

# COOPERATIVE COURTSHIP: HELPING FRIENDS RAISE AND RAZE RELATIONSHIP BARRIERS

**Joshua M. Ackerman**  
*MIT Sloan School of Management*

**Douglas T. Kenrick**  
*Arizona State University*

*Reference:*

Ackerman, Joshua M. and Douglas T. Kenrick (2009), "Cooperative Courtship: Helping Friends Raise and Raze Relationship Barriers," *Personality and Social Psychology Bulletin*, 35, 1285-1300.

*Do people help each other form romantic relationships? Research on the role of the social environment in relationship formation has traditionally focused on competition, but here we investigate novel patterns of cooperation within courtship interactions. Drawing on a functional/evolutionary perspective, women are predicted to cooperate primarily in building romantic thresholds and barriers; men are predicted to cooperate primarily in achieving romantic access. In four studies that support these predictions, we find that people consistently perceive cooperation, report cooperative behavior and make cooperative decisions in romantic situations. People also provide the exact opposite pattern of help to opposite-sex friends from that provided to same-sex friends, suggesting that assistance is flexibly tuned to differences in the romantic selectivity of recipients. Cooperative courtship is revealed to be a commonly-used set of mating strategies by which people functionally tailor aid to promote both their own and their friends' romantic relationship interests*

In Shakespeare's *The Merchant of Venice* (1600/2004), the gentleman Bassanio hopes to marry the beautiful Portia, but her family has placed a big obstacle in his way. Unlike Portia's other suitors, Bassanio is not wealthy enough to ask for the noblewoman's hand. Bassanio's friend Antonio comes to his aid, however. Antonio helps Bassanio secure financial backing, making him a worthy suitor and overcoming the key barrier to his romantic goal.

As in Shakespeare's time, romantic relationship formation can present a complex assortment of difficulties that would-be lovers must negotiate. Although there has been a great deal of research on the social and evolutionary factors linked to general processes of cooperation between friends and relatives (e.g., Ackerman, Kenrick, & Schaller, 2007; Laham, Gonsalkorale, & von Hippel, 2005; Van Vugt & Van Lange, 2006), researchers concerned with mate selection and acquisition have focused predominantly on the competitive aspects of these endeavors (e.g., Bleske & Shackelford, 2001; Buss, 1988; Dijkstra & Buunk, 1998; Schmitt, 2005; Simpson, Gangestad, Christensen, & Leck, 1999; but see Bleske & Buss, 2000). In doing so, they have sometimes construed the process of romantic relationship formation as a game (e.g., Gutierrez, Kenrick, & Partch, 1999). But is the mating game sometimes a team sport? In this paper, we examine mating behavior and decision making in the light of

cooperative themes. Research on how members of social groups help one another establish romantic relationships can provide an interesting complement to the abundant literature on how those same people compete for mates. Might Shakespeare's depiction of Antonio's helpful actions tell of a common aspect of courtship, one overlooked by social psychologists? If so, how do people work together to assist one another in mating contexts? Might the answer to this question differ depending on whether we are focusing on women as opposed to men?

### Cooperation is conventional

Cooperation and helping are hallmarks in every domain of social life (Ackerman & Kenrick, 2008; Baumeister & Leary, 1995). People band together for self-protection (e.g., Griskevicius, Goldstein, Mortensen, Cialdini, & Kenrick, 2006; Smuts, 1992), to exchange emotional and instrumental support (e.g., Clark & Reis, 1988), collaborate on complex tasks (e.g., Argyle, 1991), and provide social comparison information for each other (e.g., Mussweiler & Rüter, 2003). For example, women may form friendships with men who are both physically strong and willing to provide physical protection in dangerous situations (Bleske & Buss, 2000; Bleske-Rechek & Buss, 2001). Given the central importance of mate choice in evolutionary processes, cooperation in attaining mates also would have been especially beneficial to our ancestors.

Cooperative courtship has been documented in a variety of other social species. Wild male turkeys, for example, form coalitions in which one male exhibits his colorful plumage and chases away competitors while the second (reproductively successful) male performs a strutting dance (Krakauer, 2005). In mammals, male lions form coalitions to gain mating control over a pride of lionesses (Packer & Pusey, 1982), male howler monkeys collaborate to increase mating opportunities (Pope, 1990), and male chimpanzees occasionally cooperate in guarding mates (Watts, 1998). In several species, including bonobo chimpanzees, female alliances are used to reduce male sexual coercion (Smuts & Smuts, 1993).

In humans, romantic relationship formation involves stages of judgment, decision making and behavioral strategizing that might be facilitated by cooperative strategies. These stages are governed by relatively sex-specific, but contextually-sensitive, motivations that serve to further individuals' reproductive fitness (Buss & Schmitt, 1993; Kenrick

& Trost, 1987). Previously, these motivations have been used to derive testable hypotheses about patterns of intrasexual competition (e.g., Buss, 1988; Simpson et al., 1999). In fact, a good deal of evidence suggests both sex similarities and sex differences in cooperative courtship behavior. Below, we consider how mate acquisition motivations may drive these similarities and differences.

#### *Predicting sex similarities in cooperation*

Men and women have faced many of the same adaptive problems in the formation and maintenance of romantic relationships (Buss, 1995), and thus share many of the same goals for these relationships: People of both sexes want to feel attractive to others, find companionship, and connect with romantic partners who are warm, committed, intelligent and interesting (Kenrick, Sadalla, Groth, & Trost, 1990; Li, Bailey, Kenrick, & Linsenmeier, 2002). Further, both men and women may seek short and long-term romantic relationships (Buss & Schmitt, 2003; Gangestad & Simpson, 2000), prefer physical attractiveness, intelligence and warmth in potential partners (Li & Kenrick, 2006; Simpson & Gangestad, 1992), become jealous about emotional and sexual infidelities (Sagarin, 2005), and so on.

The substantial overlap in romantic goals between women and men should set the stage for some degree of overlap in cooperative courtship behaviors. Indeed, women and men both value cooperation within their close, non-romantic relationships (Caldwell & Peplau, 1982; Clark & Reis, 1988), and these prosocial tendencies might easily transfer to the mate acquisition domain. As people are typically sensitive to the needs of (platonic) close others (Clark, Mills, & Powell, 1986), and these needs are often similar between the sexes, there may be many parallels between men's and women's use of collaborative strategies within appropriate environmental contexts.

#### *Predicting sex differences in cooperation*

Beyond these broad similarities, there are also reasons to expect interesting sex differences in romantic cooperativeness. Social influences found in books, films, and on television depict women as more sharing, affiliative and emotionally supportive than men (Cross & Madson, 1997). These depictions reflect observed sex differences, which may emerge from exposure to role-consistent information, or from

other sources, such as hormonal differences (e.g., in androgen, estrogen and oxytocin levels) that inhibit and enhance cooperative behaviors. In fact, on many indices of cooperation, women do display greater overall levels of prosociality than do men (e.g., Cross & Madson, 1997; Eckel & Grossman, 1998; Zakriski, Wright, & Underwood, 2005), though the degree and direction of difference depends on the particular relationship and form of prosocial behavior (e.g., Ackerman et al., 2007; Griskevicius et al., 2007; Van Vugt, De Cremer, & Janssen, 2007; Zakriski et al., 2005).

These findings suggest the relatively simple prediction that females will be more romantically cooperative than males. However, there are also reasons to expect more articulated sex-specific patterns of cooperative courtship. One important reason involves sex differences in romantic selectivity. Across cultures, women tend to be more romantically selective than men (though a great deal of variation exists within each sex). Two central concepts from evolutionary biology have been usefully applied to the analysis of such sex differences. First, sexual selection theory (Darwin, 1874) focuses on noticeable dimorphisms in physical size or display, which may be involved in either attracting the other sex or competing with members of the same sex (e.g., peacocks' bright plumage). In general, the larger and more ostentatious sex tends to be relatively less choosy about mates. This selectiveness has been explained in terms of the second concept, parental investment (Trivers, 1972), which stresses the minimum obligatory investment each sex must make in conceiving viable offspring. In most vertebrate species, including humans, females must expend more physical and temporal resources than males in pregnancy and offspring care, placing a biological limit on females' maximal number of offspring. Males, on the other hand, are primarily limited by their ability to achieve sexual access to females (Geary, Vigil, & Byrd-Craven, 2004). At a theoretical minimum, males need only devote enough time and energy for sexual intercourse. Any single mating act thus holds a higher potential cost for a female than for a male. To manage this cost, females are on average relatively more selective regarding acceptable qualities in a potential mate, particularly a short-term mate (Buss & Schmitt, 2003; Kenrick et al., 1990; Li et al., 2002). Men, on the other hand, tend to use more display tactics (e.g., from flaunting resources and physical acumen to direct combat) in order to

demonstrate acceptable mate-value (Griskevicius, Cialdini, & Kenrick, 2006; Miller, 2000). Such patterns are also influenced by the actions of others, as when parents push daughters to adopt selective romantic orientations and actively restrict their access to potential mates (Perilloux, Fleischman, & Buss, 2008), and sons to adopt more approach-focused romantic orientations (Sanders & Mullis, 1998).

