TRUST AND RECIPROCITY AS INFLUENCED BY GROUP IDENTITY

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ii

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ABSTRACT

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by Carey James Fitzgerald

People are more likely to trust and reciprocate favors to their in-group members. Many common groups - such as politics and religion - advocate trust, reciprocity, and cooperation among its members; however, studies on trust and reciprocity tend to manipulate group identity via assigning participants to arbitrary groups) rather than investigating the potential relationship with actual social groups (e.g., religion and politics). Therefore, the present study empirically tested the relationships that may exist between actual group memberships, arbitrary group membership, trust, and reciprocity. Two studies (N = 144 per study) were conducted with a computerized "trust" game to measure trust and reciprocity between people based on political affiliation, religious denomination, and arbitrary identification. The particular trust game used in these studies consisted of two decisions that were made in sequence. Two players were given one sum of money ($10) to split. The first player chooses whether or not to trust the second player to evenly divide the sum between the two of them. If the first player chooses to trust, the second player then has the opportunity to reciprocate by dividing the sum of money fairly between the two of them ($5 for player 1 and $5 for player 2). The second player can divide the sum of money any way that s/he wants – in a selfish or unselfish split. If the first player decides to distrust the second player, then each player receives an amount of money that is smaller than half of the original sum ($4). The first player is given some

details about the second player (e.g., religious or political affiliation) and is asked to choose between trusting and distrusting the second player. The second player is simulated by a computerized algorithm that chooses to trust or distrust the participant. Results indicated that people trusted their fellow in-group members more than out-group members, and trusted religious and political in-group members more than arbitrary in-group members. Participants gave more money to in-group members than out-group members. There were no significant differences in the amount of money given to actual and arbitrary in-group members.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

Human cooperation has led to the social lifestyle that our world thrives on today. We live in a world based on trust and reciprocal relationships that have evolved throughout our hunter-gatherer ancestry (Ridley, 1996).

Reciprocal relationships refer to the actions in which someone incurs a cost in order to help someone else in hopes of this favor being reciprocated in the future. This phenomenon has been extensively studied across the world – including industrialized and non-industrialized cultures. For instance, the Kékch'i Mayans of Belize help other tribal members with farming corn and dry rice. These helpers are then helped in future situations in which they need extra farmhands and/or food (Berté, 1988). Similarly, Ache hunter-gatherers of Paraguay share food between different families (Gurven, Allan-Arave, & Hill, 2001). These reciprocal relationships have been found to exist in hunter-gatherer societies on all six inhabitable continents (Gurven, 2004).

People are also more likely to reciprocate favors for people of the same in-group identity (Ridley, 1996; Rothgerber, 1997; Sherif, Harvey, White, Hood, & Sherif, 1961; Tajfel, 1982), regardless of whether the group membership is meaningful or just an arbitrary label (Gummerum et al., 2009; Sherif et al., 1961; Yamagishi, Jin, & Kiyonari, 1999). People are also more likely to trust that fellow in-group members will reciprocate cooperative behaviors than out-group members. We have seen this increased frequency of trust and reciprocity in several studies, but the majority of these studies have used arbitrary in-group identity as the group-identifier. Although there have been a few studies on the impact of meaningful group identity (e.g., politics and religion) (Park & Schaller,

2005; Struch & Schwartz, 1989), none have investigated how these meaningful group identities compare to arbitrary group identities in regards to trust and reciprocity.

The present study set out to make this comparison. The process that was undertaken shall be described as follows. First, we review the literature on altruism, reciprocity, group identity, trust, and cooperation. We then develop hypotheses in regards to the influence that group identity (both arbitrary and meaningful) may have on trust and reciprocity. Next, we describe two experiments that were implemented to investigate the potential relationships between group identification, trust, and reciprocity. Finally, we discuss the results from the experiments, along with the strengths and limitations of the experiments as well as the implications for future research in the area of group identity and cooperative behaviors.

Altruism and Reciprocal Exchange

The human propensity for altruistic behavior, according to Hamilton's inclusive fitness theory (1964), operates on the genetic level. This altruistic behavior preserves the same gene in other individuals when the altruistic agent extends aid to kin members – the individuals who are most likely to carry a copy of the same altruism gene. This concept is illustrated by Hamilton's rule ($c < br$), which indicates that an altruist will perform an altruistic act when the biological cost (c) is less than the product of the reproductive benefits (b) and the genetic relatedness (r) shared between the altruist and recipient. Studies following Hamilton's work have shown that individuals are more likely to risk their own lives in an effort to aid close kin over non-kin or more distantly related kin (Burnstein, Crandall, & Kitayama, 1994; Fitzgerald & Colarelli, 2009; Kruger, 2001; Neyer & Lang, 2003; Stewart-Williams, 2007, 2008). More clearly, the amount of aid

one is willing to offer diminishes with a reduction in genetic relatedness. In addition, studies have also shown that kin members who are biologically unlikely to reproduce – thereby inhibiting the replication of the altruism gene – are less likely to receive aid from kin members as opposed to their reproductively sound counterparts (Burnstein et al., 1994; Essock-Vitale & McGuire, 1985; Fitzgerald & Colarelli, 2009).

However, Trivers' (1971) reciprocal altruism theory posits that altruism toward *unrelated* individuals can also enhance one's overall fitness if the altruistic favor is returned to the altruist in the future. In other words, if someone incurs a cost – such as sharing food or other precious resources with a non-kin member – s/he is harming her overall fitness (i.e., less food for him/herself and kin leads to decreased chances of survival and reproduction); however, this cost could lead to an increase in fitness if the non-kin that s/he helped reciprocates by giving the altruist food or other resources at a later time when it is needed. After the initial cooperative acts, this reciprocal relationship can maintain and thus aid in the survival of two unrelated people. This is a tit-for-tat agreement which has been found to be a cornerstone in sustaining reciprocal relationships (Trivers, 1985). In fact, Ridley (1996) argued that reciprocity and trusting others to reciprocate are necessary for the formation of any successful society.

Reciprocal altruism has aided in the survival of several different species for generations (de Waal, 1982; Trivers, 1971; 1985; Wilkinson, 1984; Wrangham, 1999). For instance, female vampire bats live together in small groups. When a female vampire bat feeds off the blood of another animal, she will regurgitate some of the blood to help feed others in her group who need it. However, she does not share this blood with any bat in the group; she shares it with those who have shared blood with her in the past –

indicating a cooperative reciprocal exchange (Wilkinson, 1984). Similarly, non-human primates such as baboons, macaques, and chimpanzees engage in reciprocal altruism as well (de Waal, 1982). In fact, male chimpanzees have been found to create and maintain social alliances with each other that are used in coalitional aggression against a common threat and/or enemy (Boesch, 1994; de Waal, 1982; Wrangham, 1999). This form of cooperation and reciprocal exchange tends to lead to better social and reproductive status for the allied males (e.g., they become the dominant males in a group and thus have preferred access to all of the females) (de Waal, 1982).

Reciprocal altruism has also been extensively studied in humans over the past 30 years (Axelrod & Hamilton, 1981; Berté, 1988; Burger, Sanchez, Imberi, & Grande, 2009; Cialdini, 2001; Cosmides & Tooby, 1992, 2005; Essock-Vitale & McGuire, 1980; Gummerum, Takezawa, & Keller, 2009; Gurven, Allen-Arave, & Hill, 2001; Stewart-Williams, 2007; Trivers, 1985; West et al., 2006; Wilson & Sober, 1994; Yamagishi & Kiyonari, 2000). It has been studied by a variety of different methods and in many different contexts. Overall, the research has shown that people have a greater willingness to trust and help those who are more willing to reciprocate. Many of these studies involve the Prisoner's Dilemma game (Axelrod & Hamilton, 1981; Gummerum et al., 2009). Prisoner's Dilemma tasks have shown that people cooperate more with others who also cooperate – revealing reciprocity to be a strong predictor of cooperation (Axelrod & Hamilton, 1981; Gummerum et al., 2009; Yamagishi & Kiyonari, 2000). In these studies, two participants are required to complete a task in which they are being held "prisoner" for a specific "crime" that they committed together. In most studies, the participants are in separate rooms. The prisoners are told (individually) that they can either defect (i.e.,

4

confess) or cooperate with their partner (i.e., stay silent and refuse to confess). If one prisoner defects and one cooperates, then the defector will be set free and be given a small reward while the cooperator will be punished (e.g., go to "jail" and not receive a reward). However, if both prisoners defect on each other, then they are both punished, and if both prisoners cooperate then they both receive a reward that is slightly less than the reward given to a successful defector. These trials are performed for an unspecified amount of time to examine how often people will cooperate and how many points they can acquire. The most successful strategy is called tit-for-tat, which basically states that one should cooperate on the first trial and then reciprocate on every trial after that. In other words, if one's partner cooperates then one should continue to cooperate, but if the partner defects then one should defect on the next available opportunity (Axelrod & Hamilton, 1981). The success of the tit-for-tat strategy has been supported many times in several studies – most notably, Axelrod's computer tournaments, in which experts from across the world submitted strategies to compete in a Prisoner's Dilemma task. Fourteen strategies were submitted to the first tournament while 62 strategies were submitted to the second tournament. Tit-for-tat was the winning strategy both times (Axelrod, 1984).

