Examining Decision-Making in Couples Using Attachment Theory and Game Theory: An Experimental Approach

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Abstract

This study’s purpose was to examine relational decision-making by using attachment theory to predict a couple’s behavior in a coordination game. Previous research with strangers has shown that failure to coordinate is common, but by re-matching players, coordination can increase. Prior to playing together in a coordination game, 30 Franklin & Marshall College couples filled out several measures of attachment, trust, and communal orientation. It was expected that these variables examined within the dyad would predict the outcome observed for each couple, and examined across individuals, would predict the strategy chosen by each individual. While couples coordinated significantly more often than strangers in previous studies, no effects for the individual difference variables were found. Confounds of sample size and methodology are addressed. The findings suggest that even though meticulous care must be taken to successfully blend psychological insights with economic methodology, both disciplines can discover more together than apart.
Attachment and Coordination

Introduction

The formation, functioning, and maintenance of interpersonal relationships have been of particular interest in psychology for quite some time. While we know much about how these relationships form, there is still much to be explored with regards to everyday functioning and relationship maintenance. This study seeks to explore the nuances of how individuals in relationships make decisions that affect both members of the couple.

Attachment Theory

First hypothesized by Bowlby (1969, 1973, 1980), and subsequently tested by Ainsworth (Ainsworth, Blehar, Waters, & Wall, 1978), attachment theory has heavily influenced contemporary relationship research. Attachment theory states that the emotional bonds formed in early childhood, usually between a child and his/her mother, lead to the formation of prototypical relationship models that shape and influence cognition and behavior in relationship contexts. These prototypical models define particular attachment styles, each of which carry its own implications for the normal functioning of the attachment behavioral system. This system is responsible for regulating the attachment needs of the individual. Hazan and Shaver (1987) expanded the work on infant attachment to the formation of adult romantic relationships, suggesting that attachment is more or less stable throughout the lifetime. Since then, it has been found that attachment styles are a significant predictor of a multitude of relational characteristics and outcomes (see Mikulincer & Shaver, 2007, for a review).

The measurement of attachment styles has seen drastic changes from its inception to the present. First measured by Ainsworth et al. (1978), and adapted for adults by Hazan and Shaver (1987), attachment styles originally fell into three categories. Anxious attachment is characterized by preoccupation with relationships, worrying about whether partners really love
them or want to stay with them, and the perception that others are reluctant to become as close with them as they would like. Avoidant attachment is characterized by difficulties in trusting others, trouble with being dependent on others, and feeling uncomfortable when others get too close. Both anxious and avoidant styles are considered “insecure.” On the other hand, secure attachment can be seen as the opposite of the other styles. Securely attached individuals have no trouble trusting or depending on others, and do not have any preoccupations about their partner abandoning them or becoming too close. Presently, adult romantic attachment styles can be measured by two continuous dimensions: attachment anxiety and attachment avoidance (Brennan, Clark, & Shaver, 1998). Only those who are low on both dimensions are considered to have a secure attachment style, while those who are high in one (or both) are considered to have insecure attachment styles.

One item of interest with regards to attachment styles is whether certain behaviors carry other-oriented, or self-oriented, motives. For example, securely attached individuals have been found to engage in sex with the purpose of promoting closeness and intimacy in their relationship (Tracy, Shaver, Albine, & Cooper, 2003), while anxiously attached individuals have sex to satisfy their own unmet attachment needs (Birnbaum, Reis, Mikulincer, Gillath, & Orpaz, 2006). Furthermore, avoidantly attached individuals have been found engage in sex mainly for partner manipulation and control, in order to better manage the level of distance/closeness in the relationship (Cooper, Pioli, Levitt, Talley, Micheas, & Collins, 2006; Davis, Shaver, & Vernon, 2004). It seems that secure individuals are oriented towards their partner and relationship as a whole, more so than anxious and avoidant individuals, who take a more self-centered, individualistic perspective. The same can be found with regards to helping behavior, in that
secure individuals report more willingness to help another in distress than anxious and avoidant individuals (Mikulincer, Shaver, Gillath, & Nitzberg, 2005).

Attachment outcomes have not been limited to the individual level. Ben-Ari and Levee (2005) examined attachment on a dyadic level, finding that in relationships made up of two securely attached individuals, both members of the couple reported higher levels of marital quality, as opposed to couples who were made up of insecurely attached individuals. This dyadic level of analysis is important in that it gives us a fuller picture of romantic relationships. While knowing what type of attachment style a particular individual falls into has been found to be quite informative, it seems intuitive that examining the interaction between attachment within couples can lead to more powerful and expansive knowledge about the underlying factors that affect everyday relational functioning.

Modeling Decision-Making: Interdependence Theory

We have explained that healthy relationship functioning is at least partially dependent on a particular individual’s attachment style, as well as the attachment style of the partner. But, what other factors could be responsible for the maintaining of positive relational bonds? One possible factor may be the selection of more couple-oriented behaviors, as opposed to individual-oriented behaviors, when there is a decision to be made that concerns both members of the couple. For example, Dave might want to spend time out at the local bar with some co-workers. However, his spouse, Mary, has had a bad day, and would like to spend some quiet time at home to watch a movie. If Dave chooses to sacrifice his own wants to satisfy Mary’s, it would seem sensible to conclude that this behavior would contribute positively to their relationship. The behavior may be reciprocated, and Mary may be more likely to sacrifice her own wants the next time Dave is in need. On the other hand, if Dave chooses to go to the bar despite Mary being at home, it is
likely that Mary will greet Dave with scorn when he comes home, or possibly not greet him at all. Negative interactions such as this may be detrimental to the relationship as a whole, especially if they are repeated. In this way, there seems to be conflict of “utility” for Dave as he debates the two options: he can maximize his own utility by going to the bar and disregarding Mary’s feelings (Dave = +10, Mary = 0), or he can compromise by spending time with Mary and ensuring that her day ends well, at the partial expense of his social life (Dave = +5, Mary = +5).

Interdependence theory (Thibaut & Kelley, 1959) seeks to model interactions in relationships such as the one described above, by assuming that interaction behaviors will not be repeated unless rewarded. In this way, each partner has the power to influence the other’s behavior, and the situation within which the two partners interact is likely to shape the patterns of interaction later on in the relationship. Each separate interaction between couples can be theoretically represented in an outcome matrix, depicting each partner’s possible actions, and the utility that each partner would gain for each separate outcome. This concept is borrowed from game theory, in that the benefit/cost for each person is reflected as a function of the combined actions from both players. Another example may make this clearer. Kelley (1979) asked cohabitating, heterosexual undergraduate couples to assume that cleaning the shared apartment would be less than ideal, but that it had to be done. Kelley asked each member of the couple to rate, on a scale from -10 (Very Dissatisfied) to +10 (Very Satisfied), how satisfied they would feel if 1) Both of you cleaned; 2) You clean and your partner does other things; 3) You do other things and your partner cleans; 4) You both do other things (and the apartment stays dirty). The results can be found in Figure 1.
Figure 1. A behavioral outcome matrix, from Kelley (1979). The first number in each cell represents the male’s satisfaction with each outcome, while the second number represents the female’s satisfaction.

<table>
<thead>
<tr>
<th></th>
<th>Female Cleans</th>
<th>Female Does Not</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male Cleans</td>
<td>6.8, 8.3</td>
<td>-1.1, -2.6</td>
</tr>
<tr>
<td>Male Does Not</td>
<td>0.9, 0.2</td>
<td>-3.1, -4.0</td>
</tr>
</tbody>
</table>

Both members preferred that both would help to clean, and both members were least satisfied when no cleaning was done. However, both the male and the female were more satisfied when only the female cleaned, as opposed to only the male cleaning. This suggests that there are unwritten rules (in this case, gender expectations) that affect the utility each individual receives as a result of certain relational behaviors. Unwritten rules such as expectations are not the only kinds of influences on the structure of the matrix. Couples may influence each other’s behavior by varying their own response to it; in other words, partners can directly affect the utility of a particular action and make one action more desirable than the other. In the earlier example, Dave most likely knows that if he chooses to go to the bar, Mary will be upset, and that he will have to eventually “face the facts” later on. In this way, Mary is exhibiting what interdependence theory calls “behavioral control”: her responses to the two possibilities, “Dave going home” (positive response), and “Dave going to the bar” (negative response), makes Dave more likely to choose “going home” over “going to the bar”. Interdependence theory states that in situations where both partners have mutual behavioral control over each other (each influences the other’s actions equally), the couple will eventually converge on and choose the most mutually beneficial strategies, and repeat this behavior. Because of this, interdependence theory predicts that couples
that have been together longer/know each other better will be the best coordinators of relational behavior, which reinforces and promotes the healthy relationship.

Modeling Decision-Making: Game Theory

While previously implied, it is important to make explicit that game theory was the first to attempt to formally model people’s behaviors in terms of possible strategies and relative payoffs. Game theorists assume that, when playing for real dollar amounts (which is the game theorist’s way of representing the utility of certain strategies), most people will act in their best interest, and have come up with a vast number of experimental games and situations in order to explore how most people actually behave vs. how they should behave when put into these situations. Most games place two players against each other, each having to select from several possible strategies, simultaneously and independently, with the payoffs for each player reflected as a function of the two players’ combined actions. One such game that will be of particular interest in this study is the coordination game. The coordination game refers to any game in which both players face a “coordination problem”: they can both realize mutually higher payoffs, but only if both players are able to independently coordinate their actions. The particular coordination game utilized in this study can be found in Figure 2.

