



## Review

## The mate switching hypothesis☆

David M. Buss<sup>a,\*</sup>, Cari Goetz<sup>b</sup>, Joshua D. Duntley<sup>c</sup>, Kelly Asao<sup>a</sup>, Daniel Conroy-Beam<sup>a</sup><sup>a</sup> Department of Psychology, University of Texas, Austin, United States<sup>b</sup> Department of Psychology, California State University, San Bernardino, United States<sup>c</sup> The John Stockton College of New Jersey, United States

## ARTICLE INFO

## Article history:

Received 16 February 2016

Received in revised form 19 July 2016

Accepted 20 July 2016

Available online xxxx

## Keywords:

Mating

Infidelity

Sex

Mate switching

Evolutionary psychology

## ABSTRACT

Leaving one mating relationship and entering another, serial mating, is commonly observed in many cultures. An array of circumstances can prompt a mate switch. These include (1) unanticipated costs inflicted by one's mate, or 'relationship load,' not apparent on the initial mate selection; (2) changes in the mate value of either partner, creating discrepancies where none previously existed; and (3) the arrival of a new and interested potential mate of sufficiently incremental value to offset the costs of a breakup. The mate switching hypothesis suggests that these circumstances created adaptive problems throughout human evolution that forged adaptations to anticipate and appraise opportunities to mate-switch, implement exit strategies, and manage challenges confronted in the aftermath. We review several studies that support various aspects of the mate switching hypothesis: The cultivation of 'back-up mates,' assessing mate-inflicted costs that comprise relationship load, monitoring selfishly-skewed welfare tradeoff ratios in a partner, gauging mate value discrepancies, and anticipating sexual, emotional, and economic infidelities. The mate switching hypothesis provides both a complementary, and in some instances a competing, explanation to the 'good genes' hypothesis for why women have sexual affairs, and parsimoniously explains a host of other mating phenomena that remain inexplicable on alternative accounts.

© 2016 Elsevier Ltd. All rights reserved.

*"I have been married three times, and not one of them was a failure."*  
[Margaret Mead]

*"Husbands are like pancakes. There's no shame in throwing the first one out."*

[Jennifer Love Hewitt]

## 1. Introduction

Lifelong monogamy does not characterize the primary mating pattern of humans. American divorce rates have hovered in the 50% range over the past several decades (Schoen & Canudas-Romo, 2006), and remarriage is common. Among married couples, estimates of infidelity rates are far from trivial; Kinsey estimated 26% for women and 50% for men (Kinsey, Pomeroy, & Martin, 1948; Kinsey, Pomeroy, Martin, & Gebhard, 1953), and other studies put the rates lower (e.g.,

☆ The authors thank Athena Aktipis, Steve Gangestad, Joonghwan Jeon, Anna Sedlecek, and Joy Wyckoff for helpful comments on an earlier version of this paper.

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

E-mail address: [dbuss@austin.utexas.edu](mailto:dbuss@austin.utexas.edu) (D.M. Buss).

Michael, Gagnon, Laumann, & Kolata, 1994) and occasionally higher (e.g., Hite, 1976). Perhaps most revealing—85% of American adults have experienced at least one romantic breakup (Battaglia et al., 1998). Breaking up with one partner and remating with another—mate switching—may more accurately characterize the common, perhaps the primary, mating strategy of humans. Although breakups are often moralized as "failures," we propose that selection has sculpted a complex psychology designed to jettison current mates and acquire new ones in circumstances wherein mate switching would have been historically evolutionarily advantageous.

## 1.1. The mate switching hypothesis

Humans have adaptations to (1) monitor their current mating relationships for benefits received and anticipated and costs incurred and anticipated, (2) evaluate alternative potential mates while already mated, (3) circumvent a partner's mate guarding tactics, (4) engage in extra-pair infidelity (from flirting to serious affairs) as a tactic for assessing and courting alternative desirable and interested partners, (5) deploy exit strategies for breaking up a current partner in ways that minimize costs, (6) and switch to a new partner when cost/benefit calculations render circumstances propitious for switching.

Adaptations promoting the abandonment of costly relationships are widespread across relationships and species. The simplest such adaptation is deployment of a "Walk Away" strategy in which organisms

simply physically separate themselves from costly cooperative partners (Aktipis, 2004). This strategy is applicable to a wide array of cooperative relationships from cellular to human interactions, and promotes the evolution of cooperation and the maintenance of cooperative social groups (Aktipis, 2011). The mate switching hypothesis proposes a domain-specific elaboration of a Walk Away strategy underpinned by psychological adaptations designed to detect and abandon costly mates in favor of switching to more beneficial mates.

Although the mate switching hypothesis applies to both sexes, in this paper we focus primarily on women's mate switching adaptations. Our rationale is this. The most probable primary fitness benefits men accrued from short-term mating relationships (e.g., sexual affairs, low-commitment romantic relationships, one-night stands) are straightforward: ancestral males could directly increase their reproductive success by obtaining sexual access to fertile women in addition to a primary partner (Betzig, 1986; Dawkins, 1986). Evidence supporting this function includes the finding that men who have affairs tend to have them with a larger number of extra-pair partners; that most men list sex as the primary reason for having affairs; and that only a minority of men fall in love with, or become emotionally involved with, their affair partners (Glass & Wright, 1985, 1992).

The functional nature of women's short-term mating is less obvious. Mate-switching is one potential function of short-term mating in women (Buss, 1994; Fisher, 1992; Greiling & Buss, 2000; Smith, 1984). In this paper, we elaborate on the predictions from this hypothesis, review empirical evidence bearing on them where available, and outline future testable predictions that logically follow. We end by arguing that the mate switching hypothesis is likely to explain a greater proportion of women's short-term mating and sexual affairs than the current leading evolutionary explanation—that of securing “good genes” from an affair partner alongside investment from a regular partner. We begin with an analysis of mating problems that render mate switching an excellent context-dependent adaptive solution for women.