Other methods used have ranged from self-report to anthropological observations. Stewart-Williams (2007) used a questionnaire to examine the amount of help given to (and received from) acquaintances, friends, and different kin members. His results indicated that people based their help toward acquaintances on reciprocity significantly more than help toward friends, cousins, and siblings. Anthropological data among hunter-gatherer tribes have also been used to examine reciprocal altruism among humans (Berté, 1988; Gurven et al., 2001). Berté (1988) studied the Kékch'i Mayans of Belize and found

that tribal members helped other members with farming corn and dry rice as a reciprocal relationship. Members were more likely to help non-kin than kin (because kin were already expected to help in the cultivation of crops for their family), but helping non-kin increased the number of viable workers for one's own farming – thereby using reciprocal relationships to increase one's food acquisition and subsequently one's social and reproductive status as well. Similarly, Gurven et al. (2001) studied the Ache hunter-gatherers of Paraguay and found specific reciprocal relationships in food-sharing between different families. More specifically, families were significantly more likely to share food and resources with other families that had shared their own food and resources in the past. In addition, people were more likely to share food and resources that were unpredictably acquired or acquired less often.

Reciprocation has also been empirically manipulated in laboratory settings. Burger et al. (2009) examined reciprocation between undergraduate participants and secret confederates. In their study, a participant was grouped with a confederate to perform an irrelevant cognitive task. During the task, the researcher told the two students that he had forgotten some papers and had to leave for a while. The researcher instructed the two to keep working while he was gone. While the researcher was out, the confederate left to use the restroom. In half of the trials, when the confederate returned s/he brought two bottles of water and gave one to the participant as a gift. In the other half of the trials, the confederate returned with nothing. After the irrelevant cognitive task was complete and the two were dismissed, the confederate asked the participant if s/he would complete a survey and return it to a specific location. Participants were significantly more likely to complete and return the survey if the confederate had given

the participant a bottled water during the task – indicating that the participants completed the survey as a reciprocal favor for the confederate.

Cheater Detection

It is always possible that a person can cheat (Axelrod & Hamilton, 1981; Cosmides & Tooby, 1992, 2005). In these instances, the term *cheater* refers to someone who receives the benefits from an altruistic favor, but chooses not to reciprocate – leaving the altruist to incur the complete cost with no benefit to one's self or kin. To compensate for this cheating phenomenon, it has been proposed that people possess certain *cheater detection mechanisms* (Cosmides, 1989; Cosmides & Tooby, 1992, 2005).

Successful cheating results in the complete benefit of the cheater – receiving all of the benefit and none of the cost. However, the human mind is designed to monitor and maintain a cognitive record of the costs and benefits associated with reciprocal altruism. In addition, humans have been found to have the capability to detect cheating in reciprocal relationships (Cosmides, 1989; Cosmides & Tooby, 1992). This cheater detection mechanism helps altruists pay attention to whether their exchange partner has paid his/her costs after collecting his/her benefits. It also allows altruists to discriminatively cooperate only with non-cheaters. This cheater detection mechanism has been broken down into five specific abilities that aid in preventing cooperation with cheaters (Cosmides & Tooby, 1992).

The first ability refers to being able to recognize many different people. If an altruist gives a person some sort of benefit, and the altruist does not completely remember what the person looks like, than the person can become just another anonymous face in the crowd – never having to reciprocate. This recognition ability is

quite strong in humans. For instance, people are able to clearly recognize others who they have not seen in over 30 years (Bahrick, Bahrick, & Wittlinger, 1975).

People must also be able to remember past interactions with others and whether these interactions involved cooperation or cheating. Not only does this allow people to remember which cheater owes them what, but it also serves as a reminder to not cooperate with specific people (i.e., cheaters). Recent research suggests that people have enhanced memory for remembering names of people who have a history of cheating (Bell & Buchner, 2009) – revealing that this is an ability that has aptly served cooperators. Similarly, data from a one-shot Prisoner's Dilemma task found that people are also able to determine cheaters from simply viewing their facial expressions from facial photographs taken while the cheater was defecting (Verplaetse, Vanneste, & Braeckman, 2007). Because humans exchange such a large array of different items, individuals must also be able to comprehend and represent accurate costs and benefits in order to create equal reciprocal exchange (Cosmides & Tooby, 1989, 1992, 2005). If one reciprocates with a benefit that is weaker than the cost of the initial altruistic favor, disagreements and crumbling of cooperation can occur.

The final two abilities discussed by Cosmides and Tooby (1992) refer to communicating one's values to others and modeling the values of others. In order to establish honest reciprocal exchange, one must be able to present their wants and desires to fellow cooperators, as well as discuss their dislike for cheating. Similarly, one must be able to understand the wants and desires of fellow cooperators so that one can accurately reciprocate and not be labeled as a cheater. Research in this area has found that people

8

are not only able to successfully detect cheaters (Cosmides, 1989), but are also able to successfully detect altruists and cooperators (Brown & Moore, 2000).

Ultimately, evolutionary theory and research support the notion that humans possess the five abilities discussed above and are thus quite accurate at successfully identifying cheaters. In fact, this conclusion has been supported cross-culturally as well (Sugiyama, Tooby, & Cosmides, 2002). Although humans are proficient at identifying and segregating cheaters, this still leaves a large number of cooperators in the world. Because people have limited resources to share and costs to bear, altruists cannot help every cooperator that they meet. Therefore, other identifying mechanisms must be playing a role in reciprocal altruism among cooperators. Being able to identify specific cooperators, and thus allowing altruists to choose which cooperators to aid, would serve as a useful mechanism to help accommodate the sensitive trade-off between expending resources and gaining reciprocal relationships. Therefore, the present study aims to examine the potential relationship that group identity may have with cooperation. Specifically that altruists may be more likely to help cooperators from the same in-group than cooperators from an out-group.

Group Identification and Reciprocal Exchange

The literature on group identity has shown that people tend to share more currency, resources, positive feelings, and trust with others in the same group (Ridley, 1996; Rothgerber, 1997; Sherif et al., 1961; Tajfel, 1982), regardless of whether the group membership is meaningful or just an arbitrary label (Gummerum et al., 2009; Sherif et al., 1961; Yamagishi, Jin, and Kiyonari, 1999). People also tend to punish

cheaters from their own group more harshly and more frequently than cheaters from outside groups (Shinada, Yamagishi, & Ohmura, 2004).

Some of the earliest research on group identity stems back to Sherif et al.'s (1961) Robber's Cave experiment, in which 22 boys were taken to a Boy Scouts camp, split evenly into two groups, and were observed for alterations in group identity. Within the first few days, each group had given themselves an arbitrary group name. At this point, each group did not have any knowledge as to the existence of a second group. As time progressed, the children became increasingly aware of a second group, and each group began to show more positive feelings toward their own group and more negative and aggressive feelings toward the other group. However, when both groups were required to work together to fix common problems (e.g., uncover why drinking water was not flowing to the camp, and acquiring a movie that all would enjoy to watch), the boys completed the tasks and did not elicit any negative feelings or comments toward any members from either group – revealing that in-group identity can easily be manipulated to new groups.

Recent research using a Prisoner's Dilemma task found that people were more likely to cooperate and reciprocate with in-group members than out-group members (Gummerum et al., 2009; Yamagishi & Kiyonari, 2000). However, group membership in these studies has been arbitrary. For example, Yamagishi and Kiyonari (2000) showed participants a series of photographed paintings; half of the pictures were created by one artist (Klee) while the other half were created by a different artist (Kandinski). Participants were asked to indicate which pictures they liked the most. Responses were collected and participants were told that they were either a member of the Klee group or

the Kandinski group. Participants were also told whether or not the person playing the Prisoner's Dilemma game with them was in their same group (i.e., Klee or Kandinski). This arbitrary group identity manipulation led to results that revealed participants were more likely to cooperate with their fellow in-group member and more likely to defect on the out-group members.

Gummerum et al. (2009) manipulated group identity by assigning each person a color. Participants viewed images containing 70-80 yellow dots on a blue background and were asked to estimate the number of yellow dots in the image. People were tested in groups of 12. Their estimates of yellow dots were rank ordered and the top six were labeled the "yellow" group while the bottom six were labeled the "blue" group. Using a Prisoner's Dilemma task, results indicated that people were more likely to cooperate with their arbitrary in-group members than out-group members.

This bias to cooperate with in-group members does not stop there. Studies have shown that not only are people less likely to help others who are not members of their specific arbitrary in-group (Gummerum et al., 2009; Sherif et al., 1961; Yamagish & Kiyonari, 2000), but out-group members are met with aggression – especially when met with competition between the two groups (Doosje & Ellemers, 1997; Rothgerber, 1997; Sherif et al., 1961). This bias toward in-group members may reflect the cheater detection mechanisms described earlier (e.g., people feel that they know their in-groups and can trust them to cooperate). However, this in-group identity and trust have been found to exist among strangers who are placed into an arbitrary group that is not based on any personal history or values of the members (Gummerum et al., 2009; Sherif et al., 1961; Tajfel, 1982; Yamagishi, et al., 1999; Yamagish & Kiyonari, 2000). Thus, the members

do not know whether or not their fellow group members are cheaters or cooperators, but they tend to trust them anyway. In support of this, Gummerum et al. (2009) found that group membership loses all influence on reciprocal altruism when personal information about in-group and out-group members' histories of cooperation are known. It seems as though people increase their willingness to help when they have more concrete details supporting the probability of reciprocity from the recipient. Similarly, if participants have reason to believe the other player in a sequential prisoner's dilemma game will reciprocate, they exhibit no difference in sharing behavior (i.e., no preference for in-group members) between in-group and out-group members (Yamagishi, et al., 1999; Yamagish & Kiyonari, 2000).

