Politics and the Life Sciences (2025), 44: 2, 280–294
doi:10.1017/pls.2025.10007

CAMBRIDGE UNIVERSITY PRESS

PERSPECTIVE ESSAY

An evolutionary perspective on the current wars

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Abstract

Despite the destruction it inevitably engenders and the opposition it often elicits, war remains a near-human universal. There is almost no society, across time or place, that has not experienced some form of violent conflict, whether internally or against its neighbors or adversaries. The most common explanations for the causes of war and conflict tend to center around social and material factors, such as conflicts over resources, territory, or regime type. Certainly, these factors play a role in many conflicts, but they cannot alone explain every war. Other arguments, however, drawn from evolutionary psychology and biological anthropology, based on fundamental aspects of human nature with regard to male coalitionary psychology, do posit specific sources for conflict that provide an underlying platform for its emergence and can help explain its wide variety across time and space. A comprehensive and accurate understanding of the nature of war must include these considerations.

Keywords: evolution; war; Ukraine; Gaza; psychology

Introduction

Despite the destruction it inevitably engenders and the opposition it often elicits, war remains a near-human universal. While there may be some small-scale societies with no clear record of a history of warfare, such cultures remain a rarity; although outlier status does not, of course, determine the importance of a particular feature (Glowacki, 2025), lack of conflict remains more the exception than the rule across human history. Regardless, there are vanishingly few groups, across time or place, that have not experienced some form of violent conflict, whether internally or against their neighbors or adversaries. Indeed, such conflict is not even restricted to humans; evidence suggests that our chimpanzee ancestors were practicing forms of violent conflict over 6 million years ago (Manson et al., 1991; Wilson & Wrangham, 2003), suggesting that the origins of conflict predate the evolution of humans. Given this long and extensive history, across a wide range of political and social conditions and circumstances, it seems worthwhile to examine whether a deeper understanding and application of insights from evolutionary theory into human nature can help to better inform our understanding of the causes of conflict, and, hopefully, improve our ability to prevent, or at least end them more quickly.

The most common explanations for the causes of war and conflict tends to center around social and materials factors, such as conflicts over resources (Ross, 2004), territory (Diehl, 1999; Johnson & Toft, 2013; Toft, 2014; Vasquez & Henehan, 2023), or regime type (Maoz & Abdolali, 1989). Certainly, these factors play a role in many conflicts, but no single one of these factors plays a hand in every war, demonstrating that none are necessary, even if one or more might be sufficient in any given case. Other arguments, however, drawn from evolutionary psychology and biological anthropology, based on fundamental aspects of human nature, especially those that highlight the critical importance of male coalitionary psychology, do posit specific sources of conflict that likely contribute to the underlying platform for its emergence. Such factors can provide explanations for conflict across the wide variety of

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https://doi.org/10.1017/pls.2025.10007 Published online by Cambridge University Press

time and space across which it occurs. Thus, a comprehensive and accurate understanding of the nature of war must include these psychological considerations. Indeed, without taking such factors into account, it will likely prove impossible to mitigate conflict in a meaningful way because, without adequate recognition of the underlying psychological motivations for conflict, it will be impossible to generate the kind of incentives that might successfully ameliorate it (Gat, 2000a, 2000b).

The purpose of this discussion is thus to offer some of the arguments from social and evolutionary psychology and biological anthropology that can help enlighten our understanding of the nature of conflict in important ways, with the hope of highlighting potential ways to structure alignments between human psychological architecture and external incentives that might encourage greater prospects for peace. The second section briefly applies these ideas to two of the recent conflicts in international relations: the war in Ukraine and the one in Gaza. These latter discussions are far from comprehensive, nor are they intended to provide in-depth case studies. Rather, they simply serve to illustrate the application of an evolutionary perspective to current events.

Evolutionary approaches to conflict

First, it is important to begin with a statement about what evolutionary approaches to the study of conflict are not. They are not essential arguments that posit that human nature itself causes war, or that every element of conflict, from its instigation to its particular manifestations, can be accounted for using evolutionary insights alone. Such an approach would be much too simplistic and thus incorrect. Rather, applying an evolutionary lens to the study of conflict provides an explanation for the general *capacity* of humans to wage war. In other words, the evolved cognitive architecture of humans offers a substrate, or psychological foundation, upon which particular triggers interact to produce the outcomes we observe, depending on particular environmental factors. This means that both aspects matter in explaining conflict: the psychological ability to wage war, as well as the various environmental factors that help spark, sustain, or end it. This point can often become a source of confusion if observers assume that the so-called "rational" explanations of war remain sufficient. Observable "rational" forces may indeed be sufficient to instigate or maintain conflict, but the ability to engage in it still depends on underlying psychological mechanisms, specifically the ability to establish and maintain large coalitions working together toward a common goal.

These underlying psychological mechanisms can serve to turn rationalist assumptions about war on their head. Fearon's (1995) bargaining model of war, for instance, assumes that war is costly, and states remain largely risk-averse. These claims reflect underlying assumptions about both the value of things in the environment as well as the psychological tendencies of the relevant actors. But these factors are merely variables that can be supported or refuted in various cases depending on what we know about human psychology. In other words, these factors are variables, and evolutionary pressures on human psychological architecture can help explain important aspects of their variation. For example, well-known work on Prospect Theory (Kahneman & Tversky, 1979) demonstrates that risk propensity varies based on the context of gains versus losses; assuming universal risk averse as Fearon does remains empirically invalid. Thus, violence, even quite destructive violence, can seem worthwhile from the perpetrator's perspective, depending on the situation, rather than merely a cost that should typically be eschewed based on wholly materialist grounds, as Fearon's model might imply (see also Ginges & Atran, 2011; McDermott et al., 2017). Indeed, Fearon himself notes that some issues, including those captured by sacred values, can undermine rationalist assumptions for war. Moreover, evolutionary models do not simply explain mistakes; they also provide insight into predilections that can be strategically useful (Johnson, 2020); this insight also helps distinguish evolutionary models from more rationalist perspectives.

