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# **Evolutionary Mating Traits: When Costly Signals Emerge**

A Capstone Project Submitted in Partial Fulfillment of the  
Requirements of the Renée Crown University Honors Program at  
Syracuse University

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Renée Crown University Honors

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Honors Capstone Project in Psychology

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## **Abstract**

This study investigated whether different romantic contexts would influence one's willingness to engage in blatant benevolence or conspicuous consumption. Participants – 341 college-age students – were recruited to read written stimulus materials about interpersonal encounters with a person of the opposite sex. Each participant was then asked to respond to questionnaires, which led to atypical results in how men and women interpret ambiguous cues. Contrary to previous findings, evidence suggested women more readily wish to use costly signals in response to ambiguous romantic cues in evolving relationships as compared to men, who showed no distinction between non-romantic and ambiguously romantic cues. Men actually showed a decrease in the willingness for blatant prosocial behavior in explicitly romantic contexts.

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## **Acknowledgements**

This project greatly benefitted from the role of my professor and eventual advisor, Dr. Alecia Santuzzi. I had the opportunity to take the second sequence of statistics with her my sophomore year, where I quickly appreciated her approach to statistics: use your right brain, not your left. While previous generations of psychology students would need to meticulously calculate massive equations, current students have the luxury of statistical software but also the potential danger for negligent and careless mistakes. Dr. Santuzzi wagered that we would act accordingly, and I think this empirical study is testimony that her teaching and professorial traditions like hers allow undergraduates to act like graduate students and that “outsourcing” busywork while understanding the broad picture ultimately benefits the student and science itself.

Dr. Santuzzi continued to help develop my statistical background by allowing me to take her graduate-level statistics course, and during that semester of my junior year, I also conducted background research for my own study. She gave me the freedom to pursue my interests while providing help with an innate knowledge of social psychology research that fit with my discoveries. Eventually, she proposed the influence of ambiguous romantic cues, once again emphasizing the real-world practicality that psychology should use.

This history gave me the skills necessary to propose a novel study, assemble every nitty-gritty detail, conduct an experiment with participants,

and produce an entire journal article from start to finish. Such an undertaking was also made possible by research assistants Samantha Aster, Hemandria Busgeeth, Raymond Graham and Whitney Styer. I also greatly appreciated my honors reader Dr. Leonard Newman, who also helped me get hooked into evolutionary psychology by giving me journal articles and a volunteer position in his lab. Altogether, the entire project benefitted from a variety of people. I would perhaps still have been running subjects in the lab or re-writing drafts right now if it weren't for their help, and the whole scheme would have been nothing but an impractical wish.

## Introduction

Showing the ability to volunteer one's time in an obvious manner and to spend one's money lavishly have been described as strategic signals to show one's sexual fitness (Griskevicius, Tybur, Sundie, Cialdini, Miller & Kenrick, 2007). Elicited upon romantic primes, these behaviors have been suggested as specific to one's sex, where women tend to show "blatant benevolence" and men tend to show "conspicuous consumption." Blatant benevolence is defined as "publicly visible prosocial behavior" and conspicuous consumption as spending money on "lavish and unnecessary things" (Griskevicius et al. 2007).

### *Past Research*

Griskevicius et al. (2007) sought to explain philanthropy's excessively large monetary gifts through costly signals. They found that individuals incur costs to the self to gain mating advantages. Conspicuous consumption may show one's parental potential by showing that one has extra resources, which these researchers suggested mimic a peacock's fitness as shown by an ornate tail. Griskevicius et al. hypothesized that a romantic motive would lead men, but not women, to display greater levels of conspicuous consumption.

Blatant benevolence behavior seemed less clear for these researchers, who hypothesized that a romantic motive would either lead men and women or women alone to increase displays of blatant

benevolence. These costly signals also involve time and energy, and Griskevicius et al. cited this characteristic's desirability for potential mates.

In their first experiment, Griskevicius et al. used 159 introductory psychology class students to indicate their spending preferences on various conspicuous purchases and their willingness to invest time at several volunteer organizations. In one condition, participants were primed with three photos of attractive opposite-sex individuals. Participants were asked to choose their ideal romantic partner from among the three. Participants then wrote for three minutes about a perfect date with the person they selected. They then completed a set of five items on blatant benevolence or conspicuous consumption. Afterwards, three more photos of attractive individuals in the romantic condition were shown, and participants then filled out five items on blatant benevolence or conspicuous consumption.

As predicted, only men showed a significant increase in a desire to conspicuously consume under the romantic condition, and only women showed a significant increase in a desire to blatantly volunteer under the romantic condition.

A subsequent study found that even imaginary romantic stories, as opposed to pictures, elicited these costly signals and that inconspicuous purchases and philanthropy had no effect on a person's willingness to spend or volunteer. Males romantically primed actually showed a significant decrease in inconspicuous purchases. Females romantically



primed also showed no effect for inconspicuous volunteering. Stated another way, there was no difference in a person's willingness to invest one's time between romantic and non-romantic situations. Consequently, researchers concluded costly signals were used strategically in public contexts as opposed to imprudent uses of resources.

Further experiments within the Griskevicius study revealed evidence to suggest that romantically primed men will show a desire to increase blatant benevolence if the benevolence was heroic, i.e. demonstrating one's courage and strength. Another caveat to their research was that romantically primed women showed a desire to increase conspicuous consumption if the spending was able to simultaneously display their financial generosity.

One might interpret these additional findings as non-anomalies for men's conspicuous consumption and women's blatant benevolence if motive, rather than outcome, is examined. For example, it may seem contradictory that women showed conspicuous consumption, but they did so with a benevolence motive in mind. Similarly, the finding that men show a willingness to display blatant benevolence under a heroic setting seems contrary to the majority of previous findings, but the apparent contradiction could just be masked under a "risk-taking" trait (Griskevicius et al. 2007) that's a means to financial success.

Regardless of one's interpretation, different types of romantic relationships bear different outcomes. Past research has shown that male

and female behaviors differ when individuals are reflecting on clearly defined heterosexual relationships. In other words, past research has focused on behaviors and tendencies when one person knew exactly whether the partner had romantic or platonic intentions, or that the couple shared explicitly defined relationship goals. The goal for the present study was to examine whether these sex differences in behavior occurred when encountering ambiguous relationship situations where the romantic or platonic intentions of the partner are not clear.

#### *The Role of Defining Social Relationships*

The overwhelming attention to romantic relationships in the literature and media stand as testimony that romance is not an easily definable concept (Sternberg & Weis 2008). Romantic relationships evolve in different ways (Eastwick & Finkel, 2008). Many times relationships begin as platonic friendships that evolve into romantic partnerships (Gonzaga, Keltner, Londahl & Smith, 2001). The process through which individuals transition from platonic to romantic relationships involves uncertainty in how the relationship stands at any given time (Mongeau, Serewicz & Therrien, 2004). Thus, we believe it is most critical to examine sex differences in mating strategies at the precise time that they are most effective—when the romantic nature of the relationship is ambiguous.

#### *The Role of Ambiguity in Relationships*

Individuals are generally uncomfortable with uncertainty and ambiguity (Grenier, Barrette & Ladouceur, 2005). Being involved in a

relationship where the individual or mutual goals are uncertain may motivate the need to reduce such uncertainty (Baldwin, 1992). Thus, partners likely engage in a process of information search during which they attend to partner's behavioral and verbal cues to help them identify the state of affairs.

We believe that part of the uncertainty reduction process involves acting on general mating tendencies that might differ by sex as suggested by previous research (Sorrentino, Holmes, Hanna & Sharp, 1995). Men and women might also differ in how they interpret ambiguous situations, which would lead to differences in behavioral strategies. Men might be more motivated to infer romantic intent in ambiguous situations than women (Farris, Treat, Viken & McFall, 2007). Consequently, men might show more spending behavior than women, whereas women might not pick up on these cues as equally or eagerly. Such a behavior would suggest that females in platonic and potentially romantic relationships would not show costly signals, but perhaps these costly signals are a way to test a relationship for romantic potential.

