logical rules.[32] For example, if people are asked to test the claim that everyone who eats cereal also drinks orange juice, they tend to check cereal eaters to see what they are drinking but they fail to check coffee drinkers to see what they are eating. In contrast, if people are asked to test adherence to the law that in order to drink cassava juice one must first get a tattoo, they now check cassava drinkers to see if they have tattoos and they also check people without tattoos to be sure they are not drinking cassava juice. These data suggest that we are chronically alert to the possibility of being cheated, which enables our cognitive machinery to function more effectively in such contexts. And perhaps most importantly for the purposes of the current article, this increased cognitive sensitivity to cheating disappears when people are in situations in which they believe cheating is impossible.[33]

So how do concerns about relative fairness and cheating impact efforts to attain peace and global security? The unfortunate upshot of these concerns is that when groups, societies, or nations attempt to negotiate peace treaties or even trade agreements, they are hamstrung by the desire of both sides to ensure that the other side is not getting a better deal. Because fairness concerns are relative, it is not sufficient for an agreement to benefit both sides compared to the status quo. Rather, agreements must not be seen to benefit one side more than the other. Concerns with relative status ensure that people will reject a treaty that is better than their current arrangement if it is perceived as bringing greater benefits to the other party.

This concern about relative outcomes is then compounded by hypersensitivity to the possibility that the other side might be cheating and not meeting their obligations under the agreement. Because people are so sensitive to cheating, they tend to over-react when they see any hints of it, and quickly stop meeting their own obligations so that they do not provide others with a relative advantage. As a result, any system of agreements can rapidly collapse if there is insufficient authority to punish cheaters. One response to this state of affairs is to seek out or create sanctioning institutions,[34] but sovereign nations can be loath to agree to supranational treaties that include sanctions that are likely to be directed at their own nation.[35] There are noted

exceptions to this claim, such as exist in many supranational trade and armaments agreements, but such treaties often follow rather than precede the establishment of trust or emerge in domains in which rivals' interests align.[36]

Although agreements that contain powerful sanctions can be difficult to ratify, they not only prevent cheating but also short-circuit the worries about potential cheating that can cause both sides to fail to uphold their part of the bargain. For this reason, technical solutions that make cheating impossible (e.g., detection of plutonium production via satellite)[37] can enable agreements to succeed that otherwise would fail through mistrust. Additionally, the expectation of ongoing and inter-dependent future interactions can also increase people's willingness to ignore momentary relative disparities, as future opportunities can offset current costs in people's mental calculus regarding fairness.[38]

Humans evolved to be self-deceptive hypocrites

Of necessity, predator-prey interactions end in the death of one or the other (i.e., dinner or starvation). In contrast, competition between members of the same species are elaborate signaling events that are intended to clarify which individual is stronger before the conflict escalates to the point of injury. It is in neither the winning nor the losing party's interest to fight over resources. Rather, it is in both party's interest to determine who would win if the fight took place, with this determination followed immediately by deference or flight and the resultant de-escalation of the conflict. Only when competitors appear to be equally matched does a conflict over resources escalate into actual physical combat.

For this reason, within-species competition among non-human animals rarely relies on actual force, as the threat of force is a deterrent to conflict. Although human conflicts are guided by the same principles as those of other animals, the recurrence of warfare is testimony to the frequency with which the two sides are unable to agree who will win the ensuing contest. No doubt self-deception plays an important role in the failure of the losing side to predict their eventual loss[39] (more on this point below), but the advent of nuclear weapons seems to have created a new reality in which people appreciate the deterrence value of such extraordinary force in the absence of using it.[40] The primary advantage of nuclear arms appears to lie in the realization that even the winning side will suffer intolerable losses, and thus both sides can continue to predict their eventual victory but nonetheless choose not to escalate.

Because both parties typically suffer costs when a competition escalates to violence, and hence both parties are motivated to avoid an actual test of abilities, contests between members of the same species are typically a blend of honest and dishonest signaling intended to convince the other party of one's strength and ability.[41] In this context, it behooves individuals to be able to exaggerate their strengths and downplay their weaknesses. This sort of exaggeration can be seen throughout the animal kingdom, such as when moose or hyenas raise the hackles on their back to appear larger, or when crayfish build unnecessarily large claw shells that they cannot fill with muscle.[42] Importantly, however, these types of posturing appear to be more

than just bluffing. Animals do not want to reveal knowledge of their own weaknesses (even guppies and crickets can tell when their opponent lacks confidence),[43] and thus bluffing can be facilitated by believing in one's own bluff.[44] This is the essence of overconfidence.[45]

This self-deceptive overconfidence is ubiquitous among humans, who typically believe that they are better, stronger, faster, and more attractive than they really are.[46] This overconfidence plays a critical role in conflict escalation, as it causes the eventual losers of a conflict to nevertheless believe that they will emerge victorious. In Kahneman and Renshon's terms,[47] this is why hawks win in the battle for a leader's or a collective's heart and mind. In combination with an evolved lack of cooperativeness with other groups, the belief in one's own likely victory is a driving force toward conflict. Add to these the self-deceptive belief that one's own cause is righteous, whereas one's opponent's cause is immoral,[48] and conflict begins to look almost inevitable.

