Confusion of Group Interest and Self-Interest in Parochial Cooperation on Behalf of a Group

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People often sacrifice their self-interest for a group to which they belong, even when outsiders are harmed so that the sacrifice has no net benefit. Two experiments (conducted on the World Wide Web) suggest that people do this, in part, because they think that cooperation on behalf of the group is in their narrow self-interest; they show an enhanced self-interest illusion. One experiment found that the self-interest illusion is related to the enhanced tendency to cooperate on behalf of a group when the insiders' gain is the outsiders' loss. A second experiment found that the illusion (and the resulting parochial cooperation) was reduced when subjects were required to calculate all gains and losses.

In an ordinary social dilemma (Dawes 1980), each member of a group has two options. The cooperation option hurts the decision maker but helps the other members of the group. The defection option helps the decision maker but does not help the others. The total benefit of cooperation is greater than the loss to the cooperator, so it is best for all if each person cooperates.

In laboratory experiments as in real life, people often cooperate even though they must sacrifice their self-interest to do so. A large literature has explored the many reasons for such cooperation (this literature is reviewed by Baron 2000; Caporael et al. 1989; Croson 1999; Markóoczy and Goldberg 2000). These include altruism, reciprocity (the desire to cooperate when others are cooperating), and various illusions such as the voter's illusion (Quattrone and Tversky 1984). In that illusion, people behave as if they thought their behavior would influence others, even though they know only that they and others are subject to common influence.

THE SELF-INTEREST ILLUSION

At issue here is a second type of illusion that causes cooperation, the "illusion of morality as self-interest" (Baron 1997). People seem to deny the existence of the conflict between self and others, the conflict that defines a social dilemma. When presented with a scenario about a social dilemma in which it was apparent that cooperation was not in one's self-interest, many subjects said that it was, even to the point of saying that cooperators would make more money. (The result with money shows that subjects were not interpreting "self-interest" to include benefits resulting from altruism or from emotional responses of the sort proposed, for example, by Riker and Ordeshook [1968] or Margolis [1982].) Although the scenarios explicitly denied the possibility of influencing others, many subjects also showed the voter's illusion, arguing that if they cooperated, then others would cooperate as well. The two illusions reinforced each other.

The self-interest illusion can encourage cooperation, and this is a good thing when cooperation should be encouraged. At issue here is its role in cooperation that benefits one's group at the expense of outsiders. People who sacrifice on behalf of others like themselves may be more prone to the self-interest illusion because they see the benefits as going to people who are like themselves in some salient way. This perception makes it easier for them to fall into the self-interest illusion. They think, roughly, "My cooperation helps people who are *X.* I am *X.* Therefore it helps me." This kind of reasoning is easier to engage in when *X* represents a salient property of a particular group than when it represents people in general.

Of course, this sort of reasoning contains a germ of truth. If we hold constant the gross cost of cooperation to the individual and the total benefit of cooperation to the group, then the net cost of cooperation (gross cost minus the cooperator's share of the group benefit) is smaller when the group is smaller. Also, in real life, people can influence each other more when the group is smaller. The present experiments seek to exclude these effects to show that there is an illusory factor as well as several realistic ones.

PAROCHIALISM

The tendency of people to favor a group that includes them, at the expense of outsiders and even at the expense of their own self-interest, has been called *parochialism* (Schwartz-Shea and Simmons 1991), and this term is used here. A closely related research tradition concerns "in-group bias" (e.g., Brewer 1979).

An experiment by Bornstein and Ben-Yossef (1994) shows a parochialism effect. Subjects came in groups of six and were assigned at random to a red group and a green group, with three in each group. Each subject started with 5 Israeli shekels (IS; about $2). If the subject contributed this endowment, each member of the subject's group would get 3 IS (including the subject). This amounts to a net loss of 2 for the subject but a total gain of 4 for the group. However, the contribution would also cause each mem-

ber of the *other* group to *lose* 3 IS. Thus, taking both groups into account, the gains for one group matched the losses to the other, except that the contributor lost the 5 IS. The effect of this 5 IS loss was simply to move goods from the other group to the subject's group. Still, the average rate of contribution was 55%, and this was substantially higher than the rate of contribution in control conditions in which the contribution did not affect the other group (27%). Of course, the control condition was a real social dilemma in which the net benefit of the contribution was truly positive.