So we can see that Cosmides and Tooby's (1992) criteria for cheater detection seem to hold up quite well, even in the face of group identification. However, many people find themselves in new environments in which they do not know any personal history of the people around them (e.g., moving to a new city or, in the case of hunter-gatherers, being taken into a new tribe). Reciprocal exchange has become an important part of social interaction in many species, especially humans, so group identification may initially influence reciprocal exchange when people do not know each other well enough. After some cooperation (or cheating), people are able to determine who they can and cannot trust, but until that point it may be group membership that gets the reciprocation "ball" rolling.

Group Type and Development of Reciprocity

Although several studies have examined in-group behavior and reciprocity, no study to date has examined whether different types of in-groups elicit different levels of

reciprocal exchange. People may be more likely to trust and therefore help fellow in-group members of one specific group over another. Groups that emphasize cooperative characteristics may contain members that are more likely to cooperate with fellow in-group members. For instance, group types such as religion, nationality, and proximal neighborhoods tend to actively preach cooperation, trust, love, and honor among their members (Galaskiewicz & Shatin, 1981; Sosis, 2000). Therefore, members of these types of groups may be more likely to cooperate and trust each other moreover than members of the arbitrary in-groups that are created in laboratory settings.

Actual in-group identity – as opposed to the arbitrary in-group identity (e.g., Blue group, Yellow group) discussed earlier – elicit positive feelings and favoritism within an in-group. For instance, Struch and Schwartz (1989) studied religion as a group identifier within an Israeli sample (i.e., comparing Israelis with Israel's ultraorthodox Jewish population). They found that Israeli adults showed in-group favoritism toward their fellow Jewish in-group members and showed increased hostility and aggression toward the ultraorthodox Jewish people(i.e., out-group members) – revealing that religion is indeed a powerful group identifier. In addition, many studies involving group identification and fear responses to out-group members have used race as an in-group and out-group identifier (Navarrete, Olsson, Ho, Mendes, Thomsen, & Sidanius, 2009; Olson, Ebert, Banaji, & Phelps, 2005). These studies have found that fear responses to out-group males last longer and are less prone to extinction than fear responses to in-group members and out-group females. The experimenters' means of manipulating group identity focused on presenting Caucasian and African-American participants with pictures of Caucasian and African-American faces. This method has shown to be a simple

yet effective way of using actual in-group identifiers to elicit group identification behaviors in people.

Research and theory have labeled other types of in-group identifiers as well. For example, Kramer and Brewer (1984) found that community identity (described to participants as being a resident of their specific city) increased cooperative actions within a group of participants. They found similar results when they categorized age (young vs. old) as an in-group identifier (Kramer & Brewer, 1984).

Politics have also been thought to play a role in group identity (Brewer, 2001). In fact, Brewer (2001) has argued that social identity is a key concept for politics. In support of this, Park and Schaller (2005) found that similar attitudes toward certain political issues between people increased feelings of kinship and likelihood of performing an altruistic act for each other – showing that political similarity can facilitate group cohesion and cooperation.

These data reveal overwhelming support for the influence that in-group identity has on trust, cooperation and reciprocal exchange. Regardless of the type of in-group identifier, people are more likely to trust and help their fellow in-group members than out-group members. However, it is quite possible that different in-groups may elicit different influences on reciprocal altruism. People are members of multiple in-groups. Perhaps people will be more likely to help someone from one specific in-group over someone from a different in-group.

In addition, the fact that these studies described above have used actual and easily identifiable factors as in-group (and out-group) markers begs the question as to why reciprocal altruism studies have not followed in similar methodological footsteps. As has

already been discussed, reciprocal altruism studies tend to focus on manipulating group identity through arbitrary means (e.g., being a member of the "blue" group or the "yellow" group). These methods have worked well in the past and have helped contribute to the reciprocal altruism literature. However, because of the lack of *actual* group identifiers being used in reciprocal altruism studies, it is possible that the literature on group identity and reciprocation is incomplete. It seems as though members of an *actual* in-group, such as a specific religion or political affiliation, would share many characteristics (e.g., values that represent cooperative behaviors – as mentioned earlier) that would increase the probability of trust and reciprocation among them to a greater extent than members of *arbitrary* in-groups.

Religion has been used as a strong in-group identifier for centuries. Religion has nearly hijacked kin recognition mechanisms – using terms like "God, the Father" to unite genetically unrelated individuals in a harmonious group and, as Webster (2008) argued, kinship is the strongest in-group. This feeling of familial ties has been shown to increase anger and rage against out-group members (Struch & Schwartz, 1989). A prime historical example of this would be the Crusades. Two religious groups (Christians and Muslims) engaged in deadly violence for nearly 200 years in a war that was religiously sanctioned (Runciman, 1987). Also, when an in-group is presented with an out-group threat, in-group identity and cohesion increase (Rothgerber, 1997) and the in-group members focus on retaliating against the out-group (Doosje & Ellemers, 1997). Because of the centuries of conflict between religious groups, it is plausible to hypothesize that religious in-group identity produces high levels of trust and reciprocity while religious out-group identity produces low levels of trust and reciprocity.

Political affiliation has produced many altruistic and aggressive actions as well. People respond to those who are attitudinally similar in a manner very similar to how they respond to kin. Attitudinal similarity is correlated with greater levels of liking, empathy, prosocial behavior, and positive affect (Byrne et al.., 1971; Chen & Kenrick, 2002; Rosenbaum, 1986). Political in-group identity is a strong predictor of attitudinal similarity, and has been positively associated with altruism (Park & Schaller, 2005). Specifically, people are more altruistic toward those who share the same political views than those who do not share the same political views. Although political in-group identity has been shown to produce many altruistic behaviors, political out-group identity has produced many aggressive behaviors. Usually political aggression is sublimated into positive social action – such as the Civil Rights Movement (Morris, 1986). However, there have been moments in history where political differences have produced aggressive behaviors – such as the Cold War (Poiger, 2000). There is even recent extreme evidence to show how political identity can produce aggressive actions. For instance, the recent assassination attempt on the Arizona congresswoman was believed to be politically driven and produced several heated arguments throughout the United States government discussing the problems with partisan politics.

These feelings and actions associated with religious and political identity seem as though they would be stronger than any feelings and actions associated with arbitrary in-group identity, and thus leads to the following hypotheses:

> *Hypothesis 1a*: People will be more likely to trust an actual in-group member (e.g., someone of the same religious denomination or political affiliation) than an arbitrary in-group member.

16

Hypothesis 1b: People will be more likely to reciprocate a favor for an actual in-group member (e.g., someone of the same religious denomination or political affiliation) than an arbitrary in-group member.

Ridley (1996) argued that humans form alliances between groups to protect themselves from common out-group threats; and it is trust, cooperation, and reciprocity that maintain this alliance. From this logic, and several supporting studies that have already been discussed, we can see that in-group identity influences trust and reciprocity between people. However, no research on reciprocal altruism to date has examined the extensive number of possible interactions between sex, religion, political affiliation, trust and reciprocal altruism. There is no research that states which, if any, of these in-group identifiers elicits stronger trust and reciprocal altruistic responses when compared to the others. Yet, some of the studies mentioned earlier have helped shed some light on this area, and have allowed for some hypotheses to develop.

Navarette et al. (2009) found that people have stronger (and extinction-resistant) fear responses to male members of an out-group race. Having increased fear responses to males of a different race may also influence trust and reciprocation toward these types of people. If one is afraid of a specific out-group member, he or she may be less likely to trust them or even reciprocate a favor to them. However, as already mentioned, this fear response is much stronger toward out-group males, so people may be more likely to trust and reciprocate toward out-group females when compared to out-group males.

Hypothesis 2a: Participants will be more likely to trust females of an out-group than males of an out-group.

Hypothesis 2b: Participants will be more likely to reciprocate a favor for females of an out-group than males of an out-group.

17

Although many group identification studies have found that people trust fellow in-group members more than out-group members, none have examined this relationship with religion as an in-group identifier. Struch and Schwartz (1989) examined violent behavior between religious out-groups and found it to be an immense relationship, thus it would seem as though people would be more likely to trust people of the same religious in-group as opposed to people of a religious out-group. It also seems plausible to hypothesize that people would be more likely to reciprocate toward people of the same religious in-group.

> *Hypothesis 3a:* Participants will be more likely to trust members of the same religious denomination than members of a different religious denomination (out-group).

> *Hypothesis 3b:* Participants will be more likely to reciprocate a favor for members of the same religious denomination than members of a different religious denomination (out-group).

Similarly, Park and Schaller's (2005) study on altruism pertaining to views on political and social issues found an increase in shared identity and altruism between people who shared these same views. Although Park and Schaller did not directly use political affiliation as a group identifier, being members of the same political party tends to represent that one shares the same views as the party and its party members. Thus, it would seem as though people would have an increased altruistic tendency toward those who share the same political affiliation.