#### *The Role of Relationship Type*

Griskevicius et al. (2007) provided some information about how the certainty of the relationship might play into the sex differences in mating-relevant behaviors. They examined responses to both short-term and long-term relationships (romantic and platonic). Their results showed no difference between short-term (a first date with a stranger) and long-term

dating scenarios that were used as romantic primes. The “long-term” dating scenario, however, involved recalling the first encounter (also with a stranger) of a developing relationship. The “long-term” dating prime also explicitly identifies the scenario as a first date. These researchers compared these primes to a control scenario involving a same-sex friend. Although the relationships seemed to differ in certainty due to perceived duration of the relationship, the relationships were still explicitly defined as romantic.

Importantly, past research suggested that the type of relationship *prior* to a romantic encounter is significant. Strangers might be more likely to reduce uncertainty whereas friends are more likely to investigate romantic potential and sexual goals on first dates (Mongeau et al., 2004). In other words, there’s reason to believe a short-term and long-term relationship may exhibit differences: long-term relationships have less uncertainty and therefore might have more relationship potential.

One reason why past romantic studies have found the short-term and long-term relationships yielding different mating strategies (whereas Griskevicius et al. researchers found no difference) might be that the Griskevicius et al. study uses same-sex friendships with no romantic hints for the control and opposite-sex relationships that contain romance for the manipulated scenario. Perhaps if the scenarios only differed from same-sex friends to cross-sex friends, there might be differences. Alternatively, researchers could have used a control where cross-sex friends had

romantic potential and a manipulated scenario of a couple going steady. In either possibility, there might have been no results, and the combination of different genders *and* romance variables might have yielded an interaction, such that the response to romance differed by gender. The Griskevicius et al. study therefore failed to keep extraneous variables constant, and it masqueraded two manipulations as one, where degree of romance could be confounded with heterosexuality.

Accordingly, costly signals might emerge at different points of a romantic relationship. Clark, Shaver & Abrahams (1999) summarized past research that found individuals of both sexes pursue short-term and long-term strategies when seeking sexual relationships. These romantic cues may emerge to attract and retain a mate (Griskevicius et al., 2007), to attract a mate (Mongeau, Serewicz & Therrien, 2004, and Guerrero & Chavez, 2005), or to retain a mate (Marlowe, 2000).

From an evolutionary perspective, mating behaviors are also strategically placed to compete over limited resources, even if these behaviors entail wasting money. Flaunting one's sexual fitness would seem more wasteful in a restricted relationship compared to a close opposite-sex friendship that has the potential for intimacy and sex, especially concerning females who are more selective in choosing a mate (Mongeau et al., 2004). Therefore, it seems likely to infer that in explicitly romantic relationship, men might be less likely to exhibit an increased spending of money in order to preserve resources (because a male is no

longer involved in courting displays), whereas women might be more likely to exhibit increased volunteering to retain one's mate.

When two individuals desire a friendship to become romantic, they consequently spend more effort in maintenance and frequency of the relationship compared to strictly platonic friends or combinations of this pair (Guerrero & Chavez, 2005). Afifi and Faulkner (2000) reported past research that showed opposite-sex friendships are marked with sexual attraction (58 percent), sexual tension (62 percent) and sexual remarks, teasing, jokes (66 percent). Afifi and Faulkner found that more than half of the participants sampled had previously had unplanned sex with a platonic opposite-sex friend. That means long-term relationships should exhibit a greater willingness to display the costly signals of blatant benevolence and conspicuous consumption than short-term relationships.

#### *Present Study*

Distinguishing between potentially romantic opposite-sex friendships and legally binding monogamy could (a) present a significant contrast between when sexual fitness behaviors are displayed, (b) show that blatant benevolence and conspicuous consumption are not exclusive to romantic relationships, or (c) show no differences. Based on past research, we hypothesized that opposite-sex friendships with romantic potential would show greater abundance of these signaling traits than long-term relationships.

Comparing opposite-sex friends and relationships presents a constant of opposite-sex members involved. This distinction also supports greater external validity for the original study of Griskevicius et al. (2007).

To determine if relationship type and length of relationship are significant factors in blatant benevolence and conspicuous consumption, the predictions are as follows:

*Hypothesis 1.* Consistent with previous research, we anticipate ambiguous and romantic contexts will show greater levels of conspicuous consumption than non-romantic contexts.

*Hypothesis 1a (mate attraction).* Men in ambiguously romantic relationships will show greater levels of conspicuous consumption than explicitly romantic relationships. In attempt to clearly define ambiguously romantic relationships and explicitly romantic relationships, men should show enhanced spending behavior in potentially romantic relationships compared to explicitly romantic relationships.

*Hypothesis 2.* Consistent with previous research, we anticipate ambiguous and romantic contexts will show greater levels of blatant benevolence than non-romantic contexts.

*Hypothesis 2a (mate retention).* Women will show greater levels of blatant benevolence in explicitly romantic relationships than potentially romantic or platonic relationships.

*Hypothesis 3.* The length of relationship will predict conspicuous consumption levels for men and blatant benevolence levels for women.

*Hypothesis 3a (mate attraction).* Men in ambiguous and explicitly romantic relationships will show greater levels of conspicuous consumption in short-term relationships than long-term relationships.

*Hypothesis 3b (mate retention).* Women in explicitly romantic relationships will show greater levels of blatant benevolence in long-term relationships than short-term relationships.

*Hypothesis 4.* Men and women will show different patterns in responses to relationship types, such that men will be more likely to treat ambiguous or uncertain situations as romantic, but women will treat ambiguous or uncertain situations as platonic.



## **Pilot Study**

The purpose was to determine if the ambiguous dating scenario yielded different arousal levels relative to the platonic relationship. The four criteria to test these levels, as used by Griskevicius et al., were romantic arousal, sexual arousal, desire to have a romantic partner, and desire to have others attracted to them. Because a scenario using ambiguous romantic cues with cross-sex friends was not used as a prime in previous conspicuous consumption and blatant benevolence research, we tested a new dating scenario compared to a control (platonic relationship) used previously. The pilot study did not test the effects of long-term primes for ambiguously romantic and explicit romantic scenarios.

### *Participants*

For the pilot study, 22 females and 26 males were recruited from introductory psychology classes for extra credit. Research volunteers who were junior and senior psychology majors ran participants individually. A same-sex researcher ran each participant individually. Researchers who ran subjects included an undergraduate female psychology major, an undergraduate male psychology major, a paid female research assistant and the lead investigator.

Ten cases failed to meet a manipulation check for identifying the sex of the main character's date in a fictional story, so the pilot study used the data of 18 females and 20 males.

### *Design and Procedure*

The overall experiment was a 2 (Sex: male or female) × 2 (Relationship: short-term platonic cross-sex friendship, short-term potentially romantic cross-sex friendship) design. Sex and relationship were between-subject independent variables, and behavior and perception were dependent variables.

### *Materials*

Imaginary scenarios based on replicas of the primes used in the Griskevicius et al. (2007) study were used for primes and controls. Previous stimulus materials for short-term and long-term romantic relationships have elicited romantic arousal, sexual arousal, a desire to have a romantic partner, and a desire to have others attracted to them. Our study added a new scenario involving a cross-sex friendship with ambiguous cues of romantic interest, and added long-term relationship dimensions to the control and prime. (Long-term conditions tested in main study only).

Half of the participants were primed with a situation that placed the participant in a situation describing a potentially romantic relationship from a cross-sex friendship (a first date with a stranger or longtime friend), and the other half read a control scenario where a participant lost and found

concert tickets for a strictly platonic friend (classmate or high school friend).

After reading one of these randomly assigned scenarios on a computer, each participant responded to conspicuous and inconspicuous items on consumption and benevolence as used in studies one and two of Griskevicius et al. (2007).

### *Results*

A univariate analysis of variance found a main effect for males and females in romantic arousal,  $F(1,37) = 4.606$ ,  $p = .039$ ,  $R^2 = .129$ , while no main effects were found for sexual arousal,  $F(1) (p=.158)$ , desire to have a romantic partner ( $p=.224$ ) and desire to have others attracted to them ( $p=.073$ ). There was no evidence to suggest that the gender of the participant had an effect ( $p>.490$  or more) or an interaction with relationship type ( $p>.426$  or more).