First and foremost, the human capacity for war cannot exist without the evolutionarily designed mechanisms that allow for groups to coordinate behavior. This hidden aspect, the cognitive mechanisms that allow for coordinated group behavior, may be lost on those who only pay attention to what is externally observable. Indeed, such cooperation may seem automatic and effortless, and thus not

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requiring explanation, but this acceptance simply reveals what evolutionary psychologists call "instinct blindness," meaning something is so natural that people do not think it needs explanation (Cosmides & Tooby, 1994). However, that does not mean that the tendency does not need explanation. A great example of this phenomenon comes from vision. You see what you see, and you think it does not require more explanation than that, but in fact, vision relies on trillions of neurons operating in particular ways constantly for the seer to interpret and understand what is perceived visually. Thus, an explanation is required for these processes if, for example, we want to treat diseases of the eye. Thus, just because those who experience a given phenomenon do not think something needs an explanation does not mean it does not require one. In a similar fashion, without the psychological substrate that allows for coordinated behavior among individuals to emerge in an automatic and effortless fashion, war would not be possible because the coordination between individuals required to achieve it would not be possible. Indeed, Tomasello (2022) argues that the human ability to coordinate appears unique among species. Furthermore, what people fight over or when or where they do so nonetheless remain subject to various environmental factors and inputs that trigger these underlying psychological predispositions.

Natural selection, operating across billions of people across millions of years, provided the neurocomputational power that produced these underlying psychological mechanisms that undergird the very capacity for war. In other words, evolution has provided the permissive necessary platform to support the incentives for, and the coordinated activities supporting, war. Its particular manifestations—when and where it happens, as well as its ostensible instigating triggers—occur on top of this evolutionary substrate, meaning that evolution provides the necessary but not necessarily sufficient basis for the emergence of conflict, and the sustainment of war. Note that the psychology underlying coordination can also produce remarkable cooperation in positive directions, meaning that the psychological factors necessary for creating conflict are not usually sufficient for war. Rather, certain suites of behavior need to be triggered by external circumstances to instigate conflict as opposed to peace. However, the necessary psychological piece allowing for coordinated action remains crucial to the effective implementation of violence.

War and conflict are not the only domains in which patterns based on changing environmental factors occur on top of underlying, more stable, psychological structures. For example, genetic work on the heritable aspects of political ideology has similarly shown that genetically instantiated biological structures in specific domains display different manifestations depending on time and place, although they reliably reflect a universal conservative–liberal continuum (Hatemi & McDermott, 2012). Those areas that have the most direct effect on the ability to survive and reproduce are where natural selection will operate most clearly. And, indeed, these are the domains in which we see such patterns emerge most clearly, as expected. For example, topics around the control of sex and reproduction appear universal. Every society across time and space has sought to regulate and control female reproduction, although the particular topic or manifestation may differ by time and place. For instance, such divisions may look like opposition to prostitution and pornography in 18th-century English or objection to transgender bathrooms and biological men in female sports teams in 21st-century America, but they all reflect the same underlying liberal–conservative divisions around controlling reproduction. These underlying attitudinal differences reflect the entrained biological and psychological structures that are designed to support successful reproduction within different environmental constraints. These tendencies are, of course, reinforced by patriarchal norms and institutions that serve to reify and strengthen underlying sex differences, including the tendency toward aggression. However, such forces are not restricted to social forces, nor are they restricted to humans. Take, for instance, bonobos, who demonstrate a relative lack of warfare despite that fact that their males display a greater tendency toward conflict than chimpanzees (Mouginot et al., 2024). The different outcomes in this case appear to result from the existence of much stronger female coalitions among bonobos than chimps (Surbeck et al., 2025). In this way, the differing social structures, which themselves are rest on divergent psychological tendencies in group behavior, mitigate the behavioral outcomes that might otherwise emerge from the underlying psychological architecture.

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This means there is a role for both biology and environment in explaining conflict, just as there is in patterns of reproduction. These forces work in constant reciprocal interaction. Indeed, all sophisticated evolutionary arguments rest on notions of iterative interaction based on variable environmental inputs. In fact, natural selection requires environmental inputs to determine which behaviors are most likely to lead to survival under certain circumstances, even if they occur probabilistically and in very small percentages. This is because different environmental circumstances would have affected prospects for "fitness," meaning a person's ability to pass on their genes. Evolution does not mean every instinct is adaptive in present circumstances, or even that it will serve the future well. Rather, ingrained psychological proclivities rely on the history of the species to encourage those behaviors that in the past proved most likely to help the greatest number of people pass on their genes. Note that this kind of system works on averages and so depends on environmental inputs to signal which contingent behaviors have proved most successful in any given environment. In this way, it is exquisitely sensitive to environmental inputs (Cosmides & Tooby, 1987). In response to critics who argue that evolutionary models of behavior appear fixed, and thus remain both contradictory and indeterminate, Lopez and McDermott (2012) make the point that evolutionary models in fact rely on contingent strategies based on variant environmental circumstances.

