

Popper's Situational Analysis and Contemporary Sociology

PETER HEDSTRÖM
RICHARD SWEDBERG
LARS UDÉHN
Stockholm University

This article assesses the value of Karl Popper's situational analysis for contemporary sociology. We maintain that this element of Popper's social science methodology has been largely neglected by sociologists and suggest that this is because it is borrowed from economics. As such, situational analysis has much in common with recent attempts to introduce rational choice in sociology. Our main question is this: What is the contribution of situational analysis to the current debate about rational choice in sociology? Our answer is that Popper has little to add to this debate. His formulation of situational analysis is too general and too vague to be much of a guide to research. Among other things, situational analysis fails to pay due attention to interests and to social interaction in the explanation of social phenomena. On the positive side, we notice that Popper does include social institutions as the most important element in individuals' situations.

Karl Popper has not been much discussed by sociologists, and basically only his early work, such as *The Open Society and Its Enemies* (1945) and "The Poverty of Historicism" (1944-45; see also 1957), has been studied and commented on. The main thesis in this article is that Popper's most important idea on sociology and social science is his notion of situational analysis, most fully developed in an essay that has been little noted by sociologists—"Models, Instruments, and Truth" (1963). The ideas he developed in this essay are strikingly similar to those that guide contemporary rational choice sociology. In

We would like to thank Ronald Bulatoff for his help in locating material in the Karl Popper Collection at the Hoover Institution Archives at Stanford University and Kari Polanyi-Levitt for information on Popper's relationship to Karl Polanyi. We are also grateful to Per Erik Yngwe for excellent research assistance and to Patrik Aspers, Christofer Edling, Rickard Sandell, Lotta Stern, and Ryszard Szulkin for useful comments on a previous version of this article.

Philosophy of the Social Sciences, Vol. 28 No. 3, September 1998 339-364
© 1998 Sage Publications, Inc.

fact, Popper was a pioneer of rational choice sociology. He argued for a rationality-based analysis long before scholars such as James Coleman and Gary Becker, who usually are considered to be the intellectual forefathers of contemporary rational choice sociology.

It is legitimate to ask why "Models, Instruments, and Truth" has evoked so little response among sociologists. One reason is probably that the full text of this work has been available only for a few years. "Models, Instruments, and Truth" is based on a little-noted speech that Popper gave for economists at Harvard in 1963. A long excerpt appeared in French in 1967, but the text did not appear in English until 1983 (Popper 1967, [1983] 1985). The full text of the 1963 talk did not become publicly available until 1994, and then in a somewhat amended version (Popper 1994; see also Popper 1963).

The fact that "Models, Instruments, and Truth" took such a long time to be published cannot be the only reason why this work has been ignored by sociologists. Philosophers of science as well as economists quickly took up the concept of situational analysis in discussion (see, e.g., Koertge 1975, 1979 for philosophers, and the references in Caldwell 1991 for economists). Philosophers of science, naturally, were interested in what Popper produced, and economists must have been flattered by a proposal for how to remake social science that was based on "an attempt to generalize the method of economic theory (*marginal utility theory*) so as to become applicable to the other theoretical social sciences" (Popper 1974, 93; 1976, 117-18). An important additional factor why sociologists have not shown more interest in Popper's ideas on situational analysis, we suggest, has to do with the centrality of the rationality principle in these ideas. Practically all versions of sociology in the 1970s and the 1980s were hostile to, as well as ignorant of, rational choice analysis. Today, however, and mainly due to the seminal work of James Coleman (1926-1995), there exists a thriving rational choice sociology—and also more potential interest and sympathy for ideas of the type that are at the center of "Models, Instruments, and Truth."

This article is structured in the following manner. We first briefly discuss Popper's relation to sociology and then in more detail follow the evolution of his notion of situational analysis, including the most important text in this respect, "Models, Instruments, and Truth." Then follows a section where we try to assess the importance of Popper's situational analysis for today's sociology. What Popper has to say about the relationship of falsifiability to the rationality principle is, for example, of considerable importance even to contemporary sociolo-

gists. His failure to integrate his ideas on social interaction into the core argument of "Models, Instruments, and Truth," on the other hand, needs to be corrected, and his treatment of the concept of interest is problematic. Finally, we comment on the lack of precision in his concept of a "situational model." In the concluding section, we summarize our assessment of situational analysis and what role it has to play for contemporary sociology.

1. POPPER AND SOCIOLOGY

When assessing Popper's proposal for an explanatory sociology, it is necessary to directly address the question of whether Popper actually knew enough sociology to be able to criticize it in a competent manner and to suggest how to improve it. Several commentators have, after all, noted that Popper knew very little sociology. Sorokin, for example, referred in the 1950s in a disparaging manner to Popper's "poor knowledge of sociological and social science literature," and Mark Blaug stated a few decades later that "Popper knew little about social science and less about economics" (Sorokin 1958, 344; Blaug 1985, 287). In his autobiography, Popper himself has also acknowledged that "the social sciences never had for me the same attraction as the theoretical natural sciences. In fact, the only theoretical social science which appealed to me was economics" (Popper 1974, 120; 1976, 96).

Popper's involvement with sociology and social science was most intensive during the 1930s and early 1940s, when he decided to work in the methodology of the social sciences. The reason seems to have been political to a large extent, and *The Open Society and Its Enemies* and *The Poverty of Historicism* are presented as Popper's "war effort" in his autobiography (Popper 1974, 115; 1976, 91).

