

# Cooperation, Communication and Communitarianism: An Experimental Approach\*

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## I. COOPERATION IN ECONOMICS

The Prisoner's Dilemma, which for economists represents the quintessential problem of cooperation, suggests that at least in one-shot games individuals ought not cooperate but rather play the non-cooperative 'defect' strategy. In many cases, this prediction is borne out by empirical observations. Still, not everyone acts as a free-rider under all circumstances. People pay for tickets and entry fees, even if the risk of detection is extremely low; they donate to good causes, even if they remain anonymous; and they participate in group activities, demonstrations and protests, even if there is no relative incentive of a private sort for them to do so.

Cooperative behaviour of this kind can be incorporated into an economic paradigm based on individual rationality in either of two ways. First, a person's *utility function* could be augmented by various arguments not normally included in microeconomic analyses.<sup>1</sup> Second, the analysis might be expanded to include *constraints* on individual behaviour beyond those usually considered in economics. Both generalizations are likely to improve the explanatory power of the economic model, but the second approach has the advantage of attributing cooperative behaviour to agents' reactions to factors which are externally observable and *ex ante* predictable.<sup>2</sup> For that reason we choose the second route.

\*We thank Isabelle Busenhardt, Reiner Eichenberger and Felix Oberholzer for their help in conducting the experiments and gratefully acknowledge the financial support of the Stiftung für wissenschaftliche Forschung an der Universität Zürich and the Swiss National Fund (grant no. 12-42480.94).

We devote this article to the memory of Werner W. Pommerehne, who unexpectedly died of a heart attack on October 9, 1994. We lost a close collaborator and, above all, a wonderful friend.

<sup>1</sup>On altruism, see Becker 1974; Margolis 1982; Frohlich and Oppenheimer 1984; Mansbridge 1990. On group identity, see Orbell, Dawes and van de Kragt 1988. On social approval, see Lindenberg 1990, Holländer 1990.

<sup>2</sup>See Stigler and Becker 1977. This research strategy does not imply that internal factors are negligible and that we may explain everything with external factors (see Cosmides and Tooby 1994). In another context, one of the authors is concerned explicitly with the relationship between intrinsic and extrinsic motivation (Frey 1992a). We believe, however, that relying on external factors allows better predictions than concentrating exclusively on internal motivations. Different types of individuals (individualists, cooperators, altruists etc.) may well be observed in the laboratory but they are difficult to distinguish in real life. For an excellent discussion of this problem, see Frank 1988.

Changes in behaviour are there taken to be caused by a change in the relative prices associated with external parameters.

Among relevant constraints on individuals' possibility space, modern institutional economics includes *rules*.<sup>3</sup> Therefore, it can build on one of the central elements of the *liberal* (or *contractarian*) approach.<sup>4</sup> Liberal notions of constraints imposed by rules apparently stand in contrast to communitarian claims concerning the social embeddedness of individuals' choice within a *community*.<sup>5</sup> In the language of economists, however, both are cast as constraints, the identification of individuals with their community (in extremis, the 'constitution of the self by the community'<sup>6</sup>) being interpreted merely as socially-defined communal norms constraining individual behaviour. In that way, the communitarian critique of the atomistic liberal notion of a person is taken seriously, and the social embeddedness emphasized by sociologists can be accommodated within the economic paradigm.<sup>7</sup> If this course is followed, the main difference between communitarian and liberal theory lies in the extent to which social norms determine human behaviour: communitarians see people's behaviour as being almost programmed by shared norms and values, and the individual as being tied to the collective; in liberal thought, in contrast, the individual possibility space is indeed delimited by rules, but within those constraints the individuals are free to evaluate the available alternatives as they please.

Within an individualistic approach, it is important to know how far jointly-defined norms can serve as independent motives of action; under which conditions such norms are activated; and how norms emerge and change.<sup>8</sup> That is to say, norms and rules must themselves be rendered endogenous: an analysis of individual behaviour *within* a set of rules does in this case not suffice; it is necessary instead to study the choice and the emergence of rules. What matters is not so much the result, or the specific character of an implicit or explicit norm relevant in a particular situation, but the *process* of norm-generation and decision-making. This process plays a crucial role in yet another type of approach, namely, *discourse theory*. Accordingly, Section II discusses not only the liberal and communitarian perspectives but also the discourse theoretic view.

The three theoretical approaches are based on quite different foundations, from which particular mechanisms are derived which induce individuals to act cooperatively. These mechanisms are subjected to experimental examination in Section III. Two types of experiments are considered. Prisoner's Dilemma Games examine whether individuals cooperate to provide a public good or seek their own

<sup>3</sup>For example, North 1991; Frey 1992b.

<sup>4</sup>See the fundamental work by Rawls (1971) and Buchanan (1977).

<sup>5</sup>For example, Walzer 1987.

<sup>6</sup>Sandel 1982. Taylor 1985.

<sup>7</sup>For example, Ganovetter 1985.

