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Symbols, Group Identity and the Hold-up Problem

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Symbols, Group Identity and the Hold-up Problem

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Abstract

Groups, companies, and organizations identify themselves via symbols. Symbols have the potential to create group identity and at the same time create group boundaries, thus allowing for achieving the benefits of cooperation by ingroup members. We use a laboratory experiment to study the role of group identity, created by the use of symbols, in mitigating the hold-up problem. As a team symbol we employ color t-shirts. We find that the usage of t-shirts itself does not create a strong enough group identity to mitigate the hold-up problem. However, in our previous research, we found that group identity created by t-shirts and a group chat aimed to help team members to solve a task is capable of resolving the hold-up problem. These findings are consistent with the everyday practice where organizations often make significant investments in team-building and socialization activities, suggesting that an important objective of such activities might be to strengthen group identity so that it is effective even in highly strategic environments.

1. Introduction

Symbols, visible (observable) manifestations of groups and organizations, play a prominent role in the study of organizational behavior, organizational psychology, and social psychology.[1] From the perspective of social psychology symbols reinforce organizational or group identity and enhance cooperation among ingroup members by differentiating them from outgroup members.[2] Symbols, such as dress or uniforms,[3] provide a clear way of identifying group boundaries and thus allow for achieving the benefits of cooperation without the risk of excessive costs by limiting altruistic behavior towards ingroup members. Social psychologists describe ingroup as a bounded community of mutual and depersonalized expectations of cooperation. Such expectations motivate adherence to ingroup norms and promote behavior that ensures that one is recognized as an ingroup member (Brewer, 1981 and 1999). However, the use of symbols in organizations is often confounded with communication, social interaction and possibly other contributing factors, making it hard to clearly identify their contribution to creating identity and subsequent effect on strategic decision-making, thus opening the door for experimental identification of this effect under controlled laboratory conditions.

Symbols reinforce organizational or group identity, and sharpen boundaries between organizations and groups. This paper studies whether group identity, created by the use of symbols, is capable of mitigating the hold-up problem, which is a key ingredient of research on organizational/firm boundaries (see Williamson, 1985; Grossman and Hart, 1986; Hart and Moore, 1990). Under the standard setup, relation-specific investment in bilateral trade creates a surplus to be shared between two parties because the value of such investment is appreciably lower in any use other than supporting the transaction between the two parties. In a world of incomplete contracts and self-regarding preferences, the surplus-sharing leads to inefficiency due to investment at less than the socially optimal levels (Grout, 1984; Williamson, 1985). Our experiment employs the following hold-up game. A seller determines whether or not to invest $10. If the seller invests, $14 is made available to be shared between the seller and the buyer, who makes a take-it-or-leave-it offer $p to the seller. If the seller takes the offer, the

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[1] Within organizations symbols might serve multiple purposes: influence behavior by eliciting internalized values and norms, facilitate member communication about organizational life, and integrate emotion, cognition and behavior into shared codes that define and support the organization as well as represent its purpose (Rafaeli & Worline, 1999; see also Jones, 1993, and Katz & Kahn, 1978).

[2] A frequently cited example in the group identity literature is that Phil Knight, the founder of Nike, and many of his employees have the Nike "swoosh" logo tattooed on their calves (Camerer and Mermandier, 2007) as manifestation of their identification with the organization and loyalty to the brand. There are multiple other examples where employees or users identify themselves as "Apple-person, Mercedes-guy" and take pride in being a member of the group and willingly follow group norms or rules. .

[3] There exists a vast literature studying roles of uniforms and organizational dress in symbolizing values and beliefs of an organization, conveying identity, and asserting organizational control and compliance (see for example Joseph & Alex, 1972; Joseph, 1986; de Marley, 1986; Davis, 1992; Roach-Higgins & Eicher, 1992; Rafaeli & Pratt 1993; Rafaeli, Dutton, Harquail & Mackie-Lewis, 1997 and for a nice survey of this literature Pratt & Rafaeli, 1997).

seller and the buyer respectively receive $p and $(14 - p). If the seller rejects the offer, both of them receive $0. Upon the seller's investment, a self-regarding buyer would offer zero (or very small amount of money), which the seller would reluctantly accept. Anticipating this, the seller does not invest in the first place. This is a "problem" in the sense that the joint-profit maximizing investment does not occur. Many authors have previously proposed various remedies to the problem (see, for example, Klein, Crawford, and Alchian, 1978; Williamson, 1979, 1983; Aghion and Bolton, 1992; Aghion and Tirole, 1997).