Two points about this are worthy of emphasis. First, differing underlying goals illuminate the distinction between notions of "rationality," as understood by economists in a cost–benefit sense, and that of ecological, or evolutionary, rationality, which rests on the notion of fitness (Gigerenzer, 2021). In short, the fundamental goals differ the economic rationality is not only based on increasing benefits and decreasing costs but also has a very short-term focus on the individual's future. The goal of evolution incorporates the longer sweep of history, seeking to perpetuate the most successful genetic strategies into the future based on past experience across millennial time. In other words, the difference between evolutionary and rationalist or materialist models lies at this level of defining goals: evolution operates at the genetic level, while rationalist models focus on the container within which such genes emerge, that of the individual actor. What may be best for the individual may not be best for the genes. Tooby and Cosmides (2025) use this notion to provide insight into why individuals may have seemingly irrationally high risk-acceptance in the context of war, illustrating how the so-called "fog of war" might distort individual perception of the probabilistic side of the costs of participating in conflict. They argue that because natural selection operates at the level of genes, it can predispose individuals to extraordinarily high-risk behavior where individual mortality rates may skyrocket. The container of the individual is thus sacrificed for the benefit of the genes, particularly if such participation increases the likelihood that close kin survive to reproductive capacity.

Second, any system that does not take account of variant environmental factors will not be as successful as one that does, precisely because the environment can have a huge effect on the strategies that work best. Strategies that work in extreme heat will utterly fail in the freezing cold, for example. Similarly, any rigid strategy will not be as effective across divergent circumstances as one that takes account of the impact of these differences on outcomes.

For many, environmental inputs, such as a struggle over territory, look to simply be no different in explanation from a straightforward rational interpretation. And indeed, on the surface, that may be the case. But that "rationality," in the economic cost–benefit sense, rests on, and relies upon, the psychological architecture that helps humans discern what constitutes a cost and what offers a benefit from the outset. Again, the ecological impetus might differ from the immediate material interest of the actor. Those environmental inputs are processed through a psychological system that has to decide what constitutes an acceptable cost or a worthy benefit. Moreover, as noted above, the ability to operate in concert with other people to achieve a given outcome also depends on the successful coordination of these psychological mechanisms designed by natural selection to protect oneself and one's kin from predation. From an evolutionary perspective, what constitutes rationality is not so much calculated in terms of the costs and benefits an economist might recognize, and certainly is not restricted to financial assessments, but rather reflects an ecological form of rationality defined in terms of the reproduction of one's genes.

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While economists may not agree with a definition of rationality that considers dying in a way that increases your kin's likelihood of surviving to reproductive capacity as rational, it provides a strong instinctual motivation during conflict. An economist would expect a high probability for enormous immediate material payoff to risk such a high cost, or a very minimal expected cost. But from an evolutionary standpoint, a suicide bomber whose acts ensure that their group will provide support for family members, as many terrorist organizations do, is acting in an entirely rational way from an ecological evolutionary perspective, especially if he has no other prospects for supporting what might be a large family (Liddle et al., 2011).

The crucial role of the capacity to create coalitions in undergirding the ability to wage war

Recent work has offered some important insights into the evolutionary origins of conflict (Glowacki et al., 2020; Lopez & Shackelford, 2020; Tooby & Cosmides, 2010; Wrangham, 2018). A few commonalities are worth highlighting for current purposes: the intrinsic interconnection and distinction between the two types of conflict; and how conflict itself, like cooperation of any kind, depends on the ability to engage in successful coalitionary psychology.

Aggression can take many different forms, including warfare. Richard Wrangham (2018) delineates two distinct types of aggression: reactive and proactive. Reactive aggression is the kind that takes place in the heat of the moment, without planning, and tends to occur among members of the same group. These include well-known crimes of passion, such as those that involve fits of sexual rage or jealousy after discovering an instance of infidelity. The second type of aggression, proactive, exists as a fundamentally different form that often occurs between groups. This kind of aggression represents the kind of cold, calculating, plotted aggression that occurs in military strategy between complete strangers. Note that these are quite different forms of aggression, triggered by different events and circumstances.

Proactive aggression, especially, can be further facilitated by the ability of (mostly) men to form into cooperative groups that can then engage in planned violence against other groups (Wrangham & Peterson, 1996). This violence does not depend on the personal animosity that sparks reactive aggression between individuals. While there is certainly some disciplinary disagreement around this issue, many believe that humans learned how to cooperate precisely so that they could engage in more effective combat against other groups.[1] And those who were successful in such combat were more likely to pass those characteristics along to their offspring, as opposed to those who were killed because they were perhaps too meek—or unlucky—in their response. In other words, while by no means restricted to aggression, the ability to cooperate does not, and cannot exist independently of the capacity for systematic violence between and among groups (Meijer, 2024a, 2024b).

The reasons for this rely on the simple mathematical calculations that underlie the dynamics of natural selection. Across human history, the costs of conflict were enormous. Studies from both historical (Keeley, 1996) as well as more recent indigenous peoples (Chagnon, 1983) indicate that between a third and two-thirds of men died violently in conflict. Of course, there has been enormous variation in mortality rates in warfare, and many populations report much lower rates of death in combat. However, the specific death rate matters less for an evolutionary argument than the fact that instincts evolved to respond and adapt flexibly to various environmental triggers and inputs, such as threats and attacks. However, high rates of death would have placed enormous selection pressures on men in particular, especially when survival would have offered huge benefits in terms of fitness and survival to kin members, in addition to offering untold access to women from conquered groups who could then reproduce with the victors. One example alone illustrates the power of this pressure: genetic estimates suggest that about 1 in 200 men across the planet, and more than 8% of men in the region, are direct descendants of Genghis Kahn (Zerjal et al., 2003). Tooby and Cosmides (2010) argue that these

[1]This argument can take different forms, including the Tooby & Cosmides (2025) form referenced above, which is also consistent with arguments made by Wrangham (1999). There are also genetic group selection versions (Choi & Bowles, 2007), as well as cultural group selection arguments (Richerson et al., 2016).

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selection pressures created an intrinsic psychological architecture designed to regulate in-group cooperation and out-group aggression in a way that, at least in ancestral times, would have enhanced survival and fitness for those people and groups who proved most effective in engaging in lethal violence in particular. Before the development of militarized weaponry, effective deterrence amounted to annihilating the enemy so that one group could take over the territory, resources, and women of the conquered group, increasing the reproductive benefit of victory.