> *Hypothesis 4a:* Participants will be more likely to trust members of the same political affiliation than members of a different political affiliation (out-group).

Hypothesis 4b: Participants will be more likely to reciprocate a favor for members of the same political affiliation than members of a different political affiliation (out-group).

Two types of samples (religious and political) were needed to test all of the hypotheses in this study, so two studies were performed to help examine this broad spectrum of inter-group relations. Study 1 investigated the effects of religious identity as compared to arbitrary group identity on trust and reciprocity, while Study 2 investigated the effects of political affiliation as compared to arbitrary group identity on trust and reciprocity.

Although the initial idea for Study 1 was to examine trust and reciprocity among Christians and Muslims, it was an impractical goal given the student population of Central Michigan University – which is a predominantly Christian campus. However, there are many denominations of the Christian religion that have different perspectives, attitudes, and practices. For instance, Catholics engage in prayer to the Virgin Mary, unlike the Baptists who pray directly to God or Christ. Catholics partake in all seven sacraments (Baptism, Eucharist, Reconciliation, Confirmation, Marriage, Holy Orders, and Anointing of the Stick), while Baptists only practice two (Baptism and Marriage). There are many other differences in attitudes and practices between these two groups, such as the Catholic use of confessionals and the "Hail Mary" to absolve one of his/her sins, and the Baptist belief that one must be fully submerged in water to be truly baptized (O'Connor, Hoge, & Alexander, 2002). Many other attitudinal differences have also led to discord between the two groups – such as the Catholic condemnation of all birth control methods (Beatty & Walter, 1984). Therefore, Catholic and Baptist participants were tested for Study 1.

CHAPTER II

STUDY 1

Method

Participants and Design

Participants consisted of 144 undergraduate students (M_{age} = 20.6 years, SD = 1.9) at Central Michigan University. The sample size was calculated using a power analysis (assuming a medium effect size, power of $1 - \beta$ = .8, and setting α = .05). Of these 144 participants, 72 were Baptist (36 male, 36 female) and 72 were Catholic (36 male, 36 female).

The design was a 4 (target group: Blue, Yellow, Catholic, Baptist) x 2 (participant religion: Baptist vs. Catholic) x 2 (participant arbitrary group: Blue vs. Yellow) x 2 (participant sex) x 2 (target sex) mixed-design. Participants' religious identity, participants' arbitrary identity, and participant sex were the between-subject variables. Target group and target sex were within-subject variables. As compensation for their participation, participants were given extra credit in one of their psychology courses and were entered into a drawing to receive $100 in cash.

Stimulus Materials and Measures

Demographic Survey: A small demographic survey was given to the participants prior to the procedure. It asked for the participant's age, sex, and religion. See the demographic survey in Appendix A for these questions.

Dot Estimation Task: Prior to the actual procedure, the participants were presented with three images containing 70-80 yellow dots on a blue background

(Gummerum et al., 2009) and asked to indicate the number of yellow dots in the pictures. This was merely for deceptive purposes, as each participant was randomly assigned as a "blue" or "yellow" person regardless of his/her answer. Once again, this color task was used to simulate creating a description of the participant with an arbitrary group identity (which was used as the control group) in order to maintain the realism of the trust game. See Appendix B for a copy of these slide images.

The Trust Game: A computerized *trust* game similar to those that have been used in many economic and psychological studies was utilized to test trust and reciprocity from the participants (Debruine, 2002; Scharleman, Eckel, Kacelnik, & Wilson, 2001; Smith, Debruine, Jones, Krupp, Welling, & Conway, 2009).

The particular trust game used in this study consisted of two decisions that are made in sequence. Two players are given one sum of money to split. In this study, the sum was $10. The first player chooses whether or not to trust the second player to evenly divide the sum between the two of them. If the first player chooses to trust, the second player then has the opportunity to reciprocate by dividing the sum of money fairly between the two of them (i.e., $5 for player 1 and $5 for player 2). However, the second player can divide the sum of money any way that s/he wants – in a selfish or unselfish split. If the first player decides to *distrust* the second player, then each player receives an amount of money that is smaller than half of the original sum. In this study, each player received $4 if player 1 chose to distrust player 2.

This trust game takes place using a computer. The first player is given some details about the second player (e.g., a photograph on the computer screen) and is then asked to choose whether or not to trust or distrust the second player. However, the second

player does not actually exist. This is unknown to the participant though. Images and details are placed in the computer program to simulate a person.

Similarly, if the participant is playing the "second player" spot, and is told that if the "first player" (who does not exist in this condition) chooses to trust him/her, then it is up to the participant to divide the money in any way that s/he wants. Researchers using this condition tend to set it up so that each independent variable (e.g., descriptor of the non-existent person) is presented to the participant. Thus, for the sake of realism, a few extra trials in which the "first player" chooses to distrust the participant are placed in the sequence randomly (Debruine, 2002). See Appendix C for sample screen images of this task.[1]

Pilot Testing: Prior to the beginning of the actual data collection, the trust game was pilot tested. Thirty participants played the game to verify the effectiveness and believability of the experimental method and the deception that was involved. All participants that were part of the pilot testing indicated that they believed there was an actual second player in the trust game.

Descriptions of the "Second Player": The descriptions of the simulated second player that were used in the trust game depicted a male or female that was listed as a member of either the Baptist group, Catholic group, Blue group, or Yellow group. Only one group identity was given per target person.

Dependent Variables: The dependent variables in this experiment were trust and reciprocity. Trust was measured in this task by examining whether or not the participant,

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[1] If you would like to see the website on which this task was performed, go to http://faceresearch.org/econ/game?id=36.

22

when in the Player 1 position, decided to trust or distrust the "second player." In this trial, the participant is told, "You can choose to take $4 and give the other participant $4 or you can let the other participant divide the money in any way that s/he thinks is fair." An example screen of the trust trial is in Appendix C.

Reciprocity was measured in this task by the amount of money the participant – when in the Player 2 position – decided to give to the "first player." In this trial, the participant was told, "The following person has decided to let you divide the money. You can choose to give the other participant anywhere between $0 and $10. Indicate how much you would like to give the participant by typing it in the box below. You may only use whole numbers. No decimal points please." An example screen of the reciprocity trial is in Appendix C.

Procedure

Participants were recruited using the university online subject pool. It was noted on the study's online posting that participants must be either Baptist or Catholic to participate. Participants were tested in groups no larger than 10. Each participant was seated in front of a computer and given two consent forms (one to sign and hand back to the experimenter, and one to keep for his/her own records). After signing the consent forms, the participants were presented with the demographic survey and Dot Estimation Task described above, and were randomly assigned to a color group (either Blue or Yellow). The experimenter reiterated to the participant his/her list of group memberships (i.e., Catholic or Baptist and Blue group or Yellow group) as a means of telling the participant what details of him/herself will be presented in the trust game. After that, the participants completed the trust game. In order to maintain the illusion of playing the

trust game with actual people, the participants were told that they were playing the game with several other students connected to the same network.

All possible descriptions were presented to the participants as a separate individual in both the trust and reciprocity conditions. Participants took part in 20 trials (eight trust trials and 12 reciprocity trials – eight in which the participant was "trusted" to divide the money, and four in which the participant was "distrusted"). The participants were debriefed as to the true nature of the study after their completion of the trust game.

Results

Trust

Following the coding and analyses of the trust task used in Smith et al. (2009), the "Distrust" decision was coded as 0 and the "Trust" decision was coded as 1. A 4 (target group) x 2 (participant religion: Baptist vs. Catholic) x 2 (participant arbitrary group: Blue vs. Yellow) x 2 (participant sex) x 2 (target sex) mixed-design analysis of variance (ANOVA) was performed on these coded responses. Target group yielded a significant main effect, $F(3, 408) = 3.45$, $p < .05$, $\eta_p^2 = .028$, but it also interacted with the participants' religious identification, $F(1, 136) = 4.18$, $p < .01$, $\eta_p^2 = .034$. Similarly, type of group interacted with the participants' arbitrary group identification, $F(1, 136) = 2.76$, $p < .05$, $\eta_p^2 = .008$. See Appendix D for the mean trust scores.

In order to parse the interaction, the sample was split into four groups based on participant group identity. Because each participant belonged to two groups – one religious and one arbitrary – the four groups were split as follows: 1. Baptist + Blue Group, 2. Baptist + Yellow group, 3. Catholic + Blue Group, 4. Catholic + Yellow group.

24

Follow-up t-tests were used to compare the trusting behavior toward religious in-groups vs. arbitrary in-groups as well as the trusting behavior of religious in-groups vs. religious out-groups. The following results showed support for Hypothesis 1a (people will be more likely to trust a religious in-group member than an arbitrary in-group member). Baptist participants who were in the Blue group trusted Baptist targets significantly more often than Blue targets, $t(35) = 3.57$, $p < .001$, and Catholic targets, $t(35) = 2.27$, $p < .05$. Similarly, Baptist participants who were in the Yellow group trusted Baptist targets more often than Yellow targets, $t(35) = 2.64$, $p < .05$, and Catholic targets, $t(35) = 3.00$, $p < .01$.

