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# Aggression and Violent Behavior



## The evolution of intimate partner violence <sup>☆</sup>

David M. Buss <sup>a,\*</sup>, Joshua D. Duntley <sup>b</sup>

<sup>a</sup> University of Texas, Austin, United States

<sup>b</sup> The Richard Stockton College, United States

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### ABSTRACT

An evolutionary perspective anticipates predictable forms of sexual conflict in human mating relationships. Humans have evolved a psychology of tactical deployment designed to influence a partner's behavior to be closer to the actor's own optimum. Tactics are diverse, ranging from benefit-bestowing to cost-inflicting. We discuss adaptive problems toward which cost-inflicting violent tactics are utilized: mate poachers, sexual infidelity, mate pregnancy by an intrasexual rival, resource infidelity, resource scarcity, mate value discrepancies, stepchildren, relationship termination, and mate reacquisition. Discussion focuses on the context-dependence of intimate partner violence, the costs of perpetrating violent tactics, the underlying psychology of aggressors, the manipulated psychology of victims, and co-evolved defenses to prevent intimate partner violence and to minimize its costs when it occurs.

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### 1. Introduction

Humans possess a range of tactics to influence other humans to obtain reproductively-relevant resources (Buss, Gomes, Higgins, & Lauterbach, 1987). Within intimate relationships, these include benefit-bestowing tactics, such as pleasure induction, monetary reward, and reciprocity (Buss, 1992). They also include exploitative

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\* Corresponding author at: Department of Psychology, University of Texas, Austin, Texas 78712, United States.

E-mail address: dbuss@psy.utexas.edu (D.M. Buss).

tactics by which people extort resources through deception, manipulation, coercion, intimidation, or violence (Buss & Duntley, 2008). Specific cost-inflicting tactics in intimate relationships include yelling, making demeaning comments, emotional or psychological abuse, threats of monetary withdrawal, threats of desertion, threats of bodily harm, threats of sexual violence, rape, non-sexual physical violence, threats of murder, and actual murder (Buss, 1992; Frieze, 2005).

Humans, unlike our closest primate relative the chimpanzee, form long-term intimate mateships that last years or decades. From an evolutionary perspective, long-term mating offers a number of benefits to both women and men (Buss, 2012). Benefits women can accrue include: (1) physical protection for themselves against aggressive men; (2) physical protection for their children; (3) a recurrent supply of provisions, including food and resource-rich habitats, which in traditional societies increase the odds of their children's survival (Hill & Hurtado, 1996); and (4) help with the socialization, training, and influence of their children, which historically translated into fitness-relevant benefits ranging from increased survival to better mating prospects.

Men, from an evolutionary perspective, also benefit greatly from committing to a long-term mating strategy in at least the following ways: (1) increasing their ability to attract a desirable mate; (2) increasing their paternity certainty by prolonged proximity and sexual access; (3) increasing the survival of their children; (4) increasing the reproductive success of their children through paternal investment; and (5) increasing status and coalitional allies through their wife's extended kin (Buss, 2012; Buss & Schmitt, 1993). In short, our species is marked by a transition to long-term mating with biparental care, which could not have evolved if the fitness benefits did not outweigh the fitness costs for both men and women.

In order to reap the benefits inherent in long-term mateships, people must engage in actions that ensure that the potential benefits of long-term committed mating are indeed received. Without ensuring access to those benefits, the costs of long-term mating (e.g., in time devoted to courtship; in forgone mating opportunities) would have precluded the evolution of long-term mating to begin with. Indeed, the heavy costs of long-term committed mating may explain why it is so rare. Monogamy characterizes only 3% to 5% of mammalian species (Kleiman, 1977).

Given the tremendous benefits both sexes reap from long-term mateships, it may seem counter-intuitive or bizarre that violence sometimes pervades intimate relationships. Each year, more than half a million women in the United States report to law enforcement violent attacks by current or former romantic partners (Peters, Shackelford, & Buss, 2002). Annually, rates of violent victimization of women range from 14% to 16%. Lifetime prevalence of women being battered by an intimate or ex-intimate are estimated to be roughly 27% in Canada and 30% in the United States, and some studies put the figure as high as 34% (Frieze, Knoble, Washburn, & Zomnir, 1980; McHugh & Frieze, 2006). Rates of marital rape, one of several forms of intimate violence, are also disturbingly high (Russell, 1982). A recent review estimated that between 10% and 14% of all married women had experienced rape at the hands of their intimate partner (Martin, Taft, & Resick, 2007). Other reviews that include cross-cultural data estimate the marital rape rate to range even higher, from 10% to 26% (Kaighobadi, Shackelford, & Goetz, 2009). These statistics do not include psychological and emotional abuse, which is likely to be even more common. Many men clearly attempt to exert reproductive control over their intimate partners, often through violent means. Why are the rates of intimate partner violence so high?

To answer this puzzling question, we first introduce sexual conflict theory as a broad framework for understanding conflicts that occur between men and women in the mating arena. Then we outline an evolutionary perspective on intimate partner violence. We then turn to key adaptive problems women and men face in intimate mateships,

and present existing evidence bearing on the hypotheses that different forms of violence are evolved tactics used for solving these problems. Discussion focuses on the context-dependence of intimate partner violence, psychological processes by which violence may attain its effectiveness, and co-evolved defenses in victims. We highlight the utility of an evolutionary psychological lens for providing both heuristic value and novel insights into intimate partner violence.

## 2. The evolution of sexual conflict in mating

Throughout much of the history of thinking about the psychology of intimate couples, the dominant assumption has been that harmony is, or should be, the norm, and that major deviations from harmony reflect dysfunctional relationships. Entire research programs and therapeutic offerings are devoted to fixing "dysfunctional" intimate relationships. Interestingly, the field of evolutionary biology long held the same assumptions for species that formed long-term mateships. Mating was assumed to be fundamentally a cooperative harmonious endeavor in which a male and female paired up for the mutual goal of bearing and rearing offspring (Parker, 1979).