This framework helps account for higher levels of intrasexual competition found in men (Buss, 1988; Geary et al., 2004). However, competition is not the only possible outcome of female selectivity. Cooperative courtship may be advantageous for facilitating a wide variety of mating outcomes. For instance, people might help assess the value of potential romantic partners, reducing some of the biases inherent in interpersonal perception (e.g., Haselton & Buss, 2000). Subsequently, people could help each other avoid partners judged undesirable and attract partners judged desirable. Bleske-Rechek and colleagues have investigated the costs and benefits of one particular relationship relevant to these forms of cooperation—friendship (Bleske & Buss, 2000; Bleske & Shackelford, 2001; Bleske-Rechek & Buss, 2001). These researchers found that men valued the possibility of sexual activity within opposite-sex friendships and preferred traits consistent with this possibility (e.g., physical attractiveness) in their friends. Women considered physical protection to be important and preferred consistent traits (e.g., physical strength) in their friends as well. The perspective we detail below focuses specifically on how platonic friends of both sexes facilitate the formation of short- and long-term romantic relationships. This leads to a number of novel predictions, as described below.

The same parental investment pressures that underlie differences in women's and men's individual mate choices have implications for cooperative courtship as well. Women, as the higher-investing sex, generally exercise more control over initial mate acquisition (e.g., Schmitt, 2005; Trost & Alberts, 2006). This may occur directly, when signals of romantic interest encourage men to engage in courtship behavior (Moore, 1985), or indirectly, when women act as "sexual gatekeepers" (Baumeister & Vohs, 2004, p. 350), delaying sexual access until a potential mate is judged acceptable (Bjorklund & Kipp, 1996). This suggests that one common romantic motive for women might be the creation of relationship barriers, or thresholds (Buss & Schmitt, 2003). These thresholds should serve to:

improve assessment of a potential mate's quality, prevent courtship from low-quality men, and elicit investment from high-quality men. Additionally, these thresholds may serve to identify men who are interested solely in short-term romantic relationships (as these men should be relatively less likely to continue courtship in the face of obstacles). Thus, we predict that cooperative courtship among women will more frequently involve barrier-building strategies.

Men employ multiple solutions in response to female selectivity. One tack involves demonstrating desirable mate qualities through intrasexual competition (Buss, 1988; Griskevicius et al., 2006). Alternately, men may adopt relatively lower standards for sexual partners (Kenrick et al., 1990), more willingly agree to short-term sexual encounters (Buss & Schmitt, 2003), or in some cases, directly trade resources for sex (Atchison, Fraser, & Lowman, 1998). These behaviors suggest that a common romantic motive for men is the pursuit of relationship access (Baumeister & Vohs, 2004; Buss & Schmitt, 2003). This should lead men to display characteristics that surpass women's thresholds of acceptability and otherwise circumvent barriers to access. Sex differences in this motive are liable to be greatest with respect to short-term relationships (Baumeister & Vohs, 2004), and men may in fact be relatively more likely to perceive cooperation as a route to short-term, sexual access (Haselton & Buss, 2000). Thus, we predict that cooperative courtship among men will more frequently involve barrier-breaking strategies.

#### Exploratory Evidence: Pilot Testing

To begin exploring cooperative courtship, we asked classroom students ( $N = 48$ ) to generate a variety of ways people might assist others in flirtatious encounters. From this set, we culled a common set of strategic techniques, which were rated by a separate group of participants ( $N = 202$ ) on their past frequency of use. In general, women reported cooperating more often than men during courtship  $F(12,189)=7.57, p<.001, \eta^2=.33$ . As expected, women were more likely to have used cooperation to avoid targets in whom they had no romantic interest,  $F(1,200)=20.77, p<.001, \eta^2=.09$ .<sup>1</sup> Men were instead more likely to have cooperated to break down romantic barriers by having a friend pair up with and extract a female target's (less attractive) friend from the situation,  $F(1,200)=4.51, p<.05, \eta^2=.02$ . Consistent with our theoretical framework, we

concentrated future investigations of cooperative courtship on differences in the use of such “avoidance” and “access” strategies. Additionally, data from this pilot study indicated that young adults overwhelmingly interact with potential romantic targets in the company of friends (72.3%) as compared to with kin (0.4%), acquaintances (1.7%), or when alone (25.6%; when cooperative courtship is obviously not an option), and thus we limited our study of cooperative partners to friends.

#### Current research

The current research was designed to answer two relatively unstudied questions: (1) Do people cooperate with others in romantic contexts? (2) If so, do women and men exhibit different patterns of cooperation consistent with general differences in romantic selectivity? We addressed these questions in a series of studies using a multi-method approach. In Study 1, we revisited a classic procedure examining how characteristics, including gender and motivation, are spontaneously attributed to simple shapes in decomposed visual scenes. The next two studies considered the forms of romantic help people give and receive with same-sex friends (Study 2), and whether these same forms of help apply to interactions with opposite-sex friends (Study 3). Finally, Study 4 involved participants in a purportedly real romantic interaction to see whether they would make cooperative or competitive decisions in the presence of friends or strangers. To presage what will follow, the results of these studies suggest that people easily perceive, report and behave in cooperative (and predictable) ways within romantic contexts.

These studies investigated the initial stages of courtship as represented by flirtatious interactions. We did not constrain these interactions to the pursuit of short-term or long-term relationships, though given the age of our participants, short-term romance may have been more accessible (this question was directly addressed in Study 4). Participants included both romantically single and romantically attached individuals, although romantic relationship status had very little differential effect on people’s behavior. Finally, as there were too few self-reported homosexual participants to achieve sufficient statistical power for separate analysis, all data refer to heterosexual participants.

#### STUDY 1

Judging from past research (e.g., Buss, 1988; Dijkstra & Buunk, 1998; Schmitt, 2005), romantic contexts featuring more than one woman and one man are commonly competitive in nature. But are people really biased to interpret such situations as competitive, or do they also perceive cooperation in multi-person romantic encounters? Further, do people naturally associate barrier-building actions with women and barrier-breaking actions with men? To answer these questions, we adapted a method based on the classic animated film study of Heider and Simmel (1944) on the social perception of causality. In their study, participants viewing a simple cartoon of moving geometric shapes readily attributed both agency and motive to the shapes by constructing socially rich stories about the animated events.

We constructed similar schematic drawings of geometric figures involved in romantic encounters and asked participants to identify the sex and motives of (inanimate) target shapes within these drawings. Telling participants that these scenes involved flirtatious interactions was expected to activate cognitive representations and inferences naturally associated with such encounters (e.g., Oatley & Yuill, 1985)—potentially, these include cooperation.

#### Method

##### *Participants*

44 undergraduate students (30 female, median age = 19) participated in this study in exchange for course credit.

##### *Materials and procedure*

Each participant viewed a set of 3 schematic drawings depicting a set of circles labeled by letter and number (see Figure 1). One scene was meant to represent avoidance behavior, one to represent access, and one scene was designed to represent both types of behaviors simultaneously. Participants received these instructions:

*The cartoons you will see on the next pages involve flirtatious situations (for the purposes of this particular study, consider all interactions to be heterosexual). Each cartoon should be read from left to right. The circles represent people, and those circles sharing a letter are friends (same or opposite-sex), not romantic partners. Dotted lines represent people looking in the direction of the arrow.*

Participants were asked to label the gender of each circle in each scene on their answer sheet. Additionally, participants judged whether the scene represented a cooperative or competitive interaction (categorical choice), and how commonly the depicted

encounter was to occur in real life (scale anchored by 1 = “very unlikely,” 7 = “very likely”). No information concerning the cooperative or competitive nature of the scenes was given.