Even though Popper has said that he "knew next to nothing about the social sciences [in the early 1930s]," he was by no means a novice at this time (Popper 1957, 138). As a matter of fact, it was during the 1920s that he had developed some of his most fundamental ideas on social science, albeit not the notion of situational analysis. His critique of Marx, for example, goes back to 1919 and grew in intensity during the following decade. In the mid-1920s he also had some discussions about social science with Karl Polanyi and a little-known sociologist named Julius Kraft that deeply influenced his thinking on social science (Popper 1962; 1992, 20, 74-5). It was, for example, Polanyi who

impressed on Popper the importance of the unintended consequences of social action in Marx's work, and perhaps it was Kraft's analysis of Mannheim and sociology that inspired Popper to his critique of the sociology of knowledge in *The Open Society and Its Enemies* (e.g., Kraft 1929).

It was, however, during the 1930s and early 1940s that Popper studied the social sciences, including sociology, the most intensely. If we look at *The Open Society and Its Enemies* and *The Poverty of Historicism*, both products of this period, we find that during these years Popper especially scrutinized the works of Karl Marx and Karl Mannheim in his attempt to make a thorough critique of historicism. He also studied Weber's sociology and philosophy of social science—*Wirtschaft und Gesellschaft* as well as *Gesammelte Aufsätze zur Wissenschaftslehre*—though it is unclear how much energy he put into this endeavor and how much he was influenced by Weber.¹ Popper refers during this period also to such sociological luminaries as Emile Durkheim, Georg Simmel, Vilfredo Pareto, and Herbert Spencer, as well as to several now-forgotten sociologists such as Alfred Vierkandt, L. T. Hobhouse, and Morris Ginsberg. Presumably, Popper had read something by each of these scholars, even though he did not submit any of them to as close scrutiny as he did to Marx or Mannheim.

The question if Popper was competent enough in the 1930s and early 1940s to pronounce upon sociology as well as attempt to improve upon it must consequently be answered with a "yes." It is true Popper was probably better versed in 19th-century preacademic sociology of the type that Comte, Spencer, and Marx represent than in the sociology produced by the generation of Weber-Durkheim-Simmel. Nevertheless, it is clear that Popper knew what sociology was about and the problems that it tried to address.²

As far as Popper's influence on sociology is concerned, this is extremely difficult to assess in a more precise manner. According to Merton (1979), however, Popper and Thomas Kuhn are the philosophers of science who have had the most marked influences on the sociology of science. To give some indication of the extent to which Popper's ideas have penetrated the discipline of sociology, we have examined references to Popper and three other leading philosophers—Carl Hempel, Thomas Kuhn, and Ludwig Wittgenstein—in five leading sociology journals—*Acta Sociologica*, *American Journal of Sociology*, *British Journal of Sociology*, *Revue Française de Sociologie*, and *Kölner Zeitschrift für Soziologie*—during the years 1960 to 1996 (see Table 1).

TABLE 1
**Number of Articles with References to the Work
of Carl Hempel, Thomas Kuhn, Karl Popper, and
Ludwig Wittgenstein in Leading Sociology Journals, 1960-96**

	Acta Sociologica	American Journal of Sociology	British Journal of Sociology	Kölner Zeitschrift für Soziologie	Revue Française de Sociologie	Total
Hempel	5	3	6	14	3	31
Kuhn	14	31	25	14	12	96
Popper	11	11	31	56	12	121
Wittgenstein	5	3	9	9	3	29

As can be seen from the table, Popper is indeed the philosopher who has been cited most frequently in leading sociology journals during the last three and a half decades. A total of 121 articles contain references to Popper's work as compared to 96 to Kuhn, 31 to Hempel, and 29 to Wittgenstein. Popper's dominance appears to be restricted to Europe, however, and in particular to the German-speaking world. In the leading American sociology journal—*American Journal of Sociology*—Thomas Kuhn is by far the most cited philosopher; there are almost three times as many articles referring to Kuhn's work as to that of Popper.

Despite these cross-national variations, it is obvious that Popper's ideas have made deep inroads into the discipline of sociology. As mentioned above, however, barely any of these articles discuss what must be considered his most important contribution to sociological theory, namely, his notion of situational analysis. It is to this aspect of Popper's work that we now turn our attention.

2. THE EVOLUTION OF SITUATIONAL ANALYSIS IN POPPER'S WORK

The first time that Popper mentions in print the idea of situational analysis is in the "The Poverty of Historicism," originally published as three articles in *Economica*, 1944-45.³ The idea of situational analysis is introduced in a section with the title "Situational Logic in History. Historical Interpretation" and is offered as an alternative to historicist interpretations of history. According to Popper, "There is room for a

more detailed analysis of the *logic of situations* of which the best historians have often made use more or less consciously" (Popper 1944-45, 148).⁴ An analysis of the logic of the situation differs from historicism by bringing in the decisions and actions of individuals (p. 84). But Popper warns against seeing history as the result of the decisions of great individuals. The important thing is not the decisions of individuals but the situation that "necessitates" some actions rather than others. From the very beginning, then, Popper's situational analysis was an analysis of the *situation* more than of the individual.

In "The Poverty of Historicism," the relation between situational analysis and three other elements of Popper's social science methodology—his methodological individualism, his institutionalism, and the rationality principle—is somewhat obscure:

Beyond this logic of the situation, or perhaps as a part of it, we need something like an analysis of social movements. We need studies based on methodological individualism, of the social institutions through which ideas may spread and captivate individuals, of the way in which new traditions may be created, and of the way in which traditions work and break down. In other words, our individualistic and institutionalist models of such collective entities as nations, or governments, or markets, will have to be supplemented by models of political situations as well as of social movements such as scientific and industrial progress. (Popper 1944-45, 85; 1957, 149)

It is not perfectly clear from this quotation whether Popper conceives of methodological individualism as being always a form of situational analysis, and the latter as being always institutionalistic.