The previous literature studies the link between the organizational/firm boundaries and the hold-up problem (Klein, Crawford & Alchian, 1978; Williamson, 1979, among others) however, the behavioral impact of group identity in this strategic interaction has not been explored until recently. Our recent research attempted to fill this gap in the literature. In Morita & Servátka (2011, henceforth MS) we conjecture that group identity might mitigate the hold-up problem by increasing the degree of altruism towards another group member (see Chen & Li, 2009 for a seminal paper on the effect of group identity on other-regarding preferences) and experimentally test this conjecture using the hold-up game described above.[4] In MS the subjects were randomly divided into two teams, identified by team symbols, namely different color t-shirts.[5] Prior to making decisions in the hold-up game the members of the same team could communicate with one another via an online chat to help one another obtain correct answers. The group identity was thus induced by team symbols as well as team members' helping behavior, creating identity in a similar way as observed in everyday life where identity is often on purpose strengthen by socialization by company retreats, team building activities focusing on trust, communication, or problem-solving as well as getting together at social functions such as Christmas party or morning tea.[6] MS observe that when the subjects were paired with another team-member, their altruism increased compared to a situation when they are paired with a member of the other team. As a result, they were more likely to invest and share the surplus following an investment. While such design provides evidence that group identity can alter economic incentives, it does not allow for a conclusion whether symbols themselves (through delineating group boundaries) are sufficient to induce group identity and influence decisions.

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[4] In a related paper, however without focus on group identity, Sloof, Oosterbeek, and Sonnemans (2007) also show that social preferences can increase investment in the hold-up problem.

[5] It is also the only economic experiment that we are aware of focusing on the role of symbols affecting decision-making in a strategic environment.

[6] See, for example, About.com Guide on "How to Build Powerfully Successful Work Teams" by Susan M. Heathfield (http://humanresources.about.com/od/involvementteams/a/team_one_stop.htm) or a popular British TV reality series The Naked Office.

In the current paper we present an experiment that identifies the role of symbols in creating group identity and separates their effect from helping behavior in the context of the hold-up game. We find that group identity induced by t-shirts is not strong enough to sufficiently strengthen agents' other-regarding preferences to mitigate the hold-up problem. This finding and MS's finding together tell us that strengthening group identity through helping behavior has a significant effect on agents' behavior in mitigating the hold-up problem.

The observation that group identity can be formed through a common goal and through helping other group members is supported by the experimental evidence of Eckel and Grossman (2005), Chen & Li (2009) and Chen & Chen (forthcoming), each of which include some form of social interaction prior to the decision-making part of the experiment as means of strengthening group identity. In terms of the experimental design, the closest studies to MS are Chen & Li (2009) and Chen & Chen (forthcoming), both of which use an online chat to solve a collective problem. In Chen & Li (2009) the subjects face a task to answer questions on which artist, Klee or Kandinski, made each of two paintings shown to them. Similar to MS, Chen & Li's subjects voluntarily exchanged information with members of their own group via a chat program to help one another obtain correct answers. When comparing subjects' allocation decisions across 24 different games, Chen & Li observe that including chat had a significant effect on behavior in only one of them, however, it did increase self-reported group attachment. Chen & Chen (forthcoming) use the same task as Chen & Li and find that the subjects choose a higher level of effort in a minimum effort game than when chat is not possible, providing mixed evidence on the effect of chat on subjects' subsequent behavior.[7, 8]

Our finding that helping behavior has a significant effect on agents' behavior stands in contrast with Chen & Li's finding mentioned above. Chen & Li studied a number of simple allocation and sequential games, which have at most two decisions to be made by players. The hold-up game that we study, in contrast, involves three decisions; the seller's investment decision, the buyer's take-it-or-leave-it offer, and the seller's decision whether or not to accept the offer. In this sense, the hold-up game involves a higher degree of strategic interactions, and we feel that this might be a driving force of the difference between our finding and Chen & Li's finding. That is, group identity created solely by the use of symbol might not be strong enough to make a significant impact on agents' behavior in a highly strategic environment, and thus strengthening group identity through helping behavior could play a more prominent role.