An examination of the cell means showed that participants in the ambiguous cues prime showed higher levels of romantic arousal,  $M=4.30$ ,  $SD=1.689$ , compared to the control,  $M=3.94$ ,  $SD=2.043$ . See Figure 1. As mentioned, sexual arousal yielded no statistically significant differences between the control,  $M=3.10$ ,  $SD=1.971$  and prime,  $M=3.94$ ,  $SD=1.589$ . Likewise, attraction's control,  $M=5.95$ ,  $SD=1.146$ , and prime,  $M=6.56$ ,  $SD=.705$ . The desire to have others attracted showed the same insignificance between the control,  $M=5.55$ ,  $SD=1.050$ , and prime,  $M=6.00$ ,  $SD=1.237$ .

The limited sample size for the pilot may have limited the statistical power to support a condition by sex interaction. Cohen's  $d$  for female differences in romantic arousal for the prime compared to the control showed a value of .75, almost a large effect. Cohen's  $d$  for male differences in romantic arousal was .66. A large effect,  $d = .88$ , was shown for male differences in desire to have others attracted to them in the prime versus control, but only a small effect,  $d = .35$ , for females. Although no interactions were statistically significant, the different effect sizes across gender suggest that the response to an ambiguous compared to control scenario differs by sex of participant.

## **Main Study Method**

### *Participants*

For the main study, 167 females and 174 males were recruited from introductory psychology classes for extra credit. Research volunteers who were junior and senior psychology majors ran participants individually. The average age for female participants was 18.6 years of age (SD = 1.333) and 18.72 years of age (SD = 1.062) for males.

### *Design and Procedure*

The overall experiment was a 2 (Sex: male or female) × 3 (Relationship: platonic cross-sex friendship, potentially romantic cross-sex friendship, or romantic/engaged couple) × 2 (Length: short-term or long-term) factorial design. Sex, relationship, and length were between-subject independent variables, meaning they differed by each group whereas willingness levels of blatant benevolence and conspicuous consumption were dependent variables.

### *Materials*

Imaginary scenarios based on or replicas of the primes used in the Griskevicius et al. (2007) study were used for primes and controls. Full texts of each female dating are located in Appendices A through F (See p. 34-57 or the Table of Contents). A third of the participants (males and females) were primed with a situation that placed the participant as engaged (recent or after a prenuptial agreement), another third of the

participant pool was primed with a situation involving a potentially romantic relationship from a cross-sex friendship (a first date with a stranger or longtime friend), and the last third read a control scenario where a participant lost and found concert tickets for a strictly platonic friend (classmate or high school friend).

*Short-term control.* A narrator loses concert tickets that belong to the narrator and an opposite-sex platonic friend. The reading seeks to elicit anxiety, confusion, frustration and excitement. Both characters are in committed relationships. The relationship is identified as a friend from class.

*Long-term control.* Replicates the above scenario, but the relationship is identified as a friend from high school. There has also been more build up as the story indicates the narrator and platonic friend have communicated back and forth prior to the event for weeks.

*Short-term potential romance.* The relationship is from class and both characters are single. Flirting, joking, teasing, comfort, happiness and romantic feelings are explicitly identified. Physical comfort also occurs, i.e. “Even when his/her hand touches yours by accident, you feel a tingle and a rush of excitement. You quickly glance at his/her eyes, waiting for him/her to look at yours. When he/she does, both of you smile and look away.” Relationship potential is also explicitly considered and glamorized by the narrator. Contradictory evidence, like “the two of you haven’t gone

on any specific dates," is mentioned. The scenario identifies that the two characters are still not a couple at the end of the story.

*Long-term potential romance.* Replicates the above scenario, but the opposite-sex character is identified as a high school friend who has recently transferred to the narrator's university.

*Short-term romantic relationship.* This scenario is nearly identical to the short-term potential romance scenario except that the narrator does not have any contradictory evidence or questioning about whether the relationship is platonic or romantic. For this condition, subsequent encounters between the characters are described as dates.

*Long-term romantic relationship.* A romantic dinner occurs like previous potential romance and romance conditions, but a potential marriage proposal is explicitly identified from the start. The characters also kiss at sunset prior to the dinner. The relationship is described as a couple that has dated since college.

Past research suggested no sequence effects, so the order was always constant. After reading one of these randomly assigned scenarios on a computer, each participant responded to conspicuous items on consumption as used in studies one and two of Griskevicius et al. (2007). Those involved willingness to spend money on a new car, a new watch, buying dinner for a group of friends, a new cell phone and a vacation to Europe. As in past research, participants then wrote about desired characteristics of their ideal mate for three minutes. Subjects in the control

wrote about their ideal concert. Participants then responded to conspicuous items on benevolence (11-point rating scale with 1 indicating a low number of spending/volunteering and 11 indicating a high number of spending/volunteering). Those items involved helping at a homeless shelter, helping build houses for poor families, being a Big Brother or Sister and helping at a children's hospital. Finally, participants completed a manipulation check, an Inclusion of Other in the Self Scale (Aron, A., E. Aron & D. Smollan, 1992), a Sociosexual Orientation Inventory (Simpson & Gangestad, 1991), an Adult Romantic Attachment measure (Hazan & Shaver, 1987) and a demographic survey.

A correlation matrix indicated that the five blatant benevolence items, willingness to "help at a homeless shelter," "help build housing for poor families," "help teach underprivileged youths to read," "be a Big Brother or Sister," and "help at a children's hospital," were significantly correlated, all  $p$ -values  $< .001$ . The Cronbach's alpha for the composite was .858. The five conspicuous consumption items, willingness to spend "a new car," "a new watch," "taking a group of friends out to dinner," "a new cell phone," "a nice vacation to Europe," were also significantly correlated, all  $p$ -values  $< .001$ . The Cronbach's alpha for the composite was .688. Items were on 11-point Likert scales, where 1 indicated a low volunteering or spending level and 11 indicated a high volunteering or spending level.



## Main Study Results

The experiment evaluated if one's sex, relationship and length had any effects on blatant benevolence or conspicuous consumption. Sex only dealt with two biological genders. Relationship varied from a platonic cross-sex friendship, potentially romantic relationship or romantic relationship. Length distinguished between two nominal measures, short or long, for how long a participant knew the other person in the relationship.

Table 1 indicates the means and standard deviations for willingness to blatantly volunteer through participants' mean responses. Table 2 indicates the means and standard deviations for willingness to conspicuously spend through participants' mean responses.

### *Blatant benevolence*

A univariate analysis of variance found evidence to suggest a significant main effect for sex,  $F(1, 326) = 23.109$ ,  $p < .001$ ,  $\eta^2 = .066$ , but none for the type of relationship,  $F(1, 326) = 0.908$ ,  $p = 0.404$ ,  $\eta^2 = .006$ , or length of relationship,  $F(1, 326) = 1.026$ ,  $p = 0.312$ ,  $\eta^2 = .003$ . A significant two-way interaction between relationship and sex was found,  $F(2, 326) = 5.840$ ,  $p = 0.003$ ,  $\eta^2 = .035$  (see figure 2), whereas no significant two-way interactions emerged between relationship and length,  $F(2, 326) = 1.123$ ,  $p = 0.327$ ,  $\eta^2 = .007$ , or length and sex,  $F(1, 326) = 0.017$ ,  $p = 0.896$ ,  $\eta^2 = .000$ . The three-way interaction between

relationship, length and sex was not statistically significant,  $F(2, 326) = 1.173$ ,  $p = 0.311$ .

To better understand the pattern in the significant two-way interactions, we considered the relationship effects within each sex. When only female cases were examined ( $n=165$ ), pairwise comparisons indicated a significant difference between a potentially romantic relationship ( $M=3.952$ ,  $SD=1.648$ ) and a platonic relationship ( $M=3.283$ ,  $SD=1.170$ ),  $M_{diff} = .666$ ,  $p = .013$ ,  $95\% CI = .114$  to  $1.189$ . This means females expressed a willingness to display volunteering traits in a potentially romantic relationship more than a cross-sex platonic friendship. No evidence suggested females distinguish between a potentially romantic relationship and romantic relationship,  $M_{diff} = .291$ ,  $p = .284$ , or a romantic relationship and a platonic relationship,  $M_{diff} = .375$ ,  $p = .160$  for blatant benevolence.

