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Reputation of Those Who Cooperate Beyond Group Boundaries: A Comparison of Universalistic and In-Group Favoring Strategies

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It has been suggested by various studies that between-group cooperation is more difficult to achieve than within-group cooperation. To investigate the factors that inhibit between-group cooperation, the reputation of a universalist, who cooperates beyond group boundaries, was considered. If the universalists were to be evaluated negatively, people would hesitate to cooperate beyond group boundaries. To examine this possibility, a comparison was drawn between the evaluation of people who employed the universalistic strategy and those who employed the in-group favoring strategy (who cooperates only with in-group members) by conducting a vignette experiment. In the experiment, participants evaluated two in-group members: one employed the in-group favoring strategy, and the other employed the universalistic strategy. In addition to the type of strategy, a trade-off between what in-group members received and what out-group members received was manipulated. Two studies were conducted by varying the universalistic strategy. The universalistic strategy meant giving resources equally to both group members in Study 1, and it meant maximizing the joint profit between the groups in Study 2. The results across the two studies suggest that the universalistic strategy was evaluated more positively than the in-group favoring strategy, with the exception that the in-group favoring strategy was chosen as the same group member in the future. Whether there was a trade-off had little effect on the evaluations of the two strategies. Consequently, this study suggests that the negative reputation of universalists might not be a factor that inhibited between-group cooperation.

Keywords
reputation, between-group cooperation, universalistic, in-group favoring

Introduction

Although humans are called cooperative species, cooperation is usually confined to in-group members (Balliet et al., 2014; Tajfel & Turner, 1986; Yamagishi et al., 1999). There is a theory that explains in-group favoring behavior from the perspective of indirect reciprocity (Nowak & Sigmund, 1998; Ohtsuki & Iwasa, 2004; Panchanathan & Boyd, 2003) called the Bounded Generalized Reciprocity theory (BGR; Yamagishi et al., 1999). The BGR considers the group as a container of indirect reciprocity in which reputational information is shared. As people intuitively understand the nature of a group, one would expect that cooperation is limited within group boundaries. For this reason, people behave altruistically toward in-group members than toward out-group members (Yamagishi et al., 1999; Yamagishi & Kiyonari, 2000; Yamagishi & Mifune, 2008). Thus, the BGR mainly focuses on how the cooperation within groups is maintained. Achieving cooperation beyond group boundaries is not the primary interest of BGR.

In the literature on the evolution of cooperation, several theoretical studies have investigated both between- and within-group cooperation (Jusup et al., 2014; Matsuo et al., 2014; Onoda & Takahashi, 2013, 2016; Takagi, 1995, 1996). For example, Matsuo et al. (2014) investigated the evolutionary dynamics when there was an in-group favoring strategy (Bushido strategy) and universalistic strategy (Shonindo strategy) employed in the same group. There are two fundamental differences between the two strategies in this model. First, with whom they cooperate, is different. Players who employ in-group favoring strategy cooperate only with in-group members who have a good reputation. In contrast, players who employs the universalistic strategy cooperate with individuals who have a good reputation regardless of the group membership. Second, how to evaluate the in-group member's cooperation with out-group members is different. The in-group favoring strategy negatively evaluates individuals who cooperate with out-group members. By contrast, the universalistic strategy positively evaluates the cooperator regardless of the membership of the cooperator's target. Under certain conditions, as the players who employ in-group favoring strategies do not cooperate with those who employ universalistic strategies that cooperate with out-group members, the players who employ in-group favoring strategy form an equilibrium.

These studies indicate that the adaptiveness of between-group cooperation depends on the type of reputation strategy. If there are strategies that negatively evaluate those who cooperate with out-group members, between-group cooperation may be difficult. However, it has not been investigated whether those who employ the universalistic strategy are evaluated more negatively

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than those who employ the in-group favoring strategy. To investigate this issue, this study empirically examined the evaluation of people who employ the in-group favoring strategy and those who employ the universalistic strategy.

It further examined whether the evaluation of the two strategies is the same across situations. As it has been demonstrated that between-group conflict tends to occur when resources are limited (Sherif et al., 1961), if there is a trade-off of resources between the groups, it is expected that between-group cooperation would be evaluated negatively. To explore this possibility, three conditions were set up by manipulating the trade-off between the groups: the trade-off, no-trade-off, and control conditions.