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[7] Chen & Li (2009) differ from Chen & Chen (forthcoming) also in the way how the no-chat control was implemented. In Chen & Li (2009) the task of guessing the author of the paintings was excluded completely, whereas in Chen & Chen (forthcoming) it was still part of the design, but subjects had to provide their answers individually without being able to use chat. The comparison of the current experiment with MS (presented in subsection 4.2) is in its nature similar to Chen & Li.

[8] There are numerous other studies exploring theoretically and empirically the impact of group identity on economic decision-making. We review them in some detail in Morita and Servátka (2011).

2. Insights from social psychology and experimental economics research on social identity

The social psychology literature on social identity is vast (see McDermott, 2009 for a recent survey). Most of the experimental research that focuses on testing various aspects of social identity theory (Billig & Tajfel, 1973; Tajfel & Turner, 1979) employs the so-called minimal group paradigm of inducing a group identity in a laboratory setting. A minimal group consists of people who share only one social category and who have no social interaction.[9] The criterion for categorizing subjects into groups is often trivial, such as preference for Klee's or Kandinski's paintings or tendency to overestimate or underestimate the number of dots on a screen. The minimal group paradigm was introduced by Tajfel, Billig, Bundy, & Flament (1971) who observed that categorization alone was sufficient to generate ingroup favoritism. Two competing explanations, social categorization (Tajfel & Turner, 1986) and expectations of generalized reciprocity among ingroup members (Yamagishi, Jin & Kiyonari, 1999; Yamagishi & Kiyonari, 2000) have emerged as potential mechanisms causing ingroup favoritism.

According to Yamagishi & Kiyonari (2000), Tajfel and his colleagues overlooked that the allocator's payoffs were determined by other subjects, and thus did not give an unconditional preferential treatment to ingroup members. This is supported by the finding of Karp, Jin, Yamagishi & Shinotsuka (1993) who removed the interdependence of payoffs from the design by paying the decision-maker a fixed amount. Such change in design lead to no preferential treatment of ingroup members. Yamagishi & Kiyonari (2000) thus conjecture that the ingroup favoritism is based on expectations that preferential treatment will be reciprocated by the other ingroup members, tying it to depersonalized trust argument advanced by Brewer (1981). Yamagishi & Kiyonari find that in a prisoner's dilemma with a large number of strategies the subjects cooperate more with an ingroup member in the simultaneous version of the game but that this effect disappears when the game is played sequentially (with all subjects acting as first movers and no second movers although the subjects were lead to believe that there were second movers). They conclude that the effect is driven by the expectations of generalized reciprocity but that these expectations are eliminated by the presence of direct reciprocity in the sequential treatment.

While Yamagishi & Kiyonari's conclusions might suggest the observed helping behavior in answering trivia questions could have triggered or strengthened expectations of generalized reciprocity in MS design, the groups in MS are not minimal, the game used is different from that of Yamagishi & Kiyonari and the ingroup favoritism is observed under sequential play. Therefore, it is not clear to what degree the helping behavior prior to playing the hold-up game influenced subjects' decisions to assess the relative importance of symbols in creating group identity and alleviating hold-up. The results by Yamagishi and his colleagues can also be interpreted along the lines that strategic element of interaction is capable of eliminating ingroup favoritism. Given that the hold-up game is a game where the parties interact in three stages as opposed to two, it can be seen as a highly strategic environment. If

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[9] There are four criteria for a group to be minimal: 1. Random assignment based on a trivial criterion; 2. No social interaction; 3. Anonymous membership; and 4. No interdependence of interests (i.e., the decision task requires no link between the decision-maker's payoffs and his choices). Most economic experiments violate the fourth criterion.