When only male cases were examined ( $n=173$ ), pairwise comparisons indicated a significant difference between a platonic relationship ( $M=3.283$ ,  $SD=1.736$ ) and a romantic relationship ( $M=2.547$ ,  $SD=1.120$ ),  $M_{diff} = .731$ ,  $p = .010$ ,  $95\% CI = .175$  to  $1.288$ . That means males expressed a willingness to conceal or preserve volunteering displays in a romantic relationship compared to a cross-sex friendship. (New finding of mating display behaviors.) No evidence suggested males distinguish between a potentially romantic relationship and romantic

relationship,  $M_{\text{diff}} = .225$ ,  $p = .427$  or a platonic relationship and potentially romantic relationship,  $M_{\text{diff}} = .507$ ,  $p = .073$ .

### *Conspicuous Consumption*

A univariate analysis of variance found no evidence to suggest significant main effects for sex,  $F(1, 326) = .001$ ,  $p = 0.979$ ,  $\eta^2 = .000$ , relationship,  $F(1, 326) = .123$ ,  $p = 0.123$ ,  $\eta^2 = .001$ , or length  $F(1, 326) = .008$ ,  $p = .928$ ,  $\eta^2 = .000$  on conspicuous consumption. A significant two-way interaction between relationship and sex was found,  $F(2, 326) = 9.554$ ,  $p = 0.035$ ,  $\eta^2 = .020$  (see figure 3), whereas no significant two-way interactions emerged between relationship and length,  $F(2, 326) = 1.018$ ,  $p = 0.362$ ,  $\eta^2 = .006$ , or length and sex,  $F(1, 326) = 1.711$ ,  $p = 0.192$ ,  $\eta^2 = .005$ . A three-way interaction between relationship, length and sex was not significant,  $F(2, 326) = 1.217$ ,  $p = 0.297$ ,  $\eta^2 = .007$ .

Again, in order to better understand the patterns in the significant two-way interaction, we examined the relationship effects within each sex. When only male cases were examined ( $n=173$ ), pairwise comparisons indicated no significant differences between a platonic relationship and potentially romantic relationship,  $M_{\text{diff}} = .331$ ,  $p = .307$ , a romantic relationship and potentially romantic relationship,  $M_{\text{diff}} = .470$ ,  $p = .150$ , or a romantic relationship and a platonic relationship,  $M_{\text{diff}} = .139$ ,  $p = .669$  for conspicuous consumption. That means males showed no evidence to suggest that they distinguish between different types of relationships, even

if romantic, perhaps contrary to previous findings of mating displays of conspicuous consumption.

When only female cases were examined ( $n=165$ ), pairwise comparisons indicated a significant difference between a potentially romantic relationship ( $M=4.860$ ,  $SD=1.743$ ) and a platonic relationship ( $M=4.208$ ,  $SD=1.524$ ),  $M_{diff} = .645$ ,  $p = .039$ ,  $95\% CI = .032$  to  $1.258$ . That means females expressed a willingness to display spending behaviors in a potentially romantic relationship more than a cross-sex platonic friendship. (New finding of mating display behaviors.) No evidence suggested that females distinguish between a potentially romantic relationship and platonic relationship,  $M_{diff} = .536$ ,  $p = .080$  or a platonic relationship and romantic relationship,  $M_{diff} = .109$ ,  $p = .721$  for conspicuous consumption.

## Discussion

Our initial inquiry began with whether costly resource signals would be displayed in situations that are not explicitly defined as romantic or platonic among cross-sex partners.

In accordance with past research we found females willing to express a desire for blatant benevolence when primed. We found that potential romantic relationships elicited a greater willingness for this costly signal compared to platonic relationships, though, and romantic relationships showed no difference compared to the control. That means ambiguous cues rather than explicitly defined relationships suggest more potential for costly signals. Blatant benevolence for males also acted consistently with previous research. But instead of zero willingness to volunteer in public settings, males actually showed a statistically significant willingness to avoid blatant benevolence (or perhaps a lack of willingness to publicly volunteer) in explicitly defined romantic relationships.

In contrast to past research we found certain potentially romantic and platonic relationship contexts may yield no differences in conspicuous consumption for males compared to each other or platonic cross-sex friendships. Previous research indicated males but not females would show an increased willingness to conspicuously consume in romantic contexts, so our finding that no differences emerged is somewhat surprising. A new finding, contrary to previous research, involved women

and conspicuous consumption. Women in past research showed no willingness to conspicuously consume (as previously noted, one caveat to this rule is if the spending was able to simultaneously display their financial generosity). Our research, however, shows context rather than an indirect motive as a factor for female conspicuous consumption: potentially romantic primed females might show a greater willingness to display this costly signal than romantically primed females.

Our hypotheses showed several surprises that ran contrary to our theory-based hypotheses. One theoretical approach to relationships, sociobiological Darwinism, is that biological investment in offspring influences sex differences in behavior, where males tend to seek multiple partners and females tend to retain a single partner. Thus, costly signals seemed like they should have followed this framework, where males would be more short-term prone in expressing these behaviors with strangers and potential partners and females would be more long-term prone in expressing these behaviors with well-known cross-sex friends and explicitly defined romantic partners.

Nevertheless, there was no evidence to suggest that men distinguished between ambiguous cues and explicit ones (hypothesis 1a), except for their decline in blatant benevolence in explicitly romantic relationships. Also contrary to our hypotheses, women indicated blatant benevolence and conspicuous consumption in potentially romantic situations rather than romantic relationships (hypothesis 2a). Thus, it

appears women, not men, were more eager to interpret ambiguous cues as romantic (hypothesis 4). Another interpretation, though, is that men were more cautious to interpret ambiguous cues as romantic.

Mean cell differences suggested some support toward an attraction/retention-based model, but romantic cues may also be used for more than just attraction and retention; males who show a significant decrease in blatant benevolence in explicitly romantic relationships might be preserving their resources or possibly rejecting their partner.

One major reason why our results might differ from past evidence is that previous stimulus materials never distinguished between different contexts of a relationship. Short-term (a vacation with friends on an island) and long-term scenarios (first-date with a stranger from one's campus) by previous researchers used different settings but did not seem to differ between romantic cues and feelings or distinguish between explicitly defined relationships and implicit ones. By controlling extraneous factors, like setting, and implementing ambiguous romantic cues, our research allowed participants to sketch a more accurate picture of costly signals. This may have contributed to a drop in male blatant benevolence in romantic relationships and a spike in female conspicuous consumption during potentially romantic relationships.

Some limitations and challenges that we encountered include a failure to have short-term and long-term stimulus materials that produce notable differences. The relationship length variable yielded no

interactions with relationship type or sex, which was due to the fact that pilot testing did not even include this prime to see if subjects would or would not pick up on it. Future research should use pilot studies that highly emphasize the length of a relationship – as opposed to our study's partial emphasis – to determine if such a manipulation can yield differences. Cell differences between length and relationship type suggest so (see Tables 1 & 2).

Other than an ineffective variable, our study only dealt with imaginary scenarios as was the case with previous research. Consequently, these results may not generalize to real life situations where information is not presented systematically but selectively chosen.

Subsequent research can therefore pursue even more real-world experiments that show a greater external validity. Experimenters could run game theory-type scenarios with actual spending and volunteering. On the other hand, further research should examine if there are any sex differences for reading stimulus materials; men and women might have statistically significant differences when responding to romantic arousal, sexual arousal, desire to have a romantic partner, and desire to have others attracted to them.

Our pilot data suggest that women may not distinguish romantic arousal and sexual arousal as greatly as men do. Determining the validity of this possibility might help explain why women but not men responded to ambiguous cues with a willingness to display costly signals.



In addition to contributing to the relationships research literature, our results might be useful to marketers and advertisers. Research indicates that conspicuous consumption is important in advertising for (a) strategic intentions, such as the costly signaling theory used in this study, and (b) the self-presentation motives where one's image and identity is formed (Krähmer, 2005). Either way, our study shows different relationships may make no difference on the effects of conspicuous consumption for males, whereas potential relationships as opposed to romantic relationships may be more effective in eliciting different levels of response for females. For males in explicitly defined romantic relationships, appealing to blatant benevolence may actually be harmful.