The *rationality principle* is introduced by Popper in an argument against the common presumption that social situations are more complex than physical situations. According to Popper, there is reason to believe that the opposite is the case, that "concrete social situations are in general less complicated than concrete physical situations. For in most, if not in all, social situations there is an element of *rationality*" (Popper 1944-45, 82; 1957, 140). This fact is the source of the most important difference between the methods of the natural and of the social sciences. Popper notes,

I refer to the possibility of adopting, in the social sciences, what may be called the method of logical or rational reconstruction, or perhaps the "zero method." By this I mean the method of constructing a model on the assumption of complete rationality (and perhaps also on the as-

sumption of the possession of complete information) on the part of all individuals concerned, and of estimating the deviation of the actual behaviour of people from model behaviour, using the latter as a kind of zero co-ordinate. An example of this method is the comparison between actual behaviour (under the influence of, say traditional prejudice, etc.) and model behaviour to be expected on the "pure logic of choice," as described by the equations of economics. (Popper 1944-45, 82; 1957, 141)

Popper does not say that the "pure logic of choice" is a "logic of the situation," and there is little in the first version of "The Poverty of Historicism" to suggest a necessary relation between the two. In the index to the book version of this work, however, there is a cross-reference between "rational action, rationality" and "situational logic" (Popper 1957, 165). This indicates that situational analysis has something to do with rational choice. This coupling also becomes explicit in *The Open Society and Its Enemies*, which was written after "The Poverty of Historicism."⁵ Nor is there a necessary relation between the method of rational reconstruction and methodological individualism, even though they do have something in common: "neither the principle of methodological individualism, nor that of the zero method of constructing rational models, implies in my opinion the adoption of a psychological method" (Popper 1944-45, 82; 1957, 142).

In *The Open Society and Its Enemies*, Popper presents situational analysis as an alternative to "psychologism." To explain social action, what we need is not a detailed knowledge of the mental states of individuals but an understanding of the situation in which social action takes place. The " 'psychological' part of the explanation is very often trivial, as compared with the detailed determination of his action by what we may call the *logic of the situation*" (Popper 1945, 90). Once again, Popper's emphasis is on the situation, not on the psychology of the individual. Popper goes as far as denying that the rationality principle, used in situational analysis, is a psychological assumption about human nature. "On the contrary: when we speak of 'rational behaviour' or of 'irrational behaviour' then we mean behaviour which is, or which is not, in accordance with the logic of the situation" (Popper 1945, 90). Seeking support in the methodology of Max Weber, Popper argues that it is the other way around: "the psychological analysis of action in terms of its rational or irrational motives presupposes . . . that we have previously developed some

standard of what is to be considered as rational in the situation in question" (p. 90).

Popper's main weapon against psychologism, however, is institutionalism, which he uses to defend the autonomy of sociology:

Against the doctrine of psychologism, the defenders of an autonomous sociology can advance *institutionalist* views. They can point out, first of all, that no action can ever be explained by motive alone; if motives (or any other psychological or behaviourist concepts) are to be used in the explanation, then they must be supplemented by a reference to the general situation, and especially to the environment. In the case of human actions, this environment is very largely of a social nature; thus our actions cannot be explained without reference to our social environment, to social institutions and their working. (Popper 1945, 86)

The relation between situational analysis and institutionalism seems to be this: the former is most often an instance of the latter, simply because the social environment is largely made up of institutions.⁶

In "The Poverty of Historicism," situational analysis was offered as a mode of historical interpretation and discussed independently of the principle of rationality. In the second edition of *The Open Society and Its Enemies*, however, it is stated as a method for the social sciences, borrowed from the science of economics. "The analysis of situations, the situational logic, plays a very important part in social life as well as in the social sciences. It is, in fact, the method of economic analysis" (Popper 1950, 290).

The identity of rational reconstruction—or, as most would say today, "rational choice" and situational analysis—comes out most clearly in Popper's autobiography, where he equates the rationality principle, the zero method, and the logic of the situation, and goes on to explain,

The method of situational analysis, which I first added to *The Poverty* in 1938, and later explained a little more fully in Chapter 14 of *The Open Society*, was developed from what I had previously called "the zero method." The main point here was an attempt to *generalize the method of economic theory (marginal utility theory) so as to become applicable to the other theoretical social sciences*. Popper, (1974, 93; 1976, 117f).⁷

After the publication of "The Poverty of Historicism" and *The Open Society and Its Enemies*, Popper turned away from the social sciences and devoted most of his time to his main interest, the natural sciences. In the 1950s he was working primarily with preparing an English

edition of *Logik der Forschung*. Popper, however, returned to the methodology of the social sciences in the 1960s, when he was invited to open a discussion on this topic at a conference held by the German Sociological Association in Tübingen in 1961. Popper's opening address was to be followed by a reply from Theodor W. Adorno, the leading exponent of the critical theory of the Frankfurt School in German philosophy and sociology. Popper had been asked to present his views in the form of clearly stated theses in order to facilitate critical discussion. The plan failed. Adorno chose to make his own speech rather than to respond to that of Popper. According to Ralf Dahrendorf, who was asked to comment on the discussion at the conference, several contributors "regretted the lack of tension between the symposiasts' papers. At times, it could indeed have appeared, astonishingly enough, as if Popper and Adorno were in agreement" (Dahrendorf [1962] 1976, 123f).⁸ But this is immaterial for our present purpose, which is to trace the development of the idea of situational analysis in the work of Karl Popper. For this purpose, Popper's address is highly significant.