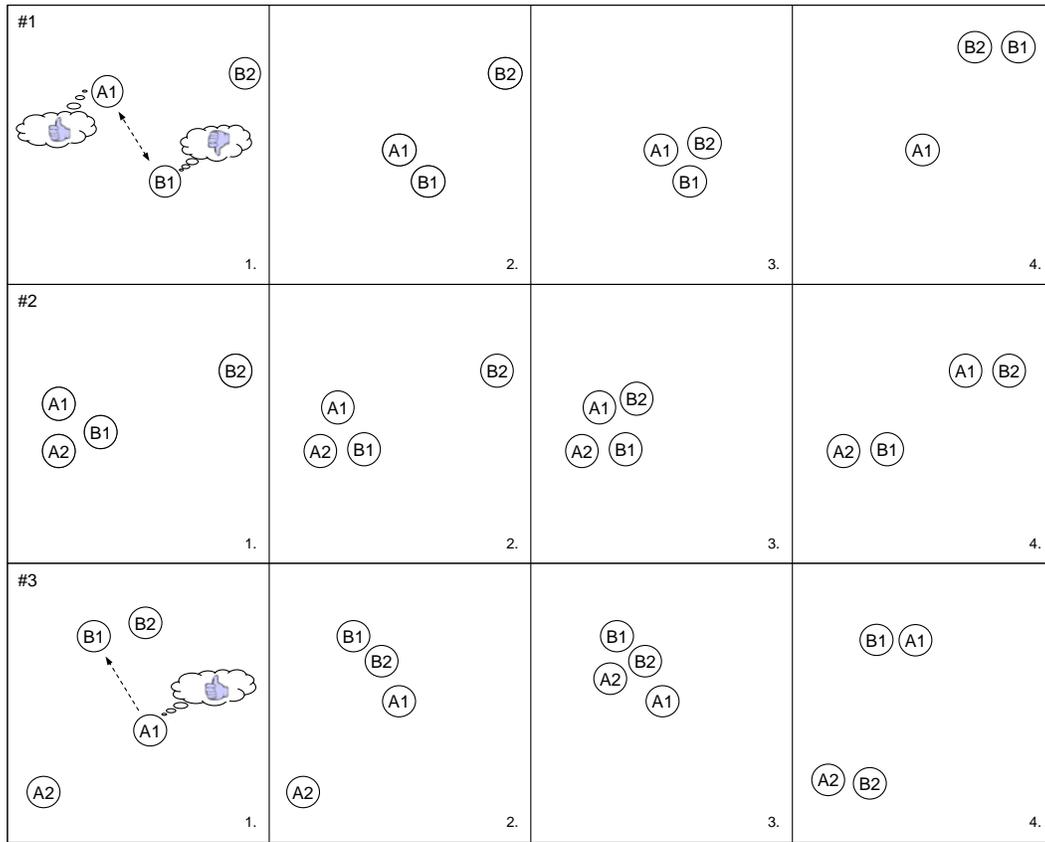


Figure 1. Schematic drawings of flirtatious interactions (Study 1). Scene 1 represents an avoidance strategy; scene 2 represents an access strategy; scene 3 represents a combination of avoidance and access strategies. Dotted lines indicate line-of-sight, and thought bubbles indicate evaluation of romantic desirability. Participants were asked to judge whether the As or the Bs in each scene were males or females.

Table 1. Perceptions of cooperative courtship in schematic cartoons (Study 1)

Scene #	Scene type	Rated as cooperative	Likely to occur in real life	Target A1	Target A2	Target B1	Target B2
1	Barrier	81.8%	5.93 (1.23)	M = 88.6%	--	F = 90.9%	F = 65.9%
2	Access	72.7%	5.14 (1.25)	F = 88.6%	F = 88.6%	M = 81.8%	M = 88.6%
3	Barrier + Access	75%	4.86 (1.36)	M = 77.3%	M = 77.3%	F = 79.5%	F = 72.7%

Note. Scene numbers refer to Figure 1. Likelihood of occurrence ranges from 1 (very unlikely) to 7 (very likely) with standard deviations in parentheses. In the last four columns, target sex is identified as F = female, M = male.

## Results

Participant Sex and Relationship Status yielded no significant effects, and were collapsed in the following analyses.<sup>2</sup> Chi-square analyses were used to determine differences in the labeling of scenes and targets. Likelihood of occurrence estimates were tested using one-sample t-tests against the scale midpoint. Actual response values appear in Table 1.

Participants judged the avoidance, barrier-building scene (#1 in Figure 1) to be both cooperative,  $\chi^2(1)=17.82$ ,  $p<.001$ ,  $\phi=.64$ , and very likely to occur in real life,  $t(43)=10.44$ ,  $p<.001$ ,  $d=1.57$ . As predicted, targets employing a barrier-building strategy were identified as female: B1 ( $\chi^2(1)=29.46$ ,  $p<.001$ ,  $\phi=.82$ ) and B2 ( $\chi^2(1)=4.46$ ,  $p<.05$ ,  $\phi=.32$ ). The remaining target was identified as male: A1 ( $\chi^2(1)=26.27$ ,  $p<.001$ ,  $\phi=.77$ ).

Participants judged the access, barrier-breaking scene (#2 in Figure 1) to be both cooperative,  $\chi^2(1)=9.09$ ,  $p<.01$ ,  $\phi=.45$ , and very likely to occur in real life,  $t(43)=6.03$ ,  $p<.001$ ,  $d=.91$ . As predicted, targets employing a barrier-breaking strategy were identified as male: B1 ( $\chi^2(1)=26.27$ ,  $p<.001$ ,  $\phi=.77$ ) and B2 ( $\chi^2(1)=26.27$ ,  $p<.01$ ,  $\phi=.77$ ). The remaining targets were identified as female: A1 ( $\chi^2(1)=17.82$ ,  $p<.001$ ,  $\phi=.64$ ) and A2 ( $\chi^2(1)=28.49$ ,  $p<.001$ ,  $\phi=.80$ ).

Participants judged the barrier-building + barrier-breaking scene (#3 in Figure 1) to be both cooperative,  $\chi^2(1)=11.00$ ,  $p=.001$ ,  $\phi=.71$ , and very likely to occur in real life,  $t(43)=4.22$ ,  $p<.001$ ,  $d=.64$ . As predicted, targets employing a barrier-building strategy were identified as female: B1 ( $\chi^2(1)=15.36$ ,  $p<.001$ ,  $\phi=.59$ ) and B2 ( $\chi^2(1)=9.09$ ,  $p<.01$ ,  $\phi=.45$ ). Targets employing a barrier-breaking strategy were identified as male: A1 ( $\chi^2(1)=13.09$ ,  $p<.001$ ,  $\phi=.55$ ) and A2 ( $\chi^2(1)=13.09$ ,  $p<.001$ ,  $\phi=.55$ ).

## Discussion

Study 1 was intended to test whether people infer cooperation in multi-person romantic situations, and whether they naturally associate barrier-building actions with women and barrier-breaking actions with men. In fact, people perceived all three scenes to involve cooperative behaviors. Target figures portraying avoidance behaviors were strongly identified as female, and figures portraying access behaviors were strongly identified as male. The fact that all scenes were judged as very likely to occur in real life suggests these inferences are more than a

mere function of questionnaire construction. People readily see cooperation in the drawings because they see cooperation in real life.

Study 1 considered how particular types of cooperative behaviors might influence attributions about gender. A more direct test of cooperative courtship would investigate the reverse direction of causality—whether gender influences the exhibition of particular behaviors. In the next two studies, we asked participants to report the frequency with which they typically receive (avoidance-based and access-based) cooperative help in romantic contexts. We predicted that, compared to the alternative strategy, women would receive avoidance-based help and men would receive access-based help. Participants also reported their frequency of providing cooperative assistance. Provisioning allows us to determine whether people employ sex-specific strategies that are relatively insensitive to context, or whether people flexibly adapt their behaviors to support their friends' romantic motives.

## STUDY 2

Does the help received by cooperative partners match the type of help given? Participants in Study 2 reported their frequency of romantic help-receipt and help-provisioning with same-sex friends. We expected that, because same-sex friends are likely similar in romantic preferences, people would provide the same forms of help they prefer to receive.

## Method

### *Participants*

151 undergraduate students (41 female, median age = 19) participated in exchange for course credit.<sup>3</sup> Both single individuals ( $N = 59$ ) and people in relationships ( $N = 92$ ) participated.

### *Procedure*

Testing took place either on questionnaires in mixed-sex classrooms ( $N = 91$ ) or on individual computers ( $N = 60$ ). Classroom data was drawn from a questionnaire assessing a wider variety of information than reported here. When items referred to a "friend," participants were instructed to imagine a real, same-sex friend. All participants responded to two items reflecting the frequency with which they provide avoidance-based and access-based help (Likert scales anchored by 0 = "never," 6 = "all the

time”). Additionally, participants who completed the study on computers were given a bipolar access-avoidance item assessing the form of help most commonly received from same-sex friends. Avoidance was described as “help you to avoid people you are not romantically interested in,” and access was described as “help make it easier to attract people you are romantically interested in.”

## Results

The method of study presentation (questionnaire or computer) yielded no significant effects, and so this factor was collapsed in the analyses.

### Help-receipt

A 2 (Participant Sex) X 2 (Relationship Status) ANOVA was conducted on the help-receipt item. Consistent with hypotheses, a main effect of Participant Sex revealed the predicted asymmetry (see Figure 2, panel A): Women were more likely to receive avoidance-based help, and men to receive access-based help,  $F(1,56)=13.66$ ,  $p=.001$ ,  $\eta^2=.20$ . We also compared people’s scores with the midpoint

of the scale (i.e., no access or avoidance preference). The effects for women,  $t(28)=2.29$ ,  $p<.05$ ,  $d=.42$ , and for men,  $t(30)=-3.28$ ,  $p<.01$ ,  $d=.59$ , were both significant.

### Help-provisioning

The two help-provisioning items (attraction-based and avoidance-based help) were entered as within-subjects factors into a 2 (Participant Sex) X 2 (Relationship Status) repeated measures analysis. A significant main effect of Participant Sex indicated that women reported giving more help than did men,  $F(1,147)=16.24$ ,  $p<.001$ ,  $\eta^2=.10$ . This effect was qualified by a significant interaction with the repeated factor,  $F(1,147)=4.34$ ,  $p<.05$ ,  $\eta^2=.03$ . Consistent with predictions, women were more likely to help a same-sex friend avoid an undesirable mate, and men were more likely to help a same-sex friend gain access to a desirable mate (see Figure 3, panel A). Planned contrasts within Participant Sex revealed that these differences reached significance for men,  $F(1,147)=4.46$ ,  $p<.05$ ,  $\eta^2=.03$ , but potentially due to low power, not for women ( $p<.21$ ).