Within evolutionary biology, a sea-change in thinking occurred with the development of sexual conflict theory, which forecasts predictable forms of conflict in the mating arena (Parker, 1979, 2006). Although a full explication of the theory is beyond the scope of this article, the core of the theory has profound bearing on intimate partner violence. In a nutshell, sexual conflict occurs whenever "there is a conflict between the evolutionary interests of individuals of the two sexes" (Parker, 2006, p. 235). When there exist different fitness optima for men and women in a particular domain, evolution by selection will tend to fashion adaptations in each sex to influence or manipulate the other to be closer to its own optimum. These refer to conflicts between individual males and individual females. Notions of "males as a group" in conflict with "females as a group" are logically incoherent from an evolutionary perspective (Buss, 1996). Although men often strive to control and monopolize women's sexuality, men are in competition primarily with other men and women with other women (Wilson & Daly, 1992).

Sexual conflicts caused by recurrent differences between women and men in fitness optima set into motion co-evolutionary arms races between the sexes, analogous to arms races that occur between predators and prey. Selection favors offenses in one sex to influence the other to be close to its optimum. Co-evolved selection pressure, in turn, favors victim defenses in the other sex to counteract offenses that maneuver it away from its own optimum. These co-evolved defenses, in turn, favor the evolution of co-evolved offenses in the other that circumvent, nullify, or mitigate those defenses. Sexual conflict, in short, can produce perpetual co-evolutionary arms races, unless natural constraints limit further co-evolution.

In the mating domain, one useful scheme for partitioning sexual conflict is a temporal one—conflict before mating has taken place, conflict during the course of a mateship, and conflict in the aftermath of a breakup (Buss, submitted for publication). Sexual conflict, for example, can occur on the "mating market" over whether or not sexual intercourse will occur or in the amount of time and investment required before sexual intercourse will occur. *Deception and sexual persistence* are two common tactics men use in the "battleground" of pre-mating sexual conflict (Buss, 1989a; Haselton, Buss, Oubaid, & Angleitner, 2005). Deflecting sexual attention, imposing longer time delays, and requiring additional signals of commitment are common tactics women use in the "battleground" of pre-mating sexual conflict. Sexual conflict also occurs after a mateship has formed. "Battlegrounds" include frequency of sexual intercourse, expenditures of pooled economic resources, effort devoted to one set of kin versus the other, amount of parental investment each allocates, and mating effort diverted to others outside the primary mateship. Even after a couple breaks up, sexual conflict can continue (Duntley & Buss, in press). A

former mate, for example, might persist in unwanted sexual advances or attempt to reestablish the mateship. Stalking is a common phenomenon—some studies estimate that as many as 49% of individuals have been stalked (Bjorklund, Hakkanen-Nyholm, Sheridan, & Roberts, 2010), although lower estimates are given by studies that use stricter legal definitions of criminal stalking (Tjaden & Thoennes, 1998). Stalking by former intimate partners appears to be a sexual conflict tactic used by the jilted partner to interfere with a former partner's attempts to re-mate with someone else, to regain some form of access to the reproductively-relevant resources of the former mate, or both (Duntley & Buss, *in press*).

The key point is that sexual conflict theory provides a powerful framework for understanding that regions of conflict are common and predictable. Rather than being seen as dysfunctional, sexual conflict is expected, recurrent, and widespread in the initiation, duration, and aftermath of mating relationships. This perspective, of course, does not imply that sexual conflict and the cost-inflicting tactics used by men and women in these “battlegrounds” should be condoned or excused. To the contrary, this evolutionary perspective highlights the domains of danger most urgently in need of potential intervention and amelioration.

Human mating and sexual reproduction, of course, are also partly a cooperative venture, and sexual conflict must be understood within this context (Cronin, 2006). It becomes especially cooperative when it is characterized by strict monogamy, with no likelihood of infidelity or defection, no children by former mates, and no kin in proximity for differential resource allocation (Alexander, 1979; Daly & Wilson, 1988). Whenever there is deviation from strict monogamy, some likelihood of infidelity, some prospect of relationship dissolution, children by former mates, and kin in proximity, however, the “battlegrounds” for sexual conflict become multiple and pervasive.

### 3. An evolutionary perspective on intimate partner violence

Daly and Wilson (1996, 1998) have been at the forefront of examining intimate partner control and violence through the lens of evolutionary psychology. According to their position, males have evolved adaptations summarized by the phrase “male sexual proprietariness,” particularly in response to adaptive problems of a woman's sexual infidelity or losing her to a rival. Male sexual proprietariness is not proposed to be invariantly expressed in men's behavior. Rather, it becomes activated by various cues indicating that the man is confronting the relevant adaptive problems: “any variable that has been a statistical predictor of variations in the risk of loss of reproductive and productive control of his wife” (Wilson & Daly, 1998, p. 201). Moreover, there are costs to husbands of using violence, such as potential retribution from the wife's kin or loss of the mating relationship itself, which provide contextual variables that can inhibit men's use of violence to control their wives.

The functions of intimate partner violence center on limiting female autonomy and retaining control over her sexual and non-sexual resources: “the link between male sexual proprietariness and violent inclinations has presumably been selected for because violence and threat work to deter sexual rivals and limit female autonomy” (Wilson & Daly, 1996). From an evolutionary perspective, warding off mate poachers and limiting a woman's potential sexual contact with other men historically would have increased a man's paternity probability, which would have translated into increased reproductive success.