Catholic participants who where in the Blue group trusted Catholic targets more often than Blue targets, $t(35) = 5.93$, $p < .001$. They also trusted Catholic targets significantly more often than Baptist targets, $t(35) = -2.88$, $p < .01$. Catholic participants who were in the Yellow group trusted Catholic targets more often than Yellow targets, $t(35) = 4.72$, $p < .001$, and Baptist targets, $t(35) = -3.98$, $p < .001$

Sex of the target revealed a significant main effect, $F(1, 142) = 12.14$, $p < .001$, $\eta_p^2 = .092$, indicating that people were more likely to trust females than males. Sex of the target did not interact with any other variables. Sex of the participant did not yield a significant main effect ($p = .126$) nor did it interact with any of the variables.

Table 1. *Paired-samples t-statistical Comparisons of Mean Trust Scores Based on Participant and Target Religious Denomination and Arbitrary Group Identification*

	Participant Group Identification			
t-statistic Target Comparison	Baptist + Blue	Baptist + Yellow	Catholic + Blue	Catholic + Yellow
Baptist – Catholic	2.27*	3.00**	-2.88**	-3.98***
Baptist – Blue	3.57***	2.40*	-0.75	-0.51
Baptist – Yellow	2.15*	2.64*	0.24	0.23
Catholic – Blue	-1.47	0.33	5.93***	1.65
Catholic – Yellow	0.37	-2.03	2.82**	4.72***

* Significant at $\alpha = .05$ level.
** Significant at $\alpha = .01$ level.
***Significant at $\alpha = .001$ level.

Reciprocity

A 4 x 2 x 2 x 2 x 2 mixed-design ANOVA was performed to analyze the amount of money that participants gave to the "second player" when the participant was "trusted" to do so. Participant religion yielded a significant main effect, $F(1, 136) = 20.17$, $p < .001$, $\eta_p^2 = .144$, but participant arbitrary group identification did not ($p = .678$). Although the target group (religion vs. arbitrary) did not elicit a main effect ($p = .134$), it significantly interacted with the participants' religion and arbitrary group variables, $F(3, 408) = 13.86$, $p < .001$, $\eta_p^2 = .104$ and $F(3, 140) = 4.76$, $p < .01$, $\eta_p^2 = .038$ respectively. See Appendix D for the mean amount of money given to the second player.

As already discussed above, in order to parse this interaction, the sample was split into four groups based on participant group identity (1. Baptist + Blue Group, 2. Baptist + Yellow group, 3. Catholic + Blue Group, 4. Catholic + Yellow group). Follow-up *t*-tests

were used to compare the degree of reciprocity toward religious in-group members vs. arbitrary in-group members and compare the degree of reciprocity toward religious in-group members vs. religious out-group members. See Table 2 for all of the *t*-tests regarding reciprocity.

The following results found partial support for Hypothesis 1b (people would be more likely to reciprocate a favor for a religious in-group member than an arbitrary in-group member). Baptist participants in the Blue group gave similar amounts of money to Baptist targets and Blue targets ($p = .551$). They also gave significantly more money to Baptist targets than Catholic targets, $t(35) = 3.85, p < .001$. Interestingly, these participants gave significantly more money to Blue targets than Catholic targets, $t(35) = -3.59, p < .001$ – indicating arbitrary in-group identity warranted more money than actual out-group identity. Baptist participants in the Yellow group yielded similar results. These participants gave similar amounts of money to Baptist and Yellow targets ($p = .121$). They gave significantly more money to Baptist targets than Catholic targets, $t(35) = 2.56, p < .05$.

Catholic participants in the Blue group gave more money to Catholic targets than Blue targets, $t(35) = 3.07, p < .01$, and Baptist targets, $t(35) = -4.27, p < .001$. However, the results from Catholic participants in the Yellow group produced different results. They gave the same amount of money to Catholic targets and Yellow targets ($p = .294$). They also gave more money to Catholic targets than Baptist targets, $t(35) = -4.43, p < .001$

Neither participant sex nor target sex significantly influenced results ($p = .106$ and $p = .363$ respectively), nor did they interact with any of the other variables.

Table 2. *Paired-samples t-statistical Comparisons of Mean Reciprocity Scores (amount of money given) Based on Participant and Target Religious Denomination and Arbitrary Group Identification*

t-statistic Comparison	Participant Group Identification			
	Baptist + Blue	Baptist + Yellow	Catholic + Blue	Catholic + Yellow
Baptist – Catholic	3.85***	2.56*	-4.27***-	4.43***
Baptist – Blue	0.60	2.77**	0.74	1.52
Baptist – Yellow	2.12*	1.59	1.98	1.00
Catholic – Blue	-3.59***	0.07	3.07**	3.34**
Catholic – Yellow	1.95	-1.10	6.98***	1.07

* Significant at $\alpha = .05$ level.
** Significant at $\alpha = .01$ level.
***Significant at $\alpha = .001$ level.

Discussion

The purpose of this study was to examine whether actual in-group identification would elicit a stronger influence on trust and altruistic responses than an arbitrary group identifier. The study found some mixed results. Hypothesis 1a was strongly supported, indicating that people trusted strangers from the same religious denomination (i.e., Catholic or Baptist) moreover than strangers from the same arbitrary group identity (i.e., Blue or Yellow groups). Participants also trusted strangers from the same religious denomination more than strangers from a denominational out-group.

Hypothesis 1b, on the other hand, was not fully supported. People gave more money to strangers from the same religious denomination than strangers from a denominational out-group. Baptist participants gave more money to Baptist targets than

Catholic targets, while Catholic participants gave more money to Catholic targets than Baptist targets. However, participants also gave similar amounts of money to strangers from their religious in-group and arbitrary in-group. Baptists in the Blue group gave similar amounts of money to Baptist targets and Blue targets, while Baptist participants in the Yellow group gave similar amounts of money to Baptist and Yellow targets. The same relationship was found for Catholic participants in the Yellow group as well. Catholics in the Yellow group gave similar amounts of money to Catholic and Yellow targets. However, Catholics in the Blue group gave more money to Catholic targets than Blue targets. This indicates that actual in-group identity did not facilitate reciprocal altruism any more strongly than arbitrary in-group identity in three of the four groups of participants.

It is possible that the similar amount of money given to arbitrary in-group members was not just because of the in-group identification, but because of the fact that these strangers "trusted" the participant to give a fair amount of money. This "trusting" could have facilitated altruistic feelings in the participant – making them feel more inclined to reciprocate. This could also account for the lack of sex difference found in reciprocation. Participants trusted female targets more often than male targets, but gave similar amounts of money to male and female targets. It is possible that the preference to help females over males diminished when the targets "trusted" the participants to reciprocate with a fair amount of money.

Participants trusted female targets more than male targets. However, Hypothesis 2a stated people would be more likely to trust *out-group* females than *out-group* males. Although the data show a preference for trusting female targets in general, this does not

quite support Hypothesis 2a. There was no support for Hypothesis 2b in this study, which found that participants gave just as much money to female and male targets.

Limitations and Directions for Future Research

The data did not produce perfect results that completely supported the hypotheses, but they still represent the relationships between actual in-group versus arbitrary in-group identity and their influences on trust and reciprocity. Ultimately, people are more willing to trust strangers from their own religious in-group as opposed to strangers from a different religious denomination (out-group). This relationship between actual in-group identity and trust seems to be stronger than the relationship between arbitrary in-group identity and trust. Although, arbitrary in-group identity had an influence on reciprocity, overall participants still gave more money to their religious in-group members as opposed to their arbitrary in-group members.

It may be possible that religious denomination may not be the strongest indicator of out-group identity because both Catholics and Baptists share an over-arching religious identity (as Christians). This may influence trust and reciprocity to the extent that Catholics and Baptists may be more likely to trust and help each other – regardless of denomination – because they have a greater characteristic in common, which is the belief in the Christian god. Therefore, future research on trust between different religions (e.g., Christians and Muslims) may produce more pronounced differences in trust and reciprocity.

CHAPTER III

STUDY 2

Method

Participants and Design

Participants consisted of 144 undergraduate students (M_{age} = 21.5 years, *SD* = 2.1) at Central Michigan University. The sample size was calculated using a power analysis (assuming a medium effect size, power of 1 − β = .8, and setting α = .05). Of these 144 participants, 72 were Democrat (36 male, 36 female) and 72 were Republican (36 male, 36 female).

The design was a 4 (target group: Blue, Yellow, Democrat, Republican) x 2 (participant political affiliation: Democrat vs. Republican) x 2 (participant arbitrary group: Blue vs. Yellow) x 2 (participant sex) x 2 (target sex) mixed-design. Participants' political affiliation, participants' arbitrary identity, and participant sex were the between-subject variables. Target group and target sex were within-subject variables. As compensation for their participation, participants were given extra credit in one of their psychology courses and were entered into a drawing to receive $100 in cash.

Stimulus Materials and Measures

The same trust game was used for Study 1 and Study 2, with one change to the stimulus materials. Instead of using religious denomination as a group identifier, political affiliation was used (i.e., Democrat and Republican).

Demographic Survey: A small demographic survey was given to the participants. It asked for the participant's age, sex, and political affiliation.

Dot Estimation Task: The same Dot Estimation Task from Study 1 was used in Study 2.

31

Descriptions of the "Second Player": Similar to Study 1, the descriptions of the simulated second player that were used in the trust game depict a male or female that was listed as a member of either the Democrat group, Republican group, Blue group, or Yellow group. Only one group identity was given per target person.