<sup>8</sup>For example, Elster (1989) and Binmore and Samuelson (1994).

short-term advantage.<sup>9</sup> Fairness Games (in particular Dictator and Ultimatum Games) inquire to what extent individuals, confronted with the problem of allocating a pie, are prepared to cooperate with individuals who are in a less advantageous position.<sup>10</sup>

Those two experimental schools—public good experiments and bargaining (fairness) experiments—are ordinarily kept quite separate. Combining them, we are able to show that institutional conditions do indeed have different effects in different decision situations. ‘Discourse’ significantly increases cooperation in Prisoner’s Dilemma situations, as has been well established in the literature. In Dictator Games, in contrast, mere identification (of the sort associated with communitarian thinking) explains all the change in individual behaviour, and no additional effect can be observed there when introducing mere talk.

To our knowledge, no systematic comparison of these two structurally-comparable but differently-framed decisions has been experimentally undertaken to date.<sup>11</sup> In an important respect, Fairness Games and the Prisoner’s Dilemma Game arguably have a similar structure: individuals have to decide whether they want to be individual money-maximizers (defect in a Prisoner’s Dilemma; keep all the money in Dictator or the smallest possible amount in Ultimatum Games), or whether they prefer also to take somebody else’s well-being into account (cooperate in the Prisoner’s Dilemma; share the money with others in Dictator or Ultimatum Games).<sup>12</sup> People, on the other hand, seem to interpret the two decision situations differently. From a game-theoretic point of view, people should have a dominant strategy in all games independently of what others do. In practice, however, independence seems to be perceived only in the Dictator Game, while contributing to a public good seems to be seen as an interdependent decision.

Section IV further elaborates this difference and attempts to explain why the three mechanisms lead to different outcomes in the two experimental settings. In order to derive normative conclusions, we need to show under which conditions which mechanisms systematically and significantly influence human behaviour. We will argue that a combined application of liberal, discourse theoretic and communitarian elements is most useful for both positive and normative analysis.

## II. THREE WAYS TO COOPERATIVE SOLUTIONS

In liberal political economy, the emergence of rules enabling cooperation between rational egoists is possible only behind the ‘veil of ignorance’. Only when people are uncertain about their own interests and future developments are they capable

<sup>9</sup>For a survey on public goods experiments, see Ledyard (1995).

<sup>10</sup>For a survey on bargaining (fairness) experiments, see Roth (1995).

<sup>11</sup>Furthermore, no study has systematically tested a pure identification effect so far. In the most recent survey on bargaining experiments, Roth (1995, p. 47) stresses this logically missing link between total anonymity (anonymous silence) and identified talk.

<sup>12</sup>See Andreoni and Miller 1994.

of concluding a fair social contract based on people's 'moral endowment'. Two central endowments are here to be distinguished: the 'sense of fairness' is the human capacity to find and apply a concept of justice which can be understood and accepted by all; the concept of 'the good' refers to people's faculty of knowing their own advantage and of rationally pursuing it. Choices behind the 'veil of ignorance' evoking these two moral endowments constitute the liberal social contract, the basic social consensus. There, individuals will formulate rules inducing them to adhere to the social contract even in post-constitutional situations in which they will know and pursue their own specific interests.<sup>13</sup>

This ideal of an arena where personal interests are absent is mirrored in discourse theory's notion of an 'authority-free discussion'.<sup>14</sup> This envisages a cognitively adequate and power-free discourse, led without bias and persuasiveness, and in which all relevant individuals participate. Such authority-free discussion, it is said, would transform strategically and egoistically-oriented rationality into a communicative rationality which, taking as it does the interests of all into account, would lead to unanimous social decisions.

While liberalism and discourse theory conceive of cooperative decisions only within the framework of ideal hypothetical constructs, communitarianism sees cooperation firmly rooted in an actually existing community. In the process of stipulating norms defining the 'community', however, communitarianism draws nearer to the liberal concept of freedom, insofar as the shared integrity of all finds its limits in the integrity of each individual. And it draws nearer discourse theoretic understandings of society, insofar as its sense of legitimacy rests on discursive self-determination through a collective democratic decision.<sup>15</sup>

In summary, a behavioural interpretation of the three philosophical approaches suggests that cooperation becomes possible if:

- individuals decide behind a veil of ignorance;
- individuals engage in a discourse;
- individuals are embedded in a community.

In the following sections, experimental evidence is brought to bear upon these predictions and, through them, upon the deeper theoretical foundations of liberalism, discourse theory and communitarianism.

While the *liberal veil of ignorance* does not seem strictly amenable to experimental testing,<sup>16</sup> rules which create egoistic incentives for cooperation can readily be found, both in reality and in laboratory settings. In economics, the obvious rules for that purpose are monetary sanctions. The effects of such

<sup>13</sup>Rawls 1971; 1992; Buchanan 1977; 1991.

<sup>14</sup>Habermas 1983; 1992.

<sup>15</sup>See Walzer 1987.

<sup>16</sup>For an interesting approach, see Frohlich and Oppenheimer (1992) and Jackson and Hill (1995).

sanctions are explored in our experiments dealing with distributional conflicts. The importance of *communication* for cooperation is analyzed by assessing its contribution toward overcoming Prisoner's Dilemmas and to solving distributional conflicts. Communitarian-style *social embeddedness* affects individual behaviour either by internalized norms or by socially sanctioned norms. In the case of *internalized norms*, different frameworks of social interaction should have no effect on individual behaviour; in particular, individuals should be norm-abiding, even when they remain anonymous in deciding for or against cooperation. In the case of *socially-sanctioned norms*, on the other hand, anonymous individuals would be expected to act differently from non-anonymous ones, who can be identified and hence sanctioned by other members of the society in which they live. The influence of social embeddedness on individual behaviour is therefore analyzed for both anonymous and non-anonymous situations.