Evolved functional violence toward mates is hypothesized to be context-dependent. One context is the cost-benefit calculus linked with alternative means of solving each of the relevant adaptive problems. Tactics to solve the diversion of mating resources to others outside the mateship range widely from vigilance to violence (Buss, 1988; Buss & Shackelford, 1997a,b; Daly, Wilson, & Weghorst, 1982; de Miguel & Buss, 2011; Goetz, Shackelford, Starratt, & McKibbin,

2008; Shackelford, Goetz, Buss, Euler, & Hoier, 2005). Many, probably most, problems of resource diversion are solved through non-violent means. Continuous resource provisioning by a man, for example, can increase the likelihood that his wife will remain sexually faithful (Buss, 2000). Providing sexual inducements, a tactic of mate retention used in intimate relationships, can sometimes ensure the ongoing commitment of a partner. Coercive strategies, such as threats of defection, threats of violence, and aggression are hypothesized to be merely components of the diverse tactical arsenal that men have evolved or exapted to maintain access to a partner's reproductively-relevant resources. These coercive tactics, of course, are also used to obtain resources from non-intimate others (Buss & Duntley, 2008).

The key point is that most social adaptive problems can be solved with an array of tactics, only some of which involve violence. In order to examine the circumstances in which violence is used in intimate relationships, we must outline in greater specificity the adaptive problems toward which violence is often directed. In principle, adaptive problems within intimate relationships center on (1) the loss of access to key resources inherent in the intimate relationship, (2) threatening events that increase the likelihood of the loss of those resources, or (3) a failure of the mate to confer those benefits.

### 4. Adaptive problems toward which partner violence is directed

We now turn to the multiple adaptive problems faced during the course of mateships and in the aftermath of breakups. These provide higher-resolution conceptual lenses for predicting the specific circumstances conducive to intimate partner violence. In this article, we focus primarily on violence perpetrated by men, since men, more than women, are more likely to use extreme forms of violence such as sexual coercion, sexual assault, choking, strangling, and other forms of severe assault (Archer, 2002; Tanha, Beck, Figueredo, & Raghavan, 2010). Nonetheless, many studies, including meta-analyses of multiple studies, reveal that women also perpetrate violence toward partners, including pushing, shoving, scratching, kicking, biting, and punching (Archer, 2002; Carney, Buttell, & Dutton, 2007; Tanha et al., 2010). Hence, a comprehensive theory of partner violence must include women-initiated and bidirectional partner violence (Frieze, 2005).

#### 4.1. Mate poachers

Mate poaching turns out to be a surprisingly common mating strategy (Schmitt & Buss, 2001; Schmitt et al., 2004). In American samples, for example, 93% of men and 86% of women reported having attempted to lure someone out of an existing relationship for a long-term mateship (Schmitt & Buss, 2001). Similarly, 87% of men and 75% of women report having attempted to poach for short-term mating goals. Although rates of reported mate poaching vary from culture to culture, the vast majority of individuals have experienced mate poaching—as a mate poacher, as the recipient of mate poaching attempts, or as the “victim” whose mate someone attempted to lure for a short-term liaison or a long-term mateship (Schmitt et al., 2004). Mate poachers pose an adaptive problem. They threaten to usurp the mating resources previously accessed by another. This may help to explain why “love triangles” are especially vulnerable to extreme forms of violence, including murder (Shackelford, Buss, & Weeks-Shackelford, 2003).

As predicted by evolutionary psychological hypotheses, men are particularly threatened by potential mate poachers who have superior job prospects, financial resources, and physical strength (Buss, Shackelford, Choe, Buunk, & Dijkstra, 2000). Women are particularly threatened by potential rivals who surpass them in facial or bodily attractiveness. These gender differences in levels of distress about rivals have been documented, to a limited extent, across cultures—in Korea, the Netherlands, and the United States (Buss et al., 2000).

When violence is used, it is often directed at the mate poacher rather than at the mate (Wilson & Daly, 1998). Nonetheless, men sometimes direct violence toward their intimate partners when faced with the threat of mate poachers. Battered women, compared with non-battered women, endorse the following items much more frequently about their intimate partner: “He is jealous and doesn't want you to talk to other men”; “He tries to limit your contact with family and friends”; and “He insists on knowing who are you with and where you are at all times” (Wilson & Daly, 1996, p.3). In short, men who use violence often do so to deter their partners from consorting with other men, or to limit their opportunities for contact with potential mate poachers.

#### 4.2. Sexual infidelity

Another recurrent problem that afflicts long-term mateships is sexual infidelity (Buss, 2000; Daly et al., 1982; Symons, 1979). From an evolutionary perspective, sexual infidelity by a woman puts her primary mate at risk of investing in another man's genetic children. The cuckolded man risks channeling his valuable resources into a child in the mistaken belief that it is his own. The loss is compounded by a rival's gain, since the cuckolded partner's resources can be diverted to supporting the child of the interloper, thereby contributing to the fitness of the rival. Although women do not suffer from “maternity uncertainty,” since women always have a 100% certain genetic relationship with their children due to internal female fertilization, women too can suffer costs from their partner's infidelity. At a minimum, time and energy spent in sexual congress with another woman is time and energy not devoted to the original woman and her children. Since men tend to channel resources to women with whom they have sex, a man's sexual infidelity can inflict resource loss on his long-term mate. Finally, if either the man or the woman becomes emotionally involved with an affair partner, which occurs with perhaps 70% of women and 35% of men (Glass & Wright, 1985, 1992), either sex risks the defection of the partner to an intrasexual rival.

