The Others as Social Context: On the Importance of Strategic Interaction*

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Abstract

An action is defined as "strategic" when the consequences of ego's action depend on the action of alter. Situations of strategic interaction are numerous in daily life, business, and politics. Other peoples' opportunities of actions form ego's strategic context. The dynamics of the impact of the strategic context on ego's action can be modeled by means of game theory. We discuss three examples of strategic interaction models: "Diffusion of responsibility," Boudon's "logic of relative frustration," and the problem of social exchange and trust. We demonstrate the effects of the strategic context on the opportunities and beliefs of actors. In contrast to nonstrategic rational choice theory, beliefs and opportunities are not assumed as exogenous. The analysis of the strategic context contributes to a better understanding of the microlevel effects and the macrolevel implications. However, the strict rationality requirements of game models are often violated. In these situations, evolutionary models based on principles of learning and adaptions are more adequate than models based on assumptions of strict rationality.

INTRODUCTION: CONTEXT AND SOCIAL ACTION

A patient goes to his doctor after receiving a positive result to a prophylactic test. The doctor recommends special therapy. There is a risk that the doctor, although acting to the best of his knowledge and belief, is not on top of latest developments in his science and prescribes a therapy with little chance of success. A further risk lies in the fact that, although the doctor is indeed well informed, he may not prescribe the optimal therapy because he himself profits from a certain method of treatment. The patient, therefore, has a double trust problem (Gigerenzer, 2014), unlike an air passenger who trusts the competence of the pilot. It is similar for the customer of a garage, the client of an investment advisor in a bank, and for the client of a lawyer or attorney. The behavior of the patient toward the doctor, the garage employee,

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the investment advisor, or the attorney is, in the sense of Max Weber, social action. However, the two trust problems are not both of a strategic character. Trust in the expertise of the doctor is a nonstrategic decision. In contrast, the patient's trust that, in a conflict of interest, the therapy recommended by the doctor will be to his benefit is of a strategic nature. A distrustful patient can solve the first trust problem by going to a doctor who has been recommended as competent. He can solve the second trust problem by obtaining a second opinion, so that no conflict of interest exists. The second trust problem is *strategic* because the decision results of patient and doctor, ego and alter, are mutually dependent on the decisions of the other actor.

This essay will mainly be dealing with the "strategic social context," acknowledging that many sociological problems are of strategic character, but this is often neglected in sociological analysis. In the section titled "Context, Action, Aggregation, and Macro Effect", the correlation among context, action, and effects on the macro level is first explained. On the basis of the hypothesis of diffusion of responsibility, the competition model of Raymond Boudon and the trust game is discussed. Section titled "The Actions of Others as Strategic Context" explains social action in the strategic context. It shows that the strategic social context requires the application of game-theoretic methods. When actions are strategic, the independent variables of the theory of social action can no longer be regarded as exogenous. In addition, game-theoretic methods solve the problem of aggregation. Our interest also focuses on the development of institutions as a reaction to the problems of strategic action. Institutions can ease problems of strategic action. In the section titled "Rational Action, 'Beauty Contest,' and Bounded Rationality", finally, we discuss the problem of rational action within the context of strategically deciding actors.

CONTEXT, ACTION, AGGREGATION, AND MACRO EFFECT

Social context influences the action-relevant characteristics of actors. According to a simple heuristic scheme, *action and decision theories* refer to three categories of independent variables: (i) The value of the action consequences, (ii) the perceived probability of the appearance of certain action consequences, and (iii) the action resources. Using Hedström's (2007) formulation, these are (i) "desires," (ii) "beliefs," and (iii) "opportunities" (DBO), or Gintis's (2007) "beliefs, preferences, constraints" (BPC). Preferences correspond to desires, and constraints correspond to opportunities or resources. Constraints are, for example, time, income, and technological possibilities. Anyone who buys a lottery ticket at a kiosk shows the desire (the preference) to make the highest possible winnings, the belief that there is a certain (subjective) probability that this wish will be fulfilled and he must carry the costs of the bet. The

three elements, DBO (or BPC), do not yet constitute a complete theory. For this, further elements would be required, such as (i) a procedure for measuring D, B, and O for all action alternatives and action consequences and (ii) a decision theory showing the probability with which an action is carried out with any combination of D, B, and O. A theory of social action does not necessarily have to adhere to the principles of strict rationality, it can also follow the assumptions of "bounded rationality."