It seems that subjects were willing to sacrifice more for the sake of winning a competition than for the sake of increasing the amount their own group received. Similar results have been found by others (Schwartz-Shea and Simmons 1990, 1991—the Bornstein and Ben-Yossef 1994 study is emphasized here because it is the basis for the present studies). Notice that the parochialism effect is found despite the fact that an overall analysis of costs and benefits would point strongly toward the opposite result. Specifically, cooperation is truly beneficial, overall, in the one-group condition and truly harmful in the two-group condition because the contribution is lost and there is no net gain for others.

This kind of experiment might be a model for cases of real-world conflict in which people sacrifice their own self-interest to help their group at the expense of some other group. We see this in international, ethnic, and religious conflict, when people even put their lives on the line for the sake of their group and at the expense of another group. We also see it in strikes and in attempts to influence government policy in favor of one's own group at the expense of other groups. What is interesting about these cases is that we can look at the behavior from three points of view: the individual, the group, and everyone (the world). Political action in favor of one's group is beneficial for the group but (in these cases) costly to the individual and the world. Of course, the definition of "the group" itself is flexible, as illustrated in the recent history of the Balkan states, and people may also experience conflict between actions that benefit different groups to which they belong.

Parochialism underlies the concept of competing interest groups within nations, as described by Olson (1965, 1982), as well as competition among nations. In both cases, groups organize to promote their group interests against the interests of others in a game that would be zero sum except for the effort expended in competition itself. "Public choice theory" and "rational choice theory" have incorporated the idea of interest groups to explain the function of democratic governments through the idea that people pursue their rational self-interest (Brennan and Buchanan 1985; Green and Shapiro 1994). Often hidden in such explanations, however, is the assumption that people go beyond their self-interest to act on behalf of their group (as pointed out by Brennan and Lomasky 1993). If action on behalf of interest groups is as widespread as it seems to be, then we must explain why people are so willing to sacrifice on behalf of groups and apparently much less willing to sacrifice on behalf of larger, more inclusive groups. Although explanations abound, one may be that the self-interest illusion applies more to groups with which people identify. If so, then disillusioning people about the self-interest illusion could reduce their desire to favor such groups without substantially reducing their desire to cooperate for the good of all.

Parochialism also underlies some social-psychological theories of group conflict, such as realistic conflict theory of group conflict (which grew out of the work of Sherif et al. 1961; see Sabini 1992). According to this theory, people's own interests are mobilized when their group is in competition with another group for scarce resources. Thus, according to the theory, competitive behavior is rationally self-interested, even when it inflicts harm on the opposition. This argument assumes, however, that self-sacrifice on behalf of one's own group is in one's own self-interest. If this is an illusion, then such behavior is not, in fact, rationally self-interested.

EXPERIMENT 1

Experiment 1 follows the design of Bornstein and Ben-Yossef (1994) in comparing cooperation within a single group with cooperation within a group when that group's gain is another group's loss (the two-group condition). The main addition is that subjects answer questions about their self-interest to test the hypothesis that the self-interest illusion is greater in the two-group condition.

The experiment was done on the World Wide Web. Subjects were assigned to groups according to the time when they began the study, one group at a time. Because each subject had essentially no idea who the other subjects were or even what country they lived in, the usual group identification that results from (for example) being students at the same university was absent.

The payoffs corresponded to small amounts of real money. Each subject participated in several games, and one game was picked at random for payment. The pay in question was added to the minimum payment and sent to the subject along with payment for other studies completed within the same month. Discussion of World Wide Web research in general is found in Birnbaum (2000). Most studies to date have found that Web research is at least as reliable as other sorts of research using convenience samples, such as college students.

METHOD

Eighty-four subjects completed a questionnaire on the World Wide Web. Ages ranged from 15 to 67 (median = 27), 71% were female, and 37% were students. They discovered the questionnaire through a variety of links from sites listing questionnaires. Many had done previous studies at the same site (http://www.psych.upenn.edu/~baron/qs.html). They had to provide their name, e-mail address, mail address, and (if in the United States) their Social Security number to be paid.

The questionnaire, called "Choices," began as follows:

> In this experiment, you will be playing in a series of games. The games are designed to simulate negotiations among nations or companies concerning trade or resources. Nations sometimes organize themselves into small groups. But to make this more involving, we're going to use real money.