Procedure

The procedure mimicked the procedure from Study 1. Participants were recruited using the university online subject pool. It was noted on the study's online posting that participants must be either Democrat or Republican to participate.

All possible descriptions were presented to the participants as a separate individual in both the trust and reciprocity conditions. Participants took part in 20 trials (eight trust trials and 12 reciprocity trials – eight in which the participant was "trusted" to divide the money, and four in which the participant was "distrusted"). The participants were debriefed as to the true nature of the study after their completion of the trust game.

<div align="center">Results</div>

Trust

A 4 (target group) x 2 (participant political affiliation: Democrat vs. Republican) x 2 (participant arbitrary group: Blue vs. Yellow) x 2 (participant sex) x 2 (target sex) mixed-design ANOVA was performed to examine participants' trust responses. Target group, political affiliation, and arbitrary group identification all yielded significant main effect, $F(3, 408) = 6.45$, $p < .001$, $\eta_p^2 = .051$, $F(1, 136) = 4.89$, $p < .05$, $\eta_p^2 = .039$, and $F(1, 136) = 13.12$, $p < .001$, $\eta_p^2 = .099$, respectively. However, they also produced a

significant three-way interaction, $F(3, 408) = 2.95$, $p < .05$, $\eta_p^2 = .024$. See Appendix E for the mean trust scores.

To parse this interaction, follow-up t-tests were performed to compare trusting behavior toward actual in-group members and arbitrary in-group members. Because each participant belonged to two groups – one political and one arbitrary – the four groups were split as follows: 1. Democrat + Blue Group, 2. Democrat + Yellow group, 3. Republican + Blue Group, 4. Republican + Yellow group. The t-tests found many significant differences. See Table 3 for a complete list of trust t-statistics.

The following results showed support for Hypothesis 1a (people will be more likely to trust a political in-group member than an arbitrary in-group member). Democrat participants who were in the Blue group trusted Democrat targets significantly more often than Blue targets, $t(35) = 2.28$, $p < .05$, and Republican targets, $t(35) = 3.01$, $p < .01$. Similarly, Democrats who were in the Yellow group trusted Democrat targets more often than Yellow targets, $t(35) = 3.23$, $p < .05$, and Republican targets, $t(35) = 2.52$, $p < .05$.

Republican participants who were in the Blue group trusted Republican targets significantly more often than Blue targets, $t(35) = 2.52$, $p < .05$, and Democrat targets, $t(35) = -3.89$, $p < .01$. Also, Republicans in the Yellow group trusted Republican more often than Yellow targets, $t(35) = 2.99$, $p < .05$, and Democrat targets, $t(35) = -3.22$, $p < .01$.

Sex of the participant and sex of the target did not reveal any significant results ($p = .361$ and $p = .073$ respectively).

Table 3. *Paired-samples t-statistical Comparisons of Mean Trust Scores Based on Participant and Target Political and Arbitrary Group Identification*

Participant Group Identification

t-statistic Comparison	Democrat + Blue	Democrat + Yellow	Republican + Blue	Republican + Yellow
Democrat – Republican	3.01**	2.52*	-3.89***	-3.22**
Democrat – Blue	2.28*	2.71*	2.96**	0.84
Democrat – Yellow	2.61*	3.23**	1.72	0.64
Republican – Blue	1.91	1.75	2.52*	2.14*
Republican – Yellow	1.98	0.87	1.06	2.99**
Blue – Yellow	0.85	1.88	1.28	0.21

* Significant at $\alpha = .05$ level.
** Significant at $\alpha = .01$ level.
***Significant at $\alpha = .001$ level.

Reciprocity

A 4 x 2 x 2 x 2 x 2 mixed-design ANOVA was performed to analyze the amount of money that participants gave to the "second player" when the participant was "trusted" to do so. Participant political affiliation yielded a significant main effect, $F(1, 136) = 13.00$, $p < .001$, $\eta_p^2 = .098$, but participant arbitrary group identification did not ($p = .999$). Although the target group (religion vs. arbitrary) did not elicit a main effect ($p = .322$), it significantly interacted with both the participants' political affiliation, $F(3, 408) = 2.71$, $p < .05$, $\eta_p^2 = .022$ and arbitrary group identification, $F(3, 408) = 4.58$, $p = .004$, $\eta_p^2 = .037$. See Appendix E for the mean reciprocity scores.

The sample was split into four groups based on participant group identity (1. Democrat + Blue Group, 2. Democrat + Yellow group, 3. Republican + Blue Group, 4. Republican + Yellow group). Follow-up *t*-tests were used to examine five comparisons:

political in-group vs. arbitrary in-group, political in-group vs. political out-group, arbitrary in-group vs. arbitrary out-group, political in-group vs. arbitrary out-group, and arbitrary in-group vs. political out-group. There were several significant differences found, thus please see Table 4 for a complete list of t-statistics.

The following results found partial support for Hypothesis 1b (people would be more likely to reciprocate a favor for a political in-group member than an arbitrary in-group member). Democrat participants in the Blue group reciprocated equally to Democrat targets and Blue targets ($p = .236$). However, they gave significantly more money to Democrats than Republicans, $t(35) = 2.61$, $p < .05$. Democrat participants who were in the Yellow group gave significantly more money to Democrat targets than Yellow targets, $t(35) = 2.94$, $p = .006$, and Republican targets, $t(35) = 2.52$, $p < .05$.

Republican participants who were in the Blue group gave similar amounts of money to Republican targets and Blue targets ($p = .451$) – which fails to support Hypothesis 1b. Yet, they gave significantly more money to Republican targets than Democrat targets, $t(35) = -2.74$, $p < .01$.

There was no significant difference in the amount of money that Republican participants in the Yellow group gave to Republican and Yellow targets ($p = .429$). They gave significantly more money to Republican targets than Democrat targets though, $t(35) = -3.12$, $p < .01$.

Sex of the participant did not yield a significant effect ($p = .264$) nor did it interact with any of the other variables. However, target sex revealed a significant main effect, $F(1, 126) = 5.13$, $p < .05$, $\eta_p^2 = .041$, indicating that participants gave more money to women than men. Target sex did not interact with any variables.

Table 4. *Paired-samples t-statistical Comparisons of Mean Reciprocity Scores (amount of money given) Based on Participant and Target Political Affiliation and Arbitrary Group Identification*

t-statistic Comparison	Participant Group Identification			
	Democrat + Blue	Democrat + Yellow	Republican + Blue	Republican + Yellow
Democrat – Republican	2.61*	2.52*	-2.74**	-3.12**
Democrat – Blue	1.21	5.60***	-2.07*	0.15
Democrat – Yellow	2.43*	2.94**	0.11	-2.06*
Republican – Blue	-2.32*	1.67	0.76	1.57
Republican – Yellow	0.12	0.11	4.30***	0.80
Blue – Yellow	1.47	2.88**	2.61*	-2.11*

* Significant at $\alpha = .05$ level.
** Significant at $\alpha = .01$ level.
***Significant at $\alpha = .001$ level.

Discussion

The purpose of this study was to use political affiliation to examine whether actual in-group identification would elicit a stronger influence on trust and altruistic responses than an arbitrary group identifier. The study found some mixed results. Hypothesis 1a was strongly supported, indicating that people trusted strangers from the same political affiliation (i.e., Democrat or Republican) moreover than strangers from the same arbitrary group identity (i.e., Blue or Yellow groups). Participants also trusted strangers from the same political affiliation more than strangers from a political out-group.

Hypothesis 1b, on the other hand, was not fully supported. People gave more money to strangers from the same political affiliation than strangers from a political out-group. Democrat participants gave more money to Democrat targets than Republican targets, while Republican participants gave more money to Republican targets than Democrat targets. However, participants also gave similar amounts of money to strangers from their political in-group and arbitrary in-group. For examples, Democrats in the Yellow group gave similar amounts of money to Democrat targets and Yellow targets. The same relationship was found for Republican participants as well. The only exception to this finding is from the Democrat participants in the Blue group, who gave significantly more money to Democrat targets than Blue targets. Overall, this indicates that actual in-group identity did not facilitate reciprocal altruism any more strongly than arbitrary in-group identity.

Because this relationship was also found in the previous study, there is a strong possibility that the similar amount of money given to arbitrary in-group members was not just because of the in-group identification, but because of the fact that these strangers "trusted" the participant to give a fair amount of money. This "trusting" could have facilitated altruistic feelings in the participant – making them feel more inclined to reciprocate.

Participants trusted female targets just as much as male targets – which did not support Hypothesis 2a. The data also failed to fully support Hypothesis 2b as well. Participants gave more money to female targets than male targets, but group identification had no influence. Participants simply displayed a preference for giving more money to female targets than male targets.

Limitations and Directions for Future Research

This study failed to support some of the hypotheses presented. There may be several reasons for this occurrence. For instance, using two political affiliations, which differ on many aspects – including fiscal responsibility – may have influenced trust and reciprocity. Democrats tend to believe in giving money to help others, while Republicans tend to believe in achieving financial independence from others. It is possible that any differences in trust, and the amount of money given, were a direct result of this. Perhaps future research could use political affiliation in a trust/reciprocity game that does not use a monetary resource as the foundation for the tasks.