Via DBO, the social context influences the action results, which actors produce through their decisions. The aggregated action results correspond to the effect on the macro level. The well-known "Coleman-boat" (Coleman, 1990) illustrates these relations for didactic reasons, omitting, however, the dynamics of the processes and complexities such as local interactions.

Let us look at an example. Emile Durkheim (1952 [1897]) reported on the analysis of statistical material regarding the frequency of suicide in different social groups. It was shown that because of a higher degree of social integration, Catholics display a lower suicide rate than Protestants. The degree of integration is a context characteristic that influences the resources and action goals of the actors. Thus, in socially integrated groups, isolated and lonely people are more seldom and that again reduces the tendency toward "egoistical" suicide.

Durkheim's analysis of suicide deals with "social action" in the sense of Max Weber. The actions are, however, not strategic. The aggregation is simple, as the rate of suicide in a social group results from the number of suicides per annum, divided by the size of the population.

The situation is different if actions are strategically linked with each other. The problem of aggregation is then no longer trivial and can take on a considerably more complex form. In daily interactions, in politics, and in business life, the actions of individual actors are often mutually dependent on each other. The resources (opportunities in the DBO scheme), such as the perceived probabilities of action consequences (the beliefs), are then no longer given as exogenous, but as endogenous, dependent on the actions of others.

THE ACTIONS OF OTHERS AS STRATEGIC CONTEXT

The Problem of Aggregation and the Macro Effect: The Example of the "Diffusion of Responsibility"

Strategic action means that the consequences of an action are dependent on the actions of other actors. Let us take a look at the regularity of the diffusion of responsibility examined by Darley and Latané (1968) in an experiment. The more the people that witness an emergency of any kind, the smaller the probability is that an individual person intervenes. Situations showing the

diffusion of responsibility can also be found in many everyday situations and in business life. If a seminar is conducted by several lecturers, the individuals involved are often not as well prepared as when they alone are responsible. Companies wait for others to develop innovations, which they can later copy economically (Eger, Kraft, & Weise, 1992). The "volunteer's dilemma" (Diekmann, 1985) has been proposed as a general model for such a situation.

The situation has a very simple structure. All actors are interested in the collective good (assistance, good teaching, or innovation) materializing. We shall call the value of the collective good U, the costs of achieving it K, whereby $U > K > 0$. In each case, a cooperative actor gains $U - K$. A noncooperative actor receives U, but only when at least one other actor cooperates; otherwise, all will be left empty-handed.

The structure of an action is given by the type of game and the quantities N, K, and U. They define the context of the strategic situation. With regard to the "assistance" example, U can vary interculturally. In an egoistic society, the value of the collective good will turn out to be lower than in a society that shows solidarity.

In this situation, there is a symmetrical, individual, rational "solution": the Nash equilibrium strategy. It can be deduced with the methods of the classical game theory. Informally, a Nash equilibrium is defined as a combination of strategies from which no actor is induced to deviate *unilaterally*—as long as the other actors maintain the equilibrium strategy.

If p is the probability of cooperation and N is the number of actors, we get the equilibrium strategy p^* (Diekmann, 1985):

$$p^* = 1 - \sqrt[N-1]{\sqrt{K/U)}}$$

The individual tendency to cooperate declines, as expected, with the costs and increases with the value of the collective good. To be more exact—although not completely obvious—the probability falls with the *quotients* of the costs of the cooperative action and the value of the collective good. Furthermore, the tendency to cooperate sinks with the number of actors N. The effect of the diffusion of responsibility observed in experiments can be deduced from a simple model. This model of the structure of interdependent actions can be extended in different directions. Examples are the asymmetric volunteer's dilemma (Diekmann, 1993), the volunteer's dilemma with cost sharing (Weesie & Franzen, 1998) and further variations. These models generate several hypotheses linking structural conditions to individual behavior.