In each game, you will be randomly assigned to a group of 3 members. The other 2 members of your group are other subjects who, like, are doing this experiment on the Web. Groups are formed in the order in which responses come in, so the members of your group will be doing this around the same time.

We will begin each game by giving you an endowment of $1.50, $2, or $2.50. Others will also receive the same sum. Each of you will have the choice of contributing your whole endowment to the group or retaining it for yourself. You will not be able to communicate with the other group members. You and your group will never meet or find out who made what choice.

After you make each decision to contribute or not contribute, you will be asked a series of questions about your decision. Please consider the specific scenario in answering these questions.

You will play 18 games. We will pick one game at random and add $1 to the amount of your payoff as pay for this experiment. You cannot make less than $1, and you can make as much as $7.50, although that much is very unlikely.

Each condition was presented three times with different levels of the endowment, which was what the subject could contribute: $1.50, $2.00, or $2.50. The 18 different cases were randomized individually for each subject.

The first three of the six conditions involved one group and differed in the payoff for group members, which was $0, $1, or $2, respectively, plus the number of contributors (hence ranging from $0 to $5). The payoff was varied so that, together, conditions 2 and 3 would roughly match the two-group conditions.

The description read as follows:

This game has one group. Each member of your group will receive a bonus based on the number of group members who contribute to the group.
   The endowment is $1.50 [or $2.00 or $2.50].
   If 0 members contribute, you each receive $0 [or $1 or $2].
   If 1 member contributes, you each receive $1 [or $2 or $3].
   If 2 members contribute, you each receive $2 [or $3 or $4].
   If all 3 members contribute, you each receive $3 [or $4 or $5].

The fourth condition involved two groups, with a verbal description of the possible outcomes:

This game has two groups. Each group has three subjects. Each member of your group will receive a bonus based on the number of your group members who contribute and on the number of the other group members who contribute.
   The endowment is $1.50 [or $2.00 or $2.50].
   The bonuses will be distributed as follows:
   If all members of one group contribute and no members of the other group contribute, the members of the contributing group receive a bonus of $6, while the members of the noncontributing group receive no bonus.
   If there are two more contributors in one group than the other, the members of the greater contributing group receives a bonus of $5, while the members of the lesser contributing group receive a bonus of $1.
   If there is one more contributor in one group than the other, the members of the greater contributing group receive a bonus of $4, while the members of the lesser contributing group receive a bonus of $2.

Finally, in the case of a tie, each member of both groups receives a bonus of $3.

The fifth condition was identical to the fourth except for its presentation, which used a table. The purpose of this condition was to attempt to match condition 6, which was difficult to describe verbally. The instructions read as follows:

This game has two groups. Each group has three subjects. Each member of your group will receive a bonus based on the number of your group members who contribute and on the number of the other group members who contribute.
The endowment is $1.50 [or $2.00 or $2.50].
The bonuses will be distributed as follows:

Contributors in Your Group	Contributors in Other Group	Bonus for Each in Your Group ($)	Bonus for Each in Other Group ($)
3	0	6	0
2	0	5	1
1	0	4	2
0	0	3	3
3	1	5	1
2	1	4	2
1	1	3	3
0	1	2	4
3	2	4	2
2	2	3	3
1	2	2	4
0	2	1	5
3	3	3	3
2	3	2	4
1	3	1	5
0	3	0	6

Condition 6 was identical to condition 5 except that the bonus for the other group depended only on the number of contributors in that group, so the rightmost had $0 for the first three rows, $1 for the next three, and so on. This was a control condition for the mere presence of the second group. The outcomes for the subject's group were identical to those in condition 1.

All items ended with the following statement and questions:

In addition to the bonus, you keep your endowment if you do not contribute it.
Test item (to make sure you understand):
If you contribute, how many dollars do you contribute? _____
Do you contribute your endowment now? (y = yes, n = no) _____
Is it your personal self-interest to contribute your endowment? (y = yes, n = no, d = don't know or not sure) _____
Explain if you wish: _____

Do you expect more money if you contribute your endowment than if you do not? (y = yes, n = no, d = don't know or not sure) _____

Explain if you wish: _____

In summary, the groups were as follows (with endowments of $1.50, $2,00, and $2.50 in each of the six conditions):

1. One group of three; payoff $0 plus number of contributors.
2. One group of three; payoff $1 plus number of contributors.
3. One group of three; payoff $2 plus number of contributors.
4. Two groups of three; payoff $3 plus the number of contributors in the player's group minus the number of contributors in the other group; for both groups, verbal presentation.
5. Same, but tabular presentation.
6. Same, but the other group's payoff was unaffected by the number of cooperators in the player's group.