<table>
<thead>
<tr>
<th></th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>$3.00, $3.00</td>
<td>$7.00, $0.00</td>
<td>$9.00, $0.00</td>
</tr>
<tr>
<td>A2</td>
<td>$0.00, $7.00</td>
<td>$5.00, $5.00</td>
<td>$0.00, $0.00</td>
</tr>
<tr>
<td>A3</td>
<td>$0.00, $9.00</td>
<td>$0.00, $0.00</td>
<td>$7.00, $7.00</td>
</tr>
</tbody>
</table>

**Figure 2.** An example of a coordination game. This exact matrix was utilized in this study in order to measure coordinated vs. non-coordinated outcomes.

Each player has to make an independent decision between {1}, {2}, and {3}; their joint decision determines the outcome of the game, and their payoffs. The first number in each cell
reflects Player A’s payoff, and the second, Player B’s payoff. In terms of this study, each choice represents a certain level of risk/trust: Strategy \{1\} represents a low level of risk. It is like a “safe” option, because no matter what the other person picks, the person who chooses \{1\} will get money regardless. Strategy \{2\} represents a bit more risk, showing some trust. Both players can get a higher payoff if and only if they both choose \{2\}. But this can only happen if the first person believes that the other will play \{2\}, and vice versa. Strategy \{3\} represents the action that shows the most risk, and therefore the most trust in the other player. In this particular game, only if both players pick \{3\} will they both realize higher mutual gains. Otherwise, the player who played \{3\} will be left with 0.

With regards to outcomes, \{3, 3\} represents the most risk, but the greatest mutual payoff. \{2, 2\} represents a moderate level of risk and a moderate mutual payoff, and \{1, 1\} represents the lowest risk as well as the lowest mutual payoff. Previous studies with strangers have shown that most normal play converges on the \{1, 1\} outcome over time (Cooper, DeJong, Forsythe, & Ross, 1992; Crawford & Haller, 1990), suggesting that strangers are unable to develop the trust necessary to realize the higher payoffs. This study will utilize the above coordination game in order to test whether couples are able to coordinate more often than strangers in previous studies. In addition, the payoffs in the coordination game will represent real monetary payoffs to each member of the couple, representing a radical departure in normal psychological methodology, in favor of that normally employed in experimental economics.

A quick recap is called for. Attachment has been found to be related to particular outcomes, both at the individual and dyadic level. It seems that securely attached individuals are more considerate of the other in their relationship, by engaging in behaviors that seek to benefit the relationship as a whole. Furthermore, secure-secure dyads report higher levels of marital
quality than insecure couples (Ben-Ari & Levee, 2005). In addition, interdependence theory borrows concepts from game theory, and has sought to model how relationship partners interact and choose between possible relational behaviors. This has been a useful model for understanding the influence that romantic partners have on each other, and how that affects their behavior.

However, several questions can be raised. While we can use interdependence theory to model relational behavior in terms of strategies and potential payoffs, does the same logic apply when couples are put into a formal coordination game, in which strategies are reduced to \{1\}, \{2\}, or \{3\}, and payoffs are reduced to a concrete dollar amount? Will attachment play a significant role in the couple’s actions? Can other individual differences, such as level of trust, or communal orientation, predict which strategy each partner will pick? This study seeks to answer these questions.

**Attachment and Trust**

It has been widely found in the literature that a secure attachment style is related to higher levels of trust in romantic relationships (Hazan & Shaver, 1987, Feeney & Noller, 1990). The availability of the first attachment figure leads individuals to trust that they will not be abandoned, that there will always be someone to help in times of need, and that significant others will not act maliciously. This, in turn, allows for the development of a secure attachment style, and high levels of trust in subsequent romantic relationships. Trust is one of the most important qualities in a close relationship, as it allows us to depend on and have faith in others. It follows then, that those who are more trusting would choose more trusting strategies in the coordination game. Previous work on the coordination game (Cooper et al., 1992; Crawford & Haller, 1990) has shown that strangers seem to have trouble coordinating, which implies that strangers are
unable to trust each other. However, Crawford & Haller (1990) found that if two players were re-matched with each other over and over, in time trust would develop, and the frequencies of higher payoffs in later trials increased. Since this study examines the actions of individuals within a couple, who have a rich history of past interactions as well as probable future interaction, high trusting couples and individuals should be less risk-averse and willing to go for the larger mutually beneficial payoffs.

Communal vs. Exchange Relationships

Communal and exchange relationships, first discussed by Clark and Mills (1979; Mills & Clark, 1982), refer to two particular ways in which we can track another person’s needs. Under a communal relationship, needs are fulfilled out of a genuine concern for the other. Exchange relationships differ in that fulfilling another’s need leads to an expectation of repayment later on. Clark, Ouellette, Powell, and Milberg (1987) examined the effect of a communal relationship orientation on helping behavior. Using their own 14-item Communal Orientation Scale, the authors found that those who are communally oriented are more likely to benefit others given the opportunity. The work on communal orientation seems to parallel the other-oriented motives that securely attached individuals exhibit, at least with regards to sex and helping behavior. In addition, communal orientation may also affect how individuals make relational decisions. Because of this, it is expected that those who are more communally oriented will select more mutually beneficial strategies in a coordination game.

The Effect of Money

As implied above, a fundamental difference between experimentation in the field of psychology and the field of economics is that while psychology pays participants for their time, economics studies pay their participants based on their performance during the experimental
session. While psychologists do not want to confound their results by making money too salient, this is the exact phenomenon that experimental economists are after. Experimental economists work to ensure that the participant’s responses are wholly and exclusively driven by monetary incentive.

Vohs, Mead, and Goode (2008) explored the psychological effects of activating the concept of money in a variety of different ways. Using subtle money primes, such as screensavers of dollar bills, a task involving organization of phrases that were related to money, or envisioning a life with abundant or restricted finances, the authors found that those reminded of money helped others less, contributed less to a charitable cause, physically distanced themselves from others, and persisted longer in difficult tasks without asking for help. The authors reasoned that money activates a focus on personal inputs and outputs, very similar to Clark and Mills’ concept of an exchange orientation. This brings an interesting twist into the current study, as there is now the evidence that simply activating money can lead to many less-than-desirable outcomes. In addition, it seems that activating money activates an exchange orientation. In the present study, couples will become players in a coordination game with real payoffs. A question of interest is whether the attachment bond, level of trust, and degree of communal orientation between the couple is strong enough to overcome the influential effects of not only the mere activation of money, but also of the real and salient presence of money in the experimental design.

The Present Study

While interdependence theory has modeled how couples choose between relational behaviors, there has been little to no research done that actually examines how couples behave in real experimental games. The present study sought to address this gap in the literature, and use a
coordination game to predict further implications of attachment theory. In addition, this study aimed to expand the body of research on the coordination game, by using players that not only know each other, but who are romantically and intimately involved with each other. Because all previous work has utilized randomized pairs of strangers, this study was designed to compare couples against the strong background already established by Cooper et al. (1992).

This study’s purpose was to explore how a couple’s overall attachment style, trust, and communal orientation can affect coordination in a coordination game. This study also explored how the same variables would affect decisions at the individual level. First, it was expected that couples in general would coordinate more frequently than strangers in past studies. Second, at the dyadic level, it was hypothesized that secure couples (comprised of two securely attached individuals) would be able to more frequently coordinate on a higher-payoff outcome, and make more money, than insecure couples within a coordination game. It was also expected that couples who are high in trust, and couples that are highly communally oriented would coordinate more often, and make more money, than couples that are low in trust or less communally orientated. Third, at the individual level, it was hypothesized that securely attached males and females would choose a mutually beneficial strategy more often than insecurely attached males and females. Additionally, it was expected that individuals who are more trusting, and those who are more communally oriented, would choose a mutually beneficial strategy more often than other strategies.

Method

Sample

30 Franklin & Marshall College students and their dating partners participated in this study. All 30 couples consisted of a male-female dyad. One couple’s data was discarded, due to
failure to follow experimental instructions, leaving a final $n = 29$. 4 of these couples were recruited using the Fall 2008 and Spring 2009 Introduction to Psychology student subject pool, and were given course credit as a base payment. 20 couples were recruited through the College Weblet and from the campus at large, and were compensated a $5 base payment. 5 additional couples were convenience sampled, and were compensated a $5 base payment. 82.8% of this study’s couples were Caucasian couples, 6.9% Asian couples, 3.4% African American couples, and 3.4% mixed couples. The mean age for the male participants ranged from 18 to 22, with a mean of 20.3, and a standard deviation of 1.22. Female participant age ranged similarly from 18 to 22, with a mean of 20.3 and a standard deviation of 1.07. Couples participating in this study must have been currently in an exclusive dating relationship that has persisted for at least 3 months. Relationship lengths ranged from 3 to 36 months, with a mean of 14.36 months, and a standard deviation of 9.88. In addition to being compensated $5 each for approximately a half-hour of their time, participants and their dating partners also received compensation decided by the choices made in the coordination game.