Most of Popper's address deals with methodological theses that are common to the natural and social sciences. Only at the end of his paper (theses 22-27) does he address the social sciences specifically. Popper repeats his critique of psychologism but now also adds the argument that "psychology presupposes social ideas, which shows that it is impossible to explain society exclusively in psychological terms, or to reduce it to psychology" (Popper [1962] 1976, 101). The method of interpretive (*verstehende*) sociology is not, or need not be, psychological. Popper says "there exists a *purely objective method* in the social sciences which may well be called the method of *objective understanding*, or situational logic. . . . [I]t consists in realizing that the action was objectively *appropriate to the situation*" (p. 102). This is the method of economics, and according to Popper it has, or may be endowed with, the following surprising characteristics: apparently psychological elements, such as wishes, memories, and associations, may "be transformed into elements of the situation." In Popper's words,

The man with certain wishes therefore becomes a man whose situation may be characterized by the fact that he pursues certain objective aims; and a man with certain memories or associations becomes a man whose situation can be characterized by the fact that he is equipped objectively with certain theories or with certain information. (p. 102f.)

After this far-reaching diminishing of the role of the individual, Popper obviously feels the need to insist that the method of situational analysis is nevertheless "an individualistic method" (Popper [1962] 1976, 103), but this is the last time he mentions methodological individualism in print. His emphasis is, instead, on institutionalism. Popper suggests, for instance, that "social institutions determine the peculiarly social character of our environment. These social institutions consist of all the realities of the social world, realities which to some extent correspond to the things of the physical world." He mentions, as examples of social institutions, things such as a "grocer's shop or a university institute or a police force or a law," and also "[c]hurch, state and marriage." At least some institutions, such as the custom of *hara-kiri* in Japan, are coercive.⁹ Popper denies, of course, that institutions act; only individuals act, but they act "in and for institutions. The general situational logic of these actions will be the theory of the quasi-actions of institutions" (p. 103; see also Agassi 1960, 248; 1975, 146). One possible interpretation of Popper's suggestion that individuals "pursue objective aims" is that they pursue aims associated with roles in social institutions. This is presumably what Popper has in mind with "the quasi-actions of institutions" (cf. Jarvie 1972, 31f.).

3. "MODELS, INSTRUMENTS, AND TRUTH"

Two years later, on 26 February 1963, Popper was once again invited to speak before an audience of social scientists. This time, it was an audience of economists and the place was the Department of Economics at Harvard University. The title of the speech was "Models, Instruments, and Truth—the Rationality Principle in the Social Sciences."¹⁰

In the article based on his 1963 address to the Economics Department at Harvard (Popper 1994), Popper explicated his views on the role of situational analysis in explanatory theory more fully than in any of his other publications. There is little in this article that is altogether new, however. The main novelties are to be found in his discussion of the role of models in the natural and the social sciences and the peculiar status of the rationality principle in the latter.

According to Popper, situational analysis is *the* proper approach of any explanatory social science. A situational analysis, according to

Popper, proceeds by first making an analytical model of the social situation to be analyzed—what Popper calls “a typical situational model” (Popper 1994, 168). This situational model consists of elements representing the actors’ decision-making environments as well as their aims and beliefs. The situational analysis consists in working out what sorts of actions are implicit in the social situation. That is to say, concrete actions are explained by analyzing how hypothetical actors would act in a situation like the one described in the situational model.

Popper uses the example of a pedestrian, called Richard, who wants to cross a street to illustrate the sort of analysis he has in mind. We observe Richard’s rather erratic movements as he is making his way across the street. To explain these movements, we construct a situational model. This model must include some *physical objects* (e.g., cars) which set certain physical limits to Richard’s movements. In addition, the model must include relevant *social institutions* such as police regulations and the rules of the road that also set limits for his movements and actions. Finally, the model must specify Richard’s *aims* and the *information* or knowledge he has of relevant matters such as social institutions and the intentions of drivers. To work out the actions implicit in this static situational model, an “animating principle” also is needed. According to Popper, the *rationality postulate* performs this function. Rational action here simply means that actors act appropriately, given their decision-making context, aims, and beliefs. With this type of model, Popper argues, “we may be able to explain, or to predict, Richard’s movements as he crosses the street” (Popper 1994, 168), and more generally, “to ‘work out’ what was implicit in the social situation” (p. 169).

After his paper on “Models, Instruments and Truth,” Popper returns to situational analysis, most explicitly, in two articles—“A Pluralist Approach to the Philosophy of History” (1969) and “On the Theory of the Objective Mind” (1972)—and in his intellectual autobiography. In these articles, Popper discusses situational analysis as part of his own theory of a “third world” of objective mind, or objective knowledge, and compares it to the theory of understanding, or hermeneutics, in the humanities. As in his first treatment of situational analysis in *The Poverty of Historicism*, Popper’s concern is with the use of this method in history and, especially, the history of science. His main point is that to understand the actions of a scientist, we must understand the theoretical *problem* he or she was trying to solve.