Study 1

In Study 1, the reputation of in-group favoring and universalistic strategies were compared. The in-group favoring strategy is a strategy in which people allocate more resources to in-group members than out-group members. The universalistic strategy is the strategy by which people allocate resources equally to both in-group and out-group members; as Tajfel et al. (1971) and Bourhis et al. (1994) called it "fairness," it is hereby called, "the fair universalistic strategy."

Method

(a) Participants

Fifty-seven undergraduate students (37 males, 20 females, with a mean age of 21.1 years) from Hokkaido University participated (Ethical approval number: 02-07).

(b) Design and procedure

The following within-subjects factorial design was applied: 2 (strategy: in-group favoring vs. universalistic) × 3 (condition: trade-off vs. no-tradeoff vs. control).

This study was conducted in a vignette experiment. First, participants were asked to imagine that they belonged to a group in which the members knew each other. In each scenario, two in-group members performed a task similar to the "Tajfel allocation matrix" (Bourhis et al., 1994; Tajfel et al., 1971). In the task, each of the two in-group members decided how to divide the money between an in-group member and an out-group member. Each member selected a card out of four cards, each of which indicated how to allocate the money between an in-group member and an out-group member (Figure 1). Each in-group member performed this task four times. Participants evaluated the two in-group members who performed the task. One was a member who adopted the in-group favoring strategy, and the other was a member who adopted the fair universalistic strategy.