The Nash equilibrium is also a central element in solving the aggregation problem. The macro hypothesis about the production of collective good results directly from the actors' individual strategies. Both hypotheses can be tested by empirical data (Franzen, 1995).

For a more exact analysis of strategic interaction, we need the models and the solution concepts of game theory. This applies particularly when—as in analytical sociology—we are interested in uncovering the explanatory mechanism (Hedström, 2007). With the help of game theory, one can succeed in defining the social context and the structure of action more exactly. Furthermore, hypotheses on individual action strategies can be derived from these models. Simultaneously, the Nash equilibrium helps to aggregate individual actions, as well as to deduce the macro effect. In this way, the three steps—context, individual action, and aggregated macro effect—can be formulated precisely and the results tested with data.

Social Context and Opportunities: The Competition Model of Boudon

In their study, Stouffer, Suchman, Vinney, Star, and Williams (1965 [1949]) report on satisfaction with promotion in two army units. Paradoxically, dissatisfaction is higher among the more frequently promoted pilots than among the military policemen, who in comparison are rarely promoted. This study stimulated the development and discussion of relative deprivation and reference groups. Considerably earlier, Tocqueville (2008 [1852]) brought attention to a similar paradox (Boudon, 1977), developing the hypothesis that dissatisfaction and protests are more likely to culminate in prosperous periods. Boudon (1977) took up Tocqueville's thesis again and tried to explain this remarkable correlation under the premise of rational behavior with a game-theoretic model.

The essential feature of the theory is as follows: assume that a society's increasing prosperity stimulates actors to invest in upward mobility. Some of the investors will win while others will lose. Under certain conditions, the level of dissatisfaction in the society or the social group will rise. This happens when the interaction system leads to a disproportionate growth between losers and winners.

Game theory translates these ideas in a formal model (cf. Berger & Diekmann, 2015; Raub, 1984). In a social group with the size N, there are $0 \leq k \leq N$ positions available for promotion. Those wishing to be promoted have to invest. The costs of this amount to C, and the gain from promotion is B. Successful candidates achieve $\alpha = B - C$, losers receive $\gamma = \beta - C$, and actors who do not invest in applying receive a payoff in the amount of β (Figure 1). $\alpha > \beta > \gamma$ applies. The number of investors is called n.

Here, investing means incurring general expenditure and taking risks, in order to improve one's social position. Whether a person is successful depends, of course, on the behavior of the other competitors. In any case, in a competition situation, $n - k$ frustrated candidates drop out of the running.

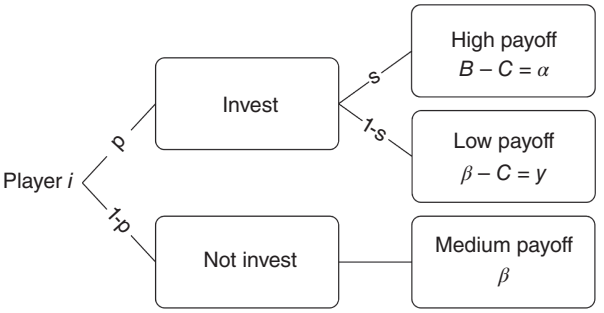

Figure 1 Investing in the competition model. *Source*: Adopted from Berger and Diekmann (2015), see also Hedström (2007).