Admittedly, no creative action can ever be fully explained. Nevertheless, we can try, conjecturally, to give an idealized reconstruction of the *problem situation* in which the agent found himself, and to that extent make the action "understandable" (or "rationally understandable"), that is to say, *adequate to his situation as he saw it*. This method of situational analysis may be described as an application of the *rationality principle*. (Popper 1972, 178)

Of some interest for sociologists may also be the fact that Popper claims that his method of situational analysis is akin to that of Max Weber. Both Popper and Weber agree that the spring of human action is the aims, or motives, of individual human beings and also that individuals tend to act in ways that they believe are adequate, or appropriate, in the situation *as they conceive it*.¹¹

The ultimate object of knowledge, therefore, is the motives and knowledge of individuals. But they also agree that there is no way to "enter" the minds of individuals, except indirectly, through the objective traces they leave in the form of actions and products of actions (tools, buildings, letters, etc). In addition, we can try to reconstruct the situation in which individuals act and, supposing that they act rationally, arrive at an understanding of why they acted as they did. An understanding and explanation of social phenomena, historical events, and the actions of individuals start with hypotheses, or conjectures, about the motives and knowledge of individuals and about the situation in which they act and continue with checking the evidence for these conjectures. There is a difference between Popper and Weber, but it is largely a difference of emphasis. Weber always insisted that interpretive sociology aims at understanding the subjective meaning of individuals who take one another into account, while Popper is equally insistent that the most important thing is to understand the logic of the situation.

Situational analysis has also been developed and advocated by some of Popper's pupils and followers. One of them, Ian C. Jarvie, claims that it is one of Popper's most powerful philosophical ideas but adds, "Unfortunately it is nowhere fully explained outside of lectures" (Jarvie 1972, 5). If so, we should expect to get further information about situational analysis from those who attended those lectures. Unfortunately, lack of time and space prevents us from exploring the further development of situational analysis here. Our general impression, however, is that most of what has been written by Popper's followers consists of refinements and piecemeal addi-

tions rather than of something radically new (see, e.g., Agassi 1960, 1975; Jarvie 1972; Watkins 1963, 1970; Wisdom 1970).

4. ASSESSMENT OF SITUATIONAL ANALYSIS

In this section we will discuss how Popper's argument can help to improve sociological theory, but we will also point to some problems and limitations in his approach. We have singled out the following four topics for discussion: (1) falsifiability and the rationality principle, (2) the problem of how to handle social interaction and social mechanisms in situational analysis, (3) the tendency to replace interest with the logic of the situation in Popper's approach, and (4) other ambiguities in Popper's approach.

Falsifiability and the Rationality Principle in Popper's Analysis

In addition to proposing a most valuable framework for the construction of explanatory theories, Popper's article "Models, Instruments, and Truth" is of importance because it brings to the foreground an inherent tension between analytical modeling and empirical testing of theories. To most sociologists Popper is chiefly known for his thesis about falsifiability as the demarcation line between science and nonscience, and falsification as the engine behind scientific development (see, e.g., Merton 1979). This thesis is undoubtedly his most important contribution to the philosophy of science, but when entering into a discussion of the principles behind situational analysis, Popper, at least seemingly, appears to contradict his doctrine of falsificationism.

According to Popper, explanatory theories in the social sciences always, or nearly always, are analytical and model-based. They operate "by the method of constructing *typical* situations or conditions—that is, by the method of constructing models. . . . And the 'models' of the theoretical social sciences are essentially descriptions or reconstructions of *typical social situations*" (Popper 1994, 166). Popper fully recognized that these types of models always and necessarily are simplifications that are constructed in such a way that they include only those elements believed to be essential for the problem at hand. They will always distort reality by accentuating certain aspects of the situation and by ignoring others.

But can the model be true? Can any model be true? I do not think so. Any model, whether in physics or in the social sciences, must be an over-simplification. It must omit much, and it must over-emphasize much. (Popper 1994, 172)

If this now is the case, what about the doctrine of falsification? If a model oversimplifies and distorts the facts, shouldn't it be falsified and replaced with an alternative model? Should not the rationality principle, which according to Popper is false since it is not universally true, be considered to be falsified and therefore be replaced by an alternative model of individual action? Popper answered both these questions in the negative. Apparently he considered the rationality postulate to be so essential for arriving at explanatory social theory that he, the great falsificationist, meant that it should be maintained even though it is usually false.

I regard the principle of adequacy of action (that is, the rationality principle) as an integral part of every, or nearly every, testable social theory. Now if a theory is tested, and found faulty, then we have always to decide which of its various constituent parts we shall make accountable for its failure. My thesis is that it is *sound methodological policy* to decide not to make the rationality principle, but the rest of the theory—that is, the [situational] model—accountable. (Popper 1994, 177)

The reason for Popper deviating from his otherwise so strongly held beliefs in falsification as the engine of scientific development is of course that he fully realized the model-based nature of all explanations in the social sciences. Explanatory theories in the social sciences explain *typical* events, and explanations are deduced from models of *typical* actors placed in *typical* situations.

Popper was obviously well aware of the tension between his doctrine of falsificationism and situational analysis, but he did not try to resolve it. Our own position on this matter is that there is indeed an important, and as of yet unresolved, tension between the two modes of analysis. This tension also shows that a dogmatic interpretation of the doctrine of falsificationism cannot be defended, at least not within the social sciences. Criticizing an analytical model for lack of realism appears to be an instance of the logical fallacy that consists of mistaking the abstract for the concrete—what Whitehead (1925) called "The Fallacy of Misplaced Concreteness." The choice between the infinitely many analytical models that can be used to describe and analyze a given social situation can never be guided by their truth value, because all models by their very nature distort the reality they

are intended to describe. The choice must rather be guided by how useful the various analytical models are likely to be for the purpose at hand.

As suggested by Gudmund Hernes (1998), social scientists always are commuters between two worlds: the world they make and the world they mirror—the world of abstract models and the empirical world they inhabit. Analytical models never are simply true or false; they only are more or less applicable to a specific social situation. They are what James Coleman (1964) referred to as “sometimes-true theories,” semigeneral theories that can provide insights into the regularities that obtain in specific social situations.