**Measures**

Each participant filled out individual experimental packets that contained all of the surveys and measures that were necessary for the completion of the experimental session. Each packet contained, in this order:

- a *Demographics Questionnaire*, asking for basic information of the participant, including sex, age, race, dating status, and length of the current relationship.
- the 36-item *Experiences in Close Relationships Inventory, Revised* (Fraley et al., 2000), assessing Attachment orientation, the first step in categorizing the Attachment style of the couple as a whole, the primary independent variable. Participants were to indicate, on a 1
(Strongly Disagree) to 7 (Strongly Agree) scale, the extent to which they agreed with 36 statements. One such statement for attachment anxiety included “When I show my feelings for romantic partners, I’m afraid they will not feel the same about me,” and for attachment avoidance, “I am nervous when partners get too close to me.” Two scale reliability analyses were run, one for the anxious items, and one for the avoidant items. These tests indicate how reliable a scale is on the whole, given the data from each individual scale item across participants. For males, the anxious scale reliability analysis yielded a Cronbach alpha of .950, indicating very strong reliability, while for females, the Cronbach alpha was .918, again indicating very strong reliability. For males, the avoidant scale reliability analysis yielded a Cronbach alpha of .922, indicating very strong reliability, while for females, the Cronbach alpha was .919, again indicating very strong reliability. These strong reliabilities allowed us to create an ANX and AVD subscore for each participant. Once each partner had both an ANX and AVD subscore, they were either categorized as securely attached (if low on both ANX and AVD), or insecurely attached (if high on either ANX or AVD, or both). Low and high categories were determined by using a median split for each distribution of subscores, to ensure even groups of high and low. Each couple as a whole was categorized as a “Secure” couple, if both partners were categorized as secure, or an “Insecure” couple, if at least one of the partners were categorized as insecurely attached. Only two groups (secure and insecure) were used, so as to increase power.

- a 7-item Neuroticism measure, from the Big Five Inventory (John & Srivastava, 1999). Neuroticism was expected to be used as a control variable in this study, as neuroticism has been found to be significantly associated with attachment anxiety (Shaver &
Brennan, 1992). Participants were to indicate, on a 1 (Strongly Disagree) to 7 (Strongly Agree) scale, the extent to which they agreed with 7 statements. Two such statements read, “I remain calm in tense situations” (reverse-coded), and “I worry a lot.”

- a *Coordination Game*, to assess the dependent variable of level of cooperation between a couple. This sheet asked the participants to make a decision between three possible strategies, give reasoning behind their decision, and indicate which strategy they believed their partner would choose. The exact matrix is shown in Figure 2, and instructions can be found in the appendix. The total amount of money earned by both partners was used as one measure of dyadic coordination. The game matrix was carefully structured so as to ensure that cooperation on a mutually beneficial payoff ({1, 1}, {2, 2}, and {3, 3}) would always result in a higher total payoff than non-cooperative outcomes, with the exception of {1, 3} or {3, 1} outcomes yielding a higher payoff greater than the total earned in a {1, 1} outcome. In addition, the outcome realized by each couple was used as another measure of coordination. A coordinating outcome was defined as either {2, 2} or {3, 3}, while all other outcomes represented non-coordinated outcomes. On the individual level, choosing a {2} or {3} was defined as a coordinating strategy, while choosing {1} was defined as a non-coordinating strategy.

- the 26-item *Trust Scale* (Rempel, Holmes, & Zanna, 1985), measuring the overall level of trust in a romantic relationship, the second independent variable. Participants were to indicate, on a 1 (Strongly Disagree) to 7 (Strongly Agree), the extent to which they agreed with 26 statements. Two such statements included “I can count on my partner to be concerned about my welfare,” and “In our relationship I have to keep alert or my partner might take advantage of me” (reverse-coded). Two scale reliability analyses were
run, one for males, and one for females. For males, the Trust scale reliability analysis yielded a Cronbach alpha = .874, indicating strong reliability, while for females, the Cronbach alpha was .914, again indicating very strong reliability. These strong reliabilities allowed use to create a trust score for each participant. Once each partner had a trust score, they were categorized as either low trusting, or high trusting. Low and high categories were determined by using a median split for each distribution of scores, again to ensure even groups. Each couple as a whole was categorized as a “High Trust” couple, if both partners fell above the median, or a “Low Trust” couple, if at least one of the partners fell below the median.

- the 14-item Communal Orientation Scale (Clark et al., 1987), assessing whether the participant is communally oriented towards others, as well as whether the participant expects others to behave in a communally-oriented manner towards them. This measure was used as the third independent variable. Participants were to indicate, on a 1 (Extremely Uncharacteristic) to 5 (Extremely Characteristic) scale, the extent to which the 14 statements were characteristic of them. Two such statements included “I believe people should go out of their way to be helpful,” and “When I have a need that others ignore, I’m hurt.” Two scale reliability analyses were run, one for males, and one for females. For males, the Communal scale reliability analysis yielded a Cronbach alpha = .638, indicating a moderate reliability, while for females, the Cronbach alpha was .641, again indicating moderate reliability. While these reliabilities were only moderate, a communal score was calculated for each participant. Once each partner had a communal score, they were as either low communal or highly communal. Low and high categories were determined by using a median split for each distribution of scores, to ensure equal
groups. Each couple as a whole was categorized as a “Highly Communal” couple, if both partners fell above the median, or as a “Low Communal” couple, if at least one of the partners fell below the median.

- the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). This measure was included to potentially control for mood effects on coordination, as Hertel, Neuhof, Theuer, and Kerr (2000) found that mood can affect the decision-making process; a positive mood increases the use of cognitive shortcuts, while a negative mood promotes rational and deliberate thought. Participants were to indicate, on a 1 (Very Slightly/Not At All) to 5 (Extremely) scale, the extent to which the words described the way they presently felt. Two items from this measure include “Inspired” and “Nervous”.

The second sheet contained:

- an Outcome Questionnaire, indicating the outcome that resulted from the two partners’ decisions, and asked, “To what extent are you surprised by this outcome?” and questions about possible plans for the money won (if any).

- a second Positive and Negative Affect Schedule, in order to possibly assess changes in the participant’s current emotional state.

Procedure

Qualified participants and their romantic partners were invited to the study “Decision-Making in Couples”, involving a 30-minute session of questionnaires and surveys, which would pay $5 each. All participants and their current romantic partner signed Informed Consent forms, were reminded that their participation was completely voluntary, were assured that their responses are strictly confidential, and were also reminded that they may stop participating at any point during the study without penalty or loss of compensation.
The experimenter then explained to the participants that they would be separated to complete several brief surveys and questionnaires, after which they would be reunited. They were told their responses to the various questionnaires would not be made known to their partner at any point, with the exception of one particular item, their decision in the coordination game. Participants were also informed that they would receive additional compensation based on this decision, along with their $5 base payments. After clarifying any questions, the experimenter then separated the couple into two different experimental rooms for the first experimental questionnaire packet. This was done to eliminate any communication between the couple, which was especially important for: 1) retaining strategic uncertainty in the coordination game; as well as 2) protecting the anonymity of each partner’s responses and preventing any potential response bias, since the questions were about each other and their current relationship. Once both partners were finished with their individual packets, the experimenter then collected the packets, and examined the coordination game outcome observed according to the decisions made by each partner. The experimenter then marked the outcome that occurred on a matrix on the second questionnaire sheet, which was then filled out by both participants. Upon completion, the experimenter reunited the couple, and debriefed with the following:

“Thank you very much for your participation in our study. This study’s purpose was to examine how certain types of couples respond when put into an inherently uncertain strategic situation. In this experiment, you participated in the Coordination Game. The Coordination Game is a long-studied game in experimental economics that examines the struggle between individual gain and mutually beneficial gain. This study was also about examining risky vs. non-risky decision-making. We predicted that couples who have been together longer would know each other better, and therefore be able to trust each other more and take more risk in the coordination game…

If the couple won money: \{1, 1\}, \{2, 2\}, or \{3, 3\} outcome
…With strangers, most play ends in \{1, 1\}, so we wanted to see what factors would lead romantic couples to do something different.
If one partner did not win money: \{1, 2\} or \{2, 1\} outcome

...Even though one of you did not win any money today, this does not mean that your decisions indicate you did not trust each other. In fact, they indicate the opposite. Trying to coordinate on a better outcome reflects some level of trust. We wanted to see what factors would lead romantic couples to either play it safe, or take a risk, and in a way, it is your decisions that are the ones we are most interested in studying.

If both partners did not win money: \{2, 3\} or \{3, 2\} outcome

...Even though you did not win any money today, this does not mean that your decisions indicate you did not trust each other. In fact, they indicate the opposite. Trying to coordinate on a better outcome reflects some level of mutual trust. With strangers, most play ends in \{1, 1\}, which was the safest and least-risky option, representing no trust between the players. We wanted to see what factors would lead romantic couples to do something different than this, and in a way, it is your decisions that are the ones we are most interested in studying.

The couple then received their compensation: $5 each for showing up, plus the amounts indicated in the coordination game matrix. The participants were given an opportunity to ask any questions or address any concerns they may have had, and were then thanked and dismissed from the session.