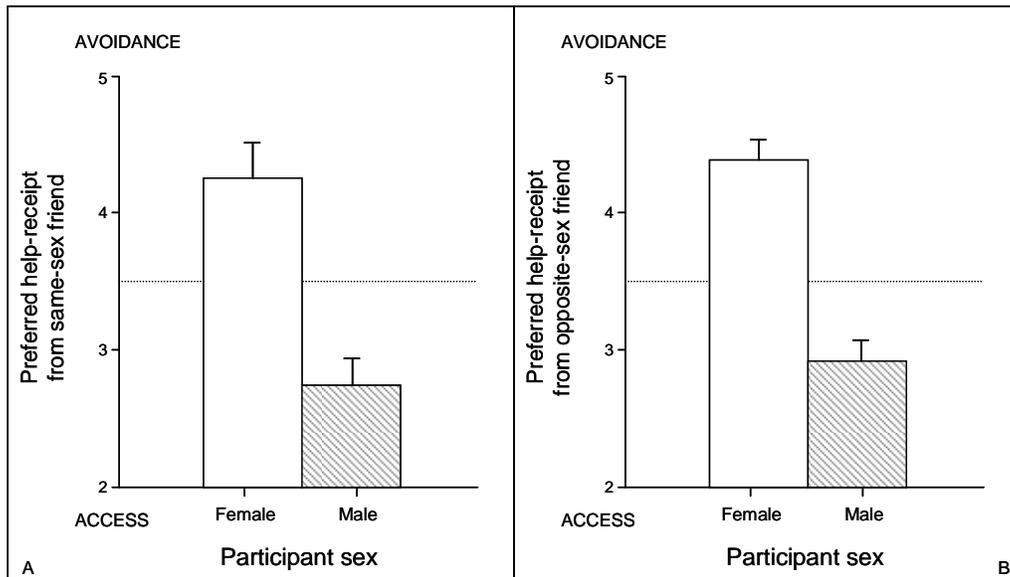


Figure 2. Help-receipt from same-sex friends (panel A, Study 2) and opposite-sex friends (panel B, Study 3). The dotted midline indicates no preference. Error bars represent standard errors.

Additionally, a significant Participant Sex X Relationship Status interaction indicated that single women gave more help than attached women, and attached men gave more help than single men,  $F(1,147)=6.63$ ,  $p=.01$ ,  $\eta^2=.04$ . To better understand this difference, we examined the pattern of means within each level of relationship status. Women consistently gave more avoidance-based help across relationship levels, though single women gave both forms of help more frequently. Romantically attached men tended to give more of both forms of help, but compared to single men, these men were especially likely to give access-based help,  $F(1,147)=15.55$ ,  $p<.001$ ,  $\eta^2=.10$ . This suggests that men may be most willing to help their friends acquire romantic partners when the motivation to compete is dampened, that is, when helpers are themselves off the mating market.

### Discussion

Consistent with our framework, participants in Study 2 reported both giving and receiving relatively sex-specific forms of help with their same-sex friends. Women cooperated more often to prevent unwanted romantic advances, whereas men cooperated more often to achieve romantic access.

Although same-sex friends are clearly helpful in cooperative mating contexts, opposite-sex friends may be even more efficacious (Bleske & Buss, 2000; Bleske-Rechek & Buss, 2001). Male companions could be especially useful for creating romantic barriers. A man's physical presence may implicitly (and sometimes explicitly) signal that a woman is in a committed relationship. This could facilitate barrier-building by increasing the level of social threat that potential Lotharios would face on approach. Conversely, women could be especially useful for helping male friends achieve romantic access. Women tend to be more readily trusted than men (e.g., Rotenberg, 1984), and thus women may better provide interpersonal access to romantic targets (e.g., flattering talk about a male friend may be perceived as more honest when it comes from a woman than from a man). Having female companions may also signal that a man is non-dangerous and considered "acceptable" by other women. In fact, research on human and non-human mate choice copying indicates that displays of interest from females toward males, ranging from simple visual gaze to actual mating relations, may enhance other females' preferences for those same males (e.g., Dugatkin, 1996; Hill & Buss, 2008; Jones, DeBruine, Little, Burriss, & Feinberg, 2007). Study 3 was therefore designed to investigate cooperative courtship among opposite-sex friends.

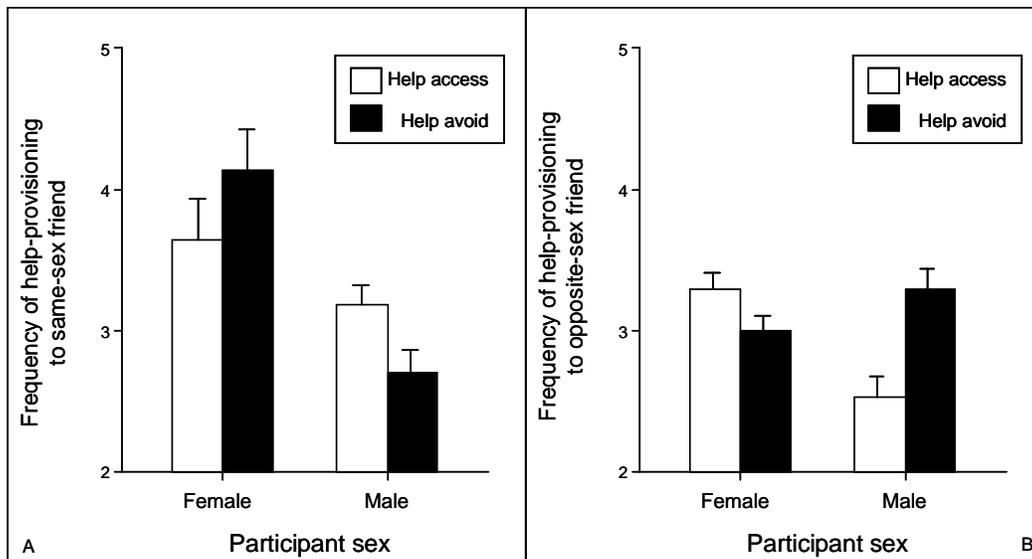


Figure 3. Help-provisioning of same-sex friends (panel A, Study 2) and opposite-sex friends (panel B, Study 3). Error bars represent standard errors.

## STUDY 3

Do opposite-sex friends cooperate in different ways than same-sex friends? Although people should prefer receiving the same forms of assistance regardless of friendship composition (because one's own motives should remain relatively consistent), two interesting patterns of opposite-sex provisioning might occur. First, men and women might prefer to give and receive help in consistent, sex-specific ways, with women primarily providing barrier-building help and men primarily providing barrier-breaking help. However, if people are sensitive to sex differences in romantic selectivity, they might flexibly adapt their helping to provide the "correct" form of support. If so, men should give barrier-building (avoidance) help and women should give barrier-breaking (access) help, reversing the pattern of help-provisioning found in Study 2. Because our focus was on romantic activity outside of the dyad, in contrast to researchers such as Bleske-Rechek and Buss (2001), we investigated opposite-sex friendships involving no within-dyad romantic interest.

## Method

*Participants*

193 undergraduate students (108 female, median age = 20) participated in this study in exchange for course credit. Both single individuals ( $N = 67$ ) and people in relationships ( $N = 126$ ) participated.

*Procedure*

Study 3 used identical measures to Study 2, although when items referred to a "friend," participants were instructed to imagine a real, opposite-sex friend for whom they felt no romantic interest. We also extended our investigation to a unique role that opposite-sex friends might play in romantic encounters—counterfeit romantic partners. Participants were asked whether friends ever pretended to be their romantic relationship partners in social situations, and if so, why: (1) to avoid undesirable romantic targets; and, (2) to indicate desirability to the opposite sex (i.e., mate choice copying) (for each item, 0 = "never," 6 = "all the time").

Testing took place either on individual computers ( $N = 70$ ) or on questionnaires in small mixed-sex groups ( $N = 123$ ).

## Results

Neither method of study presentation nor Relationship Status yielded significant effects, so these factors were collapsed in the following analyses.

*Help-receipt*

Replicating Study 2, a main effect of Participant Sex on the help-receipt item revealed that women were more likely to receive avoidance-based help, and men were more likely to receive access-based help, from opposite-sex friends (see Figure 2, panel B),  $F(1,191)=39.64$ ,  $p<.001$ ,  $\eta^2=.17$ . We again compared people's scores with the midpoint of the scale (i.e., no access or avoidance preference) using one-sample *t*-tests. The effects for women,  $t(107)=5.43$ ,  $p<.001$ ,  $d=.52$ , and for men,  $t(84)=-3.61$ ,  $p=.001$ ,  $d=.39$ , were both significant.