In hindsight, using color as an arbitrary in-group identifier in comparison to political affiliation may have produced some confounding effects. Because certain colors tend to be associated with specific political parties (i.e., blue tends to be associated with Democrats while red tends to be associated with Republicans), it is possible that the use of the color blue as an arbitrary identifier could have elicited a stronger in-group identity for democrat participants than Republican participants. This may account for why Democrat participants in the yellow group gave significantly more money to Democrat targets than Yellow targets, but Democrats in the Blue group gave the same amount of money to Democrat targets and Blue targets. Therefore, further research in the area of color's group identification and its potential relationship with political identity should be pursued.

In regards to Hypotheses 2a and 2b, Study 2 found the opposite of the results from Study 1. People trusted female and male targets equally as often, but gave more money to female targets than male targets. These results are unpredicted, but may be due to the lack

of physical detail in the targets. Perhaps using images of male and female faces in the trust task would facilitate a greater degree of trust and reciprocity toward out-group females over out-group males. Thus, further research using a different type of trust game methodology, and perhaps different group identity variables, may produce significant and interesting results.

CHAPTER IV

GENERAL DISCUSSION

The purpose of the present studies was to examine the potential influences of actual in-group identification on trust and reciprocity and compare them to the influences of an arbitrary in-group identification that has been used and validated in previous research (Gummerum et al., 2009). Ultimately, these studies found support for Hypothesis 1a but not Hypothesis 1b.

Technically, across both studies, Hypotheses 2a and 2b (participants would be more likely to trust and reciprocate toward female out-group members than male out-group members) were both partially supported and unsupported. It appears that in some cases, the participants trusted females more than males, and in other cases they did not. A similar relationship was found for target sex and reciprocity. However, there are several possible factors that could have led to such conflicting results – many of which have been described earlier in this manuscript. In short, future research in this area is necessary.

Partial support for Hypotheses 3a and 3b (participants will be more likely to trust and reciprocate a favor for members of the same religious denomination than members of a different religious denomination) provided the beginning of promising data in the area of trust and reciprocity based on religious identification. Although all Christian denominations follow the same social contracts (e.g., the Ten Commandments, the Golden Rule, the Bible itself) which state that one should be merciful and charitable to others, the fact that both Baptists and Catholics were less apt to trust and reciprocate to targets of a different denomination shows an obvious in-group preference. This in-group preference and out-group exclusion both agrees and conflicts with the religious concepts

40

of acceptance, forgiveness, love, and charity. Although people seem to partake in these behaviors when interacting with others from their own denomination, the frequency of these behaviors decreases when interacting with people from other denominations. This is cause for curiosity and investigation into which Christian denominations seem to follow their social contracts.

Similar support was found for Hypotheses 4a and 4b (participants will be more likely to trust and reciprocate a favor for members of the same political affiliation than members of a different political affiliation) in Study 2. Democrats trusted Democrat targets more often than Republican targets and arbitrary in-group targets, while Republicans trusted Republican targets more often than Democrat targets and arbitrary in-group targets. Once again, there is a strong in-group preference here. Also, when examining the reciprocity data one can see that Democrats gave more money to Democrat targets while Republicans gave more money to Republican targets, but gave just as much money to political in-group members and arbitrary in-group members. This preference for political in-group members directly represents what the American public sees in the news regarding American politics. There is constant disagreement between Republicans and Democrats, which often leads to slanderous campaigns – especially during presidential elections – which paints the opposing candidates in a distrustful light. As mentioned earlier, many negative behaviors are associated with political group differences – including violent behaviors such as the recent Arizona shooting.

Ultimately, the present results build upon the trust and group identity literature in the realm of evolutionary and social psychology. Previous research has shown that once people learn about another person's cooperative and reciprocal behaviors, they are more

41

likely to trust and cooperate with them – regardless of in-group and out-group identification (Gummerum, et al., 2009; Yamagishi, et al., 1999). The present study not only found that this increased cooperation occurs when people know that others trusted them, but it only superseded arbitrary group identification – not actual in-group identification (i.e., people still gave more money to their actual in-group member than their actual out-group members).

<div align="center">Conclusion</div>

Overall, the hypotheses in this study found conflicting support and refutation from the data. We can conclude several things from these studies. People are more likely to trust and cooperate with strangers from their own in-group than strangers from out-groups. Also, the arbitrary in-group identity used in previous trust research appears to be a reliable manipulation of group identity in reciprocation tasks, but not as effective as actual in-group identity in trust tasks. We can also see that group identification plays a stronger role in trusting behavior than in reciprocal altruism. As mentioned earlier, group identity may be used as a tool to facilitate reciprocity, but it would appear that being trusted by an arbitrary in-group member is enough to facilitate altruistic behavior similar to what was exhibited toward actual in-group members (i.e., religion and political affiliation). In conclusion, people seem to use meaningful group identity as a means of knowing which strangers they should or should not trust. Once people see that the stranger exhibits cooperative behaviors (i.e., trust) they are more willing to help, regardless of whether one's group identity is meaningful for arbitrary.

APPENDICES

SURVEYS

The Demographic Survey Questions for Study 1

Question	Response
What is your age?	_____
What is your sex?	Male
	Female
Are you a Christian?	Yes
	No
If yes, what is your religious denomination?	Baptist
	Catholic
	Methodist
	Protestant
	Lutheran
	Other _____

The Demographic Survey Questions for Study 2

| Question	Response
What is your age?	_____
What is your sex?	Male
	Female
What is your political affiliation?	Democrat
	Republican
	Libertarian
	Green
	Independent
	Other _____

THE INSTRUCTIONS AND THE THREE SLIDES USED IN THE
DOT ESTIMATION TASK

Instructions:

The tasks in this experiment require us to split you into two groups. You will be divided

into these two groups according to your decisions in the so-called dot-estimation task.

In this task, you will be shown three slides for 2 seconds each. On each slides there are a

number of yellow dots on a blue background. Please estimate how many yellow dots you

have seen in total (all 3 slides) and write down this number on the answer slip provided to

you.