Men use an array of tactics in an attempt to solve the problem of a partner's sexual infidelity, and violence is one tactic in that array. Indeed, the detection or suspicion of infidelity is one of the key predictors of intimate partner violence (Daly et al., 1982). In one study, battered women were interviewed and then divided into two groups (Shields & Hanneke, 1983). One group had been both raped and beaten by their husbands. A second group had been beaten, but not raped. These two groups were then compared to a control group of non-victimized women. The women were asked whether they had “ever had sex” with a man other than their husband while living with their husband. Ten percent of the non-victimized women reported having had an affair; 23% of the battered women reported having an affair; and 47% of women who were both battered and raped reported committing adultery.

These findings, if taken at face value, suggest that female sexual infidelity may dramatically increase a woman's risk of being battered. Causality, of course, cannot be determined from this study. It is possible, for example, that men who batter or who batter and rape their wives drive them into the arms of other men. Furthermore, even if female sexual infidelity is identified as part of the causal chain leading to male partner violence, this in no way justifies or excuses what are clearly abhorrent, repugnant, and illegal actions by the husbands. Nonetheless, these findings support the evolutionary hypothesis that sexual infidelity, which from an evolutionary perspective jeopardizes a man's paternity certainty and risks the allocation of resources to a rival's child, is a key adaptive problem for which intimate partner physical abuse has evolved, or been co-opted from already existing adaptations, as one potential solution.

Sexual coercion or partner rape appears to be another consequence of men's perceptions or suspicions of a mate's sexual infidelity (Goetz, Shackelford, & Camilleri, 2008; Russell, 1982). One study found that risk

of a woman being unfaithful was linked with their male partner's sexual assault of her (Camilleri, 2004). Another study found that men's perceptions of partner infidelity were linked with increased risk of using sexual coercion (Goetz & Shackelford, 2006). Similar findings have been documented for convicted partner rapists (Camilleri & Quinsey, 2009).

One hypothesis advanced to explain these findings is that men have evolved adaptations to combat other men's sperm, and that partner sexual coercion is one violent manifestation of sperm competition adaptations (see Goetz, Shackelford, Starratt et al., 2008 for a review of the arguments and evidence). Another hypothesis is that partner sexual coercion is motivated by the drive to dominate, control, or exert power over women (Brownmiller, 1975). Goetz, Shackelford, Starratt et al., 2008 suggest that these hypotheses are not incompatible. Men's drive to control and dominate their female partners may have evolved, in part, to solve the adaptive problem of sperm competition. A third hypothesis is that the apparent causal link between partner infidelity and partner rape is a non-adaptive byproduct of some other evolved mechanisms, as yet unspecified. Future research is needed to adjudicate among these competing hypotheses. Sexual infidelity, in short, appears to be a key statistical predictor of multiple forms of intimate partner violence, ranging from verbal abuse to battering to sexual assault.

#### 4.3. Pregnancy with another man's child—suspicions of genetic cuckoldry

Sexual infidelity by a woman can sometimes lead to pregnancy. From the perspective of the investing long-term man, this could be disastrous in the currency of relative reproductive success. If carried to term, the man risks investing in the offspring of an intrasexual rival. To compound this cost, he loses the parental investment of his mate, since it would be diverted to the rival's child instead of his own.

We present pregnancy with another man's child as a separate, although clearly closely related, adaptive problem to that of the woman's sexual infidelity. It is distinct because the hypothesized function of violence differs in the two cases. In the case of infidelity or infidelity threat, violence is presumably directed at deterring infidelity or deterring future episodes of infidelity. When a woman becomes pregnant with another man's child, in contrast, the hypothesized function of violence is to terminate the pregnancy, thus eliminating the incipient offspring of an intrasexual rival and freeing up the partner's parental resources (Friedman & Shackelford, 1999).

The hypothesis that a man who suspects or believes his intimate partner is pregnant with another man's child will be more likely to inflict violence on her remains just that—a hypothesis. But there is some supporting evidence for it. Burch and Gallup (2004) found that the frequency of violent acts toward pregnant mates was roughly double that directed toward partners who were not pregnant. Furthermore, they found that sexual jealousy is more likely to characterize men who committed violence on their pregnant partners, providing circumstantial evidence consistent with the hypothesized function. A more direct test compared violent and non-violent couples, and found that women abused while pregnant were in fact more likely to be carrying the child of a man other than her current mate (Martin et al., 2004; Taillieu & Brownridge, 2010).

Clearly, further empirical work is needed to test the hypothesis that violence contingent on suspicions of non-paternity, mediated by the psychological mechanism of sexual jealousy, functions to eliminate the offspring of rivals. One prediction, for example, would be that the specific form of violence would be designed to produce the highest probability of aborting the fetus, such as blows to the woman's abdomen. Interestingly, a study in Nicaragua found that half of a sample of pregnant women who were abused had suffered from blows directed at their abdomen (Valladares, Peña, Persson, & Högberg, 2005). Competing “byproduct” hypotheses need to be tested

as well; perhaps the increase in violence is an incidental byproduct of greater psychological and economic stress brought on by an untimely or unwanted pregnancy, rather than by suspicions of cuckoldry *per se*. The key point is that an evolutionary lens has heuristic value for predicting the circumstances in which intimate partner violence is likely, and even the particular forms it is likely to take.

#### 4.4. Resource infidelity

Long-term mating typically involves the pooling of resources. In hunter-gatherer societies, these resources might include meat or honey secured by the man and gathered food provided by the woman. Mated couples also tend to pool their labor, as when both contribute to constructing a shelter or providing protection for their children. In modern societies, mated couples often pool their finances. Either party, however, can use pooled resources for their own goals at the expense of their partner's goals. Either might divert resources to their own genetic relatives preferentially over the genetic relatives of their partner. Either might use resources to secure additional mating opportunities, as when a husband buys dinners or jewelry for another woman or when a woman expends pooled resources to make herself more sexually attractive to other men.