Results

Preliminary

Table 1 depicts the mean, standard deviation, and five-number summary (minimum, 25th percentile, median, 75th percentile, and maximum) for the attachment anxiety and avoidance subscales (possible range from 1-7), levels of trust (possible range 1-7), and communal orientation (possible range from 1-5) for males and females.

Table 1.

Descriptive statistics for the main independent variables.

<table>
<thead>
<tr>
<th></th>
<th>Male ANX</th>
<th>Female ANX</th>
<th>Male AVD</th>
<th>Female AVD</th>
<th>Male Trust</th>
<th>Female Trust</th>
<th>Male Communal</th>
<th>Female Communal</th>
</tr>
</thead>
<tbody>
<tr>
<td>N Valid</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mean</td>
<td>2.7433</td>
<td>2.6877</td>
<td>2.3103</td>
<td>2.1437</td>
<td>5.8000</td>
<td>5.7741</td>
<td>3.8300</td>
<td>4.0837</td>
</tr>
<tr>
<td>Median</td>
<td>2.7222</td>
<td>2.6111</td>
<td>2.0556</td>
<td>2.1111</td>
<td>5.7692</td>
<td>5.9615</td>
<td>3.8571</td>
<td>4.0714</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>1.06713</td>
<td>1.07218</td>
<td>.88870</td>
<td>.79717</td>
<td>.64608</td>
<td>.73517</td>
<td>.39189</td>
<td>.37944</td>
</tr>
<tr>
<td>Minimum</td>
<td>1.33</td>
<td>1.11</td>
<td>1.00</td>
<td>1.00</td>
<td>4.42</td>
<td>3.92</td>
<td>3.00</td>
<td>3.29</td>
</tr>
<tr>
<td>Maximum</td>
<td>5.72</td>
<td>5.06</td>
<td>4.17</td>
<td>3.94</td>
<td>6.69</td>
<td>7.09</td>
<td>4.57</td>
<td>4.86</td>
</tr>
<tr>
<td>Percentiles</td>
<td>25</td>
<td>1.8056</td>
<td>1.8056</td>
<td>1.6667</td>
<td>1.3611</td>
<td>5.3269</td>
<td>5.4555</td>
<td>3.6071</td>
</tr>
<tr>
<td></td>
<td>50</td>
<td>2.7222</td>
<td>2.6111</td>
<td>2.0556</td>
<td>2.1111</td>
<td>5.7692</td>
<td>5.9615</td>
<td>3.8571</td>
</tr>
<tr>
<td></td>
<td>75</td>
<td>3.5000</td>
<td>3.3056</td>
<td>3.0556</td>
<td>2.4722</td>
<td>6.4231</td>
<td>6.2115</td>
<td>4.0714</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The distributions of these variables can be found in Figures 3 through 8. The attachment avoidance distributions were very similar to the attachment anxiety distributions, and therefore not shown here.

**Figures 3 and 4.** The distribution of male and female anxiety subscores, both showing a normal distribution, but a positive skew with regards to the scale midpoint.

**Figures 5 and 6.** The distribution of male and female trust scores, both showing a normal distribution, but a negative skew with regards to the scale midpoint.
Figures 7 and 8. The distribution of male and female communal orientation scores, both showing a normal distribution, but a negative skew with regards to the scale midpoint.

Table 2 shows the attachment style breakdown of the sample, for individuals as well as couples.

Table 2.

*Frequencies of secure and insecure attachment for individuals and couples.*

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th>Females</th>
<th>Couples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secure</td>
<td>11</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Insecure</td>
<td>18</td>
<td>17</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>29</td>
<td>29</td>
</tr>
</tbody>
</table>

Correlations between the various independent variables and total money dependent variable were run. The data was entered such that each couple (one male and one female) was on the same line. This allowed for correlations within each couple, across all couples. Male anxiety was significantly correlated with male avoidance ($r = .498, p < 0.1$), female anxiety ($r = .48, p < .01$), and female avoidance ($r = .48, p < .01$). Female anxiety was significantly correlated with female avoidance ($r = .46, p < .05$), male anxiety (reported above), and male avoidance ($r = .488,$
Male avoidance was only significantly correlated with male anxiety and female anxiety (reported above), and female avoidance was only significantly correlated with female anxiety and male anxiety (reported above). Male trust was significantly correlated with female trust ($r = .713, p < .001$), male and female anxiety ($r = -.572$ and $r = -.584$, both $p < .01$), and male avoidance ($r = -.685, p < .001$), but not female avoidance ($r = -.337, p = .069$). Female trust was significantly correlated with male trust (reported above), male and female anxiety ($r = -.516$ and $r = -.507$, both $p < .01$), and male and female avoidance ($r = -.473$ and $r = -.547$, both $p < .01$). Degree of communal orientation was not significantly correlated with any of the other variables, and relationship length was not significantly correlated with any of the other variables, including total money made.

**Main Hypotheses**

A Chi-Square goodness of fit analysis was run in order to test the first hypothesis, that couples would coordinate more frequently than strangers in previous studies. Using the frequencies from Cooper et al. (1992), the Chi-Square analysis yielded $\chi^2 (1, n=29) = 236.59, p < .001$. These results can be seen in Table 3, and provide support for the first hypothesis. The actual frequencies for the couples were 15 coordinated vs. 14 not coordinated.

<table>
<thead>
<tr>
<th>Proportions of cooperation/non-cooperation in strangers vs. couples.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>----------------------</td>
</tr>
<tr>
<td>Strangers</td>
</tr>
<tr>
<td>Couples</td>
</tr>
</tbody>
</table>

Chi-Square was again used to test the second hypothesis, that securely attached couples, high trust couples, and highly communally oriented couples would coordinate more frequently.
than insecurely attached couples, low trust couples, and low communally oriented couples. For secure vs. insecure couples, the Chi-Square analysis yielded $\chi^2 (1, n=29) = .077, p = ns$. For high trust vs. low trust couples, the Chi-Square analysis yielded $\chi^2 (1, n=29) = .279, p = ns$. For highly communally oriented vs. low communally oriented couples, the Chi-Square analysis yielded $\chi^2 (1, n=29) = 1.435, p = ns$. These results can be seen in Table 4, and fail to provide support for the second hypothesis.

Table 4.

Proportions of coordinated vs. non-coordinated couples, characterized by attachment, trust level, and level of communal orientation.

<table>
<thead>
<tr>
<th></th>
<th>Coordinated</th>
<th>Not Coordinated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secure</td>
<td>0.56</td>
<td>0.44</td>
</tr>
<tr>
<td>Insecure</td>
<td>0.50</td>
<td>0.50</td>
</tr>
<tr>
<td>High Trust</td>
<td>0.45</td>
<td>0.55</td>
</tr>
<tr>
<td>Low Trust</td>
<td>0.56</td>
<td>0.44</td>
</tr>
<tr>
<td>High Communal</td>
<td>0.71</td>
<td>0.29</td>
</tr>
<tr>
<td>Low Communal</td>
<td>0.45</td>
<td>0.55</td>
</tr>
</tbody>
</table>

To test the hypothesis that secure couples would make more money than insecure couples, an independent-samples $t$-test was used between the two groups. The analysis yielded $t(27) = -.171, p = .865$. We failed to find support for this hypothesis.

To test the hypothesis that high trusting couples would make more money than low trusting couples, hierarchical regression was used. Since male and female trust was not independent within each couple, male trust and female trust variables were entered as Block 1 predictors, with the $M_{Trust} \times F_{Trust}$ interaction entered in Block 2. For total money made, linear regression analysis yielded a non-significant F-statistic, $F(25) = .920, p = ns$. Our expected
$M_{\text{Trust}}*F_{\text{Trust}}$ interaction was non-significant, $\beta = -.195$, $t(25) = 1.465$, $p = ns$. Neither male nor female level of trust was a significant predictor of total money, although entering the trust interaction actually slightly increased the predictive utility of the regression equation, from an original $R^2 = .073$ to .099. The regression equation, while non-significant, was Total Money = 11.415 + 2.173(Male Trust) – 2.554(Female Trust) – 1.373($M_{\text{Trust}}*F_{\text{Trust}}$). For this equation, (as stated previously) $R^2 = .099$, and the standard error of the estimate was 3.913. We failed to find support for this hypothesis.

To test the hypothesis that highly communal couples would make more money than low communal couples, hierarchical regression was used. Although male and female communal scores were not significantly related, male communal and female communal variables were entered as Block 1 predictors, with the $M_{\text{Communal}}*F_{\text{Communal}}$ interaction entered in Block 2. For total money made, linear regression analysis yielded a non-significant F-statistic, $F(25) = .676$, $p = ns$. Our expected $M_{\text{Communal}}*F_{\text{Communal}}$ interaction was non-significant, $\beta = .234$, $t(25) = 1.211$, $p = ns$. Neither male nor female communal orientation was a significant predictor of total money, although entering the interaction increased the predictive utility of the regression equation, from $R^2 = .021$ to .075. The regression equation, while non-significant, was Total Money = 11.132 + .135(Male Communal) - 1.291(Female Communal) + 8.034($M_{\text{Communal}}*F_{\text{Communal}}$). For this equation, (as stated previously) $R^2 = .075$, and the standard error of the estimate was 3.965. We failed to find support for this hypothesis.