The ability to engage in effective cooperation in combat relies directly on the capacity to create effective and efficient coalitions among men in particular (McDonald et al., 2012). Indeed, male coalitions constitute the original and universal political institution, akin only to marriage in its ubiquity across time and place (Rodseth, 2012). Once these coalitions are recognized as the cooperative alliances they represent, they become obvious everywhere: sports teams, fire and police departments, gangs, military groups, and so on. By no means are such groups restricted to combat. Rather, male coalitions represent the same kind of human universal behavior that emerges in war but is by no means restricted to violent combat. Indeed, it serves to support all kinds of cooperative enterprises as well, both positive and negative, although selection pressures would suggest that male coalitional psychology most likely emerged as a result of the benefit it offered in combat.

Understood in this way, selection pressures can exert themselves on the emergence of conflict directly, as groups that are most effective at killing their opponents are most likely to survive to have their own children (Tooby & Cosmides, 2010). But selection pressure favoring aggression can also evolve as an "emergent property" or byproduct of other psychological mechanisms, such as parochialism (Glowacki et al., 2020). In this way, it is not that the drive for war, violence or conflict itself is intrinsic so much as male coalitions evolved to naturally, automatically and effortlessly cooperate to acquire and defend resources needed for successful reproduction, including access to resources, territory and women (in other words, the so-called rational values economists might prize).

To be clear, it is too often the case that naïve observers or critics assume that such evolutionary arguments represent "essentialist" takes that are somehow immutable and unchanging across time and space. Nothing could be farther from the truth. As noted above, such models actually depend on the exquisite sensitivity of these mechanisms to variant environmental inputs and ecological conditions precisely because the underlying psychology depends on an architecture built on vast sums of information accumulated over huge numbers of people across long periods of time. These processes produce neuro-computational psychological programs and processes that result in automatic, effortless tendencies that reflect what worked best for most people over time in the past. Even very tiny differences acquired over a lot of people over a long period of time can result in noticeable differences in reproductive capacity in response to different conditions. This means that, of course not all processes will operate in a rationally optimal way all the time, or even optimally for a given person in a particular situation. Rather, they work best relative to other options for most people *in a given environment*. In other words, these psychological mechanisms depend on variance in environmental input to determine appropriate responses. Note, again, however, that evolutionary models are fundamentally backward-looking because preferred responses emerge from past strategies. However, this also means that new conditions may render such responses less effective in a current crisis and developing optimal strategies in response to immediate demands is somewhat akin to fixing a car while it remains running. In other words, it may not work, or may not work fast enough, to keep a given individual, or the larger system, going.

Nonetheless, some of the triggers that instigated conflict in the past likely will continue to still spark it now, even if such action is not wise in present circumstances where weapons of mass destruction threaten the entire human race. However, people still compete over various resources necessary for survival, and fight over things that influenced fitness in the past, and inadvertent escalation poses an ever-present risk. Again, these resources may provide the proximal "rational" reason for the conflict, but the capacity to recognize the resource constraint for the threat it poses, and respond with violence to remediate it, rests on the foundational psychology built by natural selection to maximize fitness. The ability to recognize the threat and respond to it in an effective, coordinated fashion would not exist without such a capacity. Thus, the kind of conflicts over resources and territory that most political scientists identify as causes are

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not wrong so much as inadequate; they focus on the immediate source of conflict and not the underlying foundation that allows the recognition of, and reaction to, the various environmental factors that spawn aggression.

Environmental triggers depend on evolutionary-instantiated cues

From an evolutionary perspective, triggers that instigate conflict are not random. In addition to those that revolve around acquiring and defending the resources necessary for survival, like food and water, other factors can reliably instigate conflict as well. One of these is what is known as the welfare trade-off ratio (Tooby et al., 2006). This refers to the way in which people assess whether others are adequately taking their welfare into account in their behavior. These evaluations are critical because individual survival often depends on the actions of others; if someone feels that another does not value them enough to help them in times of need, this can pose a threat to their welfare and survival. From this perspective, those who can inflict the most punishment, because they are physically strong, for example, or can confer the most benefit, because they are physically beautiful, expect (and receive) the most deference. When individuals do not receive the respect and treatment they believe they deserve, they may initially strive to prove their value to the other. However, if the target does not improve their treatment as a result of this strategy, the person will likely get angry and try to hurt the other to stop the negative treatment or force the other to improve their behavior.

There is good evidence supporting this argument. For example, most people are remarkably accurate in their ability to assess the physical strength and formidability of men merely by looking at pictures of the upper body, or even just the head (Sell, Cosmides, et al., 2009). They can even make such judgments with impressive accuracy simply from the sound of the voice, even if that voice is speaking a language they do not understand (Sell et al., 2010), suggesting that the ability to assess relative physical strength and formidability represents an intrinsically valuable skill that most humans possess. In other words, humans have an instinct to fairly accurately judge a male capacity to inflict damage, offering both the possibility of threat as well as the potential for protection if that person is on your side. Interestingly, men with greater physical formidability and women with greater beauty, tend to be much more supportive of aggressive and interventionist foreign policies, suggesting that they too believe they can exert more influence on outcomes (Sell, Tooby, & Cosmides, 2009), as this would have been the case throughout history and indeed remains often the case. Such skills would have offered benefit across evolutionary history, but that does not necessarily mean that such assessments matter once humans crossed the militarized threshold and developed mechanized weaponry offering the ability to equalize the capacity for lethality across physical size. However, the idea here is that just because technology changes, the human mind does not necessarily change as quickly, and the psychological mechanisms and motivations that proved most beneficial for survival in the past do not disappear immediately in the face of technological changes that may render such past calculations inaccurate. Such instincts persevere even if they no longer serve optimal purposes in the current environment of weapons of mass lethality. The simplest example of this kind of mismatch comes from the strong universal human preference for sweet foods that has been shown from birth, with babies hours old preferring (i.e., drinking more and faster) sugar water as opposed to unflavored water. Ancestors who liked sweet things were more likely to survive under conditions of resource deprivation and famine because they would possess a preference for high calorie density foods such as honey, but in the current environment characterized by a plethora of ultra-processed fast food, such a propensity puts more people at higher risk for metabolic diseases such as diabetes. Note that even if that risk existed in the past, few people would have been able to acquire the resources putting them at such risk and even fewer would have lived long enough for that to place any selection pressure against it, particularly because people reproduce when they are young and tend to acquire metabolic illnesses with age.