### III. 'RULES', 'DISCOURSE' AND 'COMMUNITY' IN EXPERIMENTS<sup>17</sup>

#### A. RULES

If rules agreed upon behind a veil of ignorance are to be binding in the post-constitutional phase, they must set incentives for egoistic individuals to act in the way that is collectively desired. The *Ultimatum Game* contains such a rule enabling 'unfair' behaviour to be monetarily sanctioned.<sup>18</sup> One person (the allocator) is given the right to divide a given sum between herself and a second person (the recipient); the recipient has the power to reject the proposed allocation, however, if it is deemed unacceptable; and if the proposed allocation is rejected in that way, the allocator is also punished, because neither of the two then receives anything. In our experiments—undertaken with 340 economics students at the University of Zurich in the winter semester 1993/94—each allocator received a sum of thirteen Swiss francs (CHF 13.00: approximately ten US dollars), which they could either keep for themselves or share in any way desired with a second, anonymous person. In a one-shot experiment, it turned out that 56 subjects passed on an average of 53 per cent of the CHF 13.00.

Compare this result with the situation in which the recipient *cannot* sanction the allocator. There, the allocator can unilaterally and independently decide how

<sup>17</sup> Experimental protocols are available from the authors upon request.

<sup>18</sup>The Ultimatum Game was first introduced by Güth, Schmittberger and Schwarze (1982) and further developed by Güth and Tietz (1990), who also provide a survey of the relevant literature.

much (if anything at all) she wants to pass on to the recipient; and the recipient has no possibility of retaliating when feeling unfairly treated. The *Dictator Game* explores to what extent individuals follow a fairness norm when the recipients are powerless.<sup>19</sup> Our experiments revealed that, in an anonymous Dictator Game (with  $N=78$ ), only 26 per cent of the CHF 13.00 was allocated to the recipients.<sup>20</sup> The difference between this behaviour and that in the Ultimatum game, where the recipient had countermeasures to deploy, is statistically significant ( $p<0.001$ ;  $F=31.60$ ). That supports the hypothesis, derived from liberalism, that incentive-creating rules (in our case, monetary sanctions) systematically influence individual behaviour and further cooperation.

It is also worth noting here that, while formal game theory might suggest that individuals ought to pass on nothing at all in an anonymous Dictator Game, experimental evidence reveals that even in this case there is a 'taste for fairness'. Still, cooperation is clearly higher when rules structure human interaction in such a way that an 'unfair' sharing of the cake can be negatively sanctioned.<sup>21</sup>

## B. DISCOURSE

The conditions of an 'ideal discourse' could not be mirrored perfectly in our experiments. While all relevant actors were included in the discussion, the way in which the communication took place was left completely to the participants. Furthermore, the discussion was not allowed to continue until unanimity was reached; instead it was ended after an externally-imposed limit of ten minutes. Thus, our experiment is not exactly a test of discourse theory but rather a realistic application of those ideas, with people talking to one another in at least normatively unconstrained ways.

In the *Prisoner's Dilemma Game* groups of four were formed, and each individual was then asked to decide between alternatives X or Y as shown in

<sup>19</sup>One of the first Dictator Games has been undertaken by Kahneman, Knetsch and Thaler (1986), where one player (the allocator) received a given sum of money and could distribute either nothing, some of it, or everything to a second person (the recipient). The authors restricted the allocator's choice set to only two possibilities. Of the \$20 received, allocators could either keep \$18 for themselves and give \$2 to the recipients, or they could divide the sum equally (giving \$10 to each). The results were astonishing: 76 per cent of the subjects divided the \$20 evenly ( $N=161$ ). That considerations of fairness play an important, though not decisive, role in individual decision-making is supported by further experiments with Dictator Games. Even in one-period games, though the modal offer is the equilibrium offer at which the allocator keeps everything for himself, a high concentration of offers at equal division can be observed: see Forsythe, Horowitz, Savin and Sefton (1991); and, in two-period games, Bolton (1991).

<sup>20</sup>The sample size varies as the experiments were conducted during regular lecture time with the students present. Students unwilling to participate in the experiment, however, were free to leave the class before the experiment started. Less than 5 per cent chose to opt out.

<sup>21</sup>In the Ultimatum Game, game theory expects allocators to pass on the smallest possible amount of money (which in our experiments corresponds to CHF 0.50). This small amount already improves the position of the recipient, who should therefore accept it. For a recent discussion see Weg and Zwick (1994).

Table 1. A Prisoner's Dilemma with four persons

Number of persons choosing X	Pay-off for X	Number of persons choosing Y	Pay-off for Y	Group pay-off
4	2.50	0	—	10.00
3	-0.50	1	9.00	7.50
2	-3.50	2	6.00	5.00
1	-6.50	3	3.00	2.50
0	—	4	0	0

Table 1.<sup>22</sup> Although in the descriptions put before experimental subjects the two alternatives were not normatively specified to avoid prejudicing the outcome, nonetheless the pay-offs make it clear that X corresponds to contributing to the public good, while Y is the 'defect' strategy whereby a person pursues his or her own benefits. The best outcome for the group as a whole is reached when all group members choose X. The choice of Y is individually advantageous for each person—but only as long as not all group members decide to pursue this 'socially harmful' behaviour.