A concrete example of resource infidelity occurs when an Ache hunter sends a prime piece of meat to his mistress, prior to bringing the main cache of meat back to his wife and family (Hill & Hurtado, 1996). Men, in short, can divert resources away from their mate's children and toward extra-pair mating effort. Because opportunities for resource infidelity are ubiquitous, it is not surprising that mating conflict over money is so common (Buss, 2003). To our knowledge, resource infidelity *per se* has not been examined as a circumstance conducive to intimate partner violence. Because resource infidelity is a predictable form of couple conflict, however, an evolutionary lens points to this circumstance as a potential predictor of mating violence.

#### 4.5. Resource scarcity

A well-established universal component of women's evolved mate preferences centers on a man's ability and willingness to provide resources (Buss, 1989b). Failure to provide such resources during the course of a mateship violates women's initial desires and consequently can lead to marital dissatisfaction and marital conflict. Men who cannot provide resources for the goal of mate retention may be inclined to use cost-inflicting tactics instead (Wilson & Daly, 1993). Empirical evidence consistent with this hypothesis comes from studies that find that poverty, or lack of economic resources, is linked with an increase in intimate partner violence—links have been documented in the United States (Flynn & Graham, 2010) as well as in Turkey (Balci & Ayranci, 2005).

These findings have typically been interpreted as mediated through "stress" (Flynn & Graham, 2010). Economic deficits, along with other factors such as alcohol and drug abuse, have been assumed to produce psychological stress, which in turn increases violence toward mates. An evolutionary psychological lens provides a more nuanced understanding, although one that is not incompatible with the "stress" hypothesis. It suggests that male-linked failures to provide the economic resources inherent in women's initial mate selection criteria are the underlying circumstances that trigger sexual conflict within the couple, and hence intimate partner violence. In contrast, resource scarcity caused by a woman's failure to provide economic resources, according to this view, should be less likely to lead to violence. This sex-differentiated prediction, not generated by the more domain-general "stress" hypothesis, remains to be tested.

#### 4.6. Mate value discrepancies

Assortative mating is the non-random coupling of individuals based on similarity on one or more characteristics. One of the strongest domains of mating assortment is for overall mate value (Buss & Barnes, 1986). Although mate value has a technical definition in the evolutionary psychological literature (Symons, 1987), at a rough approximation it can be described as an individual's overall level of consensually-assessed desirability on the mating market (Buss, 2003). Although individuals tend to assort on mate value, with the "8s" mating with other "8s" and the "5s" mating with other "5s," discrepancies sometimes arise.

One source of discrepancies occurs through errors of selection. An individual may have successfully deceived a prospective mate about their resource-holding potential or prior number of sex partners, for example, prior to mating (Haselton et al., 2005). The consequence is that the deceiver is lower in mate value than initially perceived. A second source of discrepancies occurs when a hidden cost does not come to light until after the mateship has been formed. A man might turn out to have children by a former mate. A woman might turn out to be secretly in love with her first romantic partner. Either sex might turn out to have a sexually transmitted disease, extended kin who siphon off resources, or personality dispositions such as emotional instability or aggressiveness that inflict a heavy "relationship load" (Buss, 2006). Another source of discrepancies occurs when individuals mate while young, prior to establishing an accurate assessment of their own mate value. A teenage girl, for example, may get taken out of the mating market by an older man before she is able to accurately evaluate her level of desirability.

In addition, mate value discrepancies can arise over the temporal course of a mateship. A man or woman's career can skyrocket, creating a discrepancy between partners where none previously existed. A permanent injury or serious disease can lower the mate value of one party, opening up a discrepancy where none existed. Because overall mate value has many components, most of which change over time, the odds are low that an initially matched couple will remain perfectly matched in their mate value trajectories over a span of years.

We predict that mate value discrepancies will be one link in the causal chain leading to intimate partner violence, especially when the female emerges as higher in mate value. This prediction is based on the activation of several psychological circuits. First, the higher mate value individual is more likely to be sexually unfaithful (Buss, 2000; Buss & Shackelford, 1997b). Second, the higher mate value individual is more likely to give cues to relationship defection. Third, if the man is lower in mate value, he will have greater difficulty providing resources to the woman that were inherent in her initial mate selection, which also increases the odds of infidelity or outright defection. All of these variables are hypothesized to be linked to an increased probability of violence toward the mate. Indeed, there is some evidence that those lower in mate value show more controlling and aggressive behavior toward their partners (Graham-Kevan & Archer, 2009).

Mate violence can serve at least two related functions in the context of mate value discrepancies. First, it can function to deter a mate from the temptation to stray or defect, as discussed above (Wilson & Daly, 1993). Second, it can reduce the women's perceptions of the magnitude of the mate value discrepancy. There is some evidence that self-esteem tracks a person's self-perceptions of mate value (Kirkpatrick & Ellis, 2001). Being abused verbally, psychologically, physically, or sexually typically lowers an individual's self-esteem (McHugh & Frieze, 2006; Russell, 1982). The abused woman might come to feel that she is unattractive and undesirable, and may even be convinced that her abuser is the only potential mate who would have her. As abhorrent as this idea is, mating violence may serve the functions of infidelity deterrence and mate retention by

damaging a woman's self-esteem, resulting in a reduction in what she might otherwise perceive as a mate value discrepancy.