The automatic assessment of welfare trade-off ratios can be, and are, of course, exacerbated by other psychological factors that build on top of it. Perhaps the most commonly discussed is one derived from

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social identity theory, which posits that people tend to show preference and privilege toward in-group members while simultaneously manifesting discrimination toward out-group members (Tajfel, 1974). Such groups can be quickly and easily formed based on extremely minimal cues, including such things as eye color or preference for certain artists over other artists. The ease, with which such so-called minimal groups can be formed, as well as their ubiquity, suggests the value of such coalitional categorization for human survival over time. This recognition provides insight into the quandary that many raise about why so many people believe disinformation they read online or follow leaders whose policies hurt their own economic interests. Of course, there are likely many contributing reasons for these behaviors, including such factors as a lack of education, but such behavior also highlights the significance of social networks over other kinds of interest. In ancestral environments over long swaths of history, as well as environments of war today, a person's social networks prove immeasurably more valuable in prospects for survival than wealth or any perceived construction of some abstract notion of the truth. What remains important are the shared beliefs that facilitate social bonds and communication across close networks that can then provide critical material and emotional aid when existing formal or information political and social institutions and structures break down or are destroyed. In such circumstances, it is much more important to have friends with beliefs you might not otherwise share than to be alone in your righteousness. Under the dire circumstances of experiences such as constant bombardment, the value of such social networks, both historically and in the modern environment, far outweighs any other possessions, including ideas of the truth.

Thus, social factors and the ability to form and maintain mutually cooperative coalitions matter in critical ways in the emergence and maintenance of conflict, as well as in the ability to survive under such circumstances (Syme & Balliet, 2024). The value of such coalitional bonds has proved so decisive over time that it has become instantiated in human psychological architecture so that their formation and maintenance occur in effortless and automatic ways, with only minimal cues required to establish and maintain such bonds. Various external triggers can then direct those collective energies toward conflict or cooperation, but the capacity itself remains essential for either kind of action.

The role of leadership

One of the key features of these coalitional bonds has to do with leaders and how they motivate their followers in ways that encourage cohesion and support common goals. In the animal kingdom, alpha males have a disproportionate advantage in terms of reproductive access and thus reproductive success (de Ruiter & van Hooff, 1993). Lower-ranked males constantly try to unseat alphas, usually through violent fights, to obtain such access for themselves. That means these male hierarchies are inherently unstable and violent, because lower-ranked males are constantly trying to overthrow higher-ranked males, and higher-ranked males need constant vigilance to maintain control over their coalitions. Humans may not have their dominance fights play out in quite as direct and explicit a fashion much of the time, but the dynamics of power appear remarkably similar. This pattern demonstrates the basis for how and why male dominance hierarchies remain fundamentally unstable and inherently violent by nature, both in humans as well as other primates.

But leadership has value both for followers as well as leaders. Leaders can solve otherwise intractable collective action problems around who and when and well as how, to fight, as well as other problems related to the allocation of resources within a community (Garfield et al., 2019; Glowacki & McDermott, 2022; Glowacki & von Rueden, 2015). By using powerful emotions such as fear and anger to emotionally manipulate their followers, leaders can help consolidate and coordinate support for military campaigns, including those that may disproportionately benefit the leader himself. By strategically manipulating emotion and serving to define the boundaries of the social identity that identifies group membership and threatening social ostracism to those who do not comply, leaders encourage and support cooperation among their male coalitions in service of common goals (McDermott, 2020).

https://doi.org/10.1017/pls.2025.10007 Published online by Cambridge University Press

Using evolutionary models to help explain current conflicts

The two wars that are captivating the most attention recently are the ones in Ukraine and in Gaza. However, these are by far not the only conflicts going on now and, indeed, the one in Sudan that has caused the most civilian casualties typically falls far under the Western radar.

In some ways, as has been discussed above, the permissive psychological architecture that supports the kind of coalitional behavior that allows for the successful conduct of war may not differ all that much across these and other wars. However, as also noted war is also not inevitable or even necessary but rather is triggered by various, more proximate, environmental triggers that can instigate or sustain a given conflict. As Glowacki et al. (2020) write: "These mechanisms are sensitive to ecological and social conditions, such that the prevalence and patterns of warfare vary according to subsistence strategies, military technology, cultural institutions, and political and economic relations. When economic conditions enable intergroup relations to change from zero-sum to positive-sum games, peaceful intergroup relations can emerge."

This analysis, based on an evolutionary model of war, suggests that varied factors can spark different kinds of conflicts, and the nature of a given war may differ based on available technology as well as other social, economic, and political factors. As these authors also suggest, the key to resolution then, may also differ based on relative economic conditions, among other factors. Indeed, these are the proximal, material conditions economists might recognize as salient in their so-called" rational" analysis. A brief discussion from this evolutionary perspective of these two conflicts might illuminate how an evolutionary perspective can help inform our understanding of the underlying causes of war, as well as suggest novel possibilities for conflict resolution. Note that the following discussion is focused primarily on those more proximate environmental factors that can trigger and interact with the underlying psychological mechanisms, namely the capacity for coalitional violence, upon which the capacity for engaging in conflict depends.