The result of these processes is that we trust our own group's intentions but we doubt the intentions of other groups, even when their actions are identical to our own. For example, despite having a large arsenal of nuclear weapons, Americans "know" they would never use them except in self-defense. Indeed, to Americans it seems inherently obvious to the most casual observer that the American nuclear arsenal was built for deterrence rather than aggression. But Americans do not extend this trust to other countries; to Americans it also seems inherently obvious that Iran has no need for nuclear weapons other than to play a disruptive role in the Middle East. These apparent "facts" are so obvious to Americans that when other countries deny their own aggressive intent, or question American intentions, their denial and questioning are perceived as disingenuous and a strategic bargaining stance. But, of course, from the perspective of America's rivals, perceptions are a mirror image and such American claims are highly suspect.

Is the application of evolutionary principles to international relations a "bad idea"?

As noted at the outset of this paper, peace and global security are human endeavors, and thus a greater understanding of human nature can only enhance our ability to understand (and achieve) peace and security. This position is reflected in the writings of some scholars in international relations,[49] but has been strongly refuted by others. Of course, applying ideas from one discipline to another will always involve risk, as the mechanisms at play might be at different levels of analysis, and theories might not translate as expected from the systems in which they were generated. For this reason, it is wise to be cautious when extrapolating from biology and psychology to international relations, and the arguments laid out in this article would benefit from empirical scrutiny.

In this context, it is nevertheless worth considering the conceptual underpinnings of a series of criticisms that Lebow has leveled at the application of evolutionary principles in international relations.[50] Many of the issues he raises are familiar and have been discussed previously by psychologists,[51] so I address only a few key

points here. Most notably, Lebow's article conflates biological origins with inflexibility,[52] and assumes that evolutionary explanations pit nature against nurture.[53] Evolutionary science does not, however, conceive of either body or mind as the product of some sort of competition between nature and nurture, nor as the product of an inflexible biological program, nor as something removed from human choice and agency. Indeed, the field of quantitative genetics goes beyond such generalizations to quantify the contribution of genes, the environment, and their interaction to the resultant phenotype.[54] To provide a concrete example, differences in our genes give us the capacity to grow muscles of different sizes, and they also provide the blueprint that enables our muscles to grow to varying degrees when they are repeatedly overtaxed. Nonetheless, it is our lifestyle that determines whether we submit our muscles to more or less environmental strain and provide them with more or less nutrition, and thereby cause them to grow or shrink. As a result, different size muscles are a product of our genes, our environment, and the interaction between our genes and our environment; and at the same time our musculature can also be a matter of personal choice.

Lebow also suggests that the application of evolutionary biology to human affairs is "often, although not always, motivated by retrograde political and economic agendas"[55] and as such, is implicitly inclined to support ideas that inequality and hierarchy are inevitable.[56] In effect this criticism advocates abandoning a scientific approach that might give us a greater understanding of international relations because we worry we might not like the implications. But evolutionary psychology proposes that human nature is predisposed to hierarchy *and* egalitarianism, to conflict *and* cooperation. Rather than rejecting or ignoring difficult aspects of human nature, a better understanding of the complex relationship between these drives might help address the challenges humanity faces.

Conclusion

Humans evolved to be highly cooperative, but the evolutionary pressures that enhanced our cooperativeness were a fight for survival; our cooperative nature evolved primarily to make us fiercer competitors. It should therefore come as no surprise that our cooperative nature does not extend automatically to members of other groups. Indeed, because other groups were often a serious threat to our ancestors' survival, cooperation across group boundaries relies on a very tenuous form of trust. Because fairness is relative, this intergroup trust is threatened whenever we perceive another group as benefitting more from an agreement than we do, even if that agreement is clearly more beneficial than no agreement at all. Lastly, because we hypocritically perceive the motives of our own group positively but the same motives of other groups as inherently suspect, we are unwilling to extend the benefit of the doubt to other groups but are dubious when other groups fail to extend the benefit of the doubt to us.

All of these psychological factors pose important obstacles to our ability and willingness to achieve lasting peace and security with members of other ethnic groups,

religions, and nations. But our evolved psychology is also highly sensitive to context, as it is the flexibility of human cognition and behavior that has made us such an evolutionary success story. Thus, the barriers to peace imposed by these deeply ingrained psychological tendencies can be overcome—not through reassurance or denial—but through structures, processes, and agreements that align the interests of previously hostile groups or through agreements and verification strategies that bypass these concerns.