Yamagishi's finding generalizes/extends to other environments beyond prisoner's dilemma, we should not observe group identity created by symbols being able to resolve the hold-up problem.

3. Experimental design and procedures

Does group identity, created by the use of symbols, mitigate the hold-up problem? To provide insights into the inner workings of symbols we present an experiment in which group identity is created solely by wearing team uniforms and compare subjects' behavior under such circumstances with data previously reported in Morita and Servátka (2011) that involves the use of team uniforms as well as an additional task in which the subjects on the same team could offer and receive help from one another. The inclusion of this additional task does not introduce a repeated game because subject anonymity makes it impossible for any subject to acquire individual reputation. Both experiments included two treatments based on pairing of subjects (Same-Team and Different-Team) implemented in an across-subjects design. Below we summarize the experimental protocols. Instructions are provided in the appendix.

### 3.1. The effect of symbols on creating social identity

At the beginning of the experiment the participants were randomly divided into Orange Team and Yellow Team by drawing colored pieces of paper from a large opaque envelope. Orange Team was seated in the front of the room and Yellow Team in the back. The experimenters then handed subjects their respective color t-shirts, representing team uniforms, and asked everyone to put them on. The subjects were told they could keep their t-shirts after the experiment was over. Once everyone was wearing a t-shirt, we sequentially asked the teams to get up, look at their teammates and verify that everyone on the team was wearing the same color.

Then neutrally framed instructions were handed out. In the Same-Team treatment, the subjects were instructed that each person from the Yellow Team would be randomly paired with another person from the Yellow Team and each person from the Orange Team with another person from the Orange Team. In the Different-Team treatment, the subjects were instructed that each person from the Yellow Team would be randomly paired with a person from the Orange Team. The instructions emphasized that the interaction was anonymous and that the experimenters would keep track of all decisions using ID numbers.

A coin was publicly flipped to randomly determine the roles depending on the row in which a subject was sitting. The allocation of the First Mover (henceforth FM) and Second Mover (SM) to a particular pair was done by experimenter based on a pre-assigned matching, unknown to the subjects. The decisions were divided into three stages. In Stage 1, the FM had to decide whether or not to invest his/her 10 NZD show up fee in order to create 14 NZD for the pair. If the FM decided not to invest the 10 NZD show up fee, then no money was created and both movers kept their show up fees. If the FM decided to invest, then 14 NZD was made available to split between the two paired persons. An offer of how to split the 14 NZD was determined by the SM in Stage 2. In Stage 3, the FM learned about the

offer, and could either accept it or reject it. If the FM accepted the offer, both movers received the respective amounts stated in the offer. If the FM rejected, the 14 NZD disappeared and both the FM and the SM received 0 NZD. (The SM still kept the show up fee of 10 NZD.) The game tree (which was not shown to the subjects) is presented in Figure 1.

Figure 1. The Hold-up Game
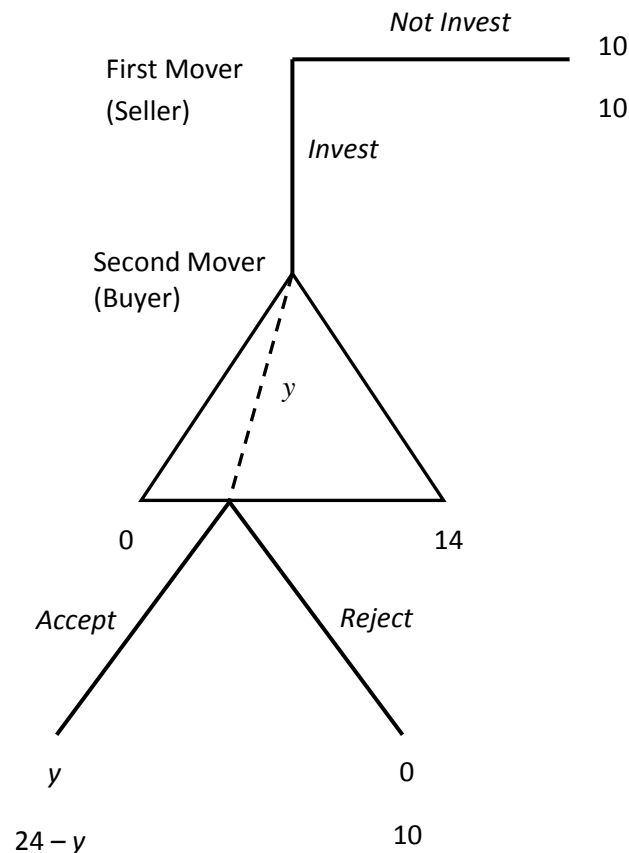
In an attempt to minimize confusion of subjects we included three control questions which all participants had to answer correctly before proceeding to the decision-making part. The SM's offers for the control questions were generated randomly for each session. After the subjects answered the questions, the experimenters verified their correctness by inspecting each subject's answers individually and if necessary, provided additional assistance and explanation until the subject calculated all answers correctly. Then the three scenarios were summarized publicly by the experimenter.