Investors can expect the following payoff (Berger & Diekmann, 2015):

$$E(k,n) = \begin{cases} \frac{k}{n}\alpha + \frac{n-k}{n}y & \text{für } k < n \\ \alpha & \text{für } k \geq n. \end{cases}$$

A rational actor will invest as long as $E(k,n)$ is larger than β. If this is the case, independent of the number of competitors n, investing is the dominant strategy. The situation is somewhat more complicated when "investing" is not the dominant strategy. In this case, "investing" up to a threshold value of n^* is more advantageous than "not investing." However, if the number of candidates is greater than the threshold value, it would be better to abstain from applying; but, of course, the actors do not know how many competitors will invest. There are then several equilibria in "pure" strategies, which are not attainable without coordination, as well as an equilibrium in "mixed" strategies (Berger & Diekmann, 2015; Raub, 1984).

The structure of social action is given by the rules of the model, as are the parameters α, β, γ, N, and k. These elements define the social context, which provides the framework for carrying out the competition. The five parameters are exogenous. The opportunities follow from the decision dynamics and are endogenous. The number of competitors, which considerably influences the candidate's chances, only comes to light if we assume a hypothesis regarding the decision behavior of the actors. If, like Boudon, we make the rationality assumption, various hypotheses about the effect of a growing number of chances on the degree of satisfaction or frustration can be deduced. Under certain circumstances, it can be seen that the number of losers rises with the growing number of chances (k) and then falls again. The course of satisfaction, dependent on the number of chances, is U-shaped. The Nash equilibrium hypothesis, derived from the model, provides information about the conditions under which the course of satisfaction can be expected

to fall, that is, the "Tocqueville effect." The hypotheses deduced from the theory can then be empirically tested. A first lab experiment shows that a more refined measure of satisfaction is needed to observe the predicted U-shaped function (Berger & Diekmann, 2015).

Social context defines the structure of social action, which in turn triggers the interaction between action dynamics and opportunities. As social context affects the strategic behavior of actors, simple parametric models are unsuitable for analyzing the structure of social action. The opportunities (O in the DBO scheme) are created endogenously. These depend on other actors' investment behavior. Only with the help of game-theoretic solution approaches can the action dynamics be adequately examined. Furthermore, the Nash equilibrium strategy makes it possible to aggregate the action results. Under certain conditions, which it is possible to name, the macro hypothesis follows via the U-shaped course of satisfaction.

Social Context and Beliefs: Signals of Trust

As a rule, social and economic exchanges are linked with a double uncertainty. On the one hand, the exchange is time-delayed, that is, one of the exchange partners makes an advance. On the other hand, it is not always immediately clear whether the exchanged good corresponds to expectations. A problem of trust arises, which can be described with a simple model, the trust game.

In the trust game (Dasgupta, 1988), two actors interact: the trustor and the trustee. The trustor has to decide between cooperation (*C*) or "noncooperation" (defection *D*). If he chooses *D*, no business takes place. No one wins and no one loses; the payoff to both actors amounts to *P*. However, if the trustor cooperates, he puts his fate in the hands of the trustee. The trustee, in turn, can cooperate (e.g., by delivering the goods paid in advance) or defect, that is, by exploiting the trustor's position. With the usual symbols of the trust game, both actors receive a payoff *R* after cooperation. On the other hand, if the trustee defects, he receives the exploitation payoff *T* and the trustor makes a loss *S*. The rank order of the payoffs is $T > R > P > S$.

In a single trust game, a self-interested, rational trustee will defect as soon as it is his turn. The trustor anticipates this and will not trust him. The Nash equilibrium is mutual defection with the result (*P*, *P*). A deal will not take place, so both lose in comparison to the result of mutual cooperation, where they would both receive *R*.

If, however, exchanges between partners take place repeatedly, cooperation can develop if the gains expected from the exchange relationship in the future are high enough. Moreover, it may be that the trustee complies with ethical norms or has a reputation as an honest businessman, which he does not want

to risk losing. The problem lies in the fact that, with a single transaction or at the beginning of a series of transactions, the trustor does not know whether his business partner is trustworthy or not.