*Help-provisioning*

The two help-provisioning items (attraction-based and avoidance-based help) were entered as within-subjects factors in a repeated measures analysis. A significant interaction of Participant Sex with the repeated factor emerged,  $F(1,191)=18.09$ ,  $p<.001$ ,  $\eta^2=.09$ . Consistent with predictions, women were more likely to help a male friend gain access to a desirable mate, and men were more likely to help a female friend avoid an undesirable mate (see Figure 3, panel B). Planned contrasts within Participant Sex revealed that these differences reached significance both for men,  $F(1,191)=15.72$ ,  $p<.001$ ,  $\eta^2=.08$ , and for women,  $F(1,191)=3.77$ ,  $p=.05$ ,  $\eta^2=.02$ . Thus, the provisioning patterns seen in Study 2 for same-sex friends were reversed for opposite-sex friends.

*Ancillary analyses: Counterfeit romantic partners*

Are romantic couples always exactly what they appear to be? In our sample, 73.1% of participants reported some use of counterfeit romantic partners (no differences by Sex). A one-factor (Participant Sex) MANOVA on their reasons for doing so revealed that, consistent with hypotheses, women who used counterfeit boyfriends did so relatively more often than men to avoid undesirable targets,  $F(1,139)=18.57$ ,  $p<.001$ ,  $\eta^2=.12$ . Also consistent with hypotheses, men who used counterfeit girlfriends did so more often than women to "show that women like me" (a mate-copying, access-based device),  $F(1,139)=5.64$ ,  $p<.02$ ,  $\eta^2=.04$ .

## Discussion

Study 3 was designed to investigate the role of opposite-sex friends in courtship situations. Corroborating our findings from Study 2, women tended to receive avoidance-based help, whereas men tended to receive access-based help. Importantly, people also flexibly tailored their help-provisioning to meet the presumed motivations of their opposite-sex friends. Men generally helped prevent unwanted romantic advances toward female friends, whereas women generally helped achieve romantic access for male friends. This pattern is a reversal from that found in Study 2, but this reversal is consistent with a perspective that presumes people are sensitive to the (distal and proximate) interests of their friends (Bleske-Rechek & Buss, 2001; Clark et al., 1986). Interestingly, cooperative courtship techniques also extended to the recruitment of fake romantic partners, with women using their phony Romeos to help ward off unwanted advances and men using their counterfeit Juliets to help catch the eyes of other women.

Thus far, the results from three studies suggest that cooperation does play a role in multi-person romantic encounters. A remaining question, though, is whether people actually decide to cooperate when faced with mating-relevant interpersonal interactions. We addressed this question in Study 4.

## STUDY 4

In Study 4, participants took part in a purported game show in which they could win a date with a desirable or undesirable opposite-sex target. The game show setting allowed for both competition and cooperation to emerge. To further delineate the conditions required for cooperative courtship, we tested whether cooperation occurs spontaneously in a novel group setting (i.e., with strangers) or requires a pre-existing relationship (i.e., with friends).

## Method

### *Participants*

144 undergraduate students (68 female, median age = 19) participated in this study in exchange for course credit. Each participant was asked at recruitment to bring a same-sex, similar-age friend to the study.

### *Materials and procedure*

Upon arrival at the lab, each pair of participants was told they were involved in the Dating Game, a study on decision-making in romantic relationships. Participants would each have the opportunity to meet an opposite-sex person (the "Dater"), and the Dater would decide whether he or she would like to go on a date with one of the participants, or with no one at all. As part of the cover story, participants were also told that if both parties agreed to the date, we would conduct a follow-up study to gauge post-date reactions. The instructions did not involve any reference to cooperation, and in fact, some participant feedback suggested that the "dating game" setting may have been heuristically associated with competition, thus providing a conservative test of cooperative actions. Participants were told they would play the game with another contestant, either their friend or an unknown participant (depending on condition). Thus, this study used a 2 (Participant sex) X 2 (Relationship Status) X 2 (Dater Type: desirable or not) X 2 (Partner Type: friend or stranger) between-subjects design.

First, each participant was placed in a separate room and given a (bogus) personality survey to complete. During this time, participants were told the other game contestant was meeting with the Dater. Participants also examined a personality sheet purportedly filled out by the Dater; this sheet listed either pre-rated romantically desirable (e.g., outgoing, interesting) or undesirable (e.g., quiet, judgmental) characteristics. Next, participants were told that the other contestant had finished and filled out a review of his or her experience meeting the Dater. Participants were allowed to briefly look at this review (which we generated to match the previous personality assessment). The experimenter then made an explicit change in the structure of the game, allowing participants to choose one of three options (representing the primary DV): (1) going to meet the Dater as planned (self-option), (2) giving up one's time so the other contestant could meet with the Dater again (partner-option), and (3) going jointly with the other contestant to meet the Dater as a group (group-option). To eliminate social desirability concerns, participants were told the other contestant would not be informed a choice was given. After making this choice, participants were given a final questionnaire assessing the rationale for their primary choice (free-response format), the rationale for past instances of cooperative assistance, the perceived efficacy of cooperative courtship behaviors, and

suspicion checks. Finally, all participants were thoroughly debriefed.

### Results

Five participants who expressed suspicion concerning the manipulated feedback and the final choice were removed from the analyses, leaving 139 participants (65 female). The remaining participants accepted the cover story—often, the experimenter returned to find participants applying perfume and makeup or adjusting hair styles prior to “meeting the Dater.”

We report participant rationales to provide context for participant choices. This free-response rationale data was coded by one male and one female (blind to hypotheses) along the following strategic dimensions: self-interest/competition, avoidance help-seeking, avoidance help-giving, access help-seeking, access help-giving, and general situational evaluation (e.g., “wanting to see what would happen”). Interrater reliability by kappa coefficient was .85 or greater for each item. Values may sum to more than 100% due to participants reporting multiple rationales for their choice.

#### Dater choice

Participant choices were first analyzed using multinomial logistic regression in which the three-level choice variable was regressed on Participant Sex, Relationship Status, Dater Type and Partner

Type (nonsignificant interactions were dropped from the model; see Maner et al., 2005). The overall model was significant,  $\chi^2(8)=25.95$ ,  $p=.001$ , Nagelkerke  $R^2 = .19$ . A significant likelihood ratio effect for Participant Sex,  $\chi^2(2)=8.51$ ,  $p=.01$ , indicated men were more likely than women to choose the self-option and women were more likely than men to choose the partner-option. Additionally, a significant effect of Partner Type,  $\chi^2(2)=18.67$ ,  $p<.001$ , suggested participants were more likely to choose the self-option when the partner was a stranger and the group-option when the partner was a friend. Overall, choice frequencies were: self-option (40.3%), partner-option (20.1%), and group-option (39.6%). More specific analyses were conducted using chi-square tests within each choice option.

Our primary hypotheses concerned the choice to interact as a group. The group-option was chosen more often by men when their partners were friends, but was chosen equally by women regardless of partner type,  $\chi^2(1)=7.38$ ,  $p<.01$ ,  $\phi=.37$ . We next investigated the effect of Dater Type within each level of Partner Type. As predicted, when partners were friends (see Figure 4, panel A), the group-option was chosen more often by women when the Dater was undesirable (supporting a barrier-building motive), but more often by men when the Dater was desirable (supporting a barrier-breaking motive),  $\chi^2(1)=4.87$ ,  $p<.05$ ,  $\phi=.36$ . This pattern did not emerge when partners were strangers ( $p>.66$ ; see Figure 4, panel B). Participants attributed their group-

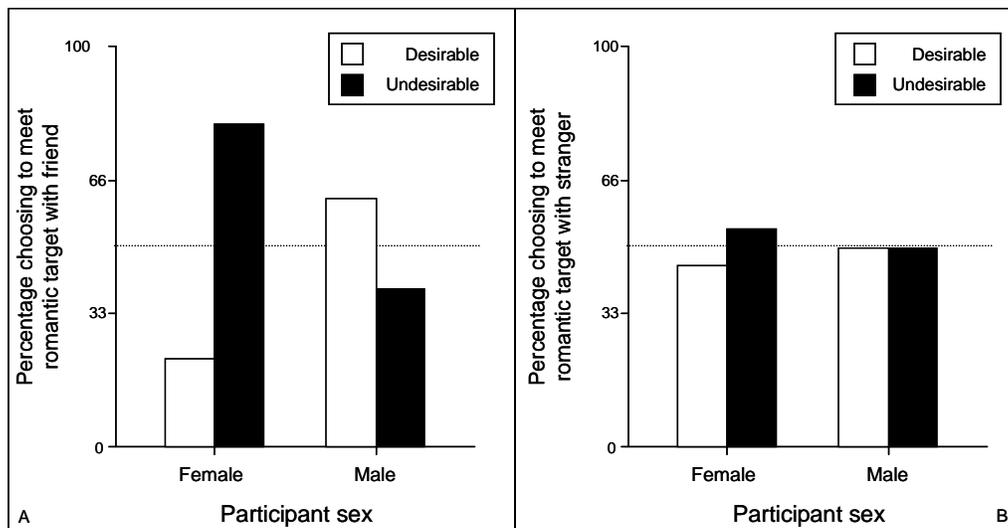


Figure 4. Percentage of participants choosing “group-option” according to Dater desirability (Study 4). The predicted sex difference in cooperation emerged only when the group consisted of friends (panel A;  $N = 38$ ) and not when it consisted of strangers (panel B;  $N = 17$ ). The dotted midline indicates 50%. Cells within each level of Participant Sex sum to 100%.

option choice to: wanting help avoiding the Dater (44.4%), wanting to evaluate the Dater (42.6%), wanting to help partner attract the Dater (13.0%), wanting help attracting the Dater (7.4%), wanting to help partner avoid the Dater (1.9%), and self-interest/competition (0.0%). These rationales did not vary by Participant Sex or Relationship Status.