Before the decision-making part started, the subjects were reminded about their pairing. In order to transfer information between matched pairs, one of the experimenters collected and later redistributed all decision sheets, while the second experimenter copied the decisions from one sheet to another. This

procedure was implemented with the aim to prevent the exchange of superfluous information during the game and aid in maintaining the anonymity of individual decisions.

At the end of the session we asked subjects to complete a short post-experiment questionnaire and offered 5 NZD for doing so to ensure that no subject left the experiment with zero payoffs. Finally, all subjects were privately paid their earnings for the session.

3.2. The effect of symbols strengthened by helping: Experiment by Morita and Servátka (2011)

The experiment reported in Morita and Servátka (2011) consisted of two tasks: (1) Answering two trivia questions and (2) playing the hold-up game which was implemented exactly as in Experiment 1. Task 1 was implemented as follows.

The subjects were handed out Task 1 instructions on a sheet that also included two trivia questions. The subjects had an opportunity to anonymously communicate via computer chat for five minutes with their own team members (i.e., in both Same-Team and Different-Team treatments, a person on the Orange Team could chat with all remaining subjects on the Orange Team and a person on the Yellow Team could chat with all remaining subjects on the Yellow Team) prior to individually answering the questions.[10] Such communication allowed the subjects to provide and receive help from their teammates. The subjects were instructed they would be paid 2 NZD for each correct answer, but would not find out the results until the end of the experiment. This was to control for the level of created social identity that could otherwise vary depending on whether a good or bad advice by team members was provided. Once all subjects answered the trivia questions, the experimenters collected their answer sheets. The experiment then proceeded with the hold-up game.

4. Results

Both experiments took place in the New Zealand Experimental Economics Laboratory (NZEEL) at the University of Canterbury with 232 subjects in the current experiment and 258 subjects in MS. The recruited subjects have never previously participated in an economic experiment at this university. On average, an experimental session in the current study lasted around 50 minutes including initial instruction period and payment of subjects while in MS about 75 minutes. The subjects earned on average 10.44 New Zealand Dollars (NZD) from the game in the current experiment and 10.33 NZD in MS, 5 NZD for filling out the questionnaire and in MS also up to 4 NZD from answering trivia questions.

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[10] The chat was programmed and conducted with z-Tree (Fischbacher, 2007).

Table 1. Summary Statistics

	The Current Experiment		Morita and Servátka (2011)	
	Same-Team	Different-Team	Same-Team	Different-Team
# subject pairs	54	62	48	81
Investment rate	20/54 = 37%	16/62 = 25.8%	21/48 = 43.8%	21/81 = 25.9%
Avg. offer	8.55	7.75	10.38	8.74
Median offer	8.50	8	12	10
Rejection rate	1/20 = 5%	2/16 = 12.5%	2/21 = 9.5%	4/21 = 19%
Avg. rejected offer	6	4	6.50	4.63

4.1 Do symbols create social identity capable of resolving the hold-up problem?

The first two columns of Table 1 present summary statistics from the current experiment. Fifty-four subject pairs participated in the Same-Team treatment. In Stage 1, twenty FMs invested, yielding an investment rate of 37%. Following an investment SMs offered on average 8.55 NZD in Stage 2. Only one of these offers (6 NZD) was rejected in Stage 3 by the respective FM, resulting in a rejection rate of 5%.