Ukraine

The American public tends to think of the war in Ukraine as starting with the Russian invasion on February 24, 2022, shortly after the conclusion of the Olympic games in Beijing. However, this fails to fully appreciate the longer history of the conflict. The war really began with the Russian invasion of Crimea in February 2014. That invasion, which the western world condemned rhetorically, did not receive the kind of attention, and certainly not the kind of western military aid, that the later invasion elicited. This historical perspective is important because the Ukrainians were engaged in war with Russia for over 8 years by the time the second invasion occurred. But in many ways, the origin of the war goes back even farther, to the dissolution of the Soviet Union on Christmas of 1991. At that time, Mikhael Gorbachev resigned as leader of the Soviet Union and turned the newly re-created Russian state over to his successor, Boris Yeltsin. The current president Putin was not in Russian national leadership at the time. Much has been written about his desire to re-create not only the former Soviet Union, but the larger Russian empire as previously constructed by both Peter the Great and Catherine the Great. Indeed, Catherine was the last Russian leader to invade Crimea militarily when she annexed the area in 1783. Whether or not this interpretation of Putin's larger motives is accurate, there are a few structural aspects of the situation worth noting from the perspective of relative welfare trade-off ratios assessments

Once viewed in terms of the perception each side has of the extent to which the other side places value on it, it becomes obvious that both sides might easily feel that the other has not respected its legitimate needs and interests, whether that belief is true or not from a more objective standpoint. Clearly, the Ukrainians have had their sovereign territory invaded twice in the last decade, with almost no outside support to push back against the first assault. The Ukrainians may have easily felt they deserved more Western support because they gave up (decommissioned) the nuclear weapons housed on their territory at the end of the Cold War in return for security assurances under the Budapest Memorandum; these security supports were then not as forthcoming as expected when the invasion subsequently occurred.

https://doi.org/10.1017/pls.2025.10007 Published online by Cambridge University Press

However, the Ukrainians were not naïve; they expected the Russians to violate these terms. As Sarotte (2021) writes, Ukrainian diplomats told their American counterparts that they "had no illusions that the Russians would live up to the agreements they signed." Instead, they were hoping that they could create a foundation upon which to "appeal for assistance in international fora when the Russians violence the agreements."

For their part, the Russians argued that the prospect of Ukraine joining NATO constituted a threat to their border. This may have been subterfuge for their larger imperial agenda, but the desire for a cordon sanitaire needs no further explanation when viewed from an evolutionary perspective. As Lopez (2017) has argued convincingly, historical claims to territory serve an enormously useful role in re-framing an offensive attack of aggression as a defensive fight of self-protection. This interpretation proves particularly apt in the case of Putin's psychology as a risk-acceptant authoritarian leader. His interpretation of the situation he confronts differs drastically from much of the rest of the world. Specifically, Putin seems himself, and Russia (with little distinction between the two) as a high-status actor and country that does not receive the recognition it properly deserves and received during the Cold War. However, much of the rest of the world sees Russia in relatively low status terms, not least because it has seen a declining GDP since the early 2000s, according to the World Bank (2022). The 2008 Bucharest summit seemed to indicate that NATO would eventually allow the entry of Ukraine into its union, a proposition that Putin saw as threatening. Putin himself appears to be quite prone to conflict; Horowitz et al. (2015) claim he is along the top 10% most conflict prone leaders in history. And perhaps most significantly, Putin saw a window of opportunity for exploitation in light of an increasingly weak and divided west, as evidenced by the lack of western intervention in the conflict with Georgia in 2008, the invasion of Crimea in 2014, their intervention into Syria in 2015, and, especially, the election of Donald Trump in the United States in 2016 with all the consequent weakening of American institutions and Trump's overt support of Putin.

Male coalitions, including military ones led by high-status leaders, seek to decimate those they deem to be a threat. In a time of shrinking resources, as evidenced by declining GDP, it should not be surprising that leaders and their followers would look to secure resources from nearby areas, particularly those to which they can lay a historical claim, as Russia exerted over Ukrainian territory for hundreds of years. Note that the demographic collapse that is affecting Russian society, along with most East Asian societies, places additional pressure on groups that seek to secure their population fitness.

In this way, the fight over resources, including territory, the food that rich agricultural areas such as Ukraine can providence, as well as fertility, as evidenced by the fight over the Ukrainian children kidnapped into Russian custody, can help explain some of the ostensible source of the conflict, but other factors likely contribute as well. On both sides, the role of leadership emerges decisive. Putin has labeled the Ukrainians not only as enemies but as Nazis, raising a historical specter of enormous potency among a Russian population that suffered mightily under the Nazi invasion. Here, it is noteworthy that the Russians bore, by far, the highest price in terms of lives lost of any country in the Second World War. Interestingly, the Ukrainians themselves fought against both the Nazis as well as the Russians during, and after, that war. Indeed, the Ukrainians continued to fight the Russians after the end of the Second World War until at least 1947. Thus, Zelenskyy, too, can offer powerful emotional justification for the continued resistance against Soviet incursion based on events dating from the Second World War, as well as the earlier usurpation of Crimea in 2014. Note that both sides can claim meaningful losses from the past as well as the recent conflicts, and each wants to return their country to an earlier period of glory, although the periods each defines as glorious do not align or even overlap. Moreover, each side has a leader who has effectively managed to carefully define the boundaries of in-group and out-group membership through the invocation of powerful emotions, such as outrage, that have been strategically employed to garner as much support as possible, both from allies as well as domestic audiences.