Participants in the experiments were shown the above table (absent the last column: assuming the pay-off of the *group* might have biased the results), and they had it explained to them. Then, in the non-anonymous variation on the experiment, 100 students were introduced to the other members of their group. Ten minutes of discussion within each group was then allowed; but subjects were not allowed to enter any binding contracts. Sheets on which participants were to record their decisions were distributed only after the discussion round to ensure that the participants actually chose X or Y in isolation and independently of each other.

In an alternative variation on the experiment ( $N=172$ ), the group members were anonymous and they had to decide between X and Y without any previous discussion. Furthermore, anonymity vis-à-vis the experimenters was also secured by having the participants fill in their decision on a sheet which was identified only by a number.

The experiment yielded the following results:

- in an anonymous setting, with no discussion, 12 per cent of the participants choose X (the cooperative option);
- in the other setting, after discussion, 78 per cent of the students choose the cooperative option X.

<sup>22</sup>See Dawes, McTavish and Shaklee (1977), who run a similar experiment with groups of eight persons.

This represents a significant difference in behaviour ( $p < 0.001$ ;  $F = 207.61$ ), which strongly suggests that communication has a strong influence on individual behaviour. Even when binding agreements are excluded, and even when the game is played only once, cooperation is much higher with pre-play communication than with 'silent anonymity'.

This effect is well-documented from previous experiments. It has unequivocally been shown that when the players in a Prisoner's Dilemma are able to talk to each other before the decision is taken, they cooperate significantly more frequently. In one of the first public-good experiments with communication, cooperation increases from 31 per cent to 72 per cent as soon as anonymity is relaxed and the subjects are allowed to talk to each other before the decision.<sup>23</sup> These results were further substantiated by later experiments with one-shot communication and decisions;<sup>24</sup> and they have since been replicated with repeated communication and decisions. (Interestingly, repetition in a communication setting leads to the opposite result from repetition in anonymous games: an increase of cooperation to 90 per cent for 10 or more periods is reported.<sup>25</sup>)

A meta-analysis comparing over 100 studies in the principal English-language journals of political science, social psychology, economics and sociology strongly supports the effect of communication on increasing cooperation.<sup>26</sup> In that meta-analysis, 130 different treatment conditions are distinguished, of which one-third involve communication among the participants. Allowing for all possible variables inducing increased cooperation, the author finds that the presence of discussion in one-shot games is highly significant and raises the cooperation rate, on average, by more than 45 percentage points.<sup>27</sup> In repeated games, the frequency of discussion is also important: subjects who may talk to each other before each round are 40 percentage points more likely to contribute to the public good than they would be in an anonymous setting.

In a further experimental series, we tested whether communication plays a similar role in situations where outcomes are solely determined by a single individual. The anonymous variant of the *Dictator Game* discussed in the

<sup>23</sup>See Dawes, McTavish and Shaklee (1977) and Dawes (1980).

<sup>24</sup>See, for example: Orbell, van de Kragt and Dawes 1988; or Bornstein and Rapoport 1988. Orbell, van de Kragt and Dawes (1988) report that, for a slightly different treatment condition (a one-shot public good experiment with a minimal contributing set), communication increases cooperation from 30 to 75 per cent. They also indicate an in-group/out-group effect: discussion does not enhance contribution to the public good when beneficiaries are strangers. For an opposing result, see Weiman (1994).

<sup>25</sup>See Isaac and Walker 1988; 1991; Ostrom, Walker and Gardner 1992. The typical pattern in repeated, anonymous games is a decay in cooperation. In the five sessions, reported by Isaac, McCue and Plott (1985), e.g. average contribution rates decreased from 38 per cent of the efficient contribution level in the initial period to 9 per cent in the terminal period. For surveys on repeated games, see Ledyard 1995, Davis and Holt 1993.

<sup>26</sup>Sally 1995.

<sup>27</sup>Among the explanatory variables we find, e.g., the pay-off matrix as indicator for the relative importance of monetary incentives to defect, the group size, different subject characteristics and the extent of repetition.

previous section ( $N=78$ ) was subsequently extended by introducing communication into the game ( $N=34$ ). Again, the two individuals—the allocator (the ‘dictator’) and the recipient—were able to communicate for ten minutes, but again no binding contracts could be concluded. These were the results of our experiments:

- when allocators decide anonymously, they pass on 26 per cent of the sum given to them;
- when the two individuals are allowed to converse before the allocator takes the decision, the allocator hands over on average 48 per cent of the sum received.

Those results confirm that communication significantly raises the extent of cooperation ( $p < 0.001$ ;  $F = 16.40$ ) even in situations characterized by a decision monopoly. The central thesis of discourse theory—that ‘just talking with each other’ systematically changes people’s behaviour and leads to higher cooperation, both for public good provision and distributional issues—is thereby supported.