The Problem of Social Interaction and Social Mechanisms in Popper’s Analysis

Popper’s argument in “Models, Instruments, and Truth” may also be helpful to contemporary sociology in setting it on a sound middle-range course. During the last few years, especially in rational choice sociology, an effort has been made to revive the tradition of middle-range sociology (see especially Hedström and Swedberg 1996, 1998). Middle-range theory offers an insightful critique of grand theory for its lack of explanatory power and offers as an alternative a focus on tangible social mechanisms which helps to bridge the gap between theory and empirical research (for a discussion of middle-range sociology, see especially Boudon 1991 and Merton 1968).

The type of social analysis that Popper proposes in “Models, Instruments, and Truth” can in our opinion help to sharpen and improve the middle-range project in sociology. Popper’s term “situational analysis” captures well, for example, the main thrust of middle-range sociology, namely a focus on one specific part or aspect of social life, as opposed to analyzing the whole of society, as in “grand theory.” Popper, it may be added, has an instinctive distaste for grand theory, just as does Robert Merton.¹² While Merton attacks grand theory for being vacuous—more precisely, for being unable to produce analyses on the middle-range level—Popper makes a complementary critique. Marxism, he says, produces fictitious historical predictions on the societal level. Marx, to add Merton to Popper, is not only a false prophet but also a false prophet who indulges in grand theory. It may be added that Marx was not the only 19th-century theorist with this orientation.

When one compares Popper's approach in "Models, Instruments, and Truth" to that of Merton, certain problems in Popper's analysis also appear. One of these has to do with the fact that by focusing on the characteristics on specific social situations rather than on social mechanisms, Popper raises obstacles to turning situational analysis into a more general theory. By this we mean that while Merton emphasizes the importance of identifying social mechanisms that operate according to the same logical principles in a number of *different* social situations, Popper's approach does not invite a discovery of general social mechanisms in this sense. To Popper, each social situation has its own typical structure—a structure which is not necessarily similar to that of another social situation.¹³

A second point on which Popper's situational analysis is less satisfactory has to do with his failure to deal explicitly with social interaction and to include social institutions and unintended consequences directly in the situational analysis. In Popper's archetypal example the focus is on a single actor, Richard the Pedestrian, who is crossing the street. There is very little social interaction going on in this situation, and the most one can say in this regard is that Richard the Pedestrian has to dodge cars. Social institutions and unintended consequences are also missing from the core of the analysis, even though Popper mentions traffic signals, zebra crossings, and the like. There is really only one actor, trying to figure out how to act adequately in a specific situation, and he basically views social situations as "obstacles."

From the vantage point of contemporary sociology, what is especially missing from Popper's analysis is a discussion of how individual actions turn into something novel when they encounter one another and when they fuse into social, collective action. This is what James Coleman and some sociologists call "the problem of transformation" (see Coleman 1990). Popper obviously was not unaware of this whole problem, because he often refers to the unintended consequences of social action in his work. Still, his ideas on this topic are not organically integrated into the notion of situational analysis. There is no direct link that connects the situation, as Richard sees it, to institutions and unintended consequences.

The Absence of Interests from Popper's Analysis

There is also a tendency, we argue, for one of the most important components of sociological explanations in the rational tradition to

be eliminated, or at least severely displaced, in Popper's situational analysis, and that is *interest*. What drives the analysis in rational social theory is interest. David Hume, for example, put it in the following way in *Treatise of Human Nature*, and a multitude of thinkers from Adam Smith to James Coleman or Paul Samuelson would no doubt agree: "Nothing is more certain, than that men are, in a great measure, govern'd by interest" (Hume [1739-40] 1978, 534).

In Popper, as a contrast, what drives the analysis—its "animating principle"—is the actor's tendency to act appropriately or in accordance with the logic of the situation: "Agents always act in a manner appropriate to the situation in which they find themselves" (Popper 1994, 172). Richard the Pedestrian crosses the street, and in doing so, he acts appropriately: He is prudent when attempting to cross the street, he dodges the cars without taking any undue risks, and so on.¹⁴

The word *interest* does not occur once in "Models, Instruments, and Truth," and the closest one gets is that Richard the Pedestrian has an "aim": He wants to cross the street, so he can catch a train. Popper also uses a perfectly free market as an example of a situational analysis, and again he speaks of "the situational logic" as driving the actors, and not "interest" (Popper 1994, 170). To buy and sell in a market presumably represents "appropriate" behavior—though most of us would have thought that it rather was propelled by the interests of the actors.

Why does Popper avoid *interest*, which is such a central part of rational choice theory? One possibility is that Popper avoids the term "interest" because of the dogmatic way in which Marxists and conspiracy theorists tend to use "class interests" and "economic interests." Indeed, the way that the term "interest" is used in *The Open Society and Its Enemies* and *The Poverty of Historicism* indicates that this may well be the case (see Popper 1945, 201, 205, 210; 1957, 17, 47).

Nevertheless, by singling out "acting in a manner that is appropriate to the situation," rather than "acting according to one's interest," Popper risks losing some of the power inherent in rational choice analysis. Richard the Pedestrian is in danger of becoming a passive conformist rather than an active seeker, which is obviously much closer to Popper's own ideal. Popper furthermore runs the risk of misunderstanding behavior that is propelled by a desire to realize an actor's interest in a context that goes beyond the specific "social situation" in which the actor is located at the moment. To counter this whole line of criticism, one can of course argue that Popper's analysis is flexible enough to encompass also these interest-driven forms of

behavior; after all, is it not appropriate to realize one's interests, and is not "aim" identical to "interest"? This type of counterargument, however, is more of an "immunizing stratagem" than an attempt to face the difficulty head on.