Finally, Chi-Square was used to test the third hypothesis regarding individuals: that securely attached individuals, high trust individuals, and highly communally oriented individuals would choose coordinating strategies more frequently than insecurely attached individuals, low trust individuals, and low communally oriented individuals. Chi-Square analysis was run.
separately for males and females, since the observations between the sexes were not independent. For secure vs. insecure males, the Chi-Square analysis yielded $\chi^2 (1, n=29) = .011, p = ns$. For high trust vs. low trust males, the Chi-Square analysis yielded $\chi^2 (1, n=29) = .333, p = ns$. For highly communally oriented vs. low communally oriented males, the Chi-Square analysis yielded $\chi^2 (1, n=29) = 1.934, p = .164$. For secure vs. insecure females, the Chi-Square analysis yielded $\chi^2 (1, n=29) = .945, p = ns$. For high trust vs. low trust females, the Chi-Square analysis yielded $\chi^2 (1, n=29) = .109, p = ns$. For highly communally oriented vs. low communally oriented females, the Chi-Square analysis yielded $\chi^2 (1, n=29) = .109, p = ns$. The comparisons can be found in Table 5. These results fail to provide any support for the third hypothesis. However, it is important to note that some of the frequencies found in the data did not satisfy assumptions of minimum expected counts necessary for running a Chi-square analysis (such as the frequency of high communal, non-coordinating couples).

Table 5.
Proportions of coordinating vs. non-coordinating males and females, characterized by attachment, trust level, and level of communal orientation.

<table>
<thead>
<tr>
<th></th>
<th>Coordinating {2} or {3}</th>
<th>Not Coordinating {1}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secure</td>
<td>0.82</td>
<td>0.18</td>
</tr>
<tr>
<td>Insecure</td>
<td>0.83</td>
<td>0.17</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Females</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secure</td>
<td>0.67</td>
<td>0.33</td>
</tr>
<tr>
<td>Insecure</td>
<td>0.82</td>
<td>0.18</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Trust</td>
<td>0.87</td>
<td>0.13</td>
</tr>
<tr>
<td>Low Trust</td>
<td>0.79</td>
<td>0.21</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Communal</td>
<td>0.93</td>
<td>0.07</td>
</tr>
<tr>
<td>Low Communal</td>
<td>0.73</td>
<td>0.27</td>
</tr>
</tbody>
</table>
Exploratory

Because no significant differences were found with regards to attachment, it may have been possible that by using a median split to separate low and high anxiety and avoidance, individuals who happened to fall on the high end of the distribution may have gotten categorized as “high”, when really, the sample may have overall been low in a particular dimension. Theoretically, in a possible range of 1-7 for each subscore, 4 should represent the cutoff for the distinction for “high” and “low” categories. Therefore, male and female attachment was recalculated by using a “4” instead of the median for each distribution of anxious and avoidant subscores. However, even with this transformation, the chi square for coordination of secure couples vs. insecure couples remained non-significant, $\chi^2 (1, n=29) = 1.025, p = ns$. In addition, the chi square for choosing a coordinating strategy of secure males vs. insecure males, and secure females vs. insecure females, remained non-significant: $\chi^2 (1, n=29) = .032, p = ns$ for males, and $\chi^2 (1, n=29) = .155, p = ns$. Similar transformations were not made for the trust or communal subscores, since the lowest score in each distribution was either very close to or greater than the theoretical midpoint already (4 for the trust score; 3 for the communal orientation score), so no participants would fall on the “low” side of the scale if this technique was used. The new breakdown of attachment for couples as well as individuals was drastically changed as compared to the median split technique; this comparison can be found by contrasting Table 6 with the original breakdown in Table 2.
Table 6.
Frequencies of secure and insecure attachment for individuals and couples, after re-categorization of “high” and “low” groups.

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th>Females</th>
<th>Couples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secure</td>
<td>24</td>
<td>26</td>
<td>23</td>
</tr>
<tr>
<td>Insecure</td>
<td>5</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>29</td>
<td>29</td>
</tr>
</tbody>
</table>

The hypothesis that secure couples would make more money than insecure couples was retested after re-categorizing males’ and females’ attachment styles (and therefore couple attachment) by using the method described above. The independent samples $t$-test yielded a $t(27) = 1.285, p = .21$. Although still non-significant, this is a relatively vast improvement over the $t$-test results after using the median split method, $t(27) = -.171, p = .865$. The comparison of means using the two methods can be found in Figures 11 and 12.

Figure 9. Mean total money made for secure vs. insecure couples, using median split to categorize each member of the couple into “high” and “low” anxiety and avoidance. Error bars represent +/- 1 standard error of the mean.
Figure 10. Mean total money made for secure vs. insecure couples, using a “4” as the midpoint to categorize each member of the couple into “high” and “low” anxiety and avoidance. Error bars represent +/- 1 standard error of the mean.

Near the end of data collection, it became necessary to begin convenience sampling. A variable was entered to code whether the experimenter was familiar with a particular couple and had convenience sampled them. Because couples who were familiar with the experimenter tended to ask more questions, it may have been possible that couples who knew the experimenter felt more comfortable asking about the coordination game and the matrix representation, and that these couples ended up coordinating more often than couples who were not familiar with the experimenter and did not ask questions. However, no significant differences were found between the groups: chi square analysis yielded $\chi^2 (1, n=29) = .333, p = ns$.

The coordination game sheet included a free-response question on the reasoning behind the participant’s choice between {1}, {2}, or {3}, as a check to see if participants fully understood the matrix. Responses generally fell into two categories: 1) to maximize the joint outcome/amount of money for both partners (“The combination of {3, 3} would each give us $7,
which is the maximum that each of us can get”) or obtain equal payoffs for both partners (“This way, it will be equal”), and 2) for self-oriented reasons (“Because I’ll get money no matter what he chooses, if I understand correctly”). Responses were coded by the experimenter as either couple-oriented, or self-oriented, and chi square analysis was run to see whether these participants would choose a non-coordinating strategy, {1}, vs. a coordinating strategy, {2} or {3}. For male motives and male coordinating decisions, chi square analysis yielded $\chi^2 (1, n=29) = 10.03, p < .01$. The frequencies can be found below, in Table 7. For female motives and female coordinating decision, chi square analysis yielded $\chi^2 (1, n=29) = 1.04, p = ns$. The frequencies can be found below, in Table 8. However, there again was a violation of minimum expected counts for the self-oriented cells.

Table 7.

*Frequencies of motives and strategy selected for males.*

<table>
<thead>
<tr>
<th>Motive</th>
<th>Male Strategy</th>
<th>Coordinate {2} or {3}</th>
<th>Not Coordinated {1}</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Couple Oriented</td>
<td>24</td>
<td>3</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>Self Oriented</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>5</td>
<td>29</td>
<td></td>
</tr>
</tbody>
</table>

Table 8.

*Frequencies of motives and strategy selected for females.*

<table>
<thead>
<tr>
<th>Motive</th>
<th>Female Strategy</th>
<th>Coordinate {2} or {3}</th>
<th>Not Coordinated {1}</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Couple Oriented</td>
<td>21</td>
<td>5</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>Self Oriented</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>22</td>
<td>6</td>
<td>28</td>
<td></td>
</tr>
</tbody>
</table>
The tables above suggest that those who chose \{1\}, the non-coordinating strategy, but indicated a couple oriented motive may not have understood the matrix representation fully. If this is the case, then 3 males and 5 females in this sample did not fully understand the structure of the coordination game, which is a large problem, considering the small sample of only 29 male-female couples.

Finally, while neuroticism and positive/negative affect did have a theoretical basis for inclusion in this study, since the main independent variables by themselves were non-significant, we were unable to enter them as control variables in the various analyses used here.

Discussion

While support was found for the first hypothesis, that couples would coordinate more frequently than strangers, no support was found for the other two main hypotheses: that couple attachment, trust, and communal orientation would each influence coordination/non-coordination and money made by the couple, and that individual attachment, trust, and communal orientation would each influence the strategy picked by each partner. Specifically, at the dyadic level, secure couples coordinated only very slightly more often than insecure couples, high trust couples actually coordinated less than low trust couples, while high communal couples actually did coordinate more often than low communal couples. At the individual level, for males, there was no difference between secure and insecure males for picking coordinating strategies, and high trust and high communal males picked coordinating strategies slightly more often than low trust and low communal males. For females, insecurely attached individuals actually picked coordinating strategies more often than secure couples, low trust females picked coordinating strategies more often than high trust females, and low communal females picked coordinating strategies more often than high communal females. While none of these differences are
significant, it is important to take into account the directions and the unexpected patterns in the findings. In addition, relationship length was not significantly correlated with total money made, which goes against the interdependence theory prediction that couples who have been together longer would coordinate better. Overall, as seen in Table 3, the slight majority of couples coordinated as opposed to not coordinating (15 couples vs. 14 couples), and this was completely independent of all of the individual difference variables examined here.

By examining Tables 7 and 8, it appears that most couples understood the matrix, and were, with only a few exceptions, motivated to benefit the couple as opposed to the self. This bring into question whether the mere fact of being in a relationship carries with it the assumption that one chooses behaviors with the partner in mind. A future study could examine coordination in a variety of different positive and negative relationships, such as siblings, friends, and roommates, vs. enemies, such as romantic/academic/athletic rivals, to explore the effect of the specific relationship between the players on coordination behavior.