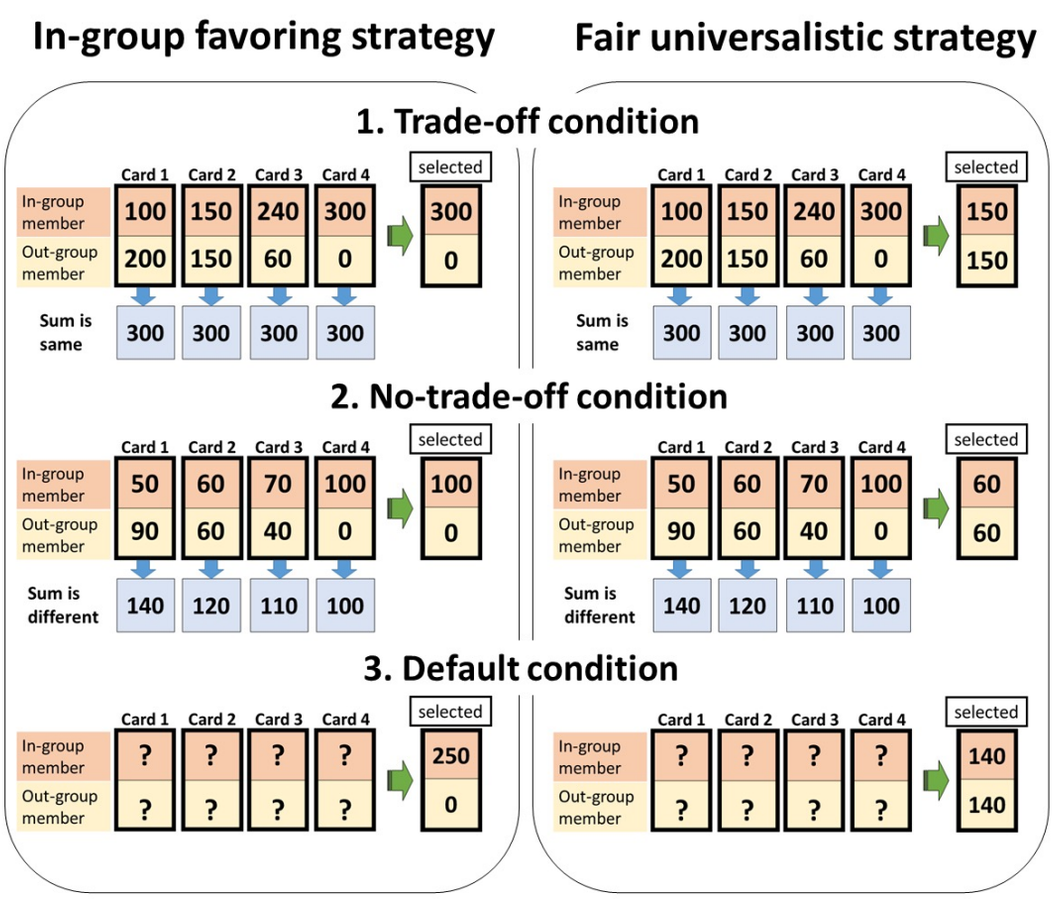

Figure 1. Choices of each in-group member

Note. There are four alternative cards and one selected card that expresses the decisions of both strategies in each condition.

Table 1. Average of evaluation items (behavior)

		Strategy							
		Study 1				Study 2			
		In-group favoring		Fair universalistic		In-group favoring		MJP universalistic	
	Condition	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Q1. Want to help	Trade-off	4.46	1.65	5.47	1.26	4.56	1.39	4.70	1.45
	No-trade-off	4.35	1.63	5.49	1.32	4.63	1.20	5.09	1.27
	Control	4.67	1.63	5.65	1.09	4.96	1.25	4.65	1.37
Q2. Want to be in the same group	Trade-off	5.23	1.90	4.18	1.74	5.70	1.48	3.79	1.69
	No-trade-off	5.28	1.82	4.39	1.77	5.67	1.56	4.07	1.70
	Control	5.12	1.89	4.60	1.66	5.53	1.65	3.86	1.52
Q3. Want to choose as a group leader	Trade-off	3.54	1.82	4.14	1.77	4.12	1.74	3.58	1.81
	No-trade-off	4.00	1.71	4.07	1.68	3.95	1.74	4.04	1.69
	Control	3.39	1.96	4.25	1.82	3.46	1.63	3.88	1.62
Q4. Want to become friends	Trade-off	4.00	1.58	5.35	1.27	4.40	1.35	4.46	1.50
	No-trade-off	3.98	1.65	5.44	1.41	4.60	1.35	4.88	1.25
	Control	4.14	1.83	5.53	1.27	4.42	1.40	4.60	1.43

The sum of the money on the cards differed depending on the condition. In the trade-off condition, the sum of money on each card was equal across all cards. Therefore, the more an out-group member received, the less an in-group member received. By contrast, in the no-trade-off condition, the sum of money on each card was different for all cards. There was no trade-off between in-group and out-group members. In the control condition, participants could only see the card that an in-group member selected and the other three cards were not shown.

Participants read each scenario and evaluated two in-group members. First, participants were presented with the control condition scenario, and then the trade-off condition scenario and the no-trade-off condition scenario were presented in random order. After reading each scenario, the participants evaluated the two in-group members. First, participants were asked to answer their impressions. Then, participants were asked to imagine that they would play two economic games with both in-group members: the dictator game (DG) and the sequential prisoner's dilemma game (SPD).[1] DG is a two-player game with a dictator and recipient. The dictator decides how to divide 1,000 JPY (approximately $10 in the US) between themself and the recipient. The recipient receives the amount of money allocated by the dictator. First, participants were asked to imagine that they were the recipient and answer which in-group members they would want to play with (i.e., a member who employs the in-group favoring strategy or a member who employs the fair universalistic strategy). Next, participants were asked to imagine that they were the dictator, and to determine how much they would allocate to each in-group member.