Slide 1:
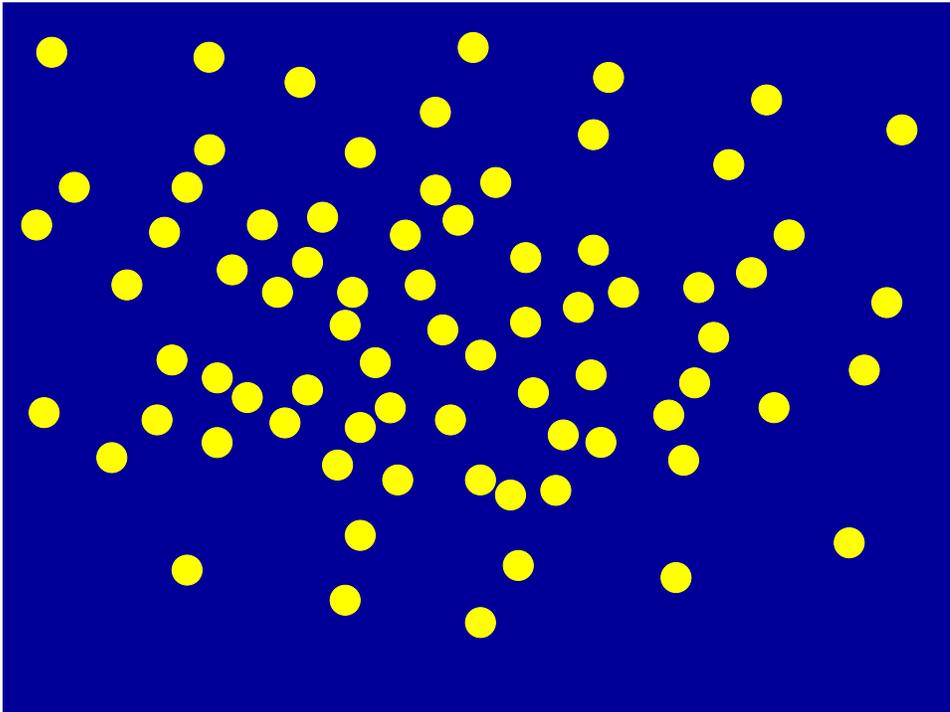
Slide 2:
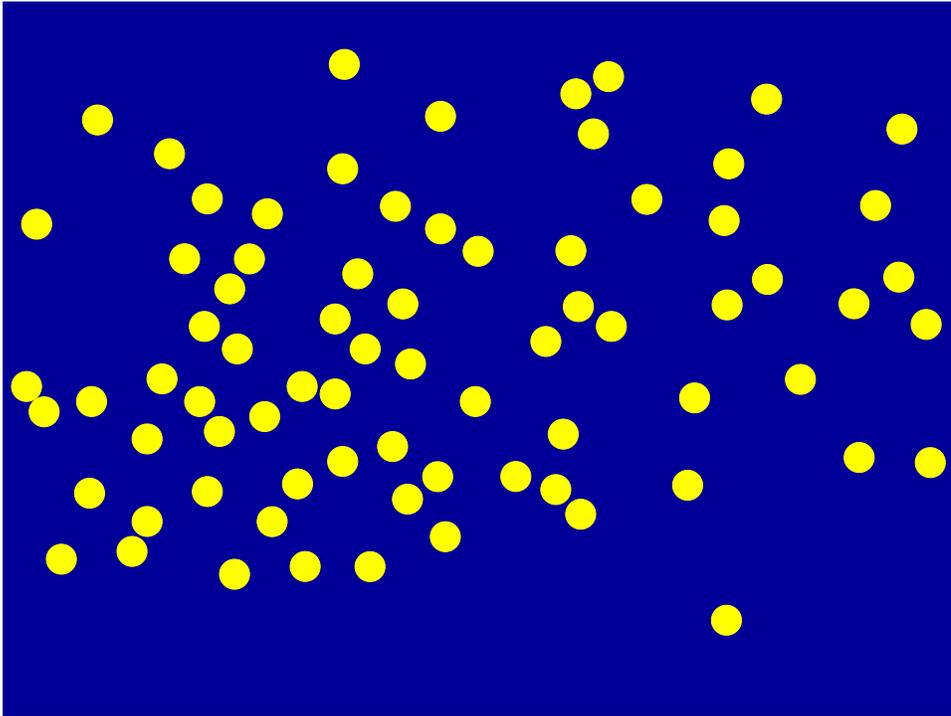
Slide 3:
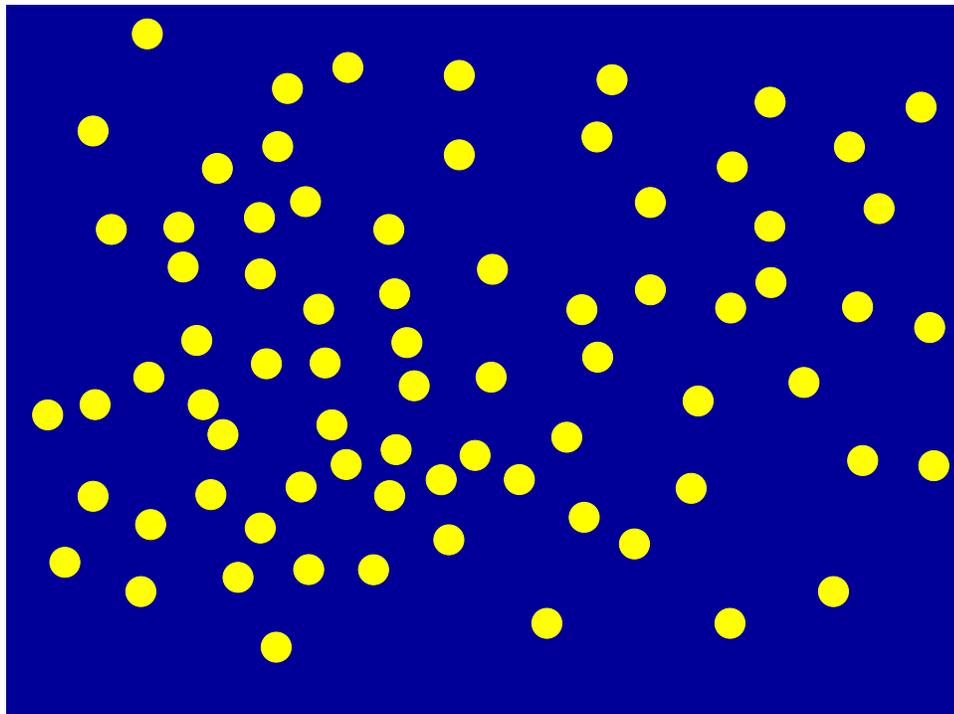
APPENDIX C

EXAMPLES OF TRIAL SCREENS

Example of a "Trust" Trial Screen

This person is: You can:

Sex: Male   You can choose to take $4 and
                                 give the other participant $4.

Color Group: XXXX   OR

Denomination: XXXX   You can let the participant
                                 divide the money in any way he
Political Affiliation: Democrat thinks is fair.

To take the $4 and give the other participant $4, press the
"S" key.

To let the participant divide the money, press the "K" key.

The following person has decided to let you divide the money:

This person is:

Sex: Male

Color Group: Blue

Denomination: XXXX

Political Affiliation: XXXX

You can choose to give the other participant anywhere between $0 and $10.

Indicate how much you would like to give the participant by typing it in the box below

You may only use whole numbers, no decimal points please.

APPENDIX D

MEAN TRUST AND RECIPROCITY SCORES FOR STUDY 1

Mean Trust Scores for Targets as a Function of Participant Denomination, Target Sex, and Target Denomination*

	Participant Group Identification			
	Baptist + Blue	Baptist + Yellow	Catholic + Blue	Catholic + Yellow
Target Identity				
Baptist Female	.250 (.44)	.344 (.48)	.313 (.48)	.375 (.49)
Baptist Male	.531 (.51)	.281 (.46)	.406 (.50)	.469 (.51)
Catholic Female	.094 (.30)	.125 (.34)	.688 (.47)	.688 (.47)
Catholic Male	.438 (.50)	.125 (.34)	.438 (.50)	.313 (.47)
Blue Female	.125 (.34)	.156 (.37)	.281 (.46)	.281 (.46)
Blue Male	.125 (.34)	.156 (.37)	.313 (.48)	.531 (.51)
Yellow Female	.375 (.49)	.469 (.51)	.531 (.51)	.406 (.50)
Yellow Male	.093 (.30)	.219 (.42)	.219 (.42)	.438 (.50)

Standard deviations in parentheses

Mean Amount of Money Given to Targets as a Function of Participant Denomination, Target Sex, and Target Denomination*

Target Identity	Participant Group Identification			
	Baptist + Blue	Baptist + Yellow	Catholic + Blue	Catholic + Yellow
Baptist Female	3.84 (*4.03*)	2.72 (*2.23*)	3.53 (*2.39*)	3.53 (*2.79*)
Baptist Male	3.03 (*2.07*)	2.75 (*2.02*)	3.88 (*1.96*)	3.22 (*2.99*)
Catholic Female	2.16 (*2.23*)	2.13 (*2.24*)	4.72 (*2.53*)	4.13 (*2.51*)
Catholic Male	2.34 (*2.28*)	1.81 (*2.10*)	4.78 (*2.14*)	4.19 (*3.30*)
Blue Female	3.47 (*4.06*)	1.50 (*1.93*)	4.47 (*1.70*)	3.00 (*2.78*)
Blue Male	3.03 (*2.25*)	2.41 (*2.15*)	3.25 (*2.33*)	2.69 (*2.40*)
Yellow Female	3.03 (*3.12*)	1.84 (*2.34*)	3.91 (*3.04*)	3.94 (*2.95*)
Yellow Male	2.53 (*2.05*)	2.88 (*2.24*)	2.50 (*2.49*)	3.53 (*2.87*)

*Standard deviations in parentheses

MEAN TRUST AND RECIPROCITY SCORES FOR STUDY 2

Mean Trust Scores for Targets as a Function of Participant Political Affiliation, Target Sex, and Target Political Affiliation*

	Participant Group Identification			
Target Identity	Democrat + Blue	Democrat + Yellow	Republican + Blue	Republican + Yellow
Democrat Female	.563 (*.50*)	.563 (*.50*)	.375 (*.49*)	.281 (*.46*)
Democrat Male	.125 (*.34*)	.469 (*.51*)	.031 (*.18*)	.156 (*.37*)
Republican Female	.531 (*.51*)	.344 (*.48*)	.281 (*.46*)	.531 (*.51*)
Republican Male	.406 (*.50*)	.500 (*.51*)	.500 (*.51*)	.375 (*.49*)
Blue Female	.250 (*.44*)	.250 (*.44*)	.156 (*.37*)	.188 (*.40*)
Blue Male	.250 (*.44*)	.375 (*.50*)	.188 (*.40*)	.313 (*.47*)
Yellow Female	.531 (*.51*)	.593 (*.50*)	.375 (*.49*)	.281 (*.46*)
Yellow Male	.094 (*.30*)	.406 (*.50*)	.219 (*.42*)	.250 (*.44*)

*Standard deviations in parentheses

Mean Amount of Money Given to Targets as a Function of Participant Political Affiliation, Target Sex, and Target Political Affiliation*

| | Participant Group Identification | | | |
Target Identity	Democrat + Blue	Democrat + Yellow	Republican + Blue	Republican + Yellow
Democrat Female	5.88 (*3.60*)	4.50 (*2.58*)	2.03 (1.*98*)	2.13 (*2.87*)
Democrat Male	3.72 (*2.52*)	3.56 (*2.41*)	2.25 (2.*14*)	2.16 (*2.44*)
Republican Female	4.69 (*3.65*)	4.22 (*3.21*)	2.94 (*2.47*)	2.84 (*2.75*)
Republican Male	3.00 (*2.63*)	2.34 (*2.43*)	3.00 (*2.21*)	2.22 (*2.23*)
Blue Female	5.44 (*3.47*)	2.63 (*2.78*)	2.50 (*1.83*)	1.88 (*2.15*)
Blue Male	3.22 (*2.32*)	2.78 (*2.18*)	3.06 (*2.26*)	2.31 (*2.36*)
Yellow Female	4.66 (*3.28*)	3.63 (*2.24*)	2.28 (*2.37*)	2.91 (3.*04*)
Yellow Male	3.09 (*2.35*)	2.88 (*2.24*)	1.94 (*2.05*)	2.78 (*2.85*)

*Standard deviations in parentheses

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