With regards to the non-significant results for the main hypotheses of attachment, trust, and communal orientation, many logistical limitations may have been responsible. First and foremost, the sample size was much smaller than originally expected. This led to many problems in data analysis. As can be seen in Figures 3 through 8, the distributions of attachment anxiety, attachment avoidance, trust, and communal orientation for males and females were skewed with regards to the scale midpoint, such that most of the sample was low anxious, low avoidant, high trusting, and highly communal. A significantly larger sample would have allowed for the possibility of more normal distributions of each of those scores around the midpoint, which would have made using the median split method for characterizing “high” and “low” anxiety and avoidance groups less problematic. For example, in this study, the proportions of secure and
insecure across males and females were 39.7% Secure, and 60.3% Insecure. Using the theoretical midpoint, the proportions drastically changed, to 86.2% Secure, and 13.8% Insecure. Regardless of what technique is used to divide and characterize the sample, a larger sample would have allowed for more individuals to fall on either side of the distribution’s midpoint, which would possibly have enabled the detection of significant differences for secure vs. insecure couple and individual attachment, as well as possibly allow for the t-test for couple attachment and total money to reach statistical significance. In addition, a larger sample would have allowed for increased power, and also would be able to satisfy minimum expected counts in the various analyses.

Another issue with the small sample of this study was that it was not representative of the proportions of attachment styles found in Hazan and Shaver’s (1987) sample. Their study is often used as the estimation for typical attachment style proportions of the population: approximately 56% Secure, and 44% Insecure (25% Avoidant, 19% Anxious). This brings into focus questions of the generalizability of findings to a larger population. All in all, it seems a larger sample would have allowed for the possibility of more variability in the data, and lead to more definitive and generalizable results.

Methodological considerations may also be partly responsible for the non-significant results found here. In general, the coordination game used in this study may have simply not been sensitive enough to detect the differences expected, for two reasons. First, only one trial was used, since there exists evidence that mere re-matching over multiple trials can lead to increase coordination (Crawford & Haller, 1990). However, the one-trial method raised issues for the 3 males and 5 females who did not understand the coordination game matrix, and at the worst case, could have affected 8 different couples, which is a significant fraction of our 29-
couples. In the coordination game procedures of Cooper et al. (1992), participants played a variety of different coordination games (created by slightly modifying payoffs) over a large number of trials. Only data from the last several trials were used in data analysis, as by this point, participants would have fully understood the structure of the matrix. In order to control for this confound of misunderstanding in a future study, several practice (i.e., not for money) trials of different experimental games (such as the prisoner’s dilemma, and not the coordination game) may enable the participants to familiarize themselves with the concept of the game matrix, and ensure they understand that the joint actions determine the outcome of the game, while still preventing the possibility of increased coordination due to repeated matching. Thus, decisions made in the actual one-trial coordination game, where the couple’s actions actually decide real monetary outcomes, could be interpreted as deliberate and informed, as opposed to potentially accidental and misinformed. Especially with a much larger sample, it would be important to ensure that all participants fully understood the coordination game matrix. Furthermore, more trials would allow for more flexibility in data analysis, as there would be more variability in the data. For example, the total number of mutually beneficial outcomes across all games played could be used as an additional measure of coordination.

The second possible methodological problem with the coordination game may have been the magnitude of the payoffs used, or the fact that real payoffs were used at all. Vohs, Mead, and Goode (2008) demonstrated that activating the concept of money had detrimental effects on a variety of interpersonal behaviors. Specifically, their findings showed that participants would seek to maximize their own personal gain. If we were to make parallel predictions in this study, it would have been expected that everyone would choose strategy \{1\}, in order to gain the most money for the self ($9). However, this was not the case. Many participants chose strategy \{3\},
which implies they were attempting to maximize the joint outcome of the game. It seems, then, that the activation of money did not have detrimental effects, in terms of focusing only on the self. But there may be other explanations as to why most of the participants were able to overcome the effects of the activation of money. It is possible that the magnitude of the highest payoff ($7), combined with the fact that the couple only had one chance to coordinate, was strong enough to drive all individuals to choose strategy \{3\} in an attempt to get this money. Put in other words, it may be possible that the coordination game used here was too strong of a manipulation, and was not able to detect the effects of personality variables on coordination.

While some people may be more trusting than others, or more communally oriented than others overall, the strength of the situation (i.e., the payoffs) seemed to render all of the participants equivalent, in that individual differences did not factor into the decisions made in the coordination game.

Oftentimes, in experimental economics, each trial is only for a relatively small payoff (“points” that translate to fractions of cents), and the participant’s job is to maximize his/her total number of points across all trials. While participants are usually informed of how exactly the points translate to real dollar amounts, the fractions are often complicated enough to disallow participants from mentally calculating exactly how much money they are competing for. This allows economics researchers to adequately motivate the participants, while still ensuring that the money manipulations are still subtle enough to allow for variability in the data. As previously mentioned, during the design of this study, only one trial was decided upon, so as to not confound coordination through simple re-matching. In order to address the issue of a possibly too-strong incentive manipulation, a future study could utilize the practice trials of various experimental games with relatively low payoffs, followed by the main trial of the coordination
game, which will also use low payoffs, so that the participants are not so strongly driven by the monetary incentive. Another possible solution would be to have couples complete a variety of hypothetical experimental games, including the coordination game, and explain that the total “points” made across all of the games will be compared to the total points made by other couples in the same experiment. At the conclusion of the experiment, the couple that has made the most points would receive a prize from the experimenter, such as a dozen homemade cookies. By providing a tangible, yet non-monetary incentive, participants would hopefully be similarly motivated to coordinate, without the possible confounds raised by activating the concept of money. In addition, using the total number of points across all trials would allow for more variability in the data, as opposed to using a one-trial, coordinated/not-coordinated dependent measure. After addressing the various methodological issues outlined above, it is expected that attachment, trust, and communal orientation would emerge as significant predictors in future studies.

This study compared the behavior of Franklin & Marshall couples against a previous sample of strangers from a different population. In order to strengthen the findings between couples and strangers, and control for differences in sampling, a future study could examine Franklin & Marshall College strangers in a coordination game, to act as a more appropriate baseline comparison for Franklin & Marshall couples.

With regards to modeling relational behavior, it is true that interdependence theory has already re-appropriated game theory as a way to understand how individuals in relationships make decisions that affect both members of the couple (Kelley, 1979). However, this is not the only approach researchers have taken in examining relational behavior. Gillath and Shaver (2007) investigated the effects of attachment on choosing secure or insecure behavioral
responses to a variety of relationship-threat situations. The authors asked 73 undergraduates (48% of which were in a relationship, and 42% of which were single) how they would respond in situations representing a threat to the participant’s real (or imagined, if single) relationship. After measuring attachment anxiety and avoidance using the original ECR (Brennan et al., 1998), participants read 25 scenarios that encompassed different types of relational violations, such as partner infidelity, or violations of trust. Participants were given 4 possible responses to choose from: one representing a more secure and positive behavioral response, and 3 representing either anxious or avoidant negative behavioral responses. Gillath and Shaver found that attachment style was a significant predictor of behavioral responses: anxiously attached individuals tended to pick more anxious responses, and avoidant individuals picked more avoidant responses. In addition, attachment anxiety and avoidance were significant negative predictors of secure behavior. These results suggest that attachment is a powerful predictor in decision-making within the relationship context, a finding that runs parallel to the predictions made in this study. While Gillath and Shaver’s (2007) study examined how individuals would react in hypothetical situations, and this study examined how couples would react in a real, albeit more abstracted, situation, the reasoning remains the same. Attachment, among other individual difference variables, was expected to have a significant effect on the strategies chosen in the coordination game. However, this was not the case.

The disparity of the findings between Gillath and Shaver (2007) and this study brings up several theoretical and methodological issues, some that have already been addressed above, and many that underline the fundamental differences between psychological research and experimental economics research. Ariely and Norton (2007) explain this “gap in abstraction”: While both approaches seek to understand real-world behavior by modeling it in the laboratory,
the theories that guide these two disciplines dictate distinctive methodology. On one side, psychologists view behavior as a function of the person and the situation (Mischel, 1968). Because of this, psychologists must often employ deception in the experimental design, so as to create situations that are analogous to situations found in the real world, and measure how individual differences can affect such behavior in specific contexts. In addition, monetary incentives are not used, as oftentimes, costs and benefits take on different, abstracted forms in the psychology of decision-making. Therefore, using explicit incentives can (and probably did, in this experiment) alter a participant’s judgment, such that there is a primary focus on monetary rewards, which can sway behavior away from that found in normal, everyday situations. On the other side, economists view human behavior and decision-making as being solely driven by utility maximization. In this way, monetary incentives and a transparent context (i.e., lack of deception) are crucial to experimental economics; only if participants are fully aware of the rules, their roles, and the payoffs involved can they act in ways which are translatable to situations outside the laboratory.

While there exists these fundamental theoretical and methodological differences between the two disciplines, Ariely and Norton (2007) argue that both stand to gain if they can find ways to reconcile their dissimilarity.