Results

(a) Evaluation

The means of the measured variables are listed in Table 1 (Study 1). A linear mixed-model analysis was conducted with the participants as a random effect. The response variable was the evaluation question. The explanatory variables were strategy (within-subjects factor: in-group favoring strategy, universalistic strategy), condition (within-subjects factor: trade-off, no-trade-off, control), and the interaction between these variables. First, for the "help" item, the main effect of strategy was significant, F (1, 280) = 63.91, $p < .0001$, $R^2_\Sigma = .046$, 95% CI = (.012, .100). The main effect of condition and the interaction effect of condition and strategy were not significant, F (2, 280) = 1.23, $p = .2925$, $R^2_\Sigma = .002$, 95% CI = (.000, .024), $R^2_\Sigma = .005$, 95% CI = (.000, .032); F (2, 280) = 0.13, $p = .8750$, $R^2_\Sigma = .000$, 95% CI = (.000, .016), $R^2_\Sigma = .001$, 95% CI = (.000, 019)[2]. Second, for the "same group" item, the main effect of strategy was significant, F (1, 280) = 18.76, $p < .0001$, $R^2_\Sigma = .008$, 95% CI = (.000, .038). The main effect of the condition and the interaction effect of condition and strategy were not significant, F (2, 280) = 0.26, $p = .7687$, $R^2_\Sigma = .000$, 95% CI = (.000, .017), $R^2_\Sigma = .001$, 95% CI = (.000, .019); F (2, 280) = 0.67, $p = .5120$, $R^2_\Sigma = .004$, 95% CI = (.000, .029), $R^2_\Sigma = .002$, 95% CI = (.000, .023). Third, for the "group leader" item, the main effect of strategy was significant , F (1, 280) = 6.90, $p = .0091$, $R^2_\Sigma = .020$, 95% CI = (.001, .062). The main effect of condition and the interaction effect of condition and strategy were not significant, F (2, 280) = 0.51, $p = .6013$, $R^2_\Sigma = .001$, 95% CI = (.000, .019), $R^2_\Sigma = .010$, 95% CI = (.000, .044); F (2, 280) = 1.44, $p = .2397$, $R^2_\Sigma = .001$, 95% CI = (.000, .020), $R^2_\Sigma = .009$, 95% CI = (.000, .040). Finally, for the "become friends" item, the main effect of strategy was significant, F (1, 280) = 101.65, $p < .0001$, $R^2_\Sigma = .079$, 95% CI = (.032, .143). The main effect of condition and the interaction effect of condition and strategy were not significant, F (2, 280) = 0.48, $p = .6212$, $R^2_\Sigma = .001$, 95% CI = (.000, .020), R^2_Σ

[1]Owing to space limitations, we only report the results of the dictator game in this paper, and the information about SPD is included in the Supplemental Material.

[2]As we used a linear mixed model analysis, we used R^2_Σ as the indicator of the effect size (Jaeger et al., 2017). R^2_Σ of the trade-off condion is reported first , followed by R^2_Σ of the no-trade-off condition (control condition set as a reference category). We use the same format to report the results herein.

Table 2. Average of evaluation items (impression)

		Strategy							
		Study 1				Study 2			
		In-group favoring		Fair universalistic		In-group favoring		MJP universalistic	
	Condition	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Q5. Likable	Trade-off	4.32	1.75	4.96	1.40	4.39	1.71	4.05	1.57
	No-trade-off	4.39	1.71	4.98	1.55	4.61	1.56	4.58	1.65
	Control	4.35	1.72	5.44	1.23	4.56	1.51	4.44	1.36
Q6. Trustworthy	Trade-off	4.37	1.93	5.28	1.50	4.58	1.65	4.00	1.81
	No-trade-off	4.21	1.77	5.30	1.40	4.67	1.64	4.44	1.84
	Control	4.39	1.78	5.53	1.31	4.93	1.37	4.26	1.55
Q7. Helpful to the group	Trade-off	5.26	1.84	3.70	1.58	5.56	1.50	3.42	1.56
	No-trade-off	5.46	1.76	3.86	1.71	5.51	1.59	3.93	1.64
	Control	5.33	1.78	4.09	1.72	5.65	1.45	3.54	1.56
Q8.Can read between the lines	Trade-off	4.28	1.66	4.56	1.58	4.35	1.58	4.11	1.54
	No-trade-off	4.16	1.71	4.61	1.49	4.54	1.64	4.28	1.62
	Control	4.35	1.72	4.68	1.61	4.68	1.56	4.02	1.43
Q9. Judge each person inconsistently	Trade-off	4.54	2.25	2.91	1.87	4.09	2.25	4.12	1.87
	No-trade-off	4.74	2.08	3.00	1.94	4.02	2.13	3.25	1.95
	Control	4.47	2.16	3.00	1.76	4.16	2.25	3.98	1.86
Q10. Prioritize in-group members	Trade-off	6.56	1.09	3.56	1.38	6.49	1.04	4.11	0.94
	No-trade-off	6.51	1.10	3.49	1.17	6.49	0.87	3.88	0.93
	Control	6.16	1.92	3.54	1.35	6.23	1.77	3.79	0.73
Q11 . Have many friends	Trade-off	3.91	1.56	5.19	1.16	3.93	1.28	4.44	1.38
	No-trade-off	3.75	1.47	5.28	1.25	4.12	1.21	4.61	1.33
	Control	3.86	1.49	5.26	1.23	4.16	1.29	4.42	1.24
Q12. NOT likely to be disliked by those around one	Trade-off	3.42	1.41	5.07	1.41	3.72	1.24	4.30	1.52
	No-trade-off	3.40	1.47	5.05	1.39	3.81	1.26	4.42	1.32
	Control	3.51	1.66	5.02	1.59	3.77	1.38	4.53	1.42