When people see their interests aligned with other groups, or when they believe that it is not possible to cheat on an agreement, they are no longer hyper-vigilant for signs of cheating nor are they tempted to cheat themselves. It is often difficult to align the interests of different groups, particularly when they have a long history of realistic or symbolic conflict, but there are numerous societal forces that can achieve this goal over time (e.g., increasing democracy, greater awareness and understanding of other cultures through increased contact). Indeed, the increasing integration of the international community through travel, trade, and tourism (as well as increasing e-integration over the internet) has the potential to create in many people a superordinate identity as fellow humans rather than members of certain tribes, ethnicities, or religions. When such alignment of interests and redrawing of group boundaries are not readily achieved, scientific and technological advances in the ability to detect cheaters, combined with agreements that are based on a realistic understanding of our evolved psychology, can nonetheless help create the circumstances that make it possible to trust through verification.

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23. Most notably, subsequent experimentation has often failed to replicate Brosnan and De Waal, although numerous studies indicate that monkeys are sensitive to inequality; see Juliane Bräuer and Daniel Hanus, "Fairness in Non-Human Primates?" *Social Justice Research* 25 (2012): 256–276; Kristin L. Leimgruber, Alexandra G. Rosati, and Laurie R. Santos, "Capuchin Monkeys Punish Those Who Have More," *Evolution and Human Behavior* 37 (2016): 236–244. These mixed findings raise the possibility that there may be individual or species differences in the tendency to be sensitive to relative fairness or spiteful in response to relative unfairness.
24. Richard H. Thaler, "Anomalies: The Ultimatum Game." *The Journal of Economic Perspectives* 2 (1988): 195–206.
25. One need only have children to be painfully aware of this fact, and substantial research also supports the importance of relative fairness in children. For example, see Alex Shaw and Kristina R. Olson, "Children Discard a Resource to Avoid Inequity," *Journal of Experimental Psychology: General* 141 (2012): 382–395. Note, however, that in humans the meaning of fairness itself is culturally variable (e.g., some cultures endorse meritocracy, some endorse equality, and some endorse gerontocracy; Marie Schäfer, Daniel B. M. Haun, and Michael Tomasello, "Fair is not Fair Everywhere," *Psychological science* 26 (2015): 1252–1260.). Furthermore, and perhaps explaining these cultural differences, evidence also suggests that a wide variety of resource distribution patterns come to be regarded as fair over time if they reach equilibrium; Daniel Kahneman, Jack L. Knetsch, and Richard Thaler, "Fairness as a Constraint on Profit Seeking: Entitlements in the Market," *The American Economic Review* (1986): 728–741; Ken Binmore, Peter Morgan, Avner Snaked, and John Sutton, "Do People Exploit Their Bargaining Power? An Experimental Study," *Games and Economic Behavior* 3 (1991): 295–322; Ken Binmore, Joe Swierzbinski, Steven Hsu, and Chris Proulx, "Focal Points and Bargaining," *International Journal of Game Theory* 22 (1993): 381–409.