Sixty-two subject pairs participated in the Different-Team treatment. In Stage 1, sixteen FMs invested, yielding an investment rate of 25.8%. Following an investment SMs offered on average 7.75 NZD in Stage 2. Two of these offers (both 4 NZD) were rejected in Stage 3 by the respective FM, resulting in a rejection rate of 12.5%. The distributions of all offers are presented in Figure 2a.

First, we test whether the group identity created by t-shirts was strong enough to induce FMs to invest more often when paired with their team members as opposed to members of the other team. We compare the FMs' investment rates in our two treatments: While the investment rate in the Same-Team treatment is higher than in the Different-Team treatment, the one-sided Fisher's exact test reveals that the difference is marginally insignificant (p=0.135).

Second, we compare whether upon the FM's investment, the SM's offer is higher in the presence of group identity induced by the use of symbols. As suggested by MS the reason behind such difference would be due to a higher level of SM's altruism induced by group identity. The one-sided Wilcoxon rank-sum test detects that the offers in the Same-Team treatment were no different than in the Different-Team treatment (p=0.282). In both treatments those FMs who invested lost money. This result suggests that group identity induced by t-shirts was not strong enough to sufficiently strengthen agents' other-

regarding preferences to mitigate hold-up. Finally, due to a small number of observations, we are unable to meaningfully compare the rejections rates in Stage 3.
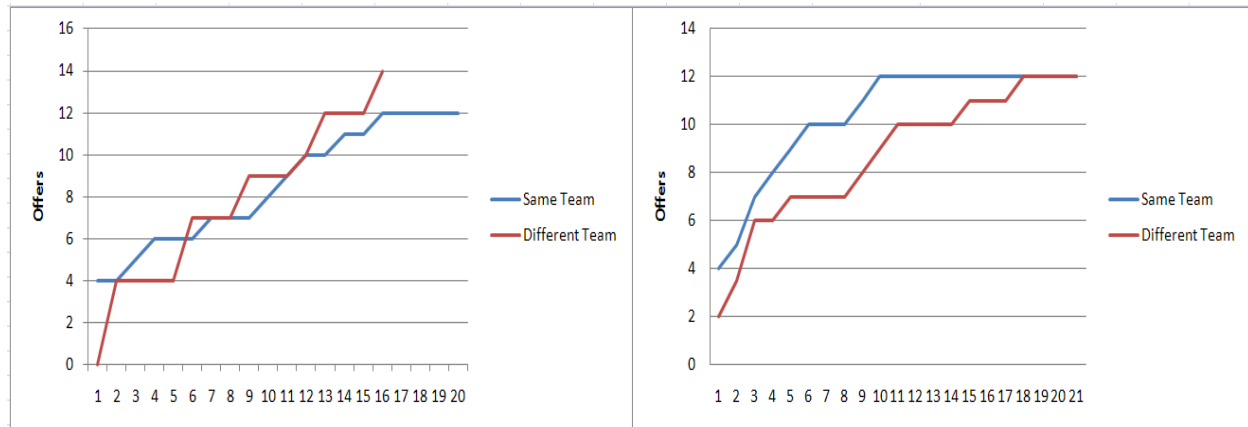

Figure 2a.

Distributions of Offers in the Current Experiment

Figure 2b.

Distributions of Offers in Morita & Servátka (2011)

4.2. A between-experiment comparison: The effect of helping on creating social identity

Forty-eight subject pairs participated in the Same-Team treatment in Morita and Servátka (2011). In Stage 1, twenty-one FMs invested, yielding an investment rate of 43.8%. Following an investment SMs offered on average 10.38 NZD in Stage 2. Only two of these offers (5 and 8 NZD) were rejected in Stage 3 by the respective FMs, resulting in a rejection rate of 9.5% and rejecting an average offer of 6.50 NZD.