= .001, 95% CI = (.000, .021); F (2, 280) = 0.05, p = .9514, R^2_Σ = .000, 95% CI = (.000, .016), R^2_Σ = .000, 95% CI = (.000, .016). Consequently, the degree to which the participants wanted to help, want to choose as leader, and want to be friends were higher toward those who employed the universalistic strategy than toward those who employed in-group favoring strategy. In contrast, participants selected the person who employed the in-group favoring strategy than the person who employed the universalistic strategy to be in the same group in the future.

In this study, participants also answered the impressions of each target. The means of the measured variables are listed in Table 2 (Study 1). Owing to space limitations, we summarize their results here[3]. It was shown that those who employ the universalistic strategy were evaluated as likable, trustworthy, able to read between the lines, have more friends, and be liked by people around them (Q5, Q6, Q8, Q11, Q12). Similar to the result of evaluation items shown above, a person who employs the universalistic strategy was evaluated positively.

(b) Dictator game

First, a comparison was drawn between which of the two strategies was chosen by participants as dictators (Table 3, Study 1; Q1). A logistic regression analysis was conducted with the participants as a random effect. The dependent variable was the strategy (0 = in-group favoring, 1 = universalistic). The explanatory variable was the condition. The type three test for the effect of condition was not significant, F (2, 112) = 1.02, p = .3631, OR_1 = 1.377, 95% CI = (0.279, 6.788), OR_2 = 0.519, 95% CI = (0.136, 1.983)[4]. The estimated intercept of the model was b = 2.75 (t = 4.91, p < .0001). Therefore, it is deduced that the person who employed the universalistic strategy was chosen as a dictator rather than the person who employed the in-group favoring strategy, regardless of the condition.

Second, a linear mixed model analysis was conducted with participants as a random effect to investigate which strategy received more allocation as a recipient. The response variable is the amount of allocation directed toward the recipient. The explanatory variables were strategy, condition, and interaction between these variables. The main effect of strategy was significant, F (1, 280) = 61.04, p < .0001, R^2_Σ = .058, 95% CI = (.018, .116). The main effect of condition and the interaction effect of

[3] The results of statistical tests were shown in the the Supplemental Material.

[4] OR_1 indicate the odds ratio of trade-off condition, and OR_2 indicate the odds ratio of no-trade-off condition, (control condition set as a reference category)

Table 3. Results of dictator game

		Strategy							
		Study 1				Study 2			
		In-group favoring		Fair universalistic		In-group favoring		MJP universalistic	
	Condition								
Q1 Chosen as a Dictator	Trade-off	3	(5.3%)	54	(94.7%)	9	(15.8%)	48	(84.2%)
	No-trade-off	7	(12.3%)	50	(87.7%)	6	(10.5%)	51	(89.5%)
	Control	4	(7.0%)	53	(93.0%)	7	(12.3%)	50	(87.7%)
		M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Q2 Allocation to each strategy	Trade-off	354.39	231.51	442.11	136.21	345.61	201.84	400.00	174.23
	No-trade-off	338.60	224.21	464.91	106.05	340.35	204.29	424.56	171.42
	Control	343.86	229.14	473.68	120.31	382.46	190.04	452.63	137.72

condition and strategy were not significant, F (2, 280) = 0.18, p = .8371, R^2_Σ = .000, 95% CI = (.000, .018), R^2_Σ = .000, 95% CI = (.000, .016); F (2, 280) = 0.85, p = .4305, R^2_Σ = .003, 95% CI = (.000, .027), R^2_Σ = .000, 95% CI = (.000, .016), demonstrating that participants allocated toward the person who employed the universalistic strategy more.