From this perspective, it is not at all clear what kind of positive-sum situation might allow peace to occur; any loss of territory for Ukraine is a gain for Russia and vice versa. This helps explain why Ukraine

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tried to push into Russian territory in Kursk when they were able to do so, hoping to trade territory as more transactional western politicians and pundits suggest, but also in a more straightforward bid to gain resources for their own fight.

Predicting the outcome, in either a short or a long term, in this case, as in the one that follows, appears particularly fraught because of a significant factor that would have been rare in ancestral environments: the intervention of powerful third-party actors seeking to impose particular outcomes on the relevant parties. In the Ukrainian case, the European Union as well as the Americans, until the election of Donald Trump, has given enormous financial and military aid to Ukraine, although without inserting troops. Only very recently have they allowed their munitions to be used within Russian territory. The motivation for the European Union is perhaps more immediate and direct, fearing further Russian incursion into European territory, including the Baltic states, should Putin be allowed to succeed in taking over Ukrainian territory. The American motivation to support Ukraine has clearly evaporated in the face of a change in leadership, highlighting again the critical role of leadership in defining the boundaries of identity, and in labeling allies and enemies.

Despite European desire to support Ukraine, even collectively, this alliance does not possess the ability to fully compensate for the loss of American financial and military support. In the short run, all indications are that Trump wants to make a deal with Putin to end the war without even consulting the Ukrainians in the matter. Putin will likely not settle for anything less than the eastern territories he has already conquered and probably will want more. Even if he accedes to such a request, Trump may be in for a rude awakening if the Ukrainians refuse to agree. Even if the Ukrainians are forced into a cease-fire, the Americans should be well aware, given their own recent experience in both Iraq and Afghanistan, what the nature of chronic insurgency can do for prospects for peace or stability. The Soviet Union left Afghanistan in 1979 after years of failing to conquer the territory and being subject to constant attacks, just as the Americans were forced to do generations later. This was followed shortly by the dissolution of their union, not least because of the enormous economic costs the fight entailed. In similar fashion, the most obvious prediction is that even if Ukraine is forced to accept a peace deal with Putin because the United States refuses to supply the money and munitions necessary to continue an overt war, the covert war will continue to try to push Russia out of Ukrainian territory, especially those areas not populated primarily with Russian speakers. At the very least, the Ukrainians can succeed in making any Russian occupation both costly and miserable for the aggressors. Years of coercive suppression may eventually repress insurgency, as Putin accomplished in Chechnya, but that may leave Putin with enormous domestic costs, both economic and political, and little benefit, particularly if his victory prevents the growing of Ukrainian grain that is so essential to feed much of Europe and the wider world, including the Middle East.

While it has been common for some pundits to predict the demise of Putin, it is not so clear that this can happen from inside, much less outside. In this manner, Putin is the classic tyrant, killing anyone who challenges his dominance, creating a violent system under which he alone can thrive. Putin's predilection for assassination among those who challenge him, from Alexei Navalny to Yevgeny Pregozhin, aside, the dynamics of male dominance hierarchies render internal challenges to a dominant leader unlikely to succeed short of entropy. As long as Putin retains control over the instruments of coercion, including the intelligence services from which he emerged, his close allies (i.e., the subservient males who might otherwise stive to take over leadership for themselves) would know that such a coup would be unlikely to succeed outside a coalition, meaning someone would have to trust one or two others enough to share a plan. And yet each person would be worried that the other might go to Putin and tell him of the plan to gain benefits for himself, leading to his own death, and thus making it unlikely for anyone to try to mount such a coup. The failed attempt against Hitler in the Valkyrie plan remains instructive for all relevant players. In that case, all participants were summarily shot without achieving success in their plan to overthrow Hitler. In this way, unstable and violent male dominance hierarchies produce the kind of lower-level infighting that only serves to benefit the leader by dividing the opposition themselves without him having to pay the costs of fighting each one individually.

https://doi.org/10.1017/pls.2025.10007 Published online by Cambridge University Press

Gaza

The war in Gaza shares many similarities regarding the desire of both sides to control territory, as seen in the conflict in Ukraine. Indeed, even the proximate trigger is identical, if reversed, where here the ostensibly weaker power invaded the stronger military force on Oct. 7, 2023, killing over 1200 Israeli civilians and taking over 200 hostages. The overwhelming Israeli retaliation was completely predictable considering the history and previous conflicts in the region. In this circumstance, the Palestinians have received the bulk of rhetorical support from around the globe, if less humanitarian and other forms of support than might be expected given the level of viscera directed at Israel. While initially Israel received the vast majority of international support immediately after the Hamas attack on 10/7, their military over-reaction to the attack immediately squandered the initial goodwill they incurred. In the wake of the attack, Israel, much to many observers' surprise, has managed not only to decimate Gaza, annihilating the vast majority of Hamas and its leadership, although certainly not its ideology, displacing ~2 million residents, but also essentially dismantling Hezbollah and mounting increasingly direct attacks against their sponsor Iran as well. Israel's one supporter through this entire war has been the United States which has maintained a steady supply of money and weaponry that has only increased under the new administration, with Trump authorizing the use of large bombs the Biden administration prohibited.

As with Ukraine, both the Israelis and the Palestinians lay claim to the same land, which in this case both also see as sacred territory (Atran & Gomez, 2025). Indeed, the Gaza strip is even more densely populated than any part of Ukraine, Russia or Israel. All sides have large coalitions which seek to protect and defend their territory from incursion on the part of the other and see the destruction of the other as the most effective solution to generations of conflict between them. In other words, the goal on both sides is deterrence ancestral style: through complete annihilation of the enemy.