Comparison of groups 4 and 5 tests the effect of tabular presentation. Comparison of groups 1 and 6 tests the effect of the mere presence of the second group (assuming that tabular presentation has no effect). The main test of a parochialism effect (one vs. two groups when the gain for the in-group is the loss for the out-group) is between groups 2 and 3 together and groups 4 and 5 together. We can look at the effect of each comparison on three questions: whether the subject contributes, whether contribution is in the subject's self-interest (self-interest beliefs), and whether the subject makes more money from contributing (more-money beliefs).

RESULTS

Table 1 shows the mean responses for each question to each of the six conditions. Tabular presentation (condition 5 vs. 4) had no significant effect (by matched t tests) on any variable (or on self-interest and more-money beliefs combined), so the two-group conditions could be combined. Also, the mere presence of the other group (conditions 6 vs. 1) had no significant effect on contributions or more-money beliefs, although it did affect self-interest ($t_{83} = 2.13$; $p = .0182$, one-tailed; and the effect on more-money beliefs had $t = 1.41$).

The main comparison is between one group (the mean of conditions 2 and 3) and two groups (the mean of conditions 4 and 5) when the in-group's gain is the out-group's loss. As found by Bornstein and Ben-Yossef (1994), in-group contributing increased when the out-group was harmed by it ($t_{83} = 2.81$; $p = .0031$, one-tailed). Let us call this effect of two groups versus one group the parochialism effect. Notice that this effect requires going against a strong difference between the conditions in overall payoff for both groups combined: in the one-group condition, the benefit of cooperation is positive, and in the two-group condition, it is negative (taking into account the cost of cooperation).

Self-interest and more-money beliefs were also higher for the two-group conditions, although the more-money effect was not quite significant ($t_{83} = 1.98$, $p = .0253$,

TABLE 1
Mean Responses to Each Question for Each Condition: Experiment 1

	Condition					
	One Group			*Two Groups*		
Question	*1*	*2*	*3*	*4*	*5*	*6*
Contribute	.60	.71	.76	.82	.80	.63
Self-interest	.10	.34	.50	.55	.50	.23
More money	.12	.37	.51	.53	.51	.19

NOTE: For contribution, numbers are proportions. Other responses are coded as 1 = yes, 0 = not sure, and −1 = no.

and $t_{83} = 1.63$, $p = .0536$, one-tailed, respectively). Thus, subjects show a greater self-interest illusion in the two-group conditions than in the one-group condition. They showed a parochialism effect for self-interest and more-money beliefs as well as for contributing.

Perhaps more to the point, the parochialism effect for contributing was highly correlated across subjects with the parochialism effects for self-interest and more-money beliefs ($r = .75$ for each correlation, $p = .0000$). (And, as might be expected, the parochialism effect for self-interest and more-money beliefs is highly significant when the analysis is limited to the 31 subjects who showed a positive parochialism effect for contribution: $t_{30} > 3.7$, $p < .001$, for both.) In other words, those subjects who showed a greater parochialism effect for contributing showed a greater self-interest illusion when the gain for their group was a loss for the other group. (The effect of group presence [conditions 6 vs. 1] on more-money or self-interest beliefs did not correlate across subjects with any measure of the parochialism effect.)

EXPERIMENT 2

However subjects understood the self-interest belief question, their response to the more-money belief question was, on its face, an error in arithmetic. What happens when we try to correct this error by forcing subjects to do the arithmetic? In particular, would disillusioning subjects about the self-interest illusion make them less parochial? Experiment 2 explored this question, using a hypothetical scenario (with much larger amounts of money). The use of a hypothetical scenario is a step closer to real life. It lets us ask whether similar effects are present in a different kind of experiment. The scenario involved four group members making investments. The out-group also had four members.

METHOD

Sixty-seven subjects completed a questionnaire on the World Wide Web, as in experiment 1. Ages ranged from 15 to 58 (median 28), 47% were female, and 36% were students.