Further Ambiguities in Popper's Approach

As several previous commentators have noted, the fine-grained details of Popper's notion of situational analysis never were fully explicated (see Bunge 1996, Farr 1985, Jacobs 1990, Simkin 1993). Noretta Koertge (1975, 1979) has substantially clarified the logic behind his proposal, however, and she suggests that Popper's explanatory schema consists of the following four components (Koertge 1979, 87):

1. *Description of the situation*: Agent A was in a situation of type C.
2. *Analysis of the situation*: In a situation of type C, the appropriate thing to do is x.
3. *Rationality principle*: Agents always act appropriately to their situations.
4. *Explanandum*: (Therefore) A did x.

This appears to be a fairly reasonable characterization of the logic behind Popper's proposal: Elements of a social situation define the appropriate line of action, and given the rationality postulate, the theory predicts that actors will adopt this line of action.

In our view, Koertge's characterization of the logic behind Popper's approach not only helps to clarify what Popper had in mind, but it also helps to identify some important additional ambiguities in his approach. One of these is that Popper appears to have had an exaggerated view of the uniqueness of rational behavior and the extent to which it is possible to deduce from a specific social situation the single most appropriate line of action. Tyler Cowen, when discussing the explanatory power of contemporary economic theory, has noted that "models with multiple equilibria have become increasingly common in economics, especially with the advent of game theory. . . . If my behavior depends upon what I expect from you, and your behavior depends upon what you expect from me, multiple solutions usually will obtain" (Cowen 1998, 137).¹⁵ Jon Elster has similarly suggested that multiple equilibria are the rule rather than the exception in most complex social situations. In certain extreme situations *any* behavior is an equilibrium strategy, which means that

no behavior can be considered irrational (see Elster forthcoming). If rational conduct (or behavior adequate to the situation, as Popper would call it) is not uniquely defined, the analysis of the situation (item 2 in Koertge's schema) is much more ambiguous and indeterminate than Popper seem to have believed.¹⁶

Another difficulty with Popper's explanatory scheme is his ambiguous, vague, and all-embracing notion of a "situational model." A situational model, according to Popper, not only includes various physical and social elements limiting the range of actions that are open to an actor but also "contains all the relevant aims and all the available relevant knowledge, especially of the various possible means for realizing these aims" (Popper 1994, 169). Although a concept like this, which lumps together an array of different and independent entities under one heading, may be useful for certain heuristic purposes, it lacks the precision needed to advance our understanding of many (or perhaps even most) social phenomena. A minimal addendum to Popper's explanatory scheme would be to explicitly distinguish between the various core elements of the situational model, in particular between the action opportunities available to the actors, the actors' interests, and the actors' beliefs. We then arrive at the following revised characterization of his explanatory schema:¹⁷

1. *Description of the situation:* Agent *A* was in a situation of type *C* characterized by a specific array of action alternatives, x_1 to x_n , being open to the actor.
2. *Description of interests:* Agent *A* wants to attain end *E*.
3. *Description of beliefs:* Agent *A* has reasons to believe that action x_1 is the best way to attain *E* in situation *C*.
4. *Rationality principle:* Agents always act rationally; that is, they choose the course of action that they believe to be the best way of realizing their interests.
5. *Explanandum:* (Therefore) *A* did x_1 .

In addition to increasing the precision of the analysis, an important reason for why we believe that it is essential to distinguish between the different core elements of the situational model is that for many types of acts, the interesting intellectual puzzle is not to explain why actors with certain beliefs and interests act the way they do. In many situations, once the beliefs and interests are known (or postulated), the types of acts that are likely to follow are obvious and easily recognizable even by lay persons unacquainted with the principles of situational analysis. For example, if Richard the Pedestrian, in the

above example, always dances the polka when crossing the street, and the explanation for this behavior simply is that he likes to dance the polka wherever he goes, the theoretical machinery of situational analysis seems rather redundant.¹⁸ In cases like these, the real intellectual puzzle is to explain why agents like Richard have the rather unusual *desires/interests* they have. Similarly, if we wish to explain why some individuals avoid walking under ladders, the real theoretical puzzle is to explain why they subscribe to the rather odd *belief* that personal tragedies will befall persons who walk under ladders. Once this belief is in place, the behavior to be explained—the avoidance of walking under ladders—is a trivial problem that requires no elaborate theoretical analysis. The issue of belief formation also is at the heart of the multiple equilibria problem referred to above, that is, the problem of defining the rational line of action when action is social and oriented to the behavior of other actors (see Elster forthcoming).

5. CONCLUDING REMARKS

We shall now sum up our position on situational analysis. It is clear that a number of difficulties and ambiguities attach to Popper's approach. He, for example, failed to account for the possibility of multiple equilibria, the notion of interest tends to disappear in his approach, he did not connect his ideas on institutions and unintended consequences to the logic of his situational analysis, and several key concepts are vaguely defined. For all these reasons we feel that Popper's scheme for how to analyze social action, as outlined in "Methods, Instruments, and Truth," is not sufficient as a guide for how to conduct a sociological analysis today.

It should, of course, be pointed out that when Popper presented his ideas on situational analysis, they represented a novelty, and he is surely a pioneer in extending the logic of "the economic approach" to the other social sciences. We also feel that situational analysis deserves to be better known in contemporary sociology. Properly amended and defined, we would argue that situational analysis is an essential part of any explanatory social science. At the very center of the analysis is the actor, who takes his or her social surrounding into account when trying to realize his or her interest. The focus is on *typical* behavior; that is, there is a realization that one has to eliminate irrelevant facts by analytical accentuation.