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Table 1  
*Blatant benevolence*

Relationship	Length	Sex	Mean	SD	N
Platonic	Short	Male	3.524	2.1537	29
		Female	3.207	1.2479	30
	Long	Male	3.041	1.1740	29
		Female	3.364	1.0982	28
Potentially Romantic	Short	Male	2.490	1.3965	29
		Female	3.844	1.6736	27
	Long	Male	3.062	1.8009	29
		Female	4.059	1.6463	27
Romantic Relationship	Short	Male	2.324	.8007	29
		Female	3.637	1.5242	27
	Long	Male	2.779	1.3514	28
		Female	3.685	1.0913	26
Total	Short	Male	2.779	1.6245	87
		Female	3.550	1.4908	84
		Total	3.158	1.6030	171
	Long	Male	2.963	1.4557	86
		Female	3.699	1.3203	81
		Total	3.320	1.4357	167
	Total	Male	2.871	1.5412	173
		Female	3.623	1.4074	165
		Total	3.238	1.5225	338

Table 2

*Conspicuous consumption*

Relationship	Length	Sex	Mean	SD	N	
Platonic	Short	Male	4.600	1.3427	29	
		Female	4.540	1.7085	30	
	Long	Male	4.469	2.1542	29	
		Female	4.107	1.4021	28	
Potentially Romantic	Short	Male	4.469	1.7240	29	
		Female	4.615	1.4925	27	
	Long	Male	3.938	1.5437	29	
		Female	5.104	1.9607	27	
Romantic Relationship	Short	Male	4.676	1.7987	29	
		Female	3.859	1.4913	27	
	Long	Male	4.671	1.7782	28	
		Female	4.569	1.4995	26	
Total	Short	Male	4.582	1.6172	87	
		Female	4.345	1.5901	84	
		Total	4.465	1.6036	171	
	Long	Male	4.356	1.8480	86	
		Female	4.588	1.6692	81	
		Total	4.468	1.7621	167	
	Total	Total	Male	4.469	1.7344	173
			Female	4.464	1.6290	165
			Total	4.467	1.6813	338

### Figure Captions

*Figure 1.* Ambiguous romance cues in cross-sex friendships elicit romantic arousal.

*Figure 2.* A two-way interaction emerged between sex and relationship (see graph). Further analysis indicated males showed a statistically significant difference to decrease blatant benevolence when primed with an explicitly romantic scenario, whereas females showed a statistically significant difference to increase their willingness to display the behavior after an ambiguously romantic scenario.

*Figure 3.* A two-way interaction emerged between sex and relationship (see graph). Further analysis indicated females showed a statistically significant difference to increase their willingness to display the behavior after an ambiguously romantic scenario (However, this occurred between ambiguous and explicit primes, not platonic and ambiguous primes).

Figure 1

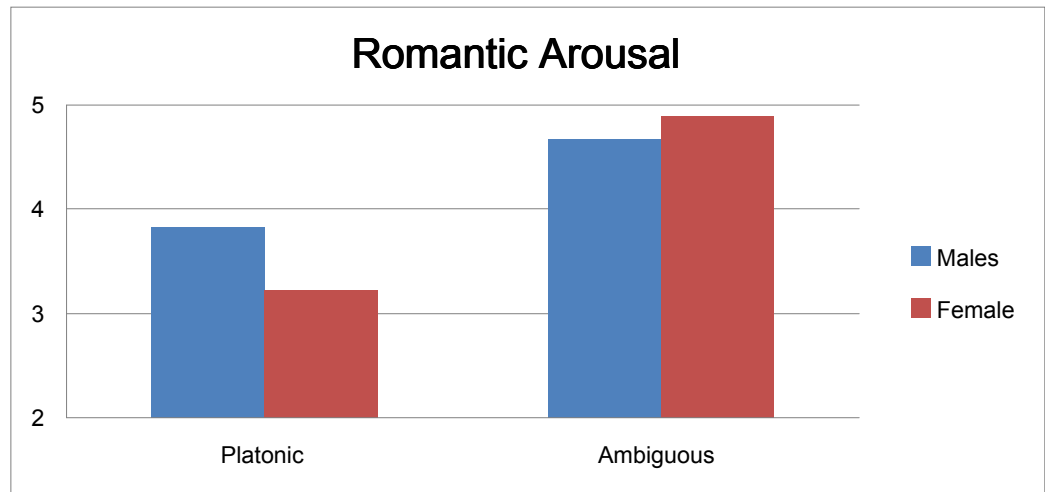


Figure 2

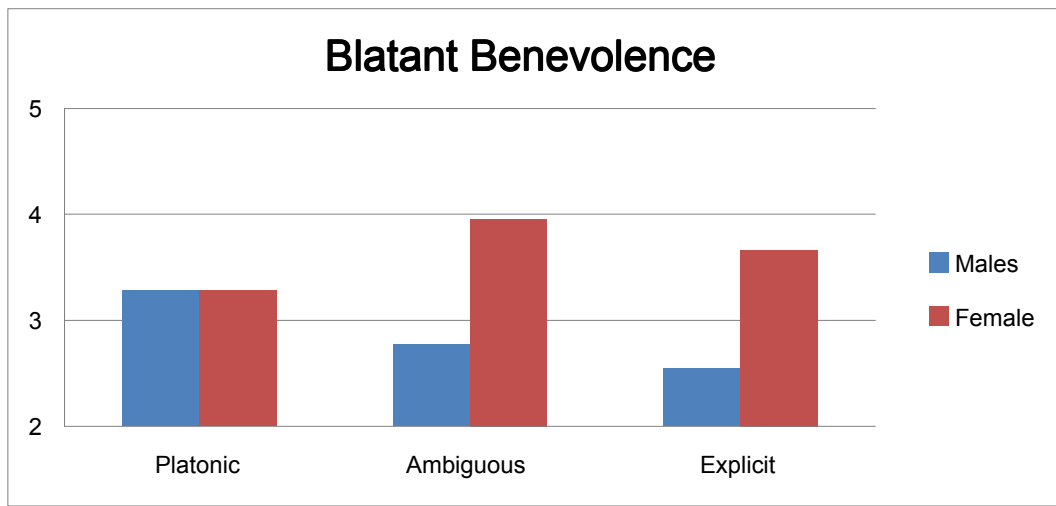
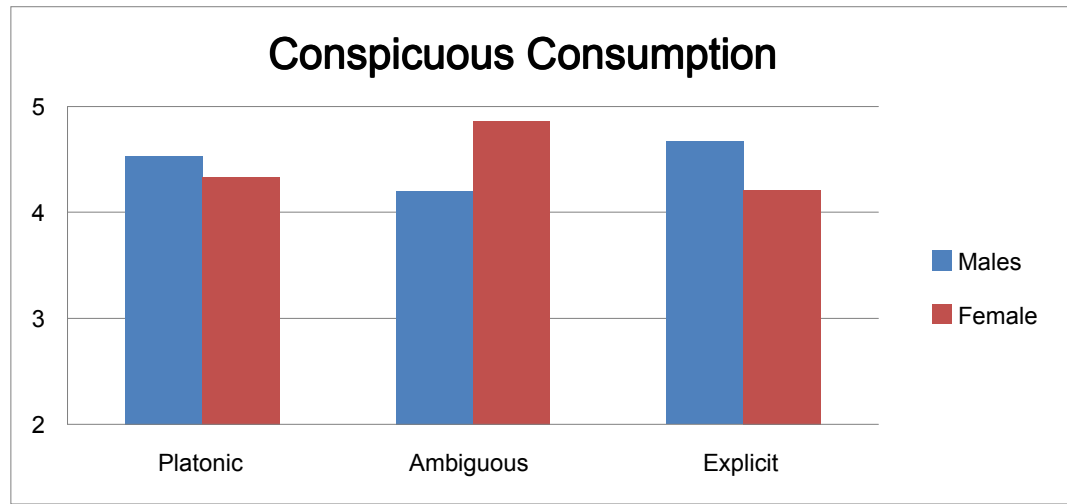




Figure 3



## Appendix A: Short-term female control

Instructions: Please carefully read the following scenario about a female narrator going to a concert with a male friend she knows from a class. As you're reading the scenario, try to put yourself in the shoes of the main character and experience her emotions and feelings.