The partner-option was chosen more often by women when their partners were strangers, but more often by men when their partners were friends,  $\chi^2(1)=6.89$ ,  $p<.01$ ,  $\phi=.50$ . There was no effect of Dater Type. Participants attributed their partner-option choice to: wanting help avoiding the Dater (60.7%) and wanting to help partner attract the Dater (42.9%). No other rationales were reported. Among the rationales receiving support, women were relatively more likely to attribute wanting help avoiding the Dater (supporting a barrier-building motive),  $\chi^2(1) = 6.60$ ,  $p=.01$ ,  $\phi = .49$ , and men were relatively more likely to report wanting to help the partner attract the Dater (supporting a barrier-breaking motive),  $\chi^2(1)=4.86$ ,  $p<.05$ ,  $\phi=.42$ .

The self-option was chosen more often by women when their partners were strangers, but was chosen equally by men regardless of partner type,  $\chi^2(1)=9.97$ ,  $p<.01$ ,  $\phi=.42$ . There was no effect of Dater Type. Participants attributed their self-option choice to: wanting to evaluate the situation (67.3%), self-interest/competition (20.4%), and wanting to help partner avoid the Dater (16.3%). No other rationales were reported. Among the rationales receiving support, a somewhat higher percentage of women wanted to evaluate the situation,  $\chi^2(1)=2.91$ ,  $p<.09$ ,  $\phi=.24$ , and a higher percentage of men acted out of self-interest/competitiveness,  $\chi^2(1)=8.33$ ,  $p<.01$ ,  $\phi=.41$  (in fact, no women explained their choice in this way).

#### *Ancillary analyses: Perceived efficacy in past experiences*

How effective is cooperative courtship? Participants who chose the group-option also responded to questions concerning past experiences with romantic cooperation (5 men and 4 women from this set of participants did not answer these questions and were therefore excluded). Participants reported an average-to-above level of past cooperation in romantic situations ( $M=3.38$ ,  $SD=1.54$  on a 0-6 scale, anchored by “never” to “all the time”). Additionally, participants reported an average-to-above frequency of success at meeting their intended romantic goals through cooperation ( $M=3.85$ ,  $SD=1.23$  on the same

0-6 scale). A 2 (Participant Sex) X 2 (Relationship Status) MANOVA on these items revealed that women reported relatively more use of cooperation,  $F(1,42)=7.64$ ,  $p<.01$ ,  $\eta^2=.15$ , and also marginally more success,  $F(1,42)=4.26$ ,  $p<.09$ ,  $\eta^2=.07$ .

All participants responded to two items assessing the usefulness of cooperative strategies for particular forms of romantic relationship formation. When asked “What’s more common, finding a short-term or a long-term romantic partner” using cooperative strategies (1-7 scale), participants believed that short-term partners were more common,  $t(138)=-7.30$ ,  $p<.001$ ,  $d=.62$  (one-sample t-test against the scale midpoint; no differences by Sex). However, when asked “Have you or your friends ever found a long-term (more than one month) romantic partner” using cooperative strategies, 68.8% of participants responded affirmatively (equal numbers of men and women).

Finally, in order to directly test whether women benefit from courtship barriers beyond simply blocking undesirable targets, participants were asked how frequently they receive assistance related to threshold-building (helping a friend play “hard to get” in order to test target worthiness) and, for comparison, assistance related to access (pairing up with the friend of a target to facilitate a friend’s access to the target). A repeated measures analysis revealed a significant interaction of Sex with the type of help,  $F(1,135)=15.11$ ,  $p<.001$ ,  $\eta^2=.10$ : Consistent with hypotheses, planned contrasts showed that women were more likely to receive help creating thresholds than achieving access,  $F(1,135)=8.12$ ,  $p<.01$ ,  $\eta^2=.06$ , with men showing the opposite pattern,  $F(1,135)=7.02$ ,  $p<.01$ ,  $\eta^2=.05$ .

#### *Ancillary analyses: Returns on helping*

Why do people help others with their romantic endeavors? All participants were asked, in free-response format, what they had received or expected to receive from helping friends in past romantic situations. This data was coded along the following dimensions: nothing, self-satisfaction, relationship maintenance (e.g., boosting a friend’s self-esteem and positive emotions, preserving respect in the relationship), help with future access, help with future avoidance, and help with future evaluation of potential romantic partners (the latter three options represent forms of reciprocity). Interrater reliability by kappa coefficient was .90 or greater. Values sum to more than 100% due to participants reporting multiple benefits from helping.

Reported returns on help included: self-satisfaction (26.4%), help with future access (25.6%), friendship maintenance (24.0%), nothing (12.4%), help with future evaluation (9.3%), and help with future avoidance (5.4%). Only one sex difference proved significant—single men were more likely than single women to report receiving nothing from helping,  $\chi^2(1)=10.49$ ,  $p=.001$ ,  $\phi=.34$  (this difference did not emerge for people in relationships).

## GENERAL DISCUSSION

Relatively little empirical attention has been given to cooperation within romantic contexts. We asked two broad questions about cooperation in this paper. First, do people cooperate with others in romantic situations? The answer appears to be a clear “Yes.” Across all four studies, people reported and exhibited a substantial amount of cooperative behavior in the same situations where competition might otherwise be expected. Though women generally cooperated more than men (consistent with past affiliation research), both men and women helped each other achieve romantic success in multiple, often similar, ways.

Our second broad question was: Do women and men exhibit different patterns of cooperative decision making consistent with their general differences in romantic choosiness? Again, the answer is “Yes.” Women were more likely to use friends to create romantic barriers and to give barrier-building help to same-sex friends, whereas men were more likely to use friends to break down romantic barriers and to give barrier-breaking help to same-sex friends. Interestingly, helpers did not exhibit rigid sex-typed patterns of helping across contexts, but instead adapted their assistance to the romantic concerns of their opposite-sex friends. Women primarily offered barrier-breaking (access) help to their male friends while men primarily offered barrier-building (avoidance) help to their female friends. This was the case even in the novel context of counterfeit romantic partners. These general cooperative tendencies and more sex-specific patterns of behavior emerged across a variety of empirical methodologies, including spontaneous inferences to visual scenes, self-reported preferences, past experiences, and decisions about (purportedly) real interactions.

We focused here on two specific strategies—access and avoidance—but there are certainly additional cooperative functions that friends might offer. For instance, in Study 4, women reported

building thresholds that serve as mate quality checks, and not impermeable barriers. Data from our pilot study, and from studies of other researchers (e.g., Bleske & Buss, 2000; Bleske-Rechek & Buss, 2001), also suggest that people may cooperate in prior assessment (evaluating potential mates), relational support (boosting confidence pre-interaction or post-rejection), social comparison (basking in reflected mate quality or contrasting away from lower mate quality), social networking (increasing the pool of potential mates), and likely in many more sex-similar and sex-differentiated ways.

Like other forms of cooperative behavior, cooperation in the courtship arena can provide benefits to the provider as well as to the recipient. Participants reported that romantic cooperation was both intrinsically and extrinsically rewarding, even outside of the mating domain. Platonic relationship maintenance and a sense of self-satisfaction were mentioned in nearly 50% of cooperators’ accounts (see Study 4). Cooperation likely produces many advantages beyond those investigated here (e.g., low mate-value people might receive relatively more romantic attention when affiliating with high mate-value friends). Regardless of their form, such benefits may supplement other psychological mechanisms that diminish mating rivalry between same-sex friends (Bleske & Shackelford, 2001). Consistent with this, a lack of pre-existing friendship eliminated cooperative choices in Study 4.

How effective is cooperative courtship? The frequency rates reported here suggest that these strategies are certainly perceived as successful, and the majority of respondents were able to recall successful instances of cooperative courtship involving themselves or their friends. The existence of collaborative courtship patterns across many animal species also suggests tangible returns at the genetic level. Corporate instantiations of cooperative courtship promote notions of romantic achievement in people as well. For example, a handful of internet-based companies offer wingpeople-for-hire whose job is typically to provide access-based support (e.g., Berkowitz, 2004), and instructional seminars featuring collaborative techniques are offered internationally (Strauss, 2005). These marketers report relatively high short-term relationship success rates, from 65% and up, as assessed by willingness of targets to agree to future romantic encounters (of course, there are no comparison conditions in these accounts) (Berkowitz, 2004; Strauss, 2005). Such numbers compare favorably with our own data

indicating a long-term relationship success rate of 68.8% (Study 4). More precise estimates await further investigation. Certainly, when the current findings are viewed in light of the emerging evidence on cooperative courtship across a range of species, they suggest that additional research on cooperation in human mating offers a worthwhile complement to the numerous studies on mating competition.