### C. COMMUNITY

The norms emerging and anchored in a community might be made effective either through their internalization or through social sanctioning. Our experiments do not purport to represent a ‘real community’, in the fullest communitarian sense. Incidental aspects of our experimental design, however, nonetheless lead it to mimic the communitarian ideal. Our experimental subjects were *not* chosen at random, from completely diverse social settings. Rather, they were all first-semester economics students at the University of Zurich; and, owing to the structure of the Zurich economics course, they would study economics together as a tightly-knit group over the next four or five years.<sup>28</sup> We submit that this embeddedness in a relatively small, stable and intense student community should be sufficient to activate social norms.<sup>29</sup> Anyone deviating from those norms can and will be sanctioned accordingly.

Imposing social sanctions may be regarded as a ‘second-order public good problem’. Free-riding, however, becomes less attractive the more a person is embedded in a group. Empirical evidence shows that public good problems can be solved more easily if the group’s participants interact regularly and on a long-term basis, with exit being expensive.<sup>30</sup>

<sup>28</sup>In Zurich, economics students have to follow the same prescribed courses for the first three semesters, with no possibilities of opting out. After passing a preliminary exam, about 75 per cent of the courses are compulsory for economics majors, and only about a quarter are optional. In 1994, 48 students majored in economics, although since non-majors (especially from business administration) may also take economics classes, the actual size of classes varies between 10 and 150 students.

<sup>29</sup>For a similar argument, see Lawler et al. 1993.

<sup>30</sup>Common pool resources, Ostrom (1990, p. 88) finds, are less exploited if ‘the populations in these locations have remained stable over long periods of time. Individuals have shared a past and expect to share a future. [Then] it is important for individuals to maintain their reputations as reliable members of the community... In other words, their discount rates are low’.

By definition, once norms have been internalized they should work independently of the precise framework of social interaction. In particular, intrinsically motivated fairness should lead to a fair allocation even in the Dictator Game, where deviations from the norm cannot be monetarily sanctioned. A variety of experiments show that individuals take an 'equal division' to be the basic fairness norm.<sup>31</sup> ('The outcome is strongly influenced by what the bargainers expect it to be *a priori*, but these expectations do not normally involve the claimants' utility functions for the simple reason that people typically do not know others' utility functions. Instead, expectations are shaped by the visible qualifications that the claimants bring with them, and the distributive norms that apply to the situation at hand'.<sup>32</sup>) An equal split of the cake turns out to be the modal allocation in all our experimental settings.<sup>33</sup>

As previously discussed, however, equal division does not typically occur when individuals decide anonymously and there are no monetary sanctions. Under these conditions, the allocators in a Dictator Game on average only pass on one quarter of the initially received CHF 13. When communication is permitted or when the recipients can impose monetary sanctions on the allocators, however, the sum is equally divided. Even though the extent of fairness varies depending on the particular interaction framework, and therefore any hypothesized deterministic effect of internalized norms must be rejected, the size of the amount passed on is surprisingly large. Even anonymous allocators are prepared to hand over 26 per cent of the CHF 13. In the present context, such behaviour can only be explained by drawing on intrinsic motivation, since external incentives were precluded by conditions of anonymity among the players.

Absent anonymity, an individual's decision is subject to an evaluation by the community (which is to say, in the context of our experiments, by other group members). Allocators who are identifiable must reckon with social sanctions, which may well matter for our student subjects who are destined to study together throughout future years. If such norms of fairness and corresponding behavioural

<sup>31</sup>That is true, at least as long as the norm cannot be adjusted according to the various characteristics of the people involved. In the Güth, Schmittberger and Schwarze experiments of 1982, subjects had to allocate endowments between DM 4 and DM 10 between themselves and another person. The allocator's position was randomly assigned. In the anonymous, two-period game, the 21 allocators on average passed 36 per cent of the endowment to the recipients; only two allocators gave less than 10 per cent away; and the modal offer was a 50 per cent split. Offers during the second round were smaller; but the modal offer was still at 50 per cent. While few offers were rejected as only very few were small, the reference point for a possible acceptance is an equal split and not  $\epsilon$ , the smallest amount possible. Güth and Tietz (1990, p. 436) thus conclude, 'As in one-round ultimatum bargaining games the game-theoretic solution loses nearly all its power if it induces payoff results which are socially unacceptable'. For a theoretical discussion of distributive norms see Elster (1989), whose analysis builds on the distinction of 'equality' norms and 'equity' norms. Individuals do not always split a pie equally but make the sharing conditional on specific circumstances. For a further discussion of equity theory, see Holländer (1990), who relies on the concept of 'reference groups' for the enforcement of norms.

<sup>32</sup>Young 1994, p. 127.

<sup>33</sup>It can be interpreted as a Schelling (1960) point—that is, a solution which immediately comes into one's mind.

expectations exist in society more broadly, norms should similarly be activated by identification. The results of the Dictator Game are consistent with this hypothesis. When allocators and recipients are identified (but cannot converse with each other), the allocators' behaviour changes dramatically: allocators typically divide the pie equally, allocating 50 per cent to the recipients and 50 per cent to themselves ( $N=56$ ).