26. Leon Festinger, "A Theory of Social Comparison Processes," *Human Relations* 7 (1954): 117–140.
27. Sarah E. Hill and David M. Buss, "Envy and Positional Bias in the Evolutionary Psychology of Management," *Managerial and Decision Economics* 27 (2006): 131–143.
28. Carol Nickerson, Norbert Schwarz, Ed Diener, and Daniel Kahneman, "Zeroing in on the Dark Side of the American Dream: A Closer Look at the Negative Consequences of the Goal for Financial Success," *Psychological Science* 14 (2003): 531–536.
29. Sarah E. Hill op. cit.; Sarah E. Hill and David M. Buss, "Evolution and Subjective Well-Being," *The Science of Subjective Well-Being* (2008): 62–79.
30. Lawrence H. Keeley, "Hunter-Gatherer Economic Complexity and 'Population Pressure': A Cross-Cultural Analysis," *Journal of Anthropological Archaeology* 7 (1988): 373–411.
31. Indeed, even hunter-gatherers often come into conflict over preferred locations. See Lawrence H. Keeley, *War before Civilization* (Oxford, Oxford University Press, 1997).
32. Leda Cosmides, H. Clark Barrett, and John Tooby, "Adaptive Specializations, Social Exchange, and the Evolution of Human Intelligence," *Proceedings of the National Academy of Sciences* 107 (2010): 9007–9014.
33. ibid.
34. Özgür Gürerk, Bernd Irlenbusch, and Bettina Rockenbach, "The Competitive Advantage of Sanctioning Institutions," *Science* 312 (2006): 108–111.
35. To choose a notable example, China ratified the United Nations Convention on the Law of the Sea, but refused to accept the 2016 ruling under that law by the international tribunal in The Hague that denied the validity of its claims in the South China Sea. The Chinese Foreign Ministry released a statement noting that the decision "has no binding force." See http://www.nytimes.com/2016/07/13/world/asia/south-china-sea-hague-ruling-philippines.html?ref=world. China is far from unique in this regard, as similar reticence has been shown by the United States and many other governments.
36. For example, see Liviu Horovitz. "Beyond Pessimism: Why the Treaty on the Non-Proliferation of Nuclear Weapons Will not Collapse," *Journal of Strategic Studies* 38 (2015): 126–158.
37. Hui Zhang and Frank N. von Hippel, "Using Commercial Imaging Satellites to Detect the Operation of Plutonium-Production Reactors and Gaseous-Diffusion Plants," *Science & Global Security* 8 (2000): 261–313.
38. Robert M. Axelrod, *The Evolution of Cooperation* (New York: Basic books, 1984).
39. Richard Wrangham, "Is Military Incompetence Adaptive?" *Evolution and Human Behavior* 20 (1999): 3–17; Robert Trivers, *The Folly of Fools: The Logic of Deceit and Self-Deception in Human Life* (New York: Basic Books, 2011); Dominic D. P. Johnson, *Overconfidence and War* (Massachusetts: Harvard University Press, 2009).
40. Thomas C. Schelling, *Arms and Influence* (Connecticut: Yale University Press, 2008).
41. Dishonest signaling would disappear if there were no cost to testing actual abilities against one's opponent, because any doubt about relative capacities would cause the doubter to test their relative abilities by engaging in the competition.
42. Robbie S. Wilson, Michael J. Angilletta Jr, Rob S. James, Carlos Navas, and Frank Seebacher, "Dishonest Signals of Strength in Male Slender Crayfish (Cherax dispar) during Agonistic Encounters," *The American Naturalist* 170 (2007): 284–291.
43. Claudia Rutte, Michael Taborsky, and Martin WG Brinkhof, "What Sets the Odds of Winning and Losing?" *Trends in Ecology & Evolution* 21 (2006): 16–21.
44. Robert Trivers, Foreword. In: Richard Dawkins, *The Selfish Gene* (Oxford: Oxford University Press, 1976/2006), 19–20.
45. William von Hippel and Robert Trivers, "The Evolution and Psychology of Self-Deception," *Behavioral and Brain Sciences* 34 (2011): 1–16.

46. Ibid.
47. Daniel Kahneman and Jonathan Renshon. "Why Hawks Win." *Foreign policy* (2007): 34–38.
48. Roy F. Baumeister, *Evil: Inside Human Cruelty and Violence* (New York: WH Freeman, 1997).
49. For a discussion see Iver B. Neumann, "International Relations as a Social Science," *Millennium-Journal of International Studies* 43 (2014): 330–350.
50. Richard Ned Lebow, "You Can't Keep a Bad Idea Down: Evolutionary Biology and International Relations." *International Politics Reviews* 1 (2013): 2–10.
51. See Steven Pinker, *The Blank Slate: The Modern Denial of Human Nature*. (New York: Penguin, 2003); Jaime C. Confer, Judith A. Easton, Diana S. Fleischman, Cari D. Goetz, David M. G. Lewis, Carin Perilloux, and David M. Buss. "Evolutionary Psychology: Controversies, Questions, Prospects, and Limitations." *American Psychologist* 65 (2010): 110–126; William von Hippel and David M. Buss, "Do Ideologically Driven Scientific Agendas Impede the Understanding and Acceptance of Evolutionary Principles in Social Psychology?" In Lee Jussim and Jarret Crawford (Eds). *The Politics of Social Psychology*. (Switzerland: Frontiers in Psychology; in press).
52. For example, on page 7 he argues that the diversity of human moral systems calls into question the possible biological origins of morality.
53. For example, on page 9 he writes, "Evolutionary foundations generate parsimonious theories. And perhaps most importantly, they are rooted in the belief that nature trumps nurture."
54. Michael Lynch and Bruce Walsh. *Genetics and Analysis of Quantitative Traits*. (Massachusetts: Sinauer, 1998).
55. Richard Ned Lebow, "You Can't Keep a Bad Idea Down: Evolutionary Biology and International Relations," 2.
56. It is worth noting in this regard that evolutionary psychologists and evolutionary anthropologists seem just as likely as other social scientists to be on the left side of the political spectrum; Joshua M. Tybur, Geoffrey F. Miller, and Steven W. Gangestad, "Testing the Controversy: An Empirical Examination of Adaptationists' Attitudes Toward Politics and Science." *Human Nature* 18 (2007): 313–328; Henry F. Lyle III and Eric A. Smith, "How Conservative Are Evolutionary Anthropologists?." *Human Nature* 23 (2012): 306–322; William von Hippel and David M. Buss op. cit.