#### Variation across time and place

Humans are fundamentally social animals, and the ancestral environment of human social life (probably involving small, kin-based groups) would have supported the existence of cooperation (Axelrod & Hamilton, 1981; Baumeister & Leary, 1995; Caporael, 1997), both within the mating domain as well as more generally. Evolutionarily-based theories such as sexual selection and parental investment also suggest that one sex within a species will typically be more romantically selective than the other. Thus, one possibility is that barrier-building and barrier-breaking motivations are universal, with the former being relatively tied to women and the latter relatively tied to men. [Interestingly, these motivations have analogues at the level of sex-specific gametes—prior to fertilization, human egg cells build protein-rich barriers which sperm cells attempt to break down (Page, Villed, & Villed, 1981).] Of course, there is also a great deal of within-sex variation in romantic strategy use (Buss & Schmitt, 2003; Gangestad & Simpson, 2000). For instance, strategic pluralism theory suggests that the central motivations we have outlined for men and women will vary (within-sex) depending on factors such as individual genetic fitness and the severity of the local environment (Gangestad & Simpson, 2000). Therefore, the degree to which cooperative patterns like those described here will emerge across person, time and place is yet unknown, but potentially quite interesting.

Even if cooperative courtship does represent a set of evolved strategies, societal-level variation in the expression of these strategies is likely. For instance, cross-cultural fluctuations in operational sex ratios predict differences in mate-seeking behavior (Schmitt, 2005). An unbalanced ratio featuring relatively greater numbers of women can produce more sexually unrestricted behavior (e.g., engaging in sexual relationships without commitment), while the reverse is true when there are relatively more men in the mating pool (Gutentag & Secord, 1983; Kenrick,

Li & Butner, 2003; Schmitt, 2005). Therefore, we might expect to find that cooperative courtship is less common in female-biased populations (as creating barriers to men becomes less desirable, and achieving access to women becomes less difficult), and more common in male-biased populations (as achieving access to women becomes more difficult, and avoiding undesirable overtures from men becomes more of a problem).

Environmental contingencies are also likely to affect the specific cooperative behaviors exhibited and types of coalition partners chosen. We have focused on friendships, as these involve unique dyadic alliances in which communal interactions are common (Clark et al., 1986; Tooby & Cosmides, 1996). Consider also the structure and function of coalitions in more kin-based groups. Women have traditionally used kinship coalitions as protection against physical and emotional abuses by romantic partners (Smuts, 1992). In certain cultures, kin play a prominent role in romantic cooperation (e.g., Buunk, Park, & Dubbs, 2008; Perilloux et al., 2008), as in India, where selection of a marriage partner is often brokered by one's family (Kenrick & Keefe, 1992). In many such societies (especially polygynous ones), it is the woman's family which attempts to negotiate a high threshold for a husband, whereas the man relies on his family to help pay an adequate bride-price (Anderson, 2007; Geary & Flinn, 2001). A similar situation existed for parents in 19th-century America: "In regulating the social relations of their daughter... if any gentleman of her acquaintance is particularly ineligible as a husband, he should be excluded" (Young, 1881, p. 183). Thus, the themes Shakespeare eloquently expressed in *The Merchant of Venice* may resonate not only across time, but across cultures as well.

#### Conclusion

Cooperative courtship's relatively unstudied status makes it a valuable commodity for multiple domains of inquiry and a worthwhile step in understanding the complete process of acquiring a romantic partner. The study of cooperation in evolutionary biology spawned novel theoretical developments with implications across many disciplines (e.g., Axelrod & Hamilton, 1981; Trivers, 1972). Social psychologists may gain similar insights by considering the cooperative strategies at play in human mate selection.

## ACKNOWLEDGEMENTS

Portions of this manuscript were presented at the Human Behavior and Evolution Society conference, Austin, TX, 2005. We thank Robert Cialdini, Julie Huang, Vladas Griskevicius, Jenessa Shapiro and several anonymous reviewers for their insightful feedback.

## NOTES

1. In addition, women reported cooperating relatively more to acquire information on potential mates, feedback on romantic target interest, and emotional support after being rebuffed by a romantic target (all supportive of a threshold motive). The studies presented here focus on two specific strategies, but we discuss these other functions further in the General Discussion.

2. We had no prior predictions concerning Participant Sex in this study (only Target Sex). As no effects for Participant Sex reached even marginal status, it is unlikely that increasing the overall N would meaningfully affect these results.

3. The use of Type III SS in all analyses results in conservative tests given any inequalities in cell sizes.

## REFERENCES

- Ackerman, J. M., & Kenrick, D. T. (2008). The costs of benefits: Help-refusals highlight key trade-offs of social life. *Personality and Social Psychology Review, 12*, 118-140.
- Ackerman, J. M., Kenrick, D. T., & Schaller, M. (2007). Is friendship akin to kinship? *Evolution & Human Behavior, 28*, 365-374.
- Anderson, S. (2007). The Economics of Dowry and Brideprice. *Journal of Economic Perspectives, 21*, 151-174.
- Argyle, M. (1991). *Cooperation: The basis of sociability*. Florence, KY: Taylor & Frances/Routledge.
- Atchison, C, Fraser, L., & Lowman, J. (1998). Men who buy sex: Preliminary findings of an exploratory study. In J. Elias, V. Bullough, V. Elias, & G. Brewer (Eds.), *Prostitution* (pp. 172-203). Amherst, NY: Prometheus.
- Axelrod, R., & Hamilton, W. D. (1981). The Evolution of Cooperation. *Science, 211*, 1390-1396.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117*, 497-529.
- Baumeister, R. F., & Vohs, K. D. (2004). Sexual economics: Sex as female resource for social exchange in heterosexual interactions. *Personality and Social Psychology Review, 8*, 339-363.
- Belle, D. (1987). Gender differences in the social moderators of stress. In R. C. Barnett, L. Biener, & G. K. Baruch (Eds.), *Gender and stress* (pp. 257-277). New York: Free Press.
- Berkowitz, E. (2004, October 10). Are you with him? Why yes, want to date him? *New York Times*. (Online), Retrieved January 17, 2008 from: <http://www.nytimes.com/2004/10/10/fashion/10WING.html>
- Bjorklund, D. F., & Kipp, K. (1996). Parental investment theory and gender differences in the evolution of inhibition mechanisms. *Psychological Bulletin, 120*, 163-188.
- Bleske, A. L., & Buss, D. M. (2000). Can men and women be just friends? *Personal Relationships, 7*, 131-151.
- Bleske, A. L., & Shackelford, T. K. (2001). Poaching, promiscuity, and deceit: Combating mating rivalry in same-sex friendships. *Personal Relationships, 8*, 407-424.
- 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.
- Buss, D. M. (1988). The evolution of human intrasexual competition: Tactics of mate attraction. *Journal of Personality and Social Psychology, 54*, 616-628.
- Buss, D. M., & Schmitt, D. P. (1993). Sexual strategies theory: An evolutionary perspective on human mating. *Psychological Review, 100*, 204-232.
- Buss, D. M. (1995). Psychological Sex Differences. Origins Through Sexual Selection. *American Psychologist, 50*, 164-171.
- Buunk, A. P., Park, J. H., & Dubbs, S. L. (2008). Parent-offspring conflict in mate preferences. *Review of General Psychology, 12*, 47-62.
- Caldwell, M. A., & Peplau, L. A. (1982). Sex differences in same-sex friendship. *Sex Roles, 8*, 721-732.
- Caporael, L. R. (1997). The evolution of truly social cognition: The core configurations model. *Personality and Social Psychology Review, 1*, 276-298.
- Clark, M. S., Mills, J., & Powell, M. C. (1986). Keeping track of needs in communal and exchange relationships. *Journal of Personality and Social Psychology, 51*, 333-338.
- Clark, M. S., & Reis, H. T. (1988). Interpersonal processes in close relationships. *Annual Review of Psychology, 39*, 609-672.
- Cross, S.E., & Madson, L. (1997). Models of the self: Self-construals and gender. *Psychological Bulletin, 122*, 5-37.
- Darwin, C. (1874). *The Descent of Man and Selection in Relation to Sex* (2nd ed.). Chicago: Rand, McNally & Co.
- Dijkstra, P., & Buunk, B. P. (1998). Jealousy as a function of rival characteristics: An evolutionary perspective.