This significant difference ( $p<0.001$ ;  $F=25.60$ ) between individual behaviour under anonymity and under identification is not only found in Dictator Games but also in Prisoner's Dilemma experiments. The four-person Prisoner's Dilemma Game presented above was played in yet another version. The four persons knew the identities of other group members but they could not communicate. While under conditions of anonymity only 12 per cent of the participants ( $N=172$ ) decided to act cooperatively, when they were identified 23 per cent of the participants ( $N=68$ ) did so. This difference is statistically significant at the 95 per cent level of confidence ( $p=0.033$ ;  $F=4.60$ ). This identification effect, however, seems to be weaker than the communication effect in the Prisoner's Dilemma, where 78 per cent chose cooperation.

Internalized norms do not seem to play a major role in either the Dictator Game or the Prisoner's Dilemma Game. Socially-sanctioned norms, however, do seem to play a crucial role—particularly in the Dictator Game, where identification leads to the choice of a socially-defined norm of distribution (communication, in contrast, has no additional effect on cooperation there). In the Prisoner's Dilemma, on the other hand, large-scale cooperation can only be achieved when the participants can actually talk to each other; the norm-activating effect of identification alone does not seem to be of much relevance there.

#### IV. INTERPRETATIONS

Experiments allow us to explore many relevant issues beyond the limits of traditional analytics.<sup>34</sup> The importance of norms has certainly been stressed in many philosophical and social scientific treatises, but up to now no consistent theory of the emergence and change of norms exists. Our experiments endeavour to make a contribution by analyzing to what extent abstract ethical theories have a counterpart in the observed behaviour of human beings. It turns out that ethical strategies relying on discourse and communal embeddedness are, indeed, of great practical relevance in encouraging the observation of norms. Individuals change their behaviour as soon as norms are activated through social interaction. In the Dictator Games, simple mutual identification of the participants suffices to induce an allocation according to norms of fairness, understood as an equal division of the sum received.

<sup>34</sup>See Frohlich and Oppenheimer (1992, p. 4): 'We argue for moving ethical theorizing out of the armchair and into the laboratory'.

Identification also increases cooperation in the Prisoner's Dilemma Game—although there the incentive to free ride is overcome only if individuals are also allowed to communicate with each other, thereby enabling them to converge on a common, mutually advantageous cooperative strategy. Norm-activation does not seem to be very relevant in this context: the collectively rational strategy (namely, mutual cooperation) arises, without appeals to normative values. Nonetheless, under conditions of anonymity as well as of identification, such a strategy transcends the individuals' possibilities—a collective decision is needed, in order to pursue it.

Do people foresee the potential of communication to enlarge their possibility space? Consider what happens when in the Prisoner's Dilemma setting subjects are told: (1) that the experimental design allows for communication before they have to decide; but (2) that they may play anonymously if they prefer. In such a setting, only 12 per cent of the individuals ( $N=32$ ) chose to play the game anonymously. In contrast, anonymity was demanded in similar circumstances by 75 per cent of the allocators in the Dictator Game ( $N=40$ ) and 42 per cent of the allocators in the Ultimatum Game ( $N=38$ ).<sup>35</sup>

These results suggest that communication is valued more highly the more interdependent individuals perceive a decision situation to be. While in the Dictator Game an allocator's well-being is determined only by himself or herself, in the Ultimatum Game it also depends on the probability of the recipient rejecting the allocation; and in our Prisoner's Dilemma Game it is strongly influenced by choices of three other persons. In the Dictator Game, additional information received by means of identification and communication does not extend the possibility space; instead it narrows it down, by activating an additional constraint, the social norm. In the Ultimatum Game, an allocator's alternatives are already restricted by monetary incentives; thus, from the allocator's point of view, communication imposes no further harm but rather helps him or her to learn about the probability of the recipient rejecting the allocation.

In the Ultimatum Game, interventions from outside substitute for internal determinants of human behaviour.<sup>36</sup> External rules emphasized by the liberal approach can have a similar effect as communitarian activation of social norms. The relevant question for policy purposes is, then, to what conditions each type of behavioural restriction is best suited. A comparative institutional analysis allows us to study the different mechanisms and to bridge the approaches pursued by the various schools of thought.

Liberal conceptions are embodied, paradigmatically, in public choice theory.<sup>37</sup> Those can usefully be extended by concepts used in discourse ethics and in

<sup>35</sup>For a more complete analysis of the demand for communication, see Bohnet (1995).

<sup>36</sup>Frey (1992a) argues that there are well defined circumstances where external interventions, a reward or a regulation, undermine or 'crowd out' intrinsic motivation. Behaviour is thus subject to two countervailing influences: the incentive or disciplining effect of the external monetary sanction inducing a greater intensity of the activity in question, and the crowding-out effect diminishing intrinsic motivation, thereby reducing the corresponding activity.