These reflections could be more precise by extending the trust game (Voss, 1998). We assume that there are honest and dishonest trustees. The honest trustees are interested in future business with the payoff $R^* > T$, for the dishonest it is, as before, $T > R$. The actors are in this case "honest" or "dishonest" depending on where their interests lie. Trustors know that a portion of the business partners are honest (α) and another portion fraudulent ($1 - \alpha$). If they have no further information, they will always cooperate as long as α is larger than the threshold value α^*, whereby they can gain at least as much by cooperating as by abstaining from business relations, or at least P. Trustors always cooperate when $\alpha \geq \alpha^* = (P-S)/(R-S)$ and accept the losses caused by fraudulent partners.

However, if the portion of fraudulent actors becomes too big ($\alpha < \alpha^*$), cooperation is no longer worthwhile. In that case, no business is carried out; the market collapses and all actors, including the fraudulent trader, are left empty-handed. In such situations, it is very probable that signals emerge with which trustees can communicate to trustors that they are honest (for more details, see Przepiorka & Diekmann, 2013). The fraudulent trustors are, of course, also interested in appearing honest. So a signal is only useful if it is credible. From the signal, one must be able to recognize the "type" to which an actor belongs. Credible signals are connected with costs, or, to be more exact, with the difference in the cost of producing signals. This difference must be so high that honest actors profit from cooperation ($R^* - s_A > P$), despite signaling costs, while fraudulent actors do not gain if they initiate a signal ($T - s_B < P$). s_A and s_B designate the signaling costs of honest and fraudulent actors, respectively. Under these circumstances, a so-called separating signaling equilibrium is to be expected. Tattoos were (in the past) signals that transmitted the information that a person had been in prison and in all probability would be reliable in any illegal business (Gambetta, 2009). Police spies, in contrast, were usually not tattooed, provided that they led a respectable life and the (social) costs of a tattoo were unacceptable. During courtship, there can be a problem in most cultures when a young man is not serious about a permanent relationship. Expensive engagement presents are a signal that differentiates the honest suitor from the dishonest one.

Honest dealers in second-hand wares give a guarantee. If they are honest (and make no mistakes), the costs are zero. For dishonest dealers in second-hand wares, on the other hand, the costs would be prohibitively high. The promise of a guarantee is a signal that allows the customer to distinguish between honest and fraudulent dealers.

For this discussion, it is important to note that, in signaling games, the subjective probability that an actor belongs to a certain type can only be determined by the actions of the actor.

The social context consists of the game structure (decision tree), the preferences of specific types of actors (the D in DBO), and the signaling costs. These elements are exogenous. The beliefs (the B in DBO), in contrast, follow from the action dynamics and are endogenous. The social context influences the beliefs and these in turn the actions. In the trust game, this is the decision in favor of cooperation. As the macro result, markets emerge in which cooperative exchanges are carried out.

Institutions

In trust relationships, signals will emerge when legal or other institutional regulations are not possible or are difficult to enforce (e.g., in illegal markets), when most transactions are nonrepeated or seldom repeated, and also when no reliable information about the reputation of the actors is available. Dependent on the specific context (e.g., nonrepeated vs repeated interactions and access to reliable information), different cooperation solutions can develop in the trust relationships (Buskens & Raub, 2013).

A study by Siamwalla (1978) about the market structure of agricultural products in Thailand is instructive. The quality of rice, for example, is easily recognizable before the purchase, so that no specific trust problem regarding quality exists. On the other hand, the rubber farmer himself knows much better than the buyer whether the product is of high or low quality. The quality of the raw product depends namely on the care taken by the farmer in eliminating impurities, as well as on the quality of the acid used (Siamwalla, 1978). Because of the asymmetric information, a trust problem arises. Compared to the rice market, therefore, the market structure that emerged for rubber is different. Loyalty between the seller and the purchaser is high; a rubber farmer only deals with a few buyers, and they know the farmer and trust the quality of the goods. In addition, there is the "chain structure" of the trade. A buyer in the village sells to a dealer in the district and he in turn to a wholesaler or large trading company (Siamwalla, 1978).