#### 4.7. Stepchildren

Stepchildren pose multiple adaptive problems for intimate relationships (Daly & Wilson, 1988, 1998). From the perspective of the stepparent, a stepchild typically is viewed as a cost, not a benefit, of the mating relationship. Resources from the stepparent get channeled toward the offspring of same-sex rivals. The mate's parental resources also get channeled toward the offspring of same-sex rivals. Furthermore, the presence of a stepchild may delay reproduction. Breastfeeding tends to produce anovulatory cycles (Perez, Vela, Potter, & Masnick, 1971), so a woman who breastfeeds a man's stepchild has reduced odds of becoming newly pregnant. Even if she is not breastfeeding, the woman may be reluctant to have another child while she has a young child heavily dependent on her. Delayed reproduction adds another cost to the presence of stepchildren. Finally, if and when reproduction does occur, those progeny will be half-siblings rather than full siblings with the stepchildren. The decreased genetic relatedness among children residing in the same household can create additional conflicts of interest among them. Children of differing genetic relatedness to the two parents can also create conflict, since one partner might be prone to withhold resources from the stepchild in favor of their own genetic progeny.

These propensities may explain why stepparents typically invest fewer resources in stepchildren than in genetically related children in currencies such as dollars for college education (Anderson, Kaplan, & Lancaster, 1999). They may also explain why physical abuse of stepchildren is between 40 and 100 times higher than physical abuse of children residing with both genetic parents (Daly & Wilson, 1988, 2008). And they help to explain why being a stepchild is the single largest risk factor for the killing of infants and young children, far exceeding other variables such as poverty and socio-economic status (Daly & Wilson, 1988, 2008).

The genetic parent also faces adaptive problems as a consequence of partnering with someone other than the genetic father or mother of the child. A woman, for example, can be torn between two goals that may be inherently in conflict. One is securing investment for her child. The second is securing a long-term committed mateship. If a woman's child is perceived as interfering with her new mateship, she may be inclined to withhold resources from the child or even side with the new mate in inflicting costs on her child in order to solidify the mateship. In extreme cases, such as Diane Downs or Susan Smith, the mother may attempt to kill her own children in order to clear the way for a new mateship (Buss, 2000).

These extreme cases, of course, do not imply that there are adaptations specifically designed to kill stepchildren. Stepchildren are rarely killed. Most stepparents invest at least some resources in their stepchildren. Such investment, from an evolutionary perspective, is typically considered to be "mating effort" rather than "parental effort" (Daly & Wilson, 1988, 1998; Rohwer, Herron, & Daly, 1999). That is, the proper function of this form of investment is to secure access to a mate's resources, not to increase the fitness of the stepchild. Child killing or even mild forms of abuse may not reflect adaptations for inflicting costs, but rather, as Daly and Wilson suggest, failures to engage the normal mechanisms of parental love. Although we do not suggest that women have adaptations to murder their own children in these circumstances, it is not inconceivable that they have adaptations to inflict costs on, or withdraw resources from, their own children in order to solidify an incipient mateship. Regardless of which specific adaptations or byproducts of adaptations explain violence toward stepchildren, the occurrence of such violence is clearly explicable from an evolutionary understanding of the "conflicts of interest" inherent in intimate relationships that involve the presence of stepchildren (Daly & Wilson, 1988).

#### 4.8. Terminating the mateship

Roughly half of all marriages in America end in divorce. Mateship dissolution typically comes with a large loss of the partner's reproductively-relevant resources. For some, it carries with it a total loss of those resources. Consequently, when the net benefits of keeping a partner outweigh the net benefits of alternative options, we expect adaptations designed to prevent a partner from defecting.

A partner's defection carries with it not merely the direct loss of the partner's resources; it can also inflict damage to the social reputation and consequent mate value of the person who is "dumped." Empirical evidence suggests that the discovery that someone was dumped by their previous partner has a negative impact on people's desire to pursue a romantic relationship with them (Stanik, Kurzban, & Ellsworth, 2010). Consequently, defection by an intimate partner could potentially jeopardize access to future mates, compounding the costs associated with the loss of the current mate.

Solutions to the adaptive problem of defection, like solutions to many of the adaptive problems we have been discussing, range from elevated vigilance to the escalation of violence (Buss, 1988; Buss & Shackelford, 1997a). Indeed, those who are jettisoned from long-term romantic relationships employ a variety of coping strategies, including physical threats, stalking, and violence (Perilloux & Buss, 2008). Unfortunately, these violent tactics sometimes work. Some battered women remain in violent relationships. Some return to them even after they have sought help at a shelter. In a study of 100 women at a shelter for battered women, 27 returned to their partner after he promised that he would change and refrain from violence (Gayford, 1975). An additional 17 returned as a direct result of threats of further violence if she did not return. Another 14 returned because they had no alternative places to go, and 13 returned because of their children. Eight returned because they said they were still in love with the man or felt sorry for him. In short, the majority of battered women ended up returning to live with their abuser.

Intimate partner violence, of course, does not always succeed in getting a partner to remain in a relationship. It can backfire on the abuser, as some women find avenues for escaping from a violent mate. Violence may represent a last-ditch desperate tactic to keep a mate who has already decided to leave, suggesting a hierarchical deployment of tactics of mate retention (Daly & Wilson, 1988; Shackelford et al., 2005). Nonetheless, based on existing evidence, we cannot discount the possibility that in some contexts, violence functions to prevent a partner from leaving, giving the abuser some level of temporary or long-term access to the partner's reproductively-valuable resources.

#### 4.9. Mate reacquisition and preventing a former partner from remating

As we have seen, violence and the threat of violence can prevent a partner from leaving a mateship, or encourage a woman who has temporarily left to return to that relationship. There may be no sharp dividing line between the adaptive problems of *preventing* a partner from terminating a mateship and *reacquiring* a mate who has decided to terminate; the two adaptive problems clearly overlap. We separate them here not because they are totally distinct, but rather because one specialized tactic seems especially prevalent among men after their partner has left the relationship—stalking (Duntley & Buss, in press).