## 2. Adaptive problems relevant to women's mate switching

Nothing in life comes with a guarantee. From an ancestral woman's perspective, hazards from the environment, other species, and importantly, other humans, could render her mate debilitated or dead. A bite from a poisonous snake, an incapacitating disease, or an attack from a warring group could decrease her partner's mate value.

A man's mate value depends on more than just his physical condition. A woman's mate could lose status within the group, be a bad father, fail as a hunter, begin to abuse her or her children, initiate affairs, or prove to be infertile. Under any of these circumstances, a woman's partner may provide more costs and fewer benefits—that is, be lower in mate value to her—than when their relationship initially formed. Mate-switching mechanisms would benefit a woman by motivating her to pursue the highest value partners she could attract and retain.

Another circumstance that may render mate switching beneficial is when the woman experiences an increase in mate value. This could occur through several pathways. A woman could ascend in status, either through her own deeds or through her associations. She could acquire new knowledge or skills that make her a more beneficial partner. And perhaps more subtly, she may become unencumbered by an element of relationship load that she previously possessed, such as a child by another man—perhaps as the child matures, requires less investment, or becomes partially or fully adopted by kin or other alloparents (Daly & Wilson, 2000).

Independent of her or her current partner's mate value, better alternative mates may become available who were not available when she selected her initial partner, presenting new benefit-accruing opportunities. Ancestrally, this could occur in several ways. A fusion of two smaller groups into one larger group could open up a new pool of potential mates. A higher value man might become unmated, rendering him newly available on the mating market. Men in traditional societies are

known to travel between groups in search of mates (Miner, Gurven, Kaplan, & Gaulin, 2014). Mating market fluctuations, like stock market fluctuations, sometimes make trading a beneficial strategy. As with trading to a stock that pays better monetary dividends, mate switching increases the odds that women will consort with those who provide better mating dividends.

In short, ancestral women faced three general classes of adaptive problems that would render mate switching an attractive or necessary solution: a decline in mate value of her regular mate, an increase in her own mate value, and the presence of potential mates of higher value that were previously not present or available. Mate changing would not have been effortless or cost-free, so before outlining the hypothesized design features of women's mate switching psychology, we must consider deterrents.

## 3. The costs of mate switching

Many of the ancestral costs of mate switching would have depended on the particulars of the problems that need to be solved. Did the current mate suffer a temporary or permanent loss of mate value? Would remating expose her children to potential step-parent cost-infliction? What is the likely increment in overall mate value from the trade? Moving from an “8” to an “8.5” might not be sufficiently beneficial to outweigh the costs incurred. How long will her own newly boosted mate value last? These and other specifics will influence the cost-benefit calculus of decisions to stay or switch.

The costs of mate switching start with potential damage to reputational components of her mate value. Among the Kipsigis of Kenya, for example, divorced women command a lower ‘bride-price’ (Borgerhoff Mulder, 1995). In cultures that tie ‘family honor’ to the sexuality and mating of their female members, mate switching can levy costs on an entire kin network. If an infidelity preceded the breakup, she may be branded as a cheater—potentially decreasing her attractiveness as a mate (Marlowe, 2004).

Loss of social support constitutes another class of costs. A mate-switcher may directly lose most or all of the support of their abandoned mate. Friends of a couple, additionally, may have difficulty sustaining friendship with both, especially if the breakup is acrimonious. A woman may lose the support of her in-laws. Even her own family may curtail their support after a breakup due to reputational concerns.

Additionally, her former mate may inflict costs on her for a breakup that he did not welcome. These include withdrawal of financial support, disclosing damaging personal information, spreading false rumors, and in some cases stalking or even killing her (Buss & Duntley, 2011). In the modern environment, the existence of ‘revenge porn’ websites in which people post nude photos or videos of their exes provides a testament to the strength of the motivation some have to avenge an unwanted breakup, possibly sending a signal to others of non-exploitability (Buss & Duntley, 2008). This also would damage the ex-mate's value, impair the social position of her new partner (the spurned man's intrasexual rival), and make her less desirable to other prospective long-term mates. Based on the scientific knowledge of the components of women's and men's mate value, namely the greater premium placed on sexual exclusivity in people's judgments of women's long-term mate value, women likely suffer greater consequences than do men from revenge porn.

Last, the costs of mate switching redound to her children. Offspring risk losing economic and other forms of investments of their genetic father and his kin. Without the father around for protection, children become more vulnerable to exploitation (Hurtado & Hill, 1992). When the mother re-mates, they become stepchildren, which exposes them to elevated risks including physical abuse, sexual abuse, and homicide (Daly & Wilson, 1988). In short, the costs of mate switching can be steep and wide-ranging. These costs often deter mate switching. Mate switching adaptations, in consequence, must have psychological and tactical

design features that function to reduce these costs—a topic to which we now turn.

#### 4. Hypothesized inputs to mate switching adaptations

The final decision about whether or not to implement a mate switching strategy, as illustrated by the discussion above, is neither easy nor straightforward. Foremost, it requires a suite of assessment adaptations—monitoring the current partner's mate value; tracking one's own mate value; monitoring the desirability and interest of alternative potential mates; assessing the current partner's investment in, and commitment to, the relationship; and tracking self, partner, and potential partner changes in mate value and anticipated future mate value trajectories. Information from these assessment adaptations feed into the decision to implement a mate switch, which if positive, requires tactics for breaking up and emotionally detaching—aspects that [Boutwell and colleagues \(2015\)](#) call primary and secondary mate ejection. The hypothesized inputs and outputs of the mate switching adaptation are summarized in [Table 1](#).