The characteristics of the different goods, in this case rubber versus rice, create trust problems to varying degrees. These problems are solved by different market structures or institutions. Rice markets are often auctions, while long-term relationships between trading partners and reputation are characteristic of the markets for the raw material, rubber (Kollock, 1994). In an imaginative experiment, Kollock (1994) was able to demonstrate the emergence of varying market structures.

In digital trade, trust problems emerge because of the anonymity of the market participants, who often buy goods at auction per mouse click over great distances. Given the standard trust game and assuming rational and selfish preferences, there is a unique Nash equilibrium: exchanges should not even take place; anonymous markets are expected to collapse. However, we are not dealing here with a simple trust game. With the introduction of the possibility to assess the seller, the trust problem has been considerably defused. Instead of the "shadow of the future" in the repeated game, the "shadow of the past" was quasi created with the introduction of reputation. In their own interests, sellers try to build up a reputation; purchasers, in turn, reward a reputation. However, it cannot be completely taken for granted that the rating system functions, as self-interested actors may just save themselves the bother of an assessment. Homo economicus would give no feedback, the rating system would collapse and with it the auction too. Thus, a small shot of altruism and reciprocity, which goes over and above the self-interest of homo economicus, is the lubricating oil of anonymous, electronic markets. The reputation system is a simple, but extremely effective, institutional mechanism, which makes these markets—worth billions—really possible (Diekmann, Jann, Przepiorka, & Wehrli, 2014).

The strategic context of the trading actors creates a trust problem. Institutional regulations can alleviate the problem. The question as to what kind of regulation emerges depends on various conditions, such as information asymmetries, transaction costs, and technological progress. The context of strategically trading actors is the starting point for explaining the development of institutions.

RATIONAL ACTION, "BEAUTY CONTEST" AND BOUNDED RATIONALITY

There is scarcely another term in the social sciences that is as heavily burdened with misunderstandings as the term *rationality* or *rational action*. With rationality, we understand here no more (and no less) than *consistent* decisions. Consistency is the defining characteristic. This means that decisions are taken in agreement with the axioms of a rationality theory. Corresponding to this definition, there are more or less restrictive requirements for the term *rational action*, as there are various decision theories with differing axiom systems. However, when explaining social action, whether we describe the behavior as "rational" or not is insignificant anyway. However, most decision theories will probably prescribe the validity of one axiom, namely, the transitivity of preferences: When A is preferred to alternative B and B to alternative C, then A should also be given preference over C.

Rationality does not call for self-interest, and certainly not for material self-interest. Homo economicus acts rationally per definition, but rational action is not synonymous with the action of the fictive homo economicus.

Rationality and altruism do not have to be opposites. Andreoni and Miller (2002) have shown that actors with altruistic preferences can act rationally in the sense that they fulfill the axioms of decision theory. If people do not correspond to the picture of homo economicus, and in addition they even follow altruistic goals, this does not necessarily mean that they act irrationally. In concurrence with the consistency criterion, their decisions can be strictly rational. Here, "rationality" is defined in a "motive-free" way, without excluding certain preferences, goals, or desires. The "wide version" of rational choice theory (Opp, 1999) already follows from an axiomatic approach.

Nevertheless, one can observe spectacular deviations from strict principles of rationality in many situations. The "Beauty-Contest Game" received its name from a quotation from Keynes, in which he compares the purchase of stocks to a beauty contest (Selten & Nagel, 1998). On the stock market, it is not about deciding which is the best share in one's own opinion, but rather which is the one that you believe others will think is the best decision; even more than that, it is about the share that you believe *everyone* believes that the others consider to be the best purchase, and so on. The rules of the game are simple. There are *N* participants who have to choose a number between zero and 100. The person who comes nearest to 2/3 of the (arithmetical) mean of all numbers mentioned wins a prize. When there is more than one winner, the prize is shared.