<sup>37</sup>Mueller 1989, Buchanan 1991.

communitarianism. Indeed, mediation—which is a particular type of decision-taking by discourse among all the relevant actors—has proven to be a successful procedure to overcome the Prisoner's Dilemma in many practical cases.<sup>38</sup> It has also been empirically shown that embeddedness in a community contributes to the solution of 'common pool resource' problems (such as commons, water utilization among farmers and coastal fishing). Under these conditions, communally defined and shared norms are much easier to apply and help reduce costly controls.<sup>39</sup>

The central concerns of the theories discussed here are at least partly applicable in the context of direct democracy and federalism. Popular initiatives and referenda allow the citizens to participate directly in important political decisions. What matters is not simply the decision as such, but the discussion process induced beforehand.<sup>40</sup> Citizens in direct democracies may introduce new perspectives into the political process, especially ones which the political elite in government and in parliament find advantageous not to bring to the fore (an obvious case being the salaries and pensions they receive, at the taxpayers' expense). In federal political systems, issues are decided where the problems really lie—at the lowest level, where the social embeddedness of citizens is highest.

Mediation for conflict resolution, shared social values as a basis for problem solving, and political decision-making in direct democracies and federal systems—all these demonstrate the practical political relevance of bridging the essential features of liberalism, communitarianism and discourse ethics. Rules must be supplemented by implicit behavioural determinants whenever the external interventions are not themselves sufficient to induce an acceptable level of collective rationality. Social dilemmas and income distribution are two major areas in which those characteristics apply.

Even though the experiments can certainly not capture the essence of each of the three philosophical schools of thought, they have the advantage of being empirically oriented. Experimental research may train our eyes to see more clearly the complex relationships between distinct lines of thought.

## REFERENCES

- Andreoni, James and John H. Miller. 1994. Giving according to GARP: an experimental study of rationality and altruism. Paper presented at the Third Amsterdam Workshop on Experimental Economics, Amsterdam, September.
- Becker, Gary S. 1974. A theory of social interaction. *Journal of Political Economy*, 82, 1063–94.
- Binnmore, Ken and Larry Samuelson. 1994. An economist's perspective on the evolution of norms. *Journal of Institutional and Theoretical Economics*, 150, 45–63.

<sup>38</sup>Dryzek 1990, Renn 1992.

<sup>39</sup>See Ostrom (1990) and Ostrom, Gardner and Walker (1994), who specify five procedural characteristics helping to overcome 'common pool resource problems': (1) exchange of promises, (2) changing expectations about other persons' behaviour, (3) changing expected gains, (4) re-enforcing normative orientations, and (5) developing a group identity.

<sup>40</sup>The choice between known alternatives is studied extensively in public choice theory, see Mueller (1989). For the role of the discussion about political issues in direct democracies, see Bohnet and Frey (1994). Brennan and Lomasky (1993, p. 99) point out that communication in the parliaments of representative democracies, on the other hand, often is nothing but a 'political charade'.

- Bohnet, Iris. 1995. *Ökonomie und Kommunikation. Eine experimentelle Untersuchung*. PhD Dissertation. University of Zurich.
- Bohnet, Iris and Bruno S. Frey. 1994. Direct-democratic rules: the role of discussion. *Kyklos*, 47, 341-54.
- Bolton, Gary. 1991. A comparative model of bargaining: theory and evidence. *American Economic Review*, 81, 1096-136.
- Bornstein, Gary and Amnon Rapoport. 1988. Intergroup competition for the provision of step-level public goods: effects of preplay communication. *European Journal of Social Psychology*, 18, 125-42.
- Brennan, Geoffrey and Loren Lomasky. 1993. *Democracy and Decision. The Pure Theory of Electoral Preference*. Cambridge: Cambridge University Press.
- Buchanan, James M. 1977. *Freedom in Constitutional Contract: Perspective of a Political Economist*. College Station: Texas A & M University Press.
- Buchanan, James M. 1991. *Constitutional Economics*. Oxford: Blackwell.
- Cosmides, Leda and John Tooby. 1994. Better than rational: evolutionary psychology and the invisible hand. *American Economic Review*, 84, 327-32.
- Dawes, Robyn M. 1980. Social dilemmas. *Annual Review of Psychology*, 31: 169-93.
- Dawes, Robyn M., Jeanne McTavish, and Harriet Shaklee. 1977. Behavior, communication, and assumptions about other people's behavior in a commons dilemma situation. *Journal of Personality and Social Psychology*, 35, 1-11.
- Dryzek, John D. 1990. *Discursive Democracy: Politics, Policy, and Political Science*. New York: Cambridge University Press.
- Elster, Jon. 1989. *The Cement of Society*. Cambridge: Cambridge University Press.
- Forsythe, Robert, Joel L. Horowitz, N.E. Savin and Martin Sefton. 1994. Fairness in simple bargaining experiments. *Games and Economic Behavior*, 6: 347-69.
- Frank, Robert H. 1988. *Passions Within Reason*. New York: Norton.
- Frey, Bruno S. 1992a. Tertium datur: pricing, regulating and intrinsic motivation. *Kyklos*, 45, 161-85.
- Frey, Bruno S. 1992b. *Economics as a Science of Human Behaviour*. Boston: Kluwer.
- Frohlich, Norman and Joe A. Oppenheimer. 1984. Beyond economic man. *Journal of Conflict Resolution*, 28, 3-24.
- Frohlich, Norman and Joe A. Oppenheimer. 1992. *Choosing Justice: An Experimental Approach to Ethical Theory*. Berkeley: University of California Press.
- Granovetter, Mark. 1985. Economic action and social structure: the problem of embeddedness. *American Journal of Sociology*, 91, 481-510.
- Güth, Werner and Reinhard Tietz. 1990. Ultimatum bargaining behaviour: a survey and comparison of experimental results. *Journal of Economic Psychology*, 11, 417-49.
- Güth, Werner, Rolf Schmittberger and Bernd Schwarze. 1982. An experimental analysis of ultimatum bargaining. *Journal of Economic Behaviour and Organization*, 3, 367-88.
- Habermas, Jürgen. 1983. *Moralbewusstsein und kommunikatives Handeln*. Frankfurt a.M.: Suhrkamp.
- Habermas, Jürgen. 1992. *Faktizität und Geltung: Beiträge zur Diskurstheorie des Rechts und des demokratischen Rechtsstaats*. Frankfurt a.M.: Suhrkamp.
- Holländer, Heinz. 1990. A social exchange approach to voluntary cooperation. *American Economic Review*, 80, 1157-67.
- Isaac, R. Mark, Kenneth F. McCue and Charles R. Plott. 1985. Public Goods Provision in an Experimental Environment. *Journal of Public Economics*, 26, 51-74.
- Isaac, R. Mark and James M. Walker. 1988. Communication and free-riding behavior: the voluntary contribution mechanism. *Economic Inquiry*, 24, 585-608.
- Isaac, R. Mark and James M. Walker. 1991. Costly communication: an experiment in a nested public goods problem. Pp. 269-86 in Thomas R. Palfrey, ed., *Laboratory Research in Political Economy*. Ann Arbor: University of Michigan Press.
- Jackson, Michael and Peter Hill. 1995. A fair share. *Journal of Theoretical Politics*, 7, 169-79.
- Kahneman, Daniel, Jack Knetsch and Richard Thaler. 1986. Fairness and the assumption of economics. *Journal of Business*, 59, 285-300.