The questionnaire, called "Investments," began as follows:

Imagine that you are a member of a group of 4 business partners. You and each of the other members of your group must decide whether to contribute money to a common pool for a project that will yield benefits to everyone in your group, including you. This means that you get some of your contribution back, but never all of it. The rules are the same for everyone. The benefits depend on the number of contributors. Contributions and benefits are described in millions of dollars. (Remember, this is hypothetical!)

In half of the cases, there are two groups, each with 4 partners. The two groups are competing for the benefits. The group with more contributors gets more of the benefits. The members of the two groups are similar, and it is just chance that the groups formed the way they did.

You will make 24 choices. Before each choice, you will answer one or more test questions. After you indicate whether you think you would contribute or not, you will be asked a series of questions about your decision. Please consider the specific scenario in answering these questions.

Some of the last 16 will be repetitions of some in the first 8. Some of the last 16 will have difficult test questions, which you must answer correctly.

Thus, there were three groups of eight items, with each group containing four one-group and four two-group items. The first group was a pretest group. The two others were interspersed—one "trained" (i.e., with test questions that required calculation) and the other "untrained." The items were presented in random order for the first 8 and the last 16, but the training was on odd items for items 9 to 16 (by order) and on even items for items 17 to 24. Within each group of four, the required contribution (endowment) was $1 million, $3 million, $5 million, or $7 million.

The one-group items (with training) read as follows:

This affects your own group only.

Each member of your group of four, including you, will receive a benefit based on the number of your group members who contribute.

The contribution is $1 [or $3, $5, or $7] million (m).

The benefits will be distributed as follows:

Contributors in Your Group	Benefit for Each Member in Your Group
4	$12 million
3	$10 million
2	$8 million
1	$6 million
0	$4 million

Tests:

1. If you contribute, how much is your contribution? $_____ million

2. What is the net effect of your contribution on your group, taking into account your contribution and the benefits to you and others? $_____ million

Would you contribute if you were in this situation? (1 = no, 2 = probably no, 3 = probably yes, 4 = yes) _____

Should you contribute (morally)? (1 = no, 2 = probably no, 3 = probably yes, 4 = yes) _____

Is it in your self-interest to contribute? (1 = no, 2 = probably no, 3 = probably yes, 4 = yes) _____

Do you get more money if you contribute than if you do not? (1 = no, 2 = probably no, 3 = probably yes, 4 = yes) _____

The second test question was omitted for the pretest and untrained conditions. The following shows the two-group condition. For the pretest and untrained conditions, the second and third test questions were omitted.

This affects both groups (4 in each group).
The contribution is $1 [or $3, $5, or $7] million (m).
The benefits will be distributed as follows to each member of your group/other group:

Contributors in Your Group	Contributors in Other Group (in millions of dollars)				
	0	*1*	*2*	*3*	*4*
4	16/0	14/2	12/4	10/6	8/8
3	14/2	12/4	10/6	8/8	6/10
2	12/4	10/6	8/8	6/10	4/12
1	10/6	8/8	6/10	4/12	2/14
0	8/8	6/10	4/12	2/14	0/16

Test:

1. If you contribute, how much is your contribution? $_____ million

2. What is the net effect of your contribution on your group, taking into account your contribution and the benefits to you and others? $_____ million

3. What is the net effect of your contribution on both groups, taking into account your contribution and all the gains and other losses in both groups, including yours? $_____ million

Would you contribute if you were in this situation? (1 = no, 2 = probably no, 3 = probably yes, 4 = yes) _____

Should you contribute (morally)? (1 = no, 2 = probably no, 3 = probably yes, 4 = yes) _____

Is it your self-interest to contribute? (1 = no, 2 = probably no, 3 = probably yes, 4 = yes) _____

Do you get more money if you contribute than if you do not? (1 = no, 2 = probably no, 3 = probably yes, 4 = yes) _____

Notice that the middle column for the two-group condition matched the one-group condition in overall payoff.

TABLE 2
Mean Responses in Experiment 2 (from 1 = no to 4 = yes)

	One Group			Two Groups		
	Pretest	*Trained*	*Untrained*	*Pretest*	*Trained*	*Untrained*
Would contribute	3.28	3.09	3.08	2.93	2.73	2.89
Should contribute	3.39	3.22	3.21	2.91	2.72	2.91
Self-interest	3.17	2.93	2.94	2.96	2.73	2.93
More money	3.14	2.94	2.94	2.91	2.70	2.87

For all items, each item was presented on a separate screen, so that the subject could see only one item at a time. The test questions had to be answered correctly before the subject could continue. If they were answered incorrectly, all responses to the item were erased.