\*\*\*\*\*

Imagine that it's Friday afternoon during the semester. You've been working hard all week and you've been looking forward to this weekend for quite a while. You and a male friend you know from class have two tickets for a sold-out concert that's happening tonight. Both of you have been looking forward to this show for a long time. In fact, you had to bend over backwards to get the tickets. Your friend has been texting you about the concert every day for weeks now, so you know he's excited. And although it's still several hours away, you can already feel your heart beating a little faster than normal.

As you're getting ready for the show at home, your friend calls to tell you that he's coming over in about an hour. You haven't seen him outside of class and can't wait to tell him all that's happened between you and your boyfriend and to hear how he is doing in his relationship, too.

Just so you don't forget later, you decide to go get the tickets from your drawer. You open your top drawer where you remember leaving

them, but they're not there. You search a little deeper in the drawer, but they're not there either.

You stop to take a breath and tell yourself to calm down. You know you put the tickets in a good place, but where? You start searching through your backpack. Books, folders, pens, but no tickets. You turn the bag upside down and shake it. Nothing but junk. Now you start getting worried. What if you lost the tickets? What's your friend going to think?

In a hurry, you look through the laundry. Maybe they're in a pocket somewhere? You find some pieces of paper, but no tickets. You go into your closet and start throwing things to the floor—no tickets. You're feeling upset at this point. Your hands start to shake a little. You think back to when you had the tickets and try to retrace your steps. You clearly remember putting them in your top drawer, so you search again. You inspect everything, but there are no tickets in this drawer. You look through your whole room, but they're nowhere to be found.

You run to the kitchen and start looking on the counters. You open all the cupboards and drawers. You have no idea why the tickets would be there, but you need to look somewhere. In fifteen minutes, your kitchen looks like a disaster area. But still no tickets! You run out into the driveway. Maybe the tickets fell out somewhere? You look in the grass, the bushes, underneath cars. But even if they did fall out, they probably wouldn't even be there by now. As you walk back inside in complete

frustration, you feel as though you're ready to pull your hair out. You lost the tickets. And you obviously can't go to the show without them.

Suddenly, you hear a knock on the door. Your friend is early, probably because he's eager to get going. You can hear him humming outside. What are you going to tell him? He'll be crushed. Is there anything you can do? Maybe you should lie? But that probably won't solve anything. As you walk toward the door, you get ready to fess up, take the blame, and hope that everything will be okay. You open the door, ready for the worst.

As you are about to start telling him what happened, he yells "Are you ready?" and pulls out the two tickets from his back pocket. Your eyes get wide. You grab the tickets from his hand and fall to your knees. Your friend has the tickets! He's had them the whole time. You think back and remember that he wanted to show the tickets to another person, so he took them the other week. You can't believe you forgot. You don't think you've ever felt so relieved in your life. You sit down, shake your head, and put your hand on your chest. You begin to laugh, wiping the sweat from your forehead. You and your friend will get to go to the show after all. Things are going to be just fine.

As you try to forget what happened, you're actually even more thrilled about the concert than before. Your relief turns into elation. You want to shout to everyone just how great you feel. It's as though you just found the winning lottery ticket. You can appreciate going to the concert

even more now, knowing that you were very close to not going at all. Your friend is dying to get to the show, and his euphoria is contagious. Both of you run out the door, turn up the stereo, and head off to the most thrilling show of your lives.

## Appendix B: Long-term female control

Instructions: Please carefully read the following scenario about a female narrator going to a concert with a male friend she's known since high school. As you're reading the scenario, try to put yourself in the shoes of the main character and experience her emotions and feelings.

\*\*\*\*\*

Imagine that it's Friday afternoon during the semester. You've been working hard all week and you've been looking forward to this weekend for quite a while. You and a male friend you've known since high school have two tickets for a sold-out concert that's happening tonight. Both of you have been looking forward to this show for a long time. In fact, you had to bend over backwards to get the tickets. Your friend has been texting you about the concert every day for weeks now, so you know he's excited. And although it's still several hours away, you can already feel your heart beating a little faster than normal.

As you're getting ready for the show at home, your friend calls to tell you that he's coming over in about an hour. You haven't seen him in awhile and can't wait to tell him all that's happened between you and your boyfriend and to hear how he is doing in his relationship, too.

Just so you don't forget later, you decide to go get the tickets from your drawer. You open your top drawer where you remember leaving

them, but they're not there. You search a little deeper in the drawer, but they're not there either.

You stop to take a breath and tell yourself to calm down. You know you put the tickets in a good place, but where? You start searching through your backpack. Books, folders, pens, but no tickets. You turn the bag upside down and shake it. Nothing but junk. Now you start getting worried. What if you lost the tickets? What's your friend going to think?

In a hurry, you look through the laundry. Maybe they're in a pocket somewhere? You find some pieces of paper, but no tickets. You go into your closet and start throwing things to the floor—no tickets. You're feeling upset at this point. Your hands start to shake a little. You think back to when you had the tickets and try to retrace your steps. You clearly remember putting them in your top drawer, so you search again. You inspect everything, but there are no tickets in this drawer. You look through your whole room, but they're nowhere to be found.

You run to the kitchen and start looking on the counters. You open all the cupboards and drawers. You have no idea why the tickets would be there, but you need to look somewhere. In fifteen minutes, your kitchen looks like a disaster area. But still no tickets! You run out into the driveway. Maybe the tickets fell out somewhere? You look in the grass, the bushes, underneath cars. But even if they did fall out, they probably wouldn't even be there by now. As you walk back inside in complete

frustration, you feel as though you're ready to pull your hair out. You lost the tickets. And you obviously can't go to the show without them.

Suddenly, you hear a knock on the door. Your friend is early, probably because he's eager to get going. You can hear him humming outside. What are you going to tell him? He'll be crushed. Is there anything you can do? Maybe you should lie? But that probably won't solve anything. As you walk toward the door, you get ready to fess up, take the blame, and hope that everything will be okay. You open the door, ready for the worst.

As you are about to start telling him what happened, he yells "Are you ready?" and pulls out the two tickets from his back pocket. Your eyes get wide. You grab the tickets from his hand and fall to your knees. Your friend has the tickets! He's had them the whole time. You think back and remember that he wanted to show the tickets to another person, so he took them the other week. You can't believe you forgot. You don't think you've ever felt so relieved in your life. You sit down, shake your head, and put your hand on your chest. You begin to laugh, wiping the sweat from your forehead. You and your friend will get to go to the show after all. Things are going to be just fine.

As you try to forget what happened, you're actually even more thrilled about the concert than before. Your relief turns into elation. You want to shout to everyone just how great you feel. It's as though you just found the winning lottery ticket. You can appreciate going to the concert



even more now, knowing that you were very close to not going at all. Your friend is dying to get to the show, and his euphoria is contagious. Both of you run out the door, turn up the stereo, and head off to the most thrilling show of your lives.

### **Appendix C: Short-term female potential romance**

Instructions: Please carefully read the following scenario about a female narrator's potential romance with a male friend she knows from a class. As you're reading the scenario, try to put yourself in the shoes of the main character and experience the emotions that she is feeling.

\*\*\*\*\*

Imagine that a male friend of yours from class is meeting with you to hang out. You're excited because you both flirted with each other in class but were also really good friends. The two of you only seemed to have time in class, though, until now...

It's Friday afternoon during the first week of classes and you notice a lot of other students in a particularly good mood. You plan to meet your classmate on the quad, and the weather is pleasant as you smell the blooming flowers in the breeze. You wait a few minutes, relaxed and daydreaming.

From behind you, you hear a voice call your name, and you turn around to see your high school friend. Your eyes lock, and you grin from ear to ear. Immediately you begin joking and teasing each other.

You realize you feel incredibly comfortable with him. The two of you discover that you still have so many things in common, including that both of you are currently single. When he hears this, he lights up. Up close, he is even more attractive than your remember. And he is wonderful to talk

to. You find everything he says somehow fascinating, and you notice that when you talk, he listens carefully to everything you say.

An hour passes very rapidly, at which point he notices that he's late for class. He suggests that maybe he'll just skip it, if you still want company. You are only too glad to prolong the conversation. It is clear that he is enjoying your company immensely.