Eighty-one subject pairs participated in the Different-Team treatment presented in MS. In Stage 1, twenty-one invested, yielding an investment rate of 25.9%. Following an investment, SMs offered on average 8.74 NZD. Four offers were rejected (2, 3.50, 6, and 7) resulting in a rejection rate of 19% and rejecting an average offer of 4.63 NZD. The distributions of all offers in MS are presented in Figure 2b.

As reported in MS, team membership created by the use of t-shirts as well as chat significantly increases the investment rate (p=0.036) as well as the share of the surplus offered back to the FM (p=0.012) and thus mitigates the hold-up problem. Here we report the difference between the two experiments that are due to including chat. In Same-Team treatment the investment rate has increased (37% vs. 43.8% in the current experiments and MS, respectively), however the Fisher 1-sided test does not detect such increase to be significant, p=0.344). In Different-Team treatment the investment rate has not changed at all (25.8% vs. 25.9% in the current experiments and MS, respectively). This result suggests that it is both t-shirts and chat together that are *jointly responsible* for the increase in investment rate observed in MS. Finally, the no change in investment rate in Different-Team treatments is in line with Brewer (1999) who notes that ingroup favoritism does not have to be accompanied by outgroup discrimination.

On the other hand, including chat has significantly increased the average offers in Same-Team (8.55 vs. 10.38 in the current experiments and MS, respectively; p = 0.014), but not in Different-Team (7.75 vs. 8.74; p=0.234). This result highlights the fact the chat increases other-regarding preferences of SMs. This makes our finding regarding the effect of online chat on subjects' behavior in the ensuing game stand in contrast with Chen & Li (2009) who find no significant difference in subjects' choices in 23 out of 24 games they investigate. Then again, Chen & Li do find that chat significantly increases self-reported group attachment. While our design does not include such measure, we conjecture that it is the attachment to the group that mediates the increase in other-regarding preferences, however, due to obvious differences in the structures of games, its' impact is detected in our study but is not observed by Chen & Li. A strong effect of communication with team members while solving a simple task is also observed by Chen & Chen (forthcoming) in a minimum-effort game setting.[11]

5. Conclusion

Groups, companies, and organizations identify themselves via symbols. Symbols have the potential to create group identity and at the same time create group boundaries, thus allowing for achieving the benefits of cooperation by ingroup members. However, in the field it is almost impossible to avoid communication and socialization among group members, making it hard to identify the (pure) contribution of symbols in creating group identity and its subsequent effect on behavior. An experiment, although stylized, allows separating these effects from one another.

In the current paper we study the role of group identity, created by the use of symbols, in mitigating the hold-up problem. As a team symbol we employ color t-shirts. We find that the usage of t-shirts itself does not create a strong enough group identity to mitigate the hold-up problem. However, in our previous research (Morita & Servátka, 2011), we found that group identity created by t-shirts and a group exercise of helping team members answer trivia questions is capable of mitigating the hold-up problem. These findings are consistent with the everyday practice observed in the field where organizations often make significant investments in team-building and socialization activities such as company retreats and Christmas parties. Our finding thus suggests that an important objective of such activities might be to strengthen group identity so that it is effective even in highly strategic environments.

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[11] Chen & Chen (forthcoming) also provide a nice model incorporating group-contingent other-regarding preferences into Monderer & Shapley's (1996) theory of potential games predicting how salient group identities are capable of affecting equilibrium selection.

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Appendix: Subject Instructions and Decision Forms

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INSTRUCTIONS

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No Talking Allowed

Thank you for coming. The purpose of this session is to study how people make decisions in a particular situation. From now until the end of the session, unauthorized communication of any nature with other participants is prohibited. If you violate this rule we will have to exclude you from the experiment and from all payments. If you have a question after we finish reading the instructions, please raise your hand and the experimenter will approach you and answer your question in private.

Two Tasks

You will be asked to participate in two tasks during the experiment. The instructions for Task 2 will be given to you after finishing Task 1. Your earnings from both tasks will be paid to you in cash at the end of the experiment.