Conclusions & Future Directions

This study aimed to explore a particular area of interest for both psychologists and economists alike: relational decision-making. Even though this was an unsuccessful attempt to predict couples’ behavior in a coordination game by using evidence from work on attachment, trust, and communal orientation, this is only the first step of many towards fully understanding what factors influence decision-making within specific relational contexts. A future study could
examine coordination in a variety of different positive and negative relationships, to explore the effect of the specific relational context on coordination behavior. In any case, it seems that simply obtaining information on individual differences, as well as information on the relationship between players (if any), can more fully enlighten experimental economic research.

While psychological insight is helpful for economics, the main purpose here was to use economic methodology as an innovative way to inform psychological theory. Because the particular manipulations used in this study yielded non-significant results, a future iteration of this study with a much larger sample would address the various limitations found here. While still retaining the same basic procedure with romantic couples, the coordination game in future experiments would be modified in two ways: 1) the use of a variety of different experimental games, including one trial of the coordination game, in order to simultaneous address the confounds of possible misunderstanding of the matrix, while also avoiding inadvertent increases in coordination that would have otherwise been due to repeated re-matching over several trials; and 2) the reduction of the payoffs used in the various games, so as to reduce the strength of the incentive on observed behavior in the one trial of the coordination game; or alternatively, the elimination of monetary incentives altogether, so as to reduce the effects of simply activating money (Vohs, Mead, & Goode, 2008) across all (hypothetical) experimental games.

It would be expected that after modifying the present study, significant results with regards to attachment, trust, and communal orientation would be found. This would suggest that individual difference variables actually do have an effect on how people in relationships decide between certain behaviors that affect both members of the couple, which carries practical implications for the everyday functioning and maintenance of healthy vs. unhealthy relationships. In addition, a future avenue of exploration may examine how exactly individuals in
relationships perceive and mentally represent potential relational strategies. While the exploratory work done here showed that the coordination game was fairly transparent for most individuals, a future study that compared decisions between explicit relational actions (such as the ones used by Gillath and Shaver, 2007), interdependence theory’s relational strategies (choosing Clean vs. Not Clean), and game theory’s abstracted strategies (choosing \{1\} or \{2\}) would be able to test this further. While it remains unclear whether psychology or experimental economics provides researchers with the most predictive utility for decision-making in couples, it is certain that careful integration of both approaches would be much more informative than either of them alone.
References


Appendix

Experimenter Script

Prior to the experimental session, prepare two copies of the Experimental Pre-Packet. Each packet will contain the Demographic Questionnaire, the ECR-R, the Neuroticism scale, the Coordination Game, the Trust Scale, and the Communal Orientation Scale. Before they arrive, randomly assign one of the members of the couple to be the “Row” player for each session, and be sure to label his/her packet with the “A” distinction. Clear a central room in the Social Psychology lab for the welcoming and dismissing of participants, and prepare two of the cubicle rooms with pencils for when the couple separates to fill out their individual packets. Once the participants arrive, greet them and bring them to the center room. Bring with you two copies of the Informed Consent form.

“Hello, and welcome to this study. First, I will ask both of you to take a seat, and read and sign these papers, indicating that you are giving your Informed Consent to be participants in this study. You are both reminded that your participation is completely voluntary and you may withdraw from the study at any point, without penalty or loss of compensation.

Give participants Informed Consent sheet. Return once they have completed it. Bring with you a pair of Pre-Packets.

“Do you have any questions about the Informed Consent?

Answer any questions either of the participants may have.

“For this experiment, I will be giving each of you a packet containing several questionnaires for you to complete. You will complete your packets in separate rooms, so that each of you may have your privacy when answering the questionnaires. I will also ask that you please leave your cell phones in this central room for the duration of the study. Once both of you are finished, I will come around to collect your packets, and then present you with a final questionnaire. When both of you have completed the final questionnaire, I will come so you can return to this room. These questionnaires should take no more than 30 minutes to complete. Do either of you have any questions?

Answer any questions either of the participants may have. Hand out the packets, and lead both participants to separate rooms. Ask participants to knock on the other side of the door when finished.

Check in on the participants after 20 minutes to see if they have finished. If one of the participants is finished but his/her partner is still working, collect the finished packet and ask the participant to patiently wait for his/her partner. Once both participants are finished, collect both packets.

“Thank you. I will be back shortly for the rest of the experiment.
Go to the center room with both packets in hand. Flip to the Coordination Game page, and examine the strategies picked by each participant. Determine the proper payoff for each participant, and label everything properly on the appropriate Outcome Sheets. Walk back to the experimental rooms, and hand each participant his/her Outcome Sheet.

“I now ask that you fill out this final questionnaire. I will be back shortly for the conclusion of the experiment.

Once both participants are finished the Outcome Sheet, lead them both back to the center room for debriefing.

“Thank you very much for your participation in our study. This study’s purpose was to examine how certain types of couples respond when put into an inherently uncertain strategic situation. In this experiment, you participated in the Coordination Game. The Coordination Game is a long-studied game in experimental economics that examines the struggle between individual gain and mutually beneficial gain. This study was also about examining risky vs. non-risky decision-making. We predicted that couples who have been together longer would know each other better, and therefore be able to trust each other more and take more risk in the coordination game...

If the couple won money: {1, 1}, {2, 2}, or {3, 3} outcome
...With strangers, most play ends in {1, 1}, so we wanted to see what factors would lead romantic couples to do something different.

If one partner did not win money: {1, 2} or {2, 1} outcome
...Even though one of you did not win any money today, this does not mean that your decisions indicate you did not trust each other. In fact, they indicate the opposite. Trying to coordinate on a better outcome reflects some level of trust. We wanted to see what factors would lead romantic couples to either play it safe, or take a risk, and in a way, it is your decisions that are the ones we are most interested in studying.

If both partners did not win money: {2, 3} or {3, 2} outcome
...Even though you did not win any money today, this does not mean that your decisions indicate you did not trust each other. In fact, they indicate the opposite. Trying to coordinate on a better outcome reflects some level of mutual trust. With strangers, most play ends in {1, 1}, which was the safest and least-risky option, representing no trust between the players. We wanted to see what factors would lead romantic couples to do something different than this, and in a way, it is your decisions that are the ones we are most interested in studying.

“As compensation for your participation today, you will both receive the base payment, as well as money based on your decisions made in the Coordination Game.

Give monetary compensation to both participants. Make sure they sign and print their names, and date the entry, to signify that they have received this compensation for participating in the study today.
“Do you have any questions or comments about the study?

“If you would like to know more about the results of the study, I will be presenting this study at the Spring Research Fair. In addition, once the study is completed, you are more than welcome to ask about the results at any time. Also, I please ask that you refrain from talking about this experiment to other couples who may potentially participate in this study at a later date. This may possibly contaminate my sample…

“Thanks again for participating!
ATTACHMENT AND COORDINATION

INFORMED CONSENT

Participant: _________________________ Date: _______________

I am conducting a study on decision-making and couples in romantic relationships. As a participant in this study, you will fill out a battery of scales and measures asking about yourself and your relationship. You will also make a decision that will determine how much you will be compensated. Once this is completed, you will be debriefed and dismissed. You will be monetarily compensated for your participation.

I understand that I am participating in this research as a volunteer. If I object to the procedure or content, I understand that I can discontinue the study at any point or refuse to answer any question within a survey without penalty or loss of compensation. I also understand that I may choose to withhold the use of data provided by my participation if, after an explanation of the purpose of the study, I object to the way in which the data will be used.

If the purpose of the study is not explained to you, or if you feel this policy is being abused, please contact Dr. Carol L. Wilson in the Psychology department.

_________________________  _________________________
Signature of Experimenter  Signature of Participant
Pre Packet

**Demographic Questionnaire**

1. Sex (circle one): Male  Female

2. Age (circle one): 18  19  20  21  22  Other______

3. Race (circle one): White/Caucasian  Asian  African American
   Hispanic/Latino  Other________________

4. Dating Status (mark one):
   
   ___ Currently single
   ___ Currently dating only 1 person
   ___ Currently dating multiple people
   ___ Currently engaged
   ___ Currently married or had commitment ceremony

5. How long have you been in this current relationship? ____________
INSTRUCTIONS:

The statements below concern how you feel in emotionally intimate relationships. We are interested in how you generally experience relationships, not just in what is happening in a current relationship. Respond to each statement by circling a number from 1 (strongly disagree) to 7 (strongly agree) to indicate how much you agree or disagree with the statement.

1. I'm afraid that I will lose my partner's love.

   Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

2. I prefer not to show a partner how I feel deep down.

   Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

3. I often worry that my partner will not want to stay with me.

   Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

4. I feel comfortable sharing my private thoughts and feelings with my partner.

   Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

5. I often worry that my partner doesn't really love me.

   Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

6. I find it difficult to allow myself to depend on romantic partners.

   Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

7. I worry that romantic partners won’t care about me as much as I care about them.

   Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

8. I am very comfortable being close to romantic partners.

   Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

9. I often wish that my partner's feelings for me were as strong as my feelings for him or her.

   Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree
10. I don't feel comfortable opening up to romantic partners.