- Personality & Social Psychology Bulletin*, 24, 1158-1166.
- Dugatkin, L. A. (1992). Sexual selection and imitation: Females copy the mate choice of others. *American Naturalist*, 139, 1384-1389.
- Eckel, C. C., & Grossman, P. J. (1998). Are Women Less Selfish Than Men?: Evidence From Dictator Experiments. *The Economic Journal*, 108, 726-735.
- Frieswick, K. (2004, March 19-25). Winging it. *The Providence Phoenix*. (Online), Retrieved November 11, 2005 from: [http://www.providencephoenix.com/features/out\\_t here/documents/03684539.asp](http://www.providencephoenix.com/features/out_t here/documents/03684539.asp)
- Gangestad, S. W., & Simpson, J. A. (2000). The evolution of human mating: Trade-offs and strategic pluralism. *Behavioral and Brain Sciences*, 23, 573-587.
- Geary, D. C., & Flinn, M. V. (2001). Evolution of human parental behavior and the human family. *Parenting: Science and Practice*, 1, 5-61.
- Geary, D. C. Vigil, J., & Byrd-Craven, J. (2004). Evolution of human mate choice. *Journal of Sex Research*, 41, 27-42.
- Griskevicius, V., Cialdini, R. B., & Kenrick, D. T. (2006). Peacocks, Picasso, and parental investment: The effects of romantic motives on creativity. *Journal of Personality and Social Psychology*, 91, 63-76.
- Griskevicius, V., Goldstein, N. J., Mortensen, C. R., Cialdini, R. B., & Kenrick, D. T. (2006). Going along versus going alone: When fundamental motives facilitate strategic (non)conformity. *Journal of Personality and Social Psychology*, 91, 281-294.
- Griskevicius, V., Tybur, J. M., Sundie, J. M., Cialdini, R. B., Miller, G. F., & Kenrick, D. T. (2007). Blatant benevolence and conspicuous consumption: When romantic motives elicit strategic costly signals. *Journal of Personality and Social Psychology*, 93, 85-102.
- Gutierrez, S. E., Kenrick, D. T., & Partch, J. J. (1999). Beauty, dominance, and the mating game: Contrast effects in self-assessment reflect gender differences in mate selection. *Personality and Social Psychology Bulletin*, 25, 1126-1134.
- Guttentag, M., & Secord, P. F. (1983). Too many women? The sex ratio question. Beverly Hills, CA: Sage Publications.
- Haselton, M. G., & Buss, D. M. (2000). Error management theory: A new perspective on biases in cross-sex mind reading. *Journal of Personality and Social Psychology*, 78, 81-91.
- Heider, F., & Simmel, M. (1944). An experimental study of apparent behavior. *American Journal of Psychology*, 57, 243-259.
- Hill S. E., & Buss, D. M. (2008). The Mere Presence of Opposite-Sex Others on Judgments of Sexual and Romantic Desirability: Opposite Effects for Men and Women. *Personality and Social Psychology Bulletin*, 34, 635-647.
- Jones, B. C., DeBruine, L. M., Little, A. C., Burriss, R. P., & Feinberg, D. R. (2007). Social transmission of face preferences among humans. *Proceedings of the Royal Society of London B*, 274, 899-903.
- Kenrick, D. T., & Keefe, R. C. (1992). Age preferences in mates reflect sex differences in human reproductive strategies. *Behavioral & Brain Sciences*, 15, 75-133.
- Kenrick, D. T., Li, N. L., & Butner, J. (2003). Dynamical evolutionary psychology: Individual decision rules and emergent social norms. *Psychological Review*, 110, 3-28.
- 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, 97-115.
- Kenrick, D.T., & Trost, M.R. (1987). A biosocial model of relationship formation (pp. 59-100). In K. Kelley (Ed.), *Females, males and sexuality: Theories and research*. Albany, NY: SUNY Press.
- Krakauer, A. H. (2005). Kin selection and cooperative courtship in wild turkeys. *Nature*, 434, 69-72.
- Laham, S. M., Gonsalkorale, K., & von Hippel, W. (2005). Darwinian grandparenting: Preferential investment in more certain kin. *Personality and Social Psychology Bulletin*, 31, 63-72.
- Li, N. P., Bailey, J. M., Kenrick, D. T., & Linsenmeier, J. A. (2002). The necessities and luxuries of mate preferences: Testing the trade-offs. *Journal of Personality & Social Psychology*, 82, 947-955.
- Li, N. P., & Kenrick, D. T. (2006). Sex similarities and differences in preferences for short-term mates: What, whether, and why. *Journal of Personality & Social Psychology*, 90, 468-489.
- Maner, J. K., Kenrick, D. T., Neuberg, S. L., Becker, D. V., Robertson, T., Hofer, B., Delton, A., Butner, J., & Schaller, M. (2005). Functional projection: How fundamental social motives can bias interpersonal perception. *Journal of Personality and Social Psychology*, 88, 63-78.
- Marmion, S., & Lundberg-Love, P. (2004). Learning masculinity and femininity: Gender socialization from parents and peers across the life span. In M. A. Paludi (Ed.), *Praeger guide to the psychology of gender* (pp. 1-26). Westport, CT: Praeger Publishers / Greenwood Publishing Group.
- Miller, G. F. (2000). The mating mind: How sexual choice shaped the evolution of human nature. New York: Doubleday.
- Moore, M. M. (1985). Nonverbal courtship patterns in women: Context and consequences. *Ethology and Sociobiology*, 6, 237-247.
- Mussweiler, T., & Rüter, K. (2003). What friends are for! The use of routine standards in social comparison. *Journal of Personality and Social Psychology*, 85, 467-481.

- Oatley, K., & Yuill, N. (1985). Perception of personal and interpersonal action in a cartoon film. *British Journal of Social Psychology*, *24*, 115-124.
- Packer, C., & Pusey, A. E. (1982). Cooperation and competition within coalitions of male lions: kin selection or game theory? *Nature*, *296*, 740-742.
- Page, E. W., Villed, C. A., & Villed, D. B. (1981). *Human Reproduction, Essentials of Reproductive and Perinatal Medicine* (3rd edition). Philadelphia: W. B. Saunders Co.
- Perilloux, C., Fleischman, D.S. & Buss, D. M. (2008). The Daughter-Guarding Hypothesis: Parental Influence on, and Emotional Reactions to, Offspring's Mating Behavior. *Evolutionary Psychology*, *6*, 217-233.
- Pope, T. R. (1990). The reproductive consequences of male cooperation in the red howler monkey: Paternity exclusion in multi-male and single-male troops using genetic markers. *Behavioral Ecology and Sociobiology*, *27*, 439-446.
- Rotenberg, K. J. (1984). Sex differences in children's trust in peers. *Sex Roles*, *11*, 953-957.
- Sagarin, B. J. (2005). Reconsidering Evolved Sex Differences in Jealousy: Comment on Harris (2003). *Personality and Social Psychology Review*, *9*, 62-75.
- Sanders, G. F., & Mullis, R. L. (1998). Family influences on sexual attitudes and knowledge as reported by college students. *Adolescence*, *23*, 837-846.
- Schmitt, D. P. (2005). Fundamentals of human mating strategies. . In D. M. Buss (Ed), *The handbook of evolutionary psychology* (pp. 258-291). Hoboken, NJ: John Wiley & Sons, Inc.
- Shakespeare, W. (1600/2004). *The Merchant of Venice*. New York: Signet.
- Simpson, J. A., & Gangestad, S. W. (1992). Sociosexuality and Romantic Partner Choice. *Journal of Personality*, *60*, 31-51.
- Simpson, J. A., Gangestad, S. W., Christensen, P. N., & Leck, K. (1999). Fluctuating asymmetry, sociosexuality, and intrasexual competitive tactics. *Journal of Personality & Social Psychology*, *76*, 159-172.
- Smuts, B. (1992). Male aggression against women: An evolutionary perspective. *Human Nature*, *2*, 1-44.
- Smuts, B. B., & Smuts, R. W. (1993). Male aggression and sexual coercion of females in nonhuman primates and other mammals: Evidence and theoretical implications. *Advances in the Study of Behavior*, *22*, 1-63.
- Strauss, N. (2005). *The game: Penetrating the secret society of pickup artists*. New York: ReganBooks.
- Tooby, J., & Cosmides, L. (1996). Friendship and the banker's paradox: Other pathways to the evolution of adaptations for altruism. *Proceedings of the British Academy*, *88*, 119-143.
- Trivers, R. L. (1972). Parental investment and sexual selection. In B. H. Campbell (Ed.), *Sexual Selection and the Descent of Man, 1871-1971* (pp. 136-179). Chicago: Aldine.
- Trost, M. R., & Alberts, J. K. (2006). How men and women communicate attraction: An evolutionary view. In K. Dindia & D. J. Canary (Eds.), *Sex differences and similarities in communication*, 2nd ed. (pp. 317-336). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.
- Van Vugt, M., De Cremer, D., & Janssen, D. P. (2007). Gender Differences in Cooperation and Competition: The Male-Warrior Hypothesis. *Psychological Science*, *18*, 19-23.
- Van Vugt, M., & Van Lange, P. A. M. (2006). The Altruism Puzzle: Psychological Adaptations for Prosocial Behavior. In M. Schaller, J.A. Simpson, & D. T. Kenrick, *Evolution and social psychology* (pp. 237-261). Madison, CT: Psychosocial Press.
- Watts, D. P. (1998). Coalitionary mate guarding by male chimpanzees at Ngogo, Kibale National Park, Uganda. *Behavioral Ecology and Sociobiology*, *44*, 43-55.
- Young, J. H. (1881). *Our department. Or the manners, conduct and dress of the most refined society*. Detroit, MI: F. B. Dickerson & Co. (Online), Retrieved January 28, 2008 from: <http://www.gutenberg.org/files/17609/17609-h/17609-h.htm>
- Zakriski, A. L., Wright, J. C., & Underwood, M. K. (2005). Gender Similarities and Differences in Children's Social Behavior: Finding Personality in Contextualized Patterns of Adaptation. *Journal of Personality and Social Psychology*, *88*, 844-855.