Two Teams

You have been divided randomly into two teams, called the Yellow Team and the Orange Team. People from both teams are wearing their respective team uniforms: The Yellow Team is wearing yellow t-shirts and the Orange Team is wearing orange t-shirts.

Earnings

In Task 2, every participant will get $10 as a show up fee. Your final experimental earnings will depend on your decisions and on the decisions of others.

Anonymity

Each person from the Yellow Team will be randomly paired with another person from the Yellow Team. Each person from the Orange Team will be randomly paired with another person from the Orange Team. No one will learn the identity of the person (s)he is paired with. Your role and your ID number will be written on the top of your decision sheet. The experimenters will keep track of your decisions and your paired person's decisions by your ID numbers. Because your decision is private, we ask that you do not tell anyone your decision or your earnings either during or after the experiment.

Pairing and Roles

Within each pair, one person is going to be randomly assigned to be the First Mover and the other person to be the Second Mover. The decisions are divided into three stages:

Stage 1: The First Mover's Investment Decision

The First Mover decides whether or not to invest his/her $10 show up fee in order to create $14 for the pair:

- If the First Mover invests his/her $10 show up fee, then $14 will be made available to split between the two paired persons. The split of $14 will be determined by the Second Mover.

- If the First Mover does not invest, then no money is created and stages 2 and 3 are cancelled.

Stage 2: The Second Mover's Offer

If the First Mover invested in Stage 1, the Second Mover decides how much money out of $14 to offer to

the First Mover and how much of it to keep.

Stage 3: The First Mover's Acceptance/Rejection
The First Mover learns about the offer, and either accepts it or rejects it. If the First Mover accepts, both movers receive the respective amounts stated in the offer. If the First Mover rejects, the $14 disappears and both the First Mover and the Second Mover get $0. (The Second Mover still keeps his/her show up fee of $10.)

Payment of Experimental Earnings
Once all participants have made their decisions, the experimenters will collect the decision forms and calculate the payoffs. Then you will be asked one by one to approach the experimenter in the hallway for the payment of your experimental earnings. Once paid, please leave using the stairs and do not gather in front of the elevator.

Are there any questions?

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Practice Questions

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Please answer the following questions:

1. If the First Mover invests and the Second Mover offers …. which is accepted by the First Mover, what are the First Mover's final earnings? …………
What are the Second Mover's final earnings? …………..

2. If the First Mover invests and the Second Mover offers …. which is rejected by the First Mover, what are the First Mover's final earnings? …………
What are the Second Mover's final earnings? …………..

3. If the First Mover does not invest what are the First Mover's final earnings? …………
What are the Second Mover's final earnings? …………..

Decision Form **First Mover #**

Stage 1: THE FIRST MOVER'S INVESTMENT DECISION

The First Mover makes his/her decision by circling (1) or (2):

(1) I choose not to invest my $10 show up fee

OR

(2) I choose to invest my $10 show up fee

Stage 2: THE SECOND MOVER'S OFFER

The paired First Mover chose to invest the $10 show up fee. Therefore, $14 is made available for the Second Mover to split between the two paired persons. The Second Mover makes his/her decision how much money out of $14 to offer to the First Mover by completing both statements below:

I offer $_____ to the paired First Mover.

Therefore, I will keep $_____ for myself.

If no investment was made in Stage 1 the Second Mover writes "No investment" in the space below: _____

Stage 3: THE FIRST MOVER'S ACCEPTANCE/REJECTION

The First Mover makes his/her decision by circling (A) or (R):

(A) I accept the Second Mover's offer.

OR

(R) I reject the Second Mover's offer.

If no investment was made in Stage 1 the First Mover writes "No investment" in the space below: _____

Decision Form **Second Mover #**

Stage 2: THE SECOND MOVER'S OFFER

The paired First Mover chose to invest the $10 show up fee. Therefore, $14 is made available for the Second Mover to split between the two paired persons. The Second Mover makes his/her decision how much money out of $14 to offer to the First Mover by completing both statements below:

I offer $_____ to the paired First Mover.

Therefore, I will keep $_____ for myself.

If no investment was made in Stage 1 the Second Mover writes "No investment" in the space below: **_____**