RESULTS

Table 2 shows the mean ratings on the 4-point scale (from 1 = no to 4 = yes) for each of the questions in each condition. In the pretest, the overall parochialism effect was absent (and in fact reversed) for all four measures. (That is, the two-group responses were lower than the one-group responses.) This could be because the table called attention to the losses for the out-group. However, as in experiment 1, there were wide individual differences. All correlations among the parochialism effects for the four pretest questions were high and significant (minimum $r = .45$, $p = .0001$, between should-contribute and more-money beliefs). The 15 subjects who showed a parochialism effect for would-contribute beliefs also showed a parochialism effect for self-interest ($t_{14} = 4.17$; $p = .0005$, one-tailed) and for more-money ($t_{14} = 2.40$; $p = .0155$) beliefs. In sum, as in experiment 1, some subjects do contribute more to their own group when its gain is the out-group's loss, and these subjects show a self-interest illusion.

The main questions concern comparison of the trained and untrained conditions. In general, training reduced the self-interest illusion in the two-group condition, and training reduced the size of the parochialism effect. The effect of training was specific to the two-group condition. In the one-group condition, training had no effect on any of the four questions (would-contribute, should-contribute, self-interest, and more-money beliefs; t values ranged from –0.37 to 0.29). In the two-group condition, responses to all four questions were lower in the trained condition than the untrained condition (minimum $t_{66} = 2.79$; $p = .0035$, one-tailed). The parochialism effect—the difference between two-group and one-group conditions—was also reduced by training (lower in trained than untrained), again for all four questions (minimum $t_{66} = 2.22$; $p = .0150$, one-tailed).

Notice that the training in the two-group condition differed from that in the one-group condition because it asked about the net effect on both groups. The training in the one-group condition asked for the net effect on the subject's group. Given the high level of cooperative responses, it seems that the subjects already understood the relation between their own contribution and the benefit for their group, so the one-group training manipulation had little effect.

The training effect might have transferred to the untrained cases in the last part of the experiment. The untrained conditions also differed from the pretest condition, and this may be the result of transfer from the trained condition. It may, however, also result from repetition alone. If it is the result of transfer, then the training effect is underestimated by comparison of the trained and untrained conditions. Still, the training effect is small in absolute terms, and more extensive training (such as that used by Larrick, Morgan, and Nisbett 1990) might yield larger effects.

DISCUSSION

The parochialism effect, as defined here, is a greater willingness to sacrifice on behalf of an in-group when that group's gain comes at the out-group's expense. Experiment 1 showed that this effect is correlated with the illusion of self-interest. When people sacrifice for others, they are more likely to see themselves as benefiting when their group is pitted against another even though, in fact, they do not benefit because they make a sacrifice for others. Experiment 2 showed that the parochialism effect and the illusion of self-interest are reduced in the two-group case when people are asked to calculate the overall outcome.

The results suggest that one determinant of the parochialism effect is that the self-interest illusion is greater when an in-group is in competition with an out-group. The contrast between the two groups increases the perceived similarity between the decision maker and the other group members, thus increasing the tendency to think that "anything that helps the group helps me, because I am like them." The experiments here did not test this explanation directly. Another possible explanation—not inconsistent with the similarity explanation—is that the two-group cases evoke a schema or heuristic for competition. Such a heuristic or schema could be learned as the result of experience with group competition, and it could be favored by species-specific predispositions that evolved over time.

Subjects differ in both parochialism and the self-interest illusion, and these differences are correlated. One possible source of these differences is the set of attitudes discussed by Probst, Carnevale, and Triandis (1999), who found that the parochialism effect of Bornstein and Ben-Yossef (1994) was largely restricted to "vertical individualists," those who said they valued both the pursuit of self-interest and competition against others. It is an apparent paradox that such people, who claim to be self-interested, are especially willing to sacrifice their self-interest on behalf of their group. The present results suggest that they may not perceive what they are doing as self-sacrifice.

Whatever the explanation of the effects reported here, experiment 2 suggests that they are somewhat labile. As suggested by Singer (1982), it may be possible, through

reason, to understand the arbitrariness or group boundaries. The more that people think of boundaries as arbitrary, the more they can direct their nonselfish concern at the greater good rather than the parochial interests of their group.