   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

11. I worry a lot about my relationships.

   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

12. I prefer not to be too close to romantic partners.

   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

13. When my partner is out of sight, I worry that he or she might become interested in someone else.

   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

14. I get uncomfortable when a romantic partner wants to be very close.

   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

15. When I show my feelings for romantic partners, I'm afraid they will not feel the same about me.

   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

16. I find it relatively easy to get close to my partner.

   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

17. I rarely worry about my partner leaving me.

   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

18. It's not difficult for me to get close to my partner.

   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

19. My romantic partner makes me doubt myself.

   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

20. I usually discuss my problems and concerns with my partner.

   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree
21. I do not often worry about being abandoned.
   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

22. It helps to turn to my romantic partner in times of need.
   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

23. I find that my partner(s) don't want to get as close as I would like.
   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

24. I tell my partner just about everything.
   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

25. Sometimes romantic partners change their feelings about me for no apparent reason.
   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

26. I talk things over with my partner.
   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

27. My desire to be very close sometimes scares people away.
   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

28. I am nervous when partners get too close to me.
   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

29. I'm afraid that once a romantic partner gets to know me, he or she won't like who I really am.
   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

30. I feel comfortable depending on romantic partners.
   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

31. It makes me mad that I don't get the affection and support I need from my partner.
   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

32. I find it easy to depend on romantic partners.
33. I worry that I won't measure up to other people.
   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

34. It's easy for me to be affectionate with my partner.
   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

35. My partner only seems to notice me when I’m angry.
   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

36. My partner really understands me and my needs.
   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree
INSTRUCTIONS:

For each of the following items, honestly indicate whether you agree or disagree with each statement as it applies to your personality by writing the appropriate value from the scale below in the blanks provided.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

1. I remain calm in tense situations. ____
2. I am relaxed, handle stress well. ____
3. I get nervous easily. ____
4. I am emotionally stable, not easily upset. ____
5. I worry a lot. ____
6. I can be tense. ____
7. I am depressed, blue. ____
INSTRUCTIONS:

In this game, you are paired with your partner in the other room. You are player A, and your partner is player B. You have the option of picking decision 1, 2, or 3. Your partner also faces the same decision. The combined actions of you and your partner will jointly determine the amount of money each of you will receive at the end of this experiment. In other words, the numbers shown below represent real dollars. The first number in each cell is what you will receive, and the second number is what your partner will receive. For example, if you pick 1, and your partner picks 2, then you will receive $7.00, and your partner will receive $0.00.

Examine this matrix carefully.

<table>
<thead>
<tr>
<th></th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>$3.00, $3.00</td>
<td>$7.00, $0.00</td>
<td>$9.00, $0.00</td>
</tr>
<tr>
<td>A2</td>
<td>$0.00, $7.00</td>
<td>$5.00, $5.00</td>
<td>$0.00, $0.00</td>
</tr>
<tr>
<td>A3</td>
<td>$0.00, $9.00</td>
<td>$0.00, $0.00</td>
<td>$7.00, $7.00</td>
</tr>
</tbody>
</table>

What is your decision? (circle one)

A1 A2 A3

Why did you pick that particular decision? (use space provided)

What do you think your partner will pick?

B1 B2 B3
INSTRUCTIONS:

The statements below concern how you feel in your current emotionally intimate relationship. Respond to each statement by circling a number from 1 (strongly disagree) to 7 (strongly agree) to indicate how much you agree or disagree with the statement.

1. My partner is very unpredictable. I never know how he/she is going to act from one day to the next.

   Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

2. My partner has proven to be trustworthy and I am willing to let him/her engage in activities that other partners find too threatening.

   Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

3. In our relationship I have to keep alert or my partner might take advantage of me.

   Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

4. My partner behaves in a very consistent manner.

   Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

5. Even when my partner makes excuses which sound rather unlikely, I am confident that he/she is telling the truth.

   Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

6. I can rely on my partner to keep the promises he/she makes me.

   Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

7. I can rely on my partner to react in a positive way when I expose my weaknesses to him/her.

   Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

8. I am willing to let my partner make decisions for me.

   Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

9. I am certain that my partner would not cheat on me, even if the opportunity arose and there was no chance that he/she would get caught.

   Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree
10. I would never guarantee that my partner and I will be together and not have decided to end our relationship 10 years from now.

   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

11. I sometimes avoid my partner because he/she is unpredictable and I fear saying or doing something which might create conflict.

   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

12. I usually know how my partner is going to act. He/she can be counted on.

   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

13. Whenever we have to make an important decision in a situation we have never encountered before, I know my partner will be concerned about my welfare.

   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

14. In my relationship with my partner, the future is an unknown which I worry about.

   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

15. I am never certain that my partner won’t do something that I dislike or will embarrass me.

   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

16. I am familiar with the patterns of behavior my partner has established and I can rely on him/her to behave in certain ways.

   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

17. When we encounter difficult and unfamiliar new circumstances I would not feel worried or threatened by letting my partner do what he/she wanted.

   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

18. When I share my problems with my partner, I know he/she will respond in a loving way even before I say anything.

   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

19. Even if I have no reason to expect my partner to share things with me, I still feel certain that he/she will.

   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree
20. I can count on my partner to be concerned about my welfare.

   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

21. When I am with my partner I feel secure in facing unknown new situations.

   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

22. I feel very uncomfortable when my partner has to make decisions which will affect me personally.

   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

23. I have found that my partner is unusually dependable, especially when it comes to things which are important to me.

   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

24. Even when I don’t know how my partner will react, I feel comfortable telling him/her anything about myself; even those things of which I am ashamed.

   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

25. In general, my partner does things in a variety of different ways. He/she almost never sticks to one way of doing things.

   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree

26. Though times may change and the future is uncertain, I know my partner will always be ready and willing to offer me strength and support.

   Strongly Disagree  1  2  3  4  5  6  7  Strongly Agree
INSTRUCTIONS:

The statements below concern how you feel in general about other people. Respond to each statement by circling a number from 1 (extremely uncharacteristic) to 5 (extremely characteristic) to indicate the extent to which this is characteristic of you.

1. I expect people I know to be responsive to my needs and feelings.
   
   Extremely Uncharacteristic  1  2  3  4  5  Extremely Characteristic

2. I believe it’s best not to get involved taking care of other people’s personal needs.
   
   Extremely Uncharacteristic  1  2  3  4  5  Extremely Characteristic

3. When I have a need that others ignore, I’m hurt.
   
   Extremely Uncharacteristic  1  2  3  4  5  Extremely Characteristic

4. When I have a need, I turn to others I know for help.
   
   Extremely Uncharacteristic  1  2  3  4  5  Extremely Characteristic

5. I often go out of my way to help another person.
   
   Extremely Uncharacteristic  1  2  3  4  5  Extremely Characteristic

6. I don’t consider myself to be a particularly helpful person.
   
   Extremely Uncharacteristic  1  2  3  4  5  Extremely Characteristic

7. I don’t especially enjoy giving others aid.
   
   Extremely Uncharacteristic  1  2  3  4  5  Extremely Characteristic

8. I believe people should go out of their way to be helpful.
   
   Extremely Uncharacteristic  1  2  3  4  5  Extremely Characteristic

9. When people get emotionally upset, I tend to avoid them.
   
   Extremely Uncharacteristic  1  2  3  4  5  Extremely Characteristic

10. I’m not the sort of person who often comes to the aid of others.
    
    Extremely Uncharacteristic  1  2  3  4  5  Extremely Characteristic
11. It bothers me when other people neglect my needs.

   Extremely Uncharacteristic  1  2  3  4  5  Extremely Characteristic

12. People should keep their trouble to themselves.

   Extremely Uncharacteristic  1  2  3  4  5  Extremely Characteristic

13. When making a decision, I take other people’s needs and feelings into account.

   Extremely Uncharacteristic  1  2  3  4  5  Extremely Characteristic

14. I’m not especially sensitive to other people’s feelings.

   Extremely Uncharacteristic  1  2  3  4  5  Extremely Characteristic
**INSTRUCTIONS:**
This scale consists of a number of words that describe different feelings and emotions. Read each item and then circle the appropriate answer next to that word. Indicate to what extent you feel this way right now.

Use the following scale to record your answers.

(1) = Very slightly or not at all
(2) = A little
(3) = Moderately
(4) = Quite a bit
(5) = Extremely

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Post-Questionnaire

INSTRUCTIONS:

This sheet shows the original game matrix presented to you in the first part of this study. Circled is the outcome that has resulted from you and your partner’s actual decisions. Please read the following questions concerning the outcome, and answer as completely and honestly as possible.

To ensure you understand this matrix, you are reminded that you were player _____. Therefore, you will receive _____, while your partner will receive ______.

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How surprised are you at this outcome? (circle 1 – 7)

Not Very 1 2 3 4 5 6 7 Very

If you won money, what are you planning on doing with it? (use space provided)

If your partner won money, what do you think he/she is planning on doing with it? (use space provided)
**INSTRUCTIONS:**

This scale consists of a number of words that describe different feelings and emotions. Read each item and then circle the appropriate answer next to that word. Indicate to what extent you have felt this way about the outcome of this experiment.

Use the following scale to record your answers.

(1) = Very slightly or not at all  (2) = A little  (3) = Moderately  (4) = Quite a bit  (5) = Extremely

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