He suggests that the two of you go grab something to eat. Walking together, you notice that he's walking close to you and comfortably touching you on the arm when you say something that makes him laugh. When he's around you, your senses are heightened. Even when his hand touches yours by accident, you feel a tingle and a rush of excitement. You quickly glance at his eyes, waiting for him to look at yours. When he does, both of you smile and look away.

You end up in a little restaurant near school, and the two of you find a table. As you wait for your food, you notice the pleasant and soothing aromas from the kitchen. As the evening goes on, you realize you are having an absolutely wonderful time with this person, and that he is feeling the same way. The two of you begin to talk a bit about your college lives, and you realize that he is an especially kind and sensitive man who really cares about others. As he talks about his ambitions, you find yourself imagining what it would be like to be in a relationship with him. You haven't felt so comfortable with someone in a long time.

You would love to spend hours more with him, and you sense there are some possible romantic feelings between the two of you, but you want to carefully go forward and not rush into a relationship. You also wonder whether his actions are due to your friendship from class or romantic intentions on his part.

Nevertheless, you're amazed at what has happened in the last few hours. It's as though you're falling in love at first sight, you think as the two of you walk back to your place. In front of your door, he stops and looks at you with an intense gaze. You wonder if it would be appropriate to kiss, but nothing happens. He tells you that he hopes to see you again and your heart just melts. Your hands brush together, and your heart races as you begin to feel lightheaded. You lean towards one another and hold each other in a warm and loving hug of a friend you've known for a long time. As the evening comes to a close, you don't want to let him go, and you are already thinking about the next time you'll see him...

After that first wonderful encounter, the two of you have spent a lot of time together, but the two of you haven't gone on any specific dates. Nevertheless, you've introduced him to your friends and have learned a lot more about him. You are amazed at what a wonderful man he has turned out to be and you feel very fortunate that you both decided to meet that Friday. When your roommate met him last week, she was amazed at what a great guy he was.

Once again, you're going to be seeing him tonight. Although you've been out with him several times, you still get butterflies in your stomach and your heart begins to race each time before you see him. There's just something about him that always makes you feel comfortable and excited. You can't wait to see him, and you know you're going to have a great time. You hope that tonight will be as great a night as others even though you are still not a couple. As you head out the door, you are filled with excitement and anticipation...

## Appendix D: Long-term female potential romance

Instructions: Please carefully read the following scenario about a female narrator's potential romance with a male friend she's known since high school. As you're reading the scenario, try to put yourself in the shoes of the main character and experience the emotions that she is feeling.

\*\*\*\*\*

Imagine that a male high-school friend of yours is transferring to your university. You're excited because you've wondered if the two of you would ever date but outside circumstances have always stopped you two, until now...

It's Friday afternoon during the first week of classes and you notice a lot of other students in a particularly good mood. You plan to meet your long-time friend on the quad, and the weather is pleasant as you smell the blooming flowers in the breeze. You wait a few minutes, relaxed and daydreaming.

From behind you, you hear a voice call your name, and you turn around to see your high school friend. Your eyes lock, and you grin from ear to ear. Immediately you begin joking and teasing each other.

You realize you feel incredibly comfortable with him. The two of you discover that you still have so many things in common, including that both of you are currently single. When he hears this, he lights up. Up close, he is even more attractive than your remember. And he is wonderful to talk

to. You find everything he says somehow fascinating, and you notice that when you talk, he listens carefully to everything you say.

An hour passes very rapidly, at which point he notices that he's late for class. He suggests that maybe he'll just skip it, if you still want company. You are only too glad to prolong the conversation. It is clear that he is enjoying your company immensely.

He suggests that the two of you go grab something to eat. Walking together, you notice that he's walking close to you and comfortably touching you on the arm when you say something that makes him laugh. When he's around you, your senses are heightened. Even when his hand touches yours by accident, you feel a tingle and a rush of excitement. You quickly glance at his eyes, waiting for him to look at yours. When he does, both of you smile and look away.

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You would love to spend hours more with him, and you sense there are some possible romantic feelings between the two of you, but you want to carefully go forward and not rush into a relationship. You also wonder whether his actions are due to how long you have known each other or romantic intentions on his part.

Nevertheless, you're amazed at what has happened in the last few hours. It's as though you're falling in love at first sight, you think as the two of you walk back to your place. In front of your door, he stops and looks at you with an intense gaze. You wonder if it would be appropriate to kiss, but nothing happens. He tells you that he hopes to see you again and your heart just melts. Your hands brush together, and your heart races as you begin to feel lightheaded. You lean towards one another and hold each other in a warm and loving hug of a friend you've known for a long time. As the evening comes to a close, you don't want to let him go, and you are already thinking about the next time you'll see him...

After that first wonderful encounter, the two of you have spent a lot of time together, but the two of you haven't gone on any specific dates. Nevertheless, you've introduced him to your friends and have learned a lot more about him how things have changed since high school. You are amazed at what a wonderful man he has turned out to be and you feel very fortunate that he decided to transfer. When your roommate met him last week, she was amazed at what a great guy he was.



Once again, you're going to be seeing him tonight. Although you've been out with him several times, you still get butterflies in your stomach and your heart begins to race each time before you see him. There's just something about him that always makes you feel comfortable and excited. You can't wait to see him, and you know you're going to have a great time. You hope that tonight will be as great a night as others even though you are still not a couple. As you head out the door, you are filled with excitement and anticipation...

## Appendix E: Short-term female romance

Instructions: Please carefully read the following scenario about a female's romantic relationship with a male friend she knows from class. As you're reading the scenario, try to put yourself in the shoes of the main character and experience the emotions that she is feeling.

\*\*\*\*\*

Imagine that you're sitting around on campus after class. It's a pleasant early spring day, and you can smell the blooming flowers in the breeze. You have a book open, but you're not really reading it. You look around, relaxed and daydreaming. As you watch the people strolling by in front of you, you notice that everyone seems to be in a particularly good mood.

From behind you, you hear a voice say: "You don't look like you're studying very hard."

When you turn around, you're surprised to see a particularly handsome guy whom you have seen before. In fact, you remember noticing him on the first day of class, when your eyes locked across the classroom. Since that time, you've seen him several times, but have never had a convenient opportunity to talk with him.

Now he is standing right in front of you, and smiling warmly. "Mind if I join you for a few minutes?" he says.

At first you feel a bit awkward, but as you begin to talk, you realize you feel incredibly comfortable with him. The two of you discover that you

have a lot in common, including that both of you are currently single.

When he hears this, he lights up. Up close, he is even more attractive than you remember. And he is wonderful to talk to. You find everything he says somehow fascinating, and you notice that when you talk, he listens carefully to everything you say.

An hour passes very rapidly, at which point he notices that he's late for class. He suggests that maybe he'll just cut class today, if you still want company. You are only too glad to prolong the conversation. It is clear that he is enjoying your company immensely.

He suggests that the two of you go grab something to eat. Walking together, you notice that he's walking close to you and comfortably touching you on the arm when you say something that makes him laugh. When he's around you, your senses are heightened. Even when his hand touches yours by accident, you feel a tingle and a rush of excitement. You quickly glance at his eyes, waiting for him to look at yours. When he does, both of you smile and look away.

You end up in a little restaurant near school. At the table, you both joke and tease each other even though you haven't known each other for very long. You both are still getting to know one another, but you find yourself interested imagining what it would be like to be in a relationship with him.

As the evening goes on, you realize you are having an absolutely wonderful time with this person, and that he is feeling the same way. The

two of you also begin to talk a bit about your personal lives, and you realize that he is an especially kind and sensitive man who really cares about others. Several more hours go by and the waitress smiles when she mentions that the restaurant is closing. Apparently, she's noticed the romantic feelings between the two of you.

As he walks you home, you're amazed at what has happened in the last few hours. It's as though you're falling in love at first sight. He tells you that he hopes to see you again and your heart just melts. Your hands brush together, and your heart races as you begin to feel lightheaded. As the evening comes to a close, you don't want to let him go, and you are already thinking about the next time you'll see him...

After that first wonderful encounter, the two of you have gone out on several more spectacular dates. During that time, you've met his friends and have learned a lot more about him as a person. You are amazed at what a wonderful man he has turned out to be and you feel very fortunate that he approached you on that day at school. When your roommate met him last week, she was amazed at what a great guy he was. She was certain that you should go after him, which only confirmed your own feelings. At this point, you are sure that you would like to start a meaningful relationship with this loving and beautiful man, and you are confident that you can make him feel the same way.