Stalking encompasses a range of repeated behaviors, including inundating the victim with letters, phone calls, emails, text messages, repeated visits, verbal insults, and persistent following (Duntley & Buss, in press). Many stalkers spy on their victims (75%), make explicit threats (45%), vandalize property (30%), and sometimes threaten to kill them or their pets (10%) (Buss, 2000). Stalkers sometimes assault their ex-partners physically and sexually, and they are known to become especially violent when the ex becomes romantically involved with someone new.

Some instances of stalking are clearly pathological, in addition to being bizarre, criminal, and morally repugnant. Nonetheless, we cannot discount the hypothesis that stalking, like some forms of violence prior to relationship termination, may be a desperate measure designed to get someone back into a relationship or restore a love that was lost. Women are far more often victims of stalking than men (Tjaden & Thoennes, 1998). Younger women are more often victims of stalking than older women. A full 87% of stalking victims are under the age of 40, and the majority are between the ages of 18 and 29 (Buss, 2000). Like victims of spousal battering, victims of stalking tend to be disproportionately young and hence high in fertility.

Studies estimate that between 30% and 58% of stalkers' motivation came from not accepting the end of a romantic relationship, and attempting to resume it (Duntley & Buss, *in press*). Stalkers who are former mates tend to be lower in mate value compared to the partner who jilted them. And although most stalkers do not succeed in permanently reacquiring a former mate, roughly a third of stalking victims end up giving in to some of the demands of their stalkers, and some men gain at least temporary sexual access to their victims (Buss & Duntley, 2010). Stalking also sometimes succeeds in interfering with the victim's attempts to establish new romantic relationships. As abhorrent as it may be, stalking sometimes functions to fend off intrasexual competitors and regain partial access to a former intimate partner's reproductively-relevant resources.

## 5. Discussion

We have proposed that an evolutionary psychological lens provides heuristic value in illuminating the causes and underlying psychology of intimate partner violence. Sexual conflict theory suggests that mating relationships, far from being univocally harmonious, are predicted to be rife with conflict. This theoretical lens has heuristic value in guiding researchers to problems of mating for which intimate partner violence may have evolved, or been co-opted, as adaptive solutions. These include adaptive problems such as mate poachers, sexual infidelity, partner pregnancy by intrasexual rivals, resource infidelity, resource scarcity, mate value discrepancies, stepchildren, relationship termination, and mate reacquisition. Where available, we have presented evidence bearing on the hypothesis that intimate partner violence is often directed toward solving these adaptive problems. In this discussion, we highlight several key issues—the context-dependency of violence, possible psychological mechanisms involved in achieving its functional ends, whether mating violence stems from adaptations for violence or is a non-adaptive byproduct of other mechanisms, and practical implications for reducing mating-related violence.

## 6. The context-dependence of intimate partner violence

Mating violence does not represent some sort of pent-up “instinct” that must get expressed regardless of context. Rather, an evolutionary psychological perspective suggests that violence will be selectively deployed in ways highly contingent on personal, relationship, social, economic, and cultural conditions. Men who have economic resources, for example, are less likely to resort to cost-inflicting tactics to retain a mate. Some personality variables, such as a slow life history strategy and high levels of empathy, make men less inclined to resort to violence (Tanha et al., 2010). Biological sex influences intimate partner violence, with men generally being more prone to committing sexual assault and severe forms of physical abuse (Tanha et al., 2010).

The proximity of close kin and other “bodyguards,” to take another example, seems to deter men from wife battering, at least in some cultures (Figueredo et al., 1998). Close male kin may also deter sexual assault (McKibbin, Shackelford, Miner, Bates, & Liddle, 2011). Relationships characterized by a mate value discrepancy are hypothesized to be more violence-prone than those more assortatively matched. And cultural contexts, legal sanctions, police enforcement of those sanctions,

and other societal circumstances influence the cost-benefit calculations of potential perpetrators of mating violence (Pinker, *in press*). This list of context-dependencies, of course, is not exhaustive. Many more remain to be discovered. The key point is that an evolutionary psychological lens provides guidance in identifying the features of personal, social, relationship, economic, ecological, and cultural contexts that influence an individual's proclivity to inflict violence on a mate.

## 7. Violent perpetrator psychology: the costs of aggressive tactics

Identifying the underlying psychological mechanisms that both motivate intimate partner violence and mediate the effectiveness of violence on the victim's behavior has only just begun. Sexual jealousy is an excellent candidate for one such psychological mechanism (Buss, 2000; Daly et al., 1982), although this broad label subsumes many functional design features of perpetrator psychology—specific cues to infidelity, sensitivity to the contexts noted previously, such as mate value discrepancies, and the presence of viable mate poachers.

Violence is often a costly strategy to implement. The aggressor risks retaliation from the mate, the mate's kin, or the mate's opposite-sex friends (Bleske & Buss, 2001). Aggressors can suffer damage to their social reputation. Being known as a “wife beater” can also lower a man's perceived mate value in the eyes of other women and their kin (Burkett & Kirkpatrick, 2006). And enacting a cost-inflicting strategy also carries with it the risk of losing the mate entirely. Consequently, we expect potential perpetrators to be highly sensitive to the potential costs they might incur from adopting cost-inflicting tactics. Perceived costs might deter a violent tactic entirely. Alternatively, perpetrators might seek ways to minimize the costs. They might damage a mate in ways that are not obviously visible to the partner's kin or other bodyguards. And they might issue threats of more severe violence to deter the mate from seeking social aid. Most of these aspects of perpetrator psychology remain somewhat or entirely unexplored. An evolutionary lens can guide future researchers to examine these heretofore hidden components of perpetrator psychology.