We also feel that situational analysis opens the door in several aspects to fruitful theorizing in the rational choice tradition, as this is to be found in contemporary sociology. For one thing, there is the similarity to middle-range sociology that was mentioned earlier. Connected to this, there is also the link to the problematics of social mechanisms. Finally, but perhaps most important, by emphasizing the need to always stick to the principle of rationality, Popper invites a new perspective on falsifiability and theory testing in sociology. Contemporary sociology, as do many of the social sciences, has a tendency to eliminate theories all too quickly by confronting them with results from oftentimes rather poor empirical tests. Popper's reasoning in "Methods, Instruments, and Truth" goes very much counter to this tendency and thereby points sociology in a more fruitful direction.

NOTES

1. As opposed to Struan Jacobs (1990), we do not think that there is any evidence that Popper got most of his inspiration for the idea of situational analysis from Weber's work. Popper may, however, have picked up one of his ideas about rationality from *Wirtschaft und Gesellschaft*, namely that the researcher should start out the analysis by constructing a rational model, then discard this model if it does not square with empirical reality. It can be added that Jacobs does not mention that Weber gave some highly celebrated lectures at the University of Vienna during the summer of 1918, which Popper must have heard about (if not otherwise through Hayek, who was very impressed by Weber).

2. The reader who doubts that Popper was capable of carrying out (theoretical) work in sociology is especially referred to the fine study of "Plato's Descriptive Sociology" in *The Open Society and Its Enemies* as well as to the chapter titled "The Sociology of Knowledge" (Popper 1945, vol. 1, 29-48; vol. 2, 201-211).

3. In a Historical Note to *The Poverty of Historicism* (p. iv), Popper tells readers that it was first presented as a paper at a seminar in Brussels in 1936 and soon afterward at Friedrich von Hayek's seminar at the London School of Economics. In his intellectual biography, first published as part 1 of P. A. Schilpp, ed., *The Philosophy of Karl Popper* (Popper 1974) and later published, separately, as *Unended Quest* (Popper 1976), Popper tells us that the method of situational analysis was added to "The Poverty of Historicism" in 1938 (Popper, 1974, 93; 1976, 117).

4. In the book version of *The Poverty of Historicism* (Popper 1957, 149), there is a slight change of language, but not of meaning. Popper writes,

There is room for a more detailed analysis of the *logic of situations*. The best historians have often made use, more or less unconsciously, of this conception: Tolstoy, for example, when he describes how it was not decision but "necessity" which made the Russian army yield Moscow without a fight and withdraw to places where it could find food.

5. Popper tells us in his autobiography (Popper 1974, 90f.; 1976, 114) that *The Open Society and Its Enemies* grew, as an unintended consequence, out of "The Poverty of Historicism." It was his discussion of essentialism which expanded into a voluminous critique of Plato and, eventually, of Hegel and Marx, and had to be cut out of the latter and turned into a separate work.

6. There is a third argument against psychologism. Most intentional human actions have unintended and unanticipated consequences, which no psychology can help us to explain. In fact, most social institutions are the unintended results of human action. To explain the unintended and unforeseen consequences of human action is, according to Popper, the main task of the social sciences (Popper 1945, 89-92). This thesis is repeated with added emphasis in a couple of articles published soon after *The Open Society and Its Enemies*. Popper now attacks a common form of psychologistic and rationalistic individualism, which he calls the "conspiracy theory of society": the view that whatever happens in society is the result of the intentions and actions of certain powerful individuals. Against this theory, Popper maintains that "nothing ever comes off exactly as intended" (Popper [1949] 1968, 124). Because of this fact (if, indeed, it is a fact), Popper identifies "the main task of the theoretical social sciences. It is to trace the unintended social repercussions of intentional human actions" (Popper [1949] 1968, 342).

7. In his two books on the methodology of the social sciences, Popper argued for unity of method with the natural sciences. The main difference is between theoretical sciences—such as physics, chemistry, economics, and sociology—and history. The former are generalizing and aim at the formulation of general laws. The latter is singularizing, but it too makes use of general laws, which it applies to singular events. Some of these laws are taken from the theoretical social sciences, while others—perhaps most of them—are trivial laws derived from common sense. But universal laws of some kind are necessary for scientific explanation both of singular events and of regularities (Popper 1944-45, 74-78; 1945, 248-52; 1957, 122-25). Popper, then, seems to be an adherent of the so-called deductive-nomological, or "covering-law," of scientific explanation. It is not altogether clear, however, what is the role of laws in situational analysis. When returning to this issue in his autobiography, Popper maintains that he never attached much importance to the idea that history uses trivial universal laws in its explanations. "But for years the unimportant thesis—in a misinterpreted form—has, under the name of the 'deductive model,' helped to generate a voluminous literature" (Popper 1974, 93; 1976, 117). What he did regard as important, situational analysis, took some years to mature.

8. The papers by Popper, Adorno, and Dahrendorf were published in *Kölner Zeitschrift für Soziologie* in 1962 and were followed by a debate between Jürgen Habermas and Hans Albert, the former a member of the Frankfurt School and the latter a follower of Popper. In 1969 a book was published in Germany with the title *Der Positivismusstreit in der deutschen Soziologie*, suggesting a second *Methodenstreit* on a par with the one that raged in German and Austrian social science at the end of the 19th century. Added to the previous contributions were two long introductory contributions by Adorno and a *Kleines, verwundertes Nachwort zu einer grossen Einleitung* ("a short surprised postscript to a long introduction") by Hans Albert. Popper himself reacted in an article on "Reason or Revolution" ([1970] 