If one does not think strategically, one could say, "All numbers are evenly distributed, the mean should therefore lie by 50. I choose 33 1/3, for that is 2/3 of 50." Strategic thinking on this first level goes a step further. "If everyone thinks like this, the mean will be 33 1/3. I choose, therefore, 22 2/9." On the next level of strategic thinking, it is approximately 15 and so forth, until finally in continual iteration one approaches at zero, the unique Nash equilibrium strategy.

However, the equilibrium strategy is rarely chosen in the first round of experiments. Typically, choices accumulate around 33 or 22. If one repeats the decision situation and informs about the mean, values around 15 or 10 will result and, in a further round, numbers approaching the equilibrium will be observed (Selten & Nagel, 1998). This process can also be seen when exact information about the distribution in the previous round is given (Diekmann, 2009). One could now assume that the actors do not choose the equilibrium strategy because they do not know about it. However, even if it is explained, many actors by no means use this strategy. Why do actors act "irrationally"? The answer is as follows: Even if one knows that it is rational to choose

zero, one can still reckon on some of the players not doing so (Selten & Nagel, 1998). In that case, it makes more sense not to choose the equilibrium strategy and, therefore, one does not choose this strategy oneself either.

The beauty-contest game has been used to explain speculative bubbles on the stock and property markets. Even if one knows that it is a bubble it can be worth investing. For the prices can rise further, up until the occurrence of the catastrophe. Similarly, actors in the beauty-contest game choose the "irrational" strategy at least occasionally, although they know about the equilibrium strategy. The head of the Citigroup, Charles Prince, formulated this thought more concretely in the "Financial Times" in July 2007, shortly before the crisis broke: "When the music stops, in terms of liquidity, things will be complicated. But as long as the music is playing, you've got to get up and dance. We're still dancing" (Akerlof & Shiller, 2010, p. xii). In the following year, the bubble burst!

The step-by-step approach to the equilibrium strategy during the growing number of rounds in the beauty contest demonstrates that equilibrium points can be achieved by learning and adaptive behavior in the course of the evolutionary process. Learning, adaptive and myopic behavior can often be observed in experimental studies. In these cases, theories of bounded rationality, which are explicitly based on the principles of adaptive behavior, are superior to strict rationality theories.

OUTLOOK

Pioneers in sociology, such as Erving Goffman and Raymond Boudon, recognized that in many cases strategic action is the key to explaining social processes. Social actions in Max Weber's sense are of strategic character when they are not purely oriented on the actions of others but rather are *dependent* on the results of others' actions. This distinguishes mere imitation from a mass panic, a stock market crash, or the growth of a protest movement. Today, there are increasingly improved models of classical and behavioral game theory available, with the help of which it is now possible to describe the strategic context or the structure of strategic interaction precisely and to deduce testable conclusions. The fundamental problems of sociological research are of strategic character: the emergence of social order, the problems of cooperation, conflict and the decline of order, compliance with social norms and the problem of sanctioning, the emergence of institutions, social exchange and the problem of trust, the development of protest movements, social dilemmas, and collective goods. Modern methods of analyzing strategic interaction should be employed more widely in both the curriculum of sociology students and in sociological research.

Undeniably, classical game theory requires strong rationality assumptions. In situations where these models allow sufficiently valid predictions, there is no reason to introduce alternative decision principles. Furthermore, the theory delivers a reference point. If the observed behavior deviates from that, there is the challenge of explaining the "anomaly." In this way, new hypotheses and explanations have often been produced. When the strict rationality models fail—as demonstrated in the beauty contest—one can fall back on models of "bounded" rationality. There is no general and mechanically applicable theory—otherwise, we could leave the theory building to a computer. Rational choice theory, bounded rationality, analytical sociology, game theory, and psychological decision research should, instead, be understood as a "tool box." They deliver heuristic principles and instruments for building a theory of the middle range (Merton, 1949) in a concrete area of application, the findings of which can be tested on empirical data.

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Andreas Diekmann is a professor of sociology at the ETH Zurich. He earned a doctoral degree from the University of Hamburg in 1979 (Dr. rer. pol.),

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