Study 2

In Study 1, we compared the in-group favoring strategy with fair universalistic strategy. As the latter strategy gives resources equally to both an in-group and an out-group member, it could be called "the anti-discrimination strategy." Alternatively, there can be another type of universalistic strategy that maximizes joint profit without considering group boundaries. As Tajfel et al. (1971) and Bourhis et al. (1994) called it "maximum joint profit (MJP)," it is hereby called "MJP universalistic strategy." To examine whether the results of the study hold when a different type of universalistic strategy is used, in Study 2, the in-group favoring strategy is compared with the MJP universalistic strategy.

Method

(a) Participants

Fifty-seven undergraduate students (37 males, 19 females, one participant of unspecified gender, with mean age of 21.3 years) from Hokkaido University participated (Ethical approval number: 02-07).

(b) Design and procedure

The design and procedure were the same as those in Study 1, with the exception that the behavior of the universalistic strategy is different. The MJP universalistic strategy is illustrated in Figure 2.[5] The in-group favoring strategy was identical to that of Study 1. Each in-group member performed this task four times with different combinations of cards. All combinations of cards used in the experiment are shown.

[5]In fact, in the trade-off condition, the sum of the money on the cards was equal, the MJP universalistic strategy could not be fully employed. To minimize the potential problem, in the trade-off condition, the MJP universalistic strategy selected the card which benefited an in-group member twice, and the card which benefited an out-group member twice.

Results

(a) Evaluation

The means of the measured variables are listed in Table 1 (Study 2). The same analyses as in Study 1 were conducted. First, for the "help" item, the interaction effect was significant, F (2, 280) = 3.06, p = .0485, R^2_Σ = .006, 95% CI = (.000, .0340), R^2_Σ = .016, 95% CI = (.000, .055). The main effect of strategy and condition was not significant, F (1, 280) = 0.53, p = .4657, R^2_Σ = .005, 95% CI = (.000, .033); F (2, 280) = 1.16, p = .3153, R^2_Σ = .009, 95% CI = (.000, .041), R^2_Σ = .006, 95% CI = (.000, .035). The simple main effect analysis showed that the degree to which participants wanted to help was higher in the universalistic strategy than in the in-group favoring strategy only in the no-trade-off condition, F (1, 280) = 4.23, p = .0407. There was no difference in the trade-off and control condition. Second, for the "same group" item, the main effect of strategy was significant, F (1, 280) = 105.2, p < .0001, R^2_Σ = .090, 95% CI = (.039, .156), although the main effect of the condition and the interaction effect of condition and strategy were not significant, F (2, 280) = 0.38, p = .6829, R^2_Σ = .001, 95% CI = (.000, .021), R^2_Σ = .001, 95% CI = (.000, .019); F (2, 280) = 0.32, p = .7236, R^2_Σ = .001, 95% CI = (.000, .020), R^2_Σ = .000, 95% CI = (.000, .016). Third, for the "group leader" item, the main effect of strategy and the interaction effect of condition and strategy were not significant, F (2, 280) = 1.09, p = .3387, R^2_Σ = .014, 95% CI = (.000, .050), R^2_Σ = .007, 95% CI = (.000, .038); F (1, 280) = 0.00, p = .9483, R^2_Σ = .005, 95% CI = (.000, .033); F (2, 280) = 2.46, p = .0870, R^2_Σ = .014, 95% CI = (.000, .051), R^2_Σ = .002, 95% CI = (.000, .023). Finally, for the "become friends" item, the main effect of strategy and the interaction effect of condition and strategy were not significant, F (2, 280) = 1.92, p = .1489, R^2_Σ = .000, 95% CI = (.000, .016), R^2_Σ = .002, 95% CI = (.000, .022); F (1, 280) = 1.63, p = .2032, R^2_Σ = .002, 95% CI = (.000, .022); F (2, 280) = 0.25, p = .7823, R^2_Σ = .000, 95% CI = (.000, .018), R^2_Σ = .000, 95% CI = (.000, .017). In contrast to Study 1, the degree to which the participants wanted to help, want to choose as leader, want to be friends were almost the same in the two strategies. Replicating the findings of Study 1, the degree to which participants wanted to be in the same group again was higher with the in-group favoring strategy target than the universalistic strategy target.