We might think of actions as potentially affecting the self, the group, and the world. The "group" (and perhaps the "world") may be defined differently in different situations. Possible examples include small families, clans, tribes, units within an organization, organizations, political interest groups, towns, nations, and international alliances or blocs. People may see themselves as parts of different groups for different purposes.

In the situations of interest here, some action helps the group (whatever it is) but hurts both the self and the world. Other actions might hurt the self and help the world, and still others might help the self only. One question for future research is what sorts of interventions might reduce parochialism without seriously harming altruistic behavior toward the world. Would it be possible or otherwise desirable for voters to think of themselves as citizens of the world, rather than thinking of themselves as acting for their interest group or the nation? In principle, such an attitude could reduce international conflict. If it were widespread, it could benefit everyone.

REFERENCES

Baron, J. 1997. The illusion of morality as self-interest: A reason to cooperate in social dilemmas. *Psychological Science* 8:330-35.

———. 2000. *Thinking and deciding*. 3d ed. New York: Cambridge University Press.

Birnbaum, M. H., ed. 2000. *Psychological experiments on the Internet*. New York: Academic Press.

Bornstein, G., and M. Ben-Yossef. 1994. Cooperation in intergroup and single-group social dilemmas. *Journal of Experimental Social Psychology* 30:52-67.

Brennan, G., and J. M. Buchanan. 1985. *The reason of rules: Constitutional political economy.* Cambridge, UK: Cambridge University Press.

Brennan, G., and L. Lomasky. 1993. *Democracy and decision: The pure theory of electoral politics*. Cambridge, UK: Cambridge University Press.

Brewer, M. B. 1979. In-group bias in the minimal intergroup situation: A cognitive-motivational analysis. *Psychological Bulletin* 86:307-24.

Caporael, L. R., R. M. Dawes, J. M. Orbell, and A.J.C. van de Kragt. 1989. Selfishness examined: Cooperation in the absence of egoistic incentives. *Behavioral and Brain Sciences* 12:683-739.

Croson, R.T.A. 1999. Theories of altruism and reciprocity: Evidence from linear public goods games. Unpublished manuscript, University of Pennsylvania.

Dawes, R. M. 1980. Social dilemmas. *Annual Review of Psychology* 31:169-93.

Green, D. P., and I. Shapiro. 1994. *Pathologies of rational choice theory: A critique of applications in political science*. New Haven, CT: Yale University Press.

Larrick, R. P., J. N. Morgan, and R. E. Nisbett. 1990. Teaching the use of cost-benefit reasoning in everyday life. *Psychological Science* 1:362-70.

Margolis, H. 1982. *Selfishness, altruism, and rationality: A theory of social choice*. New York: Cambridge University Press.

Markóczy, L., and J. Goldberg. 2000. Cooperative and non-cooperative motives and their consequences. Unpublished manuscript, University of California, Riverside.

Olson, M. 1965. *The logic of collective action: Public goods and the theory of groups*. Cambridge, MA: Harvard University Press.

———. 1982. *The rise and decline of nations: Economic growth, stagflation, and social rigidities*. New Haven, CT: Yale University Press.

Probst, T. M., P. J. Carnevale, and H. C. Triandis. 1999. Cultural values in intergroup and single-group social dilemmas. *Organizational Behavior and Human Decision Processes* 77:171-91.

Quattrone, G. A., and A. Tversky. 1984. Causal versus diagnostic contingencies: On self-deception and the voter's illusion. *Journal of Personality and Social Psychology* 46:237-48.

Riker, W. H., and P. C. Ordeshook. 1968. A theory of the calculus of voting. *American Political Science Review* 62:25-42.

Sabini, J. 1992. *Social psychology*. New York: Norton.

Schwartz-Shea, P., and R. T. Simmons. 1990. The layered prisoners' dilemma: Ingroup vs. macro-efficiency. *Public Choice* 65:61-83.

———. 1991. Egoism, parochialism, and universalism. *Rationality and Society* 3:106-32.

Sherif, M., O. J. Harvey, B. J. White, W. R. Hood, and C. W. Sherif. 1961. *Intergroup conflict and cooperation: The Robbers Cave experiment*. Norman, OK: University Book Exchange.

Singer, P. 1982. *The expanding circle: Ethics and sociobiology*. New York: Farrar, Strauss & Giroux.