## 8. The psychology of victims of intimate partner violence

Even less well explored are the psychological mechanisms of the victims of violence. Some are obviously related to individual survival. Threats of violence and death threats attain effectiveness because victims have adaptations designed to keep themselves alive (Campbell, 1999; Cross & Campbell, 2011; Duntley, 2005). Women may give in to a mate's sexual coercion in order to avoid the physical damage threatened if she does not accede. Indeed, sheer survival in the form of self-defense is likely to be a key adaptive function of women's aggression toward their intimate partners.

Adaptations to protect children compose another class. Women may comply with the violent threats of a mate in order to prevent harm to their children. Children by a former mate are especially at risk (Daly & Wilson, 1988), so child-protection adaptations may be especially activated when the current mate is not the genetic parent. Women's violence toward their intimate partners may sometimes serve the function of protecting their children, either directly or preemptively.

A promising set of victims' adaptations are those involved in calculating welfare trade-off ratios (WTRs; Tooby, Cosmides, Sell, Lieberman, & Sznycer, 2008). A WTR is hypothesized to be a psychological regulatory variable that reflects the ratio of the value placed on oneself and one's own interests relative to the value placed on the interests of someone else. Displays of anger have been hypothesized to alter WTRs in victims. Anger, and behavioral manifestations of anger in aggressive acts, signal to the relationship partner that not enough value is being placed on the aggressor relative to that of the victim. If successful in its hypothesized function, the victim alters this internal regulatory variable, and grants higher value to the aggressor. The victim

may subjugate her own needs to those of her partner, relinquish personal access to previously pooled resources, or sever social alliances that the violent partner perceives as siphoning off resources properly belonging to him. The victim may allocate more time and attention to the partner, even at the expense of others such as her children. And the victim may accede to sexual overtures even when they are unwanted, untimely, or impose costs.

From a co-evolutionary perspective, victims of aggression are unlikely to be passive recipients of violence. Evolutionarily recurrent costs to victims establish selection pressure for the evolution of defenses to prevent becoming a victim and to minimize the costs when aggression proves unavoidable. Violence perpetrated by women on their intimate partners may be one co-evolved defense. An evolutionary lens provides a roadmap for violence researchers to explore the underlying psychological terrain of victims of violence. Hypothesized internal regulatory variables and their component design features may be critical for understanding how perpetrator aggression attains its functionality. Analysis of co-evolved defenses in victims will pave a critical path for the goal of eliminating intimate violence and for minimizing its costs when it does occur.

## 9. Summary and practical implications

Contrary to ideals of romantic harmony, sexual conflict is predicted to be common and pervasive, and to occur in identifiable regions or “battlegrounds” in intimate relationships. The battlegrounds of sexual conflict center on reproductively-relevant resources inherent in committed long-term mating and the allocations of those resources. Men and women use a range of tactics to secure access to resources in regions in which resources can be diverted due to the conflicting interests of the partners. Tactics range from benefit-bestowing to cost-inflicting. Cost-inflicting tactics span the gamut, ranging from mild forms of verbal derogation to severe forms of sexual and physical assault. An evolutionary perspective suggests that many cost-inflicting tactics in intimate relationship will be targeted toward solving specific adaptive problems, although perpetrators obviously need not be consciously aware of these adaptive problems nor of their underlying evolutionary logic. Adaptive problems toward which violent tactics are targeted include the presence of mate poachers, potential or actual sexual infidelity, mate pregnancy by a rival, resource infidelity, resource deprivation, mate value discrepancies, the presence of stepchildren (who pose multiple adaptive problems), the threat of relationship termination, and mate reacquisition after termination.

Although there is evidence consistent with a few of these evolution-based hypotheses, many remain untested. The hard hand of empirical evidence may eventually strongly support some, partially support others, and refute some entirely. Even with those that receive support, much conceptual and empirical work remains to be done. The precise psychological mechanisms by which intimate partner violence attains its effectiveness, for example, remain largely unexamined. Do subtle forms of psychological abuse, for example, actually undermine a victim’s self-perceived mate value? Co-evolved adaptations in victims of violence also remain largely unexamined. Do victims placate their intimate partners with declarations of love in order to buy additional time so that they can secure help from kin, friends, or back-up mates (Duntley & Buss, in preparation)? Finally, the co-evolved offenses of perpetrators of intimate partner violence designed to circumvent victim defenses also have barely been explored. Does stalking, for example, function to sever a woman’s external relationships, undermining her defense of protection from a back-up mate?

An evolutionary perspective on intimate partner violence, in many respects, complements rather than competes with other theoretical perspectives (see Frieze, 2005, and Shorey, Cornelius, & Bell, 2008 for analyses of other theoretical perspectives). For example, it is complementary to perspectives that emphasize situational determi-

nants, such as threats to relationships and self-defense (Wilkinson & Hamerschlag, 2005). An evolutionary perspective views these situations as recurrent adaptive problems, and raises the possibility that violence may have evolved as context-dependent solution to those problems. A functional perspective complements some feminist theories of intimate partner violence—both concur that control over women’s sexuality and reproduction is a central motive of men’s coercive behavior (Buss & Schmitt, in press). By offering a functional analysis of historically recurrent adaptive problems, an evolutionary perspective can augment rather than necessarily displace other theoretical perspectives.

Our co-evolutionary theory of intimate partner violence clearly offers just a preliminary roadmap and makes no pretense to completeness. Nonetheless, as a novel theoretical perspective, we suggest that it can guide researchers toward predictable regions of sexual conflict. It can identify adaptive problems or subtleties of adaptive problems that may have been previously missed. It can identify possible functionality in domains previously viewed as dysfunctional or pathological. And potentially, it can offer new avenues for intervention in order to reduce the insidious and destructive phenomena of intimate partner violence.

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