In fact, you're going to be seeing him again tonight. Although you've been out with him several times, you still get butterflies in your

stomach and your heart begins to race each time before you see him.

There's just something about him that always makes you feel comfortable and excited. You can't wait to see him and you know you're going to have a great time like you always do when you're together. You hope that tonight will be the night when the two of you officially become a couple. As you head out the door, you are filled with excitement and anticipation...

## Appendix F: Long-term female romance

Instructions: Please carefully read the following scenario about a marriage proposal with a college boyfriend. As you're reading the scenario, try to put yourself in the shoes of the main character and experience the emotions that she is feeling.

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Imagine that you're with your long-time significant other, visiting the campus where the both of you graduated. You're burning with excitement because you think tonight might finally end with a proposal.

You walk across the quad where the two of you spent a good amount of your time together in the sunshine, relaxed and daydreaming during the spring. An hour passes very rapidly while the two of you recall your glory days. You talk about your favorite professors and parties, where you lived and who you met. You softly squeeze his hand in yours, and you can hear that your heart is beating faster, and you feel excited. You both watch the sunset fade and passionately kiss.

You eventually make your way to a romantic restaurant near campus. Everything seems to be going right. Your sweetheart is energetic and alive, listening to what you say with your eyes locked across the table. You're amazed at how charming and attractive he is up close even though you were just walking closely together and even though you've known him for so long.

You smell the pleasant and gourmet aromas coming from the kitchen, and you notice everyone in the restaurant seems to share your good mood. The server seems to also perceive this is a special evening for the two of you, lighting a candle in the middle of your table and announcing the restaurant's specials for the evening.

You realize you feel incredibly comfortable with your partner, that he is truly someone you could spend the rest of your life with. You notice that when he's around you, your senses are heightened. Even when his hand touches yours by accident, you feel a tingle and a rush of excitement. You quickly glance at his eyes, waiting for him to look at yours. When he does, both of you smile and look away.

The server opens an extravagant bottle of wine, and you clink the glasses together while joking and teasing each other. It's amazing how well the two of you know each other. You feel remarkably comfortable with this beautiful and loving man. You're amazed at how lucky you've been to find such a wonderful person, and you couldn't imagine spending all your time with anyone else but him.

As the evening goes on, you realize you are having the perfect night and that he is feeling the same way. The two of you also talk a lot about your future together, and your heart just melts. You see all the traits that made you fall in love with this man. You can tell even just talking what an especially kind and sensitive man he is who really cares about others. The only thing next in your relationship is that special ring. You know the

ring will fit perfectly because of that subtle little moment when a friend helped figure out the right size by asking you to try on her own ring, and you're happy even though the secret has been out for some time.

You both start recounting all the fantastic dates and memories you've had with each other. You talk about how you met on the nearby campus just a few years ago, and you both remark how it was such a defining moment in both of your lives. Your roommates at the time were even acutely aware that the two of you were meant for each other. Even the skeptical ones quickly saw how great of a relationship you had that their doubts quickly faded. You are amazed at what a wonderful man he has turned out to be, and you appreciate your friends and family confirming your own feelings that this man would make a perfect husband. You're also confident because of the support he's also shown through recounting similar experiences.

You think how it's no coincidence that one of your very first dates was at this same restaurant when the two of you became an official couple. The three-course meal spans out your conversation out for several hours, and you are only too glad to prolong the wonderful time you're having. It is clear that you are both enjoying each other's company immensely, and that you both are filled with excitement and anticipation. You both share stories about your past, before the two of you met and afterwards. Finally, the dessert arrives, which came prepared as a dish for two to share.



Your heart races rather frequently, wondering when the big question will be asked. You're convinced the response will be an enthusiastic "Yes!" that will mark your official engagement. The last few hours have even felt like you're falling in love again at first sight. You think how spectacular it is that you began your relationship in this restaurant, and now you're starting a new beginning once again. In fact, you both sense that the moment is occurring now...

## Capstone Summary

The purpose of this project was to determine if different romantic relationship factors had any influence on courting behaviors between men and women. Although some research has shown that men and women differ in strategic romantic behaviors, no research has explored whether these traits hold up in ambiguous situations. Based on other experiments' findings, we anticipated that men and women would interpret ambiguous cues differently. Our empirical study yielded unique results suggesting that men and women do indeed interpret ambiguous romantic cues differently as compared to platonic relationship behavior.

This experiment was based on the findings of researchers who recently found that men tend to strategically spend money in romantic contexts in order to show their potential fitness as a parent. Like peacocks that have extra resources to grow ornate tails, these men have extra resources that they can constructively spend. Social psychology has called this romantic/mating behavior "conspicuous consumption." Similarly, women in romantic contexts strategically show off their volunteering skills, dubbed "blatant benevolence."

This study used 341 college students to respond to questionnaires. Participants were placed in one of six different conditions, or scenarios. Each participant read a 900-word story that was presented on a computer screen. Participants were not led to believe their story was any different

than other participants; however, the stories did differ by two variables, creating the six possible stories. One factor, or variable, that changed across participants was the type of relationship discussed in the story. The type of relationship factor had three levels: a platonic condition, an ambiguously romantic condition, and an explicitly romantic condition. Each of these conditions was further divided into short-term and long-term conditions. This variable, length of relationship, dealt with how long the narrator in the essay had known the lover or friend in the story.

After reading the scenario, participants then responded to items regarding their own willingness to spend money. Participants indicated how much or little money they were willing to spend money on a new car, a new watch, buying dinner for a group of friends, a new cell phone, and a vacation to Europe. Afterwards, control scenario participants (those dealing with a platonic friend) then wrote about a non-romantic situation for three minutes, and participants primed in ambiguously romantic and explicitly romantic scenarios wrote about the characteristics they desire in their ideal partner. Finally, all participants responded to volunteering items regarding their own willingness to invest time for philanthropy. Participants indicated how much or little time they were willing to invest in a homeless shelter, helping build houses for poor families, being a Big Brother or Sister, and helping at a children's hospital.

Results indicated that the type of relationship made a significant difference in the outcome variables. Contrary to previous research,

women showed an increased willingness to display blatant benevolence in ambiguously romantic relationships than compared to romantic relationships. Blatant benevolence for men, though, showed effects consistent with previous research. However, instead of zero willingness to volunteer in public settings, men actually showed a statistically significant lack of willingness to publicly volunteer in explicitly defined romantic relationships as compared to a platonic relationship. That means men expressed a willingness to conceal or preserve volunteering displays in a romantic relationship compared to a cross-sex friendship.

For conspicuous consumption, results suggested men don't make any distinction between platonic relationships, ambiguously romantic relationships and explicitly romantic relationships – contrary to previous findings. Also contrary to previous research and literature review expectations, results for women found that ambiguously romantic relationships prompted an increased willingness to conspicuously consume compared to platonic relationships. In other words, the potential relationship opportunity led women but not men to strategically spend their money to show off their mate potential.

These results are significant because they serve as a base for a new territory in social psychology: how ambiguous cues affect social and romantic relationships. Many psychologists criticize experimental research because of its lack of generalizability – most experiments rely on college students, whose age-range is restricted and not representative of the

general population. Another issue, though, concerning how valid these results are in the real world deals with whether the setting of the experiment limits the effects discovered. In the real world, developing social and romantic relationships are often never explicitly spelled out or defined. Literature reviews of related research, though, suggest that experimenters often explicitly define these categories. This limits the validity of social and romantic relationship behaviors as observed in typically laboratory studies. Our experiment attempted to minimize a significant part of a setting's invalidity by limiting the extent of these labels and relying primarily on written narratives to manipulate a typically ambiguous social scenario.

Other practical and profit-based benefits might be gleaned from this study and similar research endeavors. Our results are useful because they give good grounds to advertisers for what contexts conspicuous consumption and blatant benevolence may appeal to individuals. For men, different relationships may make no difference, whereas women might be more responsive to a context of potentially romantic as compared to explicitly-defined romantic relationship contexts. For men appealing to explicitly defined romantic relationships may actually decrease – or “harm” – their willingness to engage in blatant benevolence.