##### 4.1. Monitoring a partner's mate value

Assessment of mate value cannot be a static snapshot at a single point in time. Any dimension of mate value—such as emotional stability, dependability, extant encumbering commitments, status and resource trajectories—may be in flux at any time and require temporal tracking. The need for tracking does not end after a mate is selected. A mate showing stellar career promise may fail to live up to expectations. And because people in the courting stage often disguise their flaws ([Haselton, Buss, Oubaid, & Angleitner, 2005](#)) and conceal their relationship load ([Buss, 2006](#)), a seemingly altruistic partner could, over time, reveal a heavy load or a more selfishly skewed welfare tradeoff ratio. Some elements of mate value are only revealed after mate selection.

Evidence suggests that women indeed continue to track their partner's mate value across the relationship and use this information to invest or disinvest from relationships. For example, cross-cultural evidence indicates that inadequate economic support from the husband is a consistently cited reason for divorce ([Betzig, 1989](#)). Furthermore, the magnitude of women's mate retention effort positively correlates with her partner's income and status striving ([Buss & Shackelford, 1997](#)). According to the mate switching hypothesis, these cues should also motivate the cultivation of a new relationship if the current one appears to be permanently less beneficial ([Conroy-Beam, Goetz, & Buss, in press](#)). Stated differently, women continue to attend to a partner's resource-provisioning trajectory compared to alternatives, and may attend to or explore alternative mate possibilities when the current mate compares unfavorably.

The key point is that the components that contribute to mate value are never static. They inevitably change, sometimes gradually and sometimes dramatically. Continuous monitoring of mate value provides essential informational input into decisions to stay or switch. Mechanisms that produce relationship satisfaction, relationship investment, attraction to men outside the current relationship, and infidelity probability should be sensitive to changes in current partner's mate value

over time—testable predictions based on the mate switching hypothesis.

##### 4.2. Monitoring own mate value

Analogous considerations require temporal tracking of one's own mate value. If a woman's mate value increases, such as through increases in status, sudden inheritance of resources, or the elimination of rivals, she may become attractive to alternative mates who were previously unavailable or uninterested in her. Physically attractive women have elevated standards for prospective mates compared to less attractive women ([Buss and Shackelford, 2008](#)). Moreover, studies have demonstrated that women's preferences for some characteristics in mates increase at ovulation—the phase of the menstrual cycle when they are most physically attractive ([Haselton & Gildersleeve, 2011](#)). These suggest individual differences in mate preferences dependent on mate value. They also point to changes within women in their preferences as a result of changes in their mate value, of which ovulation cyclical variation is one source. We hypothesize that continuous self-monitoring provides informational input into prospects for one's own mate switching. Several empirical predictions follow: Women whose mate value increases substantially will become (1) more emotionally dissatisfied with their current partner, (2) more likely to evade a partner's mate guarding efforts, (3) more likely to cultivate backup mates, (4) more likely to initiate new relationships with higher mate value men, and (5) less inclined to stay with their current partners.

##### 4.3. Monitoring the value and interest of potential alternative mates

According to the mate switching hypothesis, adaptations for monitoring potential alternatives to one's current mate should remain activated post mate selection, even among those in happy relationships. Sometimes alternative monitoring occurs at low levels, passively tracking when newly available mates appear or when a potential mate's attraction or interest increases. Sometimes it gets activated at high levels, as when adaptive problems come online that urgently warrant a mate switch.

There are at least three components of potential alternatives that should be tracked. The first is *interest*. Does the alternative show attention, attraction, or desire for the already mated woman? Signals of interest include prolonged eye contact, selective smiles, sideways glances, a suite of other flirtatious behaviors ([Moore, 1985](#)). Does the elevated attention signal interest in a committed relationship or uncommitted sexual desire? Accurately assessing relationship interest is crucial to ensuring a woman does not leave an investing mate for one who is unwilling to commit. The second is *value and value trajectory*. How does the desirability of the alternative compare to the current mate? Is the alternative sufficiently incrementally better than the current partner in mate value to offset the costs of a switch? The third is *eligibility*. Is the interested alternative actually free of encumbering commitments, such as an existing spouse or crushing obligations to offspring? Monitoring all three components of alternative potential mates is critical, since negative assessments on any one can negate the value of an attempted mate switch.

Studies on relationship evaluations provide evidence that people monitor potential alternatives and experience shifts in relationship satisfaction in response to the mating landscape (e.g., [Conroy-Beam et al., in press](#)). A number of studies have demonstrated an inattention to, and devaluation of, attractive alternatives when people are highly committed to their partner ([Lydon, Meana, Sepinwall, Richards, & Mayman, 1999](#); [Maner, Gailliot, & Miller, 2009](#); [Maner, Rouby, & Gonzaga, 2008](#); [Plant, Kunstman, & Maner, 2010](#)). These studies have focused on how inattention towards attractive alternatives facilitates relationship maintenance. When mate switching would be beneficial we predict the opposite—*increased* attention towards, and valuation of, potential

**Table 1**  
Hypothesized inputs and outputs of mate switching adaptation.

Inputs	Outputs
Self-mate value (MV)	Cultivation of back up mates
Partner MV	Extra-pair affairs
Discrepancy between self and partner MV	Relationship dissatisfaction
Projected self MV	Relationship termination
Projected partner MV	Emotional detachment
Projected discrepancy between self and partner MV	Reputation Management
Alternatives (quality, interest, and availability)	Remating
Costs (e.g., reputation, risk of step-parent abuse)	

alternatives. This should be particularly true of alternatives who are attractive, interested, and available.