- Lawler, Edward J. et al., eds. 1993. *Advances in Group Processes*. Greenwich, Conn.: JAI Press.
- Ledyard, John O. 1995. Public Goods: A Survey of Experimental Research. In John Kagel and Alvin E. Roth, ed., *Handbook of Experimental Economics*. Princeton, N.J.: Princeton University Press.
- Lindenberg, Siegwart. 1990. Homo socio-oeconomicus: the emergence of a general model of man in the social sciences. *Journal of Institutional and Theoretical Economics*, 146, 727-48.
- Mansbridge, Jane J., ed. 1990. *Beyond Self-Interest*. Chicago: University of Chicago Press.
- Margolis, Howard. 1982. *Selfishness, Altruism, and Rationality: A Theory of Social Choice*. Cambridge: Cambridge University Press.
- Mueller, Dennis C. 1989. *Public Choice II*. Cambridge: Cambridge University Press.
- North, Douglass C. 1991. Institutions. *Journal of Economic Perspectives*, 5, 97-112.
- Orbell, John M., Robyn M. Dawes and Alphons J. C. van de Kragt. 1988. Explaining discussion-induced cooperation. *Journal of Personality and Social Psychology*, 54, 811-19.
- Ostrom, Elinor. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press.
- Ostrom, Elinor, Roy Gardner and James Walker. 1994. *Rules, Games, and Common-Pool Resources*. Ann Arbor: University of Michigan Press.
- Ostrom, Elinor, James Walker and Roy Gardner. 1992. Covenants with and without a sword: self-governance is possible. *American Political Science Review*, 86, 404-17.
- Rawls, John. 1971. *A Theory of Justice*. Cambridge, Mass.: Harvard University Press.
- Rawls, John. 1992. *Die Idee des politischen Liberalismus, Aufsätze 1978-1989*. Frankfurt a.M.: Suhrkamp.
- Renn, Ortwin. 1992. Die Bedeutung der Kommunikation und Mediation bei der Entscheidung über Risiken. *URP/DEP*, 275-308.
- Roth, Alvin E. 1995. Bargaining experiments. In John Kagel and Alvin E. Roth, eds, *Handbook of Experimental Economics*. Princeton, N.J.: Princeton University Press.
- Sally, David. 1995. Conversation and cooperation in social dilemmas. *Rationality and Society*, 7, 58-92.
- Sandel, Michael J. 1982. *Liberalism and the Limits of Justice*. Cambridge, Mass.: Harvard University Press.
- Schelling, Thomas C. 1960. *The Strategy of Conflict*. Cambridge, Mass.: Harvard University Press.
- Stigler, George J. and Gary S. Becker. 1977. De gustibus non est disputandum. *American Economic Review*, 67, 76-90.
- Taylor, Charles. 1985. *Philosophy and the Human Sciences* (volume 2 of *Philosophical Papers*). Cambridge, Mass.: Harvard University Press.
- Walzer, Michael. 1987. *Interpretation and Social Criticism*. Cambridge, Mass.: Harvard University Press.
- Weimann, Joachim. 1994. Individual behavior in a free riding experiment. *Journal of Public Economics*, 54, 185-200.
- Weg, Eythan and Rami Zwick. 1994. Toward the settlement of the fairness issues in ultimatum games: a bargaining approach. *Journal of Economic Behavior and Organization*, 24, 19-34.
- Young, H. Peyton. 1994. *Equity—In Theory and Practice*. Princeton, N.J.: Princeton University Press.