Table 2 shows that those who employ the universalistic

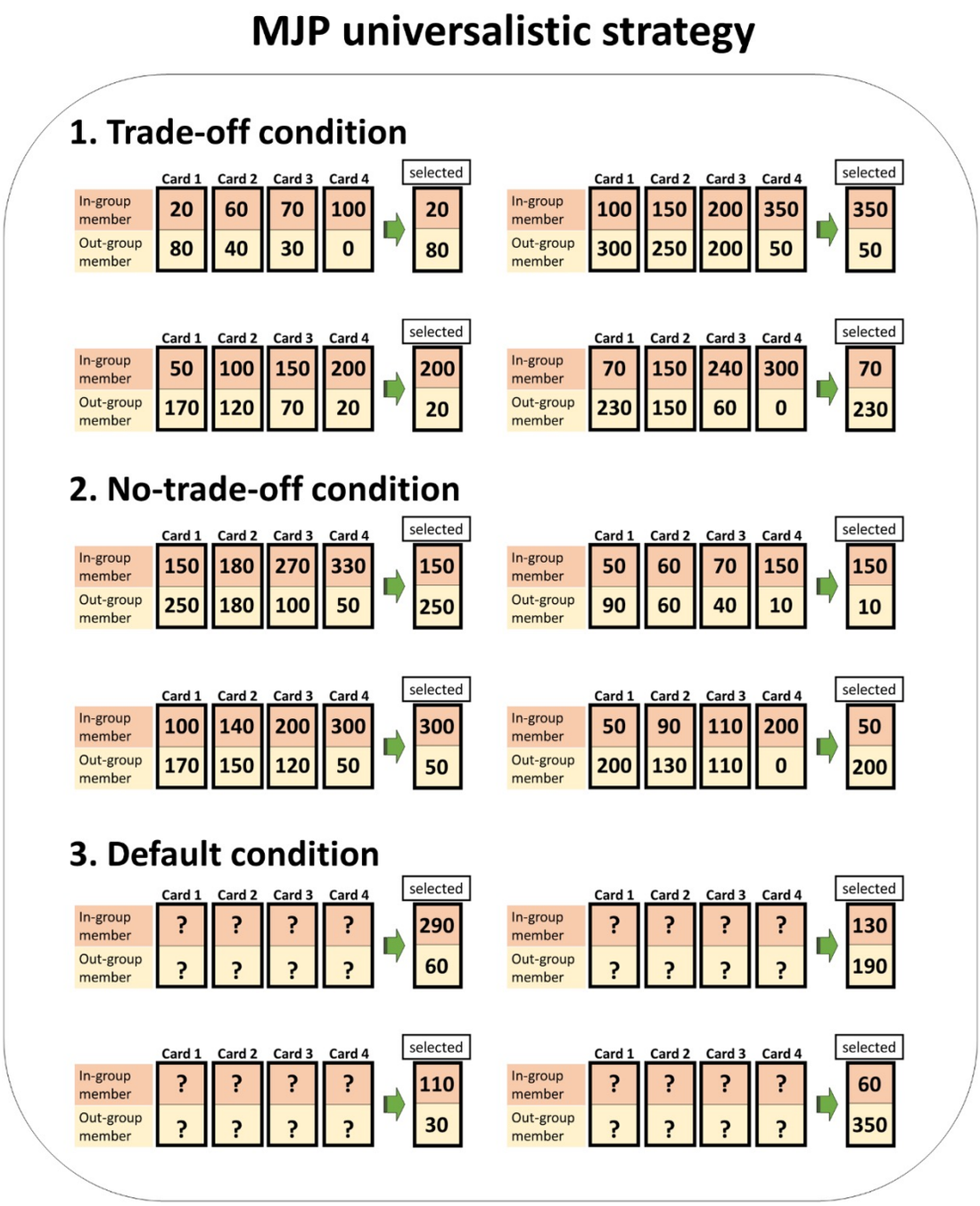

Figure 2. Choices of the person who employed MJP universalistic strategy

Note. Each in-group member performed this task four times with different combinations of cards.

strategy were evaluated as having more friends, and being liked by people around them than those who employ the in-group favoring strategy (Q11, Q12) in Study 2 as they were in Study 1, while those who employ the in-group favoring strategy were evaluated almost equally in terms of trustworthiness, being able to read between the lines, and likability in Study 2. In conclusion, although the fair-universalist was consistently evaluated positively, the MJP-universalist did not always get a good impression.