As in Ukraine, here too both sides feel that the other has not given sufficient deference or consideration to their welfare, or offered the kind of respect they feel they deserve. In evolutionary parlance, both sides see the other as not offering a sufficient welfare–tradeoff ratio. Because generations of various peace negotiations have not resulted in a stable situation where both sides feel that their interests have been properly represented, anger escalates, and fighting continues. This is also akin to what McDermott et al. (2017) describe as a shift from anger to hatred, making concessions and conciliation much more difficult to achieve. Neither side believes they can convince the other of their inherent value nor thus destruction emerges as the default strategy.

Here too, as with Ukraine, leadership and the role of memory appear salient, where the history of the Holocaust and long generations of pogroms aimed at Jews across history compete in public claims of victimization against Palestinians who were forcibly removed from their land in 1948. Again, as in Ukraine, leadership on all sides has remained intransigent, offering little in the way of concessions or prospects for a more enduring peace. Trump's proposed plan to turn Gaza into a real estate development involving the forcible removal of the Palestinians from Gaza would be ridiculously laughable if he did not appear to be serious, with support for the plan from Israeli Prime Minister Netanyahu. This tracks with the earlier point about the distinction between sacred values and material interest discussed above. From a rational economic perspective, the real estate development proposal may seem like a valuable lucrative prospect, but, as the research on sacred values argues (Tetlock, 2003; Whitehouse, 2018), the mere notion of sacrificing culturally significant territory for financial gain proves sufficient to ignite outrage, which is exactly what has occurred.

As with Ukraine, the prospects for a stable short-term or long-term resolution do not look promising. Enormous numbers of people are trying to seek out a living on a small patch of land that has historically relied on huge donations of aid. Prospects of resource deprivation will only make coalitions more aggressive and violent in their attempt to provide an adequate living for their children in an area that has among the highest birth rates in the world. Solutions that might appear obvious from an economic standpoint, such as moving large populations to other areas, remain completely unacceptable from a political and social perspective, leaving groups locked in a coalitional conflict whose only possible acceptable resolution from the perspective of either side depends on the total annihilation of the other.

https://doi.org/10.1017/pls.2025.10007 Published online by Cambridge University Press

Concluding comments

There are, of course, various ways to seek to understand the origins and maintenance of conflict, and many factors contribute to properly understanding any given conflict. Many of these models have value. But each remains incomplete without at least a consideration of the underlying psychological mechanisms that allow for the capacity to engage in successful coalitional behavior. Without the ability to form groups that can contain any internal divisions in service of larger collective goals, war would be impossible. Groups would dissolve under the weight of their own disagreements, and fighting would remain much more limited in scope, even if chronic, as we see among chimpanzees. One of the most important factors that has shaped coalitional capacity derives from the enormous selection pressures that combat, and the lives lost to it, have placed on human evolution. The automatic and effortless way in which males in particular form coalitions serve to facilitate cooperation, but such cooperation is often used in service of achieving more effective lethality in combat. Such coalitions are designed and driven by the desire to obtain, defend, and protect those resources that across millennial time were more likely to result in fitness advantage and reproductive success (Chagnon, 1988; Dunbar, 1991).

This does not mean that war in inevitable, but rather that the psychological architecture that supports it remains intrinsic. This architecture also supports other kinds of cooperation, but because they rest on the same foundation, you cannot eliminate one without the other. Nonetheless, these mechanisms are only triggered under particular environmental circumstances precisely because natural selection designed a system that requires input from the environment to determine and encourage the behavior that has been most associated with fitness and reproductive success in the past (Glowacki & von Rueden, 2015; Glowacki & Wrangham, 2015) Some of those instigating environmental circumstances include conditions under which one group feels threatened by another, feels the territory they need for their survival, or their reproductive access is at risk, or where the leader decides such action may benefit him.

One of the novel conditions that raises all these risks simultaneously derives from the increasing threats posed by climate change, whereby deadly droughts, fires, floods, and other natural disasters reduce the amount of food that can be grown and sustain a given population. These environmental forces are not necessarily evolutionarily new in the sense that humans have been perennially threatened by severe weather. But the scale and frequency of such events have become much more pronounced, and are now global in impact, meaning you cannot move away from them, as populations may have been able to do in the past when geographic challenges proved daunting, as following large volcanic explosions. People may not think about these challenges in explicit terms as risks posed by climate change, but they do see that their physical environment is changing, posing more risks, and they certainly know when the land cannot provide the kind of food it has in the past. This very proximal environmental challenge does raise the stakes and makes attempts by other groups to seize more land, territory, or other resources increasingly threatening. In the wake of such recognition, however subliminal, coalitions become angry and aggressive in a drive to protect and defend their own resources as well as to gain access to additional resources they feel they now need under more pressing environmental constraints and challenges.

This reality does not portend well for the kind of proximate dynamics of economic equality that would allow for the emergence of peace between groups, whether in Ukraine, Gaza, or elsewhere. While many may decry the demographic collapse that is occurring on every continent save Africa, such a natural decline in population, driven at least in part by alienation between the sexes, may ironically offer the larger human race its only potential for salvation against the hostile intent of others.

The unwillingness of warring parties to compromise short of unconditional surrender or annihilation may reflect the differential success such strategies offered in the past but does not necessarily portend well for our prospects for peace in the future. Here, more enlightened, less intransigent leadership, less bent on dominance, could help produce a different outcome by aligning followers behind different goals, but such leaders are unlikely to emerge from the unstable, inherently violent male dominance hierarchies that produce them in the first place.

Competing interests. The author declares none.

https://doi.org/10.1017/pls.2025.10007 Published online by Cambridge University Press

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Cite this article: McDermott, R. (2025). An evolutionary perspective on the current wars. *Politics and the Life Sciences*, **44**, 280–294. https://doi.org/10.1017/pls.2025.10007

https://doi.org/10.1017/pls.2025.10007 Published online by Cambridge University Press