Relationship satisfaction is hypothesized to be an internal regulatory variable that functions to calibrate relationship behaviors in response to the fitness costs and benefits of the relationship (Conroy-Beam, Goetz, & Buss, 2015). Individuals show decreased relationship satisfaction when they perceive they are higher in mate value than their romantic partner, but only if there exist highly desirable alternatives in the mating pool (Conroy-Beam et al., in press). Furthermore, the same studies found that lower relationship satisfaction predicts less effort allocated to mate retention. These findings highlight ways in which people's mating mechanisms track and integrate information about mate value, a partner's mate value, and the available mates in the environment to produce functional output. However, a specific focus on mate-switching as the adaptive output of relationship tracking mechanisms has yet to be tested.

## 5. Hypothesized outputs of mate-switching adaptations

Mate-switching adaptations should produce specific cognitive and behavioral tactics and strategies that function to solve the adaptive problem of transitioning from one mate to another. These should include cultivating back up mates, engaging in extra-pair affairs, emotionally disengaging with the current partner, terminating the current relationship, and remating.

### 5.1. Cultivating backup mates

The backup mate hypothesis (Duntley & Buss, 2007) contends that even people experiencing high relationship satisfaction would have benefitted from cultivating potential replacement mates. A regular mate may cheat, defect, die, or decline in mate value. Ancestral women lacking a backup mate would have suffered a lapse in protection, mate investment, and resources for her children, much like people who transition between jobs in the modern environment sometimes suffer a lapse in insurance coverage.

Several design features appear to characterize backup mates (Duntley & Buss, 2007). First, both women and men reported having backup mates, with the average being approximately three. Second, both sexes reported that they would be upset if their backup mate became involved with someone else. Women more than men reported that they would be extremely upset if their backup entered a long-term romantic relationship with someone else or fell in love with someone else. Women more than men reported that they would actively try to prevent their number one backup from marrying someone else.

Research on opposite-sex friendships further supports the backup mate hypothesis. Women, but not men, prioritize economic resources and physical prowess in their opposite-sex friends, a discrepancy that mirrors sex-differences in mate preferences (Bleske-Rechek & Buss, 2001; Lewis et al., 2011). If cultivating back up mates is a key feature of mate-switching mechanisms, we should expect to see increased efforts towards securing back up mates, such as opposite-sex friends, when women would benefit from mate-switching. Circumstances include when there is an existing or anticipated mate value discrepancy between a woman and her current mate or when her current mate is unlikely to stick around due to injury, illness, or defection from the relationship.

### 5.2. Implementing affairs

In addition to cultivating backup mates, a key prediction made by the mate switching hypothesis is that women instigate affairs in order to switch to a better potential mate. Extra-pair affairs vary. Some are purely emotional; others are brief sexual encounters. Some involve both sexual and emotional intimacy, affairs that can last months or even years.

According to the mate switching hypothesis, affairs serve several key functions. First, affairs serve as a form of mate insurance, keeping a backup mate in tow should a switch become warranted at some point in the future (Greiling & Buss, 2000). Second, they allow opportunities for close-up assessment of an alternative mate, information that would be difficult or impossible to gauge from a distance. Affairs allow more accurate assays of the three key qualities of the potential mate—mate value, interest, and availability. They also afford more accurate tests of compatibility, be it sexual or emotional, or synchronization of long-term goals. In this sense, affairs can function as trial runs, simulations of a long-term relationship, without making a full commitment.

Information gleaned from affairs provide input into decisions about whether to stay with the current mate, switch to the affair partner, or seek an alternative affair partner. In addition to providing information about alternative mates, affairs provide feedback to a woman about her own current mate value. By assessing who returns her flirtations, who responds to her sexual overtures, and who is willing to invest in her, she has a better sense of the quality of mate she is able to attract.

### 5.3. Emotional disengagement

Another output of mate switching psychology is emotional disengagement, a process of psychologically divesting from the current partner. One hypothesized emotion that facilitates disengagement is relationship dissatisfaction (Conroy-Beam et al., in press). Empirically, relationship dissatisfaction has been shown to be partly a function of alternatives in the mating pool who are higher in mate value than the current partner (Conroy-Beam et al., in press). The jettisoned partner also typically emotionally disengages, a process that Boutwell and colleagues (2015) label *secondary mate ejection*. This enables the jilted partner to begin the process of remating as well.

### 5.4. Breaking up

Switching mates requires exiting a mateship, which can pose a complicated web of adaptive problems. The existing mate may resist a breakup and deploy tactics to prevent it. These include ratcheting up the benefits of staying or threatening to inflict costs for leaving. In extreme cases, men sometimes declare: "If you ever leave me, I will track you down to the ends of the earth and kill you" (Buss, 2005). The mate's kin or the woman's kin may apply pressure to prevent a breakup (although some actively encourage a breakup), since it potentially inflicts costs on both clans by severing alliances. Even friends of either party might stand to lose a valuable ally, and so deploy tactics to prevent an exit. Despite these many and intense social pressures, breakups are so common that 85% of American adults have experienced at least one of them (Battaglia, Richard, Datteri, & Lord, 1998). We expect that people have adaptations to deploy exit strategies, or implement 'mate ejection tactics' (Boutwell, Barnes, & Beaver, 2015; Conlan, 2007), in ways that minimize the social costs and reputational damage potentially incurred.

One adaptive problem with exiting revolves around minimizing costs inflicted by the ejected partner. We offer several hypothesized tactics. First, a clichéd ejection tactic—"It's not you, it's me"—may be an attempt to minimize the rage-motivated vengeance that might otherwise be activated by a scorned man. A second is an attempt to transform the existing romantic relationship into a friendship, which, if successful can minimize likelihood of retaliation by the ex. A third hypothesized tactic is one in which the woman continues to provide sexual favors to an ex to minimize these costs or tries to redirect his sexual attentions to another woman. These hypotheses await future empirical tests.

Another problem centers on minimizing damage to social reputation, and hence to perceived mate value. One tactic is to ensure that she is perceived to have initiated the breakup, because people infer that the ejector has higher mate value than the one being ejected (Perilloux & Buss, 2008). This may explain why, in studies that ask

who did the ejecting, both men and women appear to over-claim their own ejector status (Conlan, 2007). The sum of each individual's percentage of responsibility for initiating the breakup exceeds 100% (Conlan, 2007), although this finding may be alternatively explained if women who orchestrate a breakup convince the man that it was “really” his decision in order to minimize costs.

Another hypothesized tactic in information warfare post-breakup is to disseminate negative information about the ejected mate—derogating him by revealing or exaggerating features of his relationship load so that invidious inferences will not be made about her mate value. In addition to minimizing damage to her perceived mate value, this tactic may have the added benefit of minimizing outrage from either kin network or from friends of the couple. And since friends are often forced to choose sides with one or the other couple member after they break up, disseminating negative information about the ex has the added advantage of inclining mutual friends to remain friends with her.

Children pose an additional suite of problems post-breakup because extracting resources for them from an ex can be difficult. Many exes resist continued heavy investment, preferring instead to retain resources for securing new mates. The prevalence of laws in the modern environment that seek to enforce men's continued provisioning are stark testaments to men's evolved proclivities to curtail investment in exes and children with those exes (Shackelford & Weekes-Shackelford, 2004). Ancestral women would not have had recourse to legal remedies, which are evolutionarily novel, although kin from both families may exert pressure on the ejected man to continue parental provisioning. Women must also select a new mate least likely to inflict costs on her children, and then allocate effort to protect them, since being a stepchild is a large risk factor for physical and sexual abuse (Daly & Wilson, 1988).

These capture some of the most important problems women face in the aftermath of a breakup, but do not exhaust them. In sum, breaking up poses formidable adaptive problems for women, problems compounded if she has children with her ex. Adaptive solutions to these problems are just beginning to be investigated empirically (e.g., Conlan, 2007; Boutwell, 2015).

### 5.5. Re-mating

The final step in the temporal sequence, following a breakup, is to switch to the new mate. One form of mate switching would occur when the affair partner, back-up, or potential mate becomes the new regular mate, in which case the problems of mate search, mate choice, and mate attraction post-breakup are solved. She has successfully jettisoned the old mate and traded for one who is presumably more benefit-bestowing than her ex mate, less cost-inflicting, or both.

If a woman breaks up without immediately transitioning to a new mate, she must enter the mating market anew and begin the process of mate competition, mate attraction, and mate choice. In this case, “baggage” carried over from the past relationship may interfere with remating. This may include investments locked up in extant children or lingering emotional attachments to the former mate. Furthermore, rushing too soon into a new mateship due to desperation or the desire for revenge can lead to poor mate choice, introducing a new collection of adaptive problems. Thus, adaptations for mate switching, including assessing potential new mates *prior* to a breakup, could eliminate or greatly mitigate the collateral damage from a breakup and costs of re-entering the mating market. Thus, we predict that women who mate switch, brachiating to a new partner, will experience less negative affect over the breakup, less damage to self-esteem, less persistent rumination about the breakup, and less anxiety over the unanticipated costs of the breakup compared to women who breakup and re-enter the mating market anew.

## 6. Comparing the mate switching hypothesis with the good genes hypothesis and other competing hypotheses for explaining why women have affairs

The current leading hypothesis for why women have affairs posits that women have adaptations for securing investment from one man while cuckolding him in order to obtain good genes from an affair partner—the *dual mating strategy hypothesis* (see Gangestad & Haselton, 2015, for a recent articulation and evidentiary summary). Evidence in favor of this hypothesis includes: (1) Woman's mate preferences shift to more bodily masculine and behaviorally dominant men when ovulating, presumed markers of genes for developmental stability and strong immune functioning (two recent large-scale studies, however, have failed to replicate ovulatory shifts in preferences for masculine faces (Muñoz-Reyes et al., 2014; Scott et al., 2014), so this crucial hypothesis-relevant finding is currently in doubt); (2) women's increased sexual fantasies about men other than their regular partner when ovulating, presumably motivating sexual congress with extra-pair men who possess good genes; (3) men's increased mate guarding of partner when she is ovulating, presumably a co-evolved male adaptation to counteract female infidelity during the fertile phase; (4) women whose primary partners are lower in mate value show stronger shifts in attraction to other men around ovulation (Gangestad, Thornhill, & Garver-Apgar, 2005; Larson, Pillsworth, & Haselton, 2012). The dual mating hypothesis posits that sexuality with a woman's regular partner functions to secure his continued investment, whereas sexuality with the affair partner is hypothesized to secure superior genes. However, these findings could alternatively be explained by mate switching adaptations designed to track a woman's own mate value, which peaks at ovulation (Buss & Shackelford, 2008); women might use this increase in mate value to leverage a switch to a man higher in mate value than her current partner.

Thus, the mate switching hypothesis provides an alternative explanation for why women have affairs—namely to provide mate insurance, to cultivate backup mates, to assess the viability of a switch, to render the transition back into the mating market easier, or to trade up to a new partner who is less cost-inflicting, more benefit-bestowing, or higher in mate value than their current partner.

Several pieces of empirical evidence are consistent with the mate switching hypothesis, but cannot be easily explained by the dual mating strategy hypothesis. First, *relationship dissatisfaction* is one of the most powerful predictors of women's actual infidelity, but not men's infidelity (Glass & Wright, 1985, 1992). Second, *relationship dissatisfaction* predicts women's sexual interest in other men both during the fertile and luteal phases of the ovulation cycle (Gangestad et al., 2005). This finding is consistent with infidelity functioning for mate switching, but it cannot be explained by the good genes hypothesis. Third, *women's expressed benefits* of extra-pair mating include (a) finding a partner more desirable than their current partner, (b) making it easier to break up with their current partner, (c) being able to replace their current partner, and (d) discovering other potential partners who might be interested in a relationship (Greiling & Buss, 2000). Fourth, the *contexts* that women report would incline them to EPC mating include a partner who cannot hold down a job, meeting someone more successful than their current partner who seems interested in them, and meeting someone who is willing to spend a lot of time with them (Greiling & Buss, 2000).

Fifth, 79% of women who have affairs report *falling in love* with their affair partner, in contrast to only a third of men who have affairs (Glass & Wright, 1985, 1992)—an emotion hypothesized to come online primarily in long-term mating contexts (Buss, 2006). If the primary function of female infidelity was simply to secure superior genes from an affair partner, falling in love seems both superfluous and costly by potentially interfering with securing continued investment from a woman's regular partner.

Sixth, the *qualities women want in an affair partner* are very similar to those they want in a long-term committed mate (Kenrick, Sadalla, Groth, & Trost, 1990; Greiling & Buss, unpublished). These include a minimum 70th percentile rank on being dependable, emotionally stable, successful, honest, intelligent, mature, and unselfish. These six clusters of empirical findings are consistent with the mate switching explanation for female infidelity, but appear difficult to explain with the good genes hypothesis for female infidelity.

Moreover, one meta-analytic study of actual non-paternity rates put the figure at only 1.7% (Anderson, 2006). A second meta-analytic study that included studies of unknown methodology put the figures slightly higher, at 3.7% and 3.1% (Voracek, Haubner, & Fisher, 2008). And a large-scale study in Germany found an even lower nonpaternity rate of 0.94% (Wolf, Musch, Enczmann, & Fischer, 2012). It is possible, of course, that nonpaternity rates were higher in ancestral environments, and studies of more traditional cultures may shed light on this issue. The vast majority of women, perhaps 97% or more, appear to be securing both genes and investment from the same partner, which would seem to pose an empirical problem for the dual mating strategy hypothesis.

Of course, the good genes and mate switching hypotheses are not mutually exclusive or inherently contradictory. A small minority of women in delimited contexts could successfully implement a dual mating strategy and secure good genes from an affair partner, while other women who have affairs are implementing one or another variant of mate switching. We suggest that the mate switching hypothesis provides a more parsimonious explanation for the function of infidelity for most women.

The mate switching and good genes hypotheses, of course, do not exclude other key possible functions of female infidelity. Other candidates include securing immediate resources or protection from affair partners (Greiling & Buss, 2000; Symons, 1979); instilling confusion about paternity to prevent infanticide or to elicit resources from multiple mates (Hrdy, 1979); securing a fertility backup in the event that the regular mate proves infertile (Smith, 1984); or seeking revenge on a current mate as a means of deterring his future infidelity (Greiling & Buss, 2000). Although these alternative hypotheses for female infidelity have some supporting evidence in delimited circumstances (Buss, 2016), they cannot explain the panoply of findings outlined here that all support the mate switching hypothesis. Their key point is that mate switching may be the most frequent function of female infidelity, in contrast to the common assumption among evolutionary scientists that securing good genes is the primary function.<sup>1</sup>

## 7. Conclusions

The mate-switching hypothesis explains a large array of extant scientific findings and generates novel predictions as yet untested. It provides a compelling explanation for why many mated women are willing to incur substantial risks by having an affair. It explains why women cultivate backup mates. It explains women's context-specific relationship dissatisfaction, and why that dissatisfaction leads to greater attunement to possible alternative mates. It provides a framework for predictions about the specific circumstances that should activate a mate-switching psychology. These include mate value discrepancies, interest from potential alternatives, and elevated relationship load. Future research is needed to investigate the hypothesized design features of the mate switching adaptation, including the inputs and outputs posited in Table 1 and discussed throughout this paper.

<sup>1</sup> The good genes hypothesis typically focuses narrowly on hypothesized cues to genes for good health, such as symmetry and masculinity. One problem with a narrow focus is that sexually selected characteristics other than health are also heritable. Women who switch to a man who delivers more benefits or shows better "good dad" qualities is simultaneously selecting for genes that contribute to the development of his ability to provide those benefits, which in turn will help to make her sons more attractive. A full discussion of the good genes hypothesis, however, is beyond the scope of this paper.

Future research examining this hypothesis should also focus on internal regulatory variables such as relationship satisfaction and welfare-trade-off ratios in generating predictions about the design of mate-switching mechanisms. And because both personality and divorce are moderately heritable phenotypes (Jocklin, McGue, & Lykken, 1996), future research could also examine the possibility of heritable thresholds for the different elements of mate switching posited here.

Although we have focused primarily on women's evolved mate switching psychology, many of the same predictions would apply to men. For example, mate value discrepancies, exposure to novel potential mates of higher value than the current mate, and revealed relationship load should also predict mate switching by men. Other aspects of men's mating psychology, however, we expect to differ. It is known that men's affairs, more often than women's affairs, are motivated by the desire for sexual variety (e.g., Buss, 2016; Glass & Wright, 1985; Symons, 1979), which explains why men are less likely than women to fall in love with their affair partners. So although some men use affairs as a mate switching tactic, direct sexual access to fertile women is a key function of many men's psychology of extra-pair copulations. Women's affairs, more than men's affairs, are therefore less likely to be explained by the mate switching hypothesis. Moreover, in polygynous societies, men with sufficient status and resources are more likely to add additional wives rather than oust one to switch to another. Future conceptual and empirical work could fruitfully examine which aspects of mate switching psychology are common to both sexes and which are sex differentiated.

In sum, the mate switching hypothesis provides a parsimonious account of empirically documented phenomena that remain inexplicable on any alternative hypotheses. It generates a suite of testable predictions about the specific inputs, decision rules, and outputs about when, and under which circumstances, jettisoning one mate and transitioning to another will occur.

## References

- Aktipis, C. A. (2004). Know when to walk away: Contingent movement and the evolution of cooperation. *Journal of Theoretical Biology*, 231, 249–260.
- Aktipis, C. A. (2011). Is cooperation viable in mobile organisms? Simple Walk Away rule favors the evolution of cooperation in groups. *Evolution and Human Behavior*, 32, 263–276.
- Anderson, K. (2006). How well does paternity confidence match actual paternity? *Current Anthropology*, 47(3), 513–520.
- Battaglia, D. M., Richard, F. D., Datteri, D. L., & Lord, C. G. (1998). Breaking up is (relatively) easy to do: A script for the dissolution of close relationships. *Journal of Social and Personal Relationships*, 15, 829–845.
- Betzig, L. L. (1986). *Despotism and differential reproduction: A Darwinian view of history*. Aldine Publishing Co.
- Betzig, L. (1989). Causes of conjugal dissolution: A cross-cultural study. *Current Anthropology*, 30, 654–676.
- Bleske-Rechek, A. L., & Buss, D. M. (2001). Opposite sex friendship: Sex differences and similarities in initiation, selection, and dissolution. *Personality and Social Psychology Bulletin*, 27, 1310–1323.
- Borgerhoff Mulder, M. B. (1995). Bridewealth and its correlates: Quantifying changes over time. *Current Anthropology*, 36(4), 573–603.
- Boutwell, B. B., Barnes, J. C., & Beaver, K. M. (2015). When love dies: Further elucidating the existence of a mate ejection module. *Review of General Psychology*, 19(1), 30.
- Buss, D. M. (1994/2003). *The evolution of desire: Strategies of human mating*. New York: Basic Books.
- Buss, D. M. (2005). *The murderer next door: Why the mind is designed to kill*. New York: Holt.
- Buss, D. M. (2006). The evolutionary genetics of personality: Does mutation load signal relationship load? *Behavioral and Brain Sciences*, 29, 409.
- Buss, D. M. (2016). *The evolution of desire: Strategies of human mating* (revised 3rd ed.). New York: Basic Books.
- Buss, D. M., & Duntley, J. D. (2008). Adaptations for exploitation. *Group Dynamics: Theory, Research, and Practice*, 12, 53–62.
- Buss, D. M., & Duntley, J. D. (2011). The evolution of intimate partner violence. *Aggression and Violent Behavior*, 16, 411–419.
- Buss, D. M., & Shackelford, T. K. (1997). Susceptibility to infidelity in the first year of marriage. *Journal of Research in Personality*, 31(2), 193–221.
- Buss, D. M., & Shackelford, T. K. (2008). Attractive women want it all: Good genes, economic investment, parenting proclivities, and emotional commitment. *Evolutionary Psychology*, 6(1), 134–146.
- Conlan, S. K. (2007). *Romantic relationship termination*. ProQuest. (Unpublished doctoral dissertation) Austin, Texas: Department of Psychology, University of Texas.

- Conroy-Beam, D., Goetz, C. D., & Buss, D. M. (2015). Why do humans form long-term mateships? An evolutionary game-theoretic model. *Advances in Experimental Social Psychology*, 51, 1–39.
- Conroy-Beam, D., Goetz, C., & Buss, D. M. (2016). What predicts romantic relationship satisfaction and mate retention intensity? Mate preference fulfillment or mate value discrepancies? *Evolution and Human Behavior* (in press).
- Daly, M., & Wilson, M. (1988). *Homicide*. Transaction Publishers.
- Daly, M., & Wilson, M. (2000). Family violence: An evolutionary psychological perspective. *Va. J. Soc. Poly & L.*, 8, 77.
- Dawkins, R. (1986). *The blind watchmaker: Why the evidence of evolution reveals a universe without design*. WW Norton & Company.
- Duntley, J. D., & Buss, D. M. (2007). *Backup mates* Paper presented to the Annual Meeting of the Human Behavior and Evolution Society. Williamsburg, VA.
- Fisher, H. E. (1992). *Anatomy of love*. New York: Norton.
- Gangestad, S. W., & Haselton, M. G. (2015). Human estrus: Implications for relationship science. *Current Opinion in Psychology*, 1, 45–51.
- Gangestad, S. W., Thornhill, R., & Garver-Apgar, C. E. (2005). Women's sexual interests across the ovulatory cycle depend on primary partner developmental instability. *Proceedings of the Royal Society B*, 272, 2023–2027.
- Glass, S. P., & Wright, T. L. (1985). Sex differences in type of extramarital involvement and marital dissatisfaction. *Sex Roles*, 12(9–10), 1101–1120.
- Glass, S. P., & Wright, T. L. (1992). Justifications for extramarital relationships: The association between attitudes, behaviors, and gender. *Journal of Sex Research*, 29(3), 361–387.
- Greiling, H., & Buss, D. M. (2000). Women's sexual strategies: The hidden dimension of extra-pair mating. *Personality and Individual Differences*, 28(5), 929–963.
- Haselton, M. G., Buss, D. M., Oubaid, V., & Angleitner, A. (2005). Sex, lies, and strategic interference: The psychology of deception between the sexes. *Personality and Social Psychology Bulletin*, 31(1), 3–23.
- Haselton, M. G., & Gildersleeve, K. (2011). Can men detect ovulation? *Current Directions in Psychological Science*, 20(2), 87–92.
- Hite, S. (1976). *The Hite Report: A nationwide survey of female sexuality*. London: Bloomsbury.
- Hrdy, S. B. (1979). Infanticide among animals: a review, classification, and examination of the implications for the reproductive strategies of females. *Ethology and Sociobiology*, 1(1), 13–40.
- Hurtado, A. M., & Hill, K. R. (1992). Paternal effect on offspring survivorship among Ache and Hiwi hunter-gatherers: Implications for modeling pairbond stability. In B. S. (Ed.), *Father-child relations: Cultural and biosocial contexts* (pp. 31–35). Chicago: Aldine.
- Jocklin, V., McGue, M., & Lykken, D. T. (1996). Personality and divorce: A genetic analysis. *Journal of Personality and Social Psychology*, 71(2), 288.
- Kenrick, D. T., Sadalla, E. K., Groth, G., & Trost, M. R. (1990). Evolution, traits, and the stages of human courtship: Qualifying the parental investment model. *Journal of Personality*, 58(1), 97–116.
- Kinsey, A. C., Pomeroy, W. B., & Martin, C. E. (1948). *Sexual behavior in the human male*. London: Saunders.
- Kinsey, A. C., Pomeroy, W. B., Martin, C. E., & Gebhard, P. H. (1953). *Sexual behavior in the human female*. London: Saunders.
- Larson, C. M., Pillsworth, E. G., & Haselton, M. G. (2012). Ovulatory shifts in women's attractions to primary partners and other men: Further evidence of the importance of primary partner sexual attractiveness. *PLoS One*, 7(9), e44456.
- Lewis, D. M., Conroy-Beam, D., Al-Shawaf, L., Raja, A., DeKay, T., & Buss, D. M. (2011). Friends with benefits: The evolved psychology of same-and opposite-sex friendship. *Evolutionary Psychology*, 9(4) (147470491100900407).
- Lydon, J. E., Meana, M., Sepinwall, D., Richards, N., & Mayman, S. (1999). The commitment calibration hypothesis: When do people devalue attractive alternatives? *Personality and Social Psychology Bulletin*, 25(2), 152–161.
- Maner, J. K., Rouby, D. A., & Gonzaga, G. C. (2008). Automatic inattention to attractive alternatives: The evolved psychology of relationship maintenance. *Evolution and Human Behavior*, 29(5), 343–349.
- Maner, J. K., Gailliot, M. T., & Miller, S. L. (2009). The implicit cognition of relationship maintenance: Inattention to attractive alternatives. *Journal of Experimental Social Psychology*, 45(1), 174–179.
- Marlowe, F. W. (2004). Mate preferences among Hadza hunter-gatherers. *Human Nature*, 15(4), 365–376.
- Michael, R. T., Gagnon, J. H., Laumann, E. O., & Kolata, G. (1994). *Sex in America: A definitive survey Boston*.
- Miner, E. J., Gurven, M., Kaplan, H., & Gaulin, S. J. (2014). Sex difference in travel is concentrated in adolescence and tracks reproductive interests. *Proceedings of the Royal Society of London B: Biological Sciences*, 281(1796), 20141476.
- Moore, M. M. (1985). Nonverbal courtship patterns in women: Context and consequences. *Ethology and Sociobiology*, 6, 237–247.
- Muñoz-Reyes, J. A., Iglesias-Julios, M., Martín-Elola, C., Losada-Pérez, M., Monedero, I., Pita, M., & Turiégano, E. (2014). Changes in preference for male faces during the menstrual cycle in a Spanish population. *Anales de Psicología/Annals of Psychology*, 30(2), 667–675.
- Perilloux, C., & Buss, D. M. (2008). Breaking up romantic relationships: Costs experienced and coping strategies deployed. *Evolutionary Psychology*, 6(1) (147470490800600119).
- Plant, E. A., Kunstman, J. W., & Maner, J. K. (2010). You do not only hurt the one you love: Self-protective responses to attractive relationship alternatives. *Journal of Experimental Social Psychology*, 46(2), 474–477.
- Schoen, R., & Canudas-Romo, V. (2006). Timing effects on divorce: 20th century experience in the United States. *Journal of Marriage and Family*, 68(3), 749–758.
- Scott, I. M., Clark, A. P., Josephson, S. C., Boyette, A. H., Cuthill, I. C., Fried, R. L., ... Honey, P. L. (2014). Human preferences for sexually dimorphic faces may be evolutionarily novel. *Proceedings of the National Academy of Sciences*, 111(40), 14388–14393.
- Shackelford, T. K., & Weekes-Shackelford, V. A. (2004). Why don't men pay child support? Insights from evolutionary psychology. *Evolutionary Psychology, Public Policy and Personal Decisions*, 231.
- Smith, R. L. (1984). Human sperm competition. In R. L. (Ed.), *Sperm competition and the evolution of mating systems* (pp. 601–659). New York: Academic Press.
- Symons, D. (1979). *The evolution of human sexuality*. New York: Oxford.
- Voracek, M., Haubner, T., & Fisher, M. L. (2008). Recent decline in nonpaternity rates: A cross-temporal meta-analysis 1, 2. *Psychological Reports*, 103(3), 799–811.
- Wolf, M., Musch, J., Enczmann, J., & Fischer, J. (2012). Estimating the prevalence of nonpaternity in Germany. *Human Nature*, 23(2), 208–217.