(b) Dictator game

First, a comparison was drawn between which of the two strategies were chosen by participants as dictators (Table 3, Study 2). The same analyses as in Study 1 were conducted. The type three test of the effect of condition was not significant, F (2, 112) = 0.46, p = .6345, OR_1 = 0.690, 95% CI = (0.205, 2.322), OR_2= 1.245, 95% CI = (0.335, 4.633). The estimated intercept of the model was b = 2.32 (t = 4.55, p < .0001). Therefore, it is deduced that the universalistic strategy was chosen as a dictator rather than an in-group

favoring strategy, regardless of the condition.

Second, we investigated which strategy received more allocation as a recipient. The main effect of strategy and the main effect of condition were significant, F (1, 280) = 33.2, $p < .0001$, $R^2_\Sigma = .023$, 95% CI = (.002, .067); F (2, 280) = 5.07, $p = .0069$, $R^2_\Sigma = .007$, 95% CI = (.000, .036), $R^2_\Sigma = .009$, 95% CI = (.000, .040), although the interaction effect was not significant, F (2, 280) = 0.51, $p = .6018$, $R^2_\Sigma = .001$, 95% CI = (.000, .019), $R^2_\Sigma = .000$, 95% CI = (.000, .018). This meant that the universalistic strategy was allocated more than the in-group favoring strategy in DG, regardless of the condition.

Similar to Study 1, it was deduced that the universalistic strategy could perform better in social exchanges than the in-group favoring strategy.

Discussion

The results of the two studies indicated that, in general, the universalistic strategy was evaluated more positively than the in-group favoring strategy. Especially in economic games, people who employed the universalistic strategy were likely to be chosen as social exchange partners. The opposite result was obtained when participants chose a desirable person as an in-group member in the future; the person who employed the in-group favoring strategy was more likely to be chosen than the universalistic strategy.

Although there were a few differences between the results of Study 1 and Study 2, especially among the evaluation results, people who employed the fairness - universalistic strategy were evaluated positively more consistently than those who employed the MJP–universalistic strategy. However, there is a potential problem regarding the experimental manipulation in Study 2; it might be probably difficult for participants to detect that the universalist in Study 2 is motivated by joint–profit maximization. Nevertheless, our result seems to have a certain level of contribution in that we empirically investigated whether the universalistic strategy is evaluated positively or negatively. Future research needs to accumulate findings in a way that systematically distinguishes two types of universalistic strategies, such as in the current study.

There is another noteworthy issue. In this study, the effect of the trade-off was not significant. It may be due to the weak manipulation of the trade-off. To investigate whether the trade-off has really no effect, future studies should refine the manipulation to reexamine its effect. For example, we should investigate this study's question by conducting a laboratory experiment in which participants' behaviors are interdependent.

The current study investigated the possibility that the negative reputation of the universalistic strategy might inhibit the between-group cooperation. However, we found that people who employed a universalistic strategy were not evaluated negatively; rather, they were evaluated positively. Therefore, the negative evaluation of the universalistic strategy is unlikely to be a factor that inhibits between-group cooperation. From previous studies (Yamagishi et al., 1999; Yamagishi & Kiyonari, 2000; Yamagishi & Mifune, 2008), the mechanism of BGR, which suggests that the expectation of cooperation is limited within the group, could explain the difficulty of between-group cooperation. It is important to investigate how to raise the expectation of cooperation toward out-group members to promote cooperation beyond group boundaries.

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Supplementary material

Supplementary materials are available in the Open Science Foundation through this link: https://osf.io/h6847/?view_only=f55d8a5206a5462c88f0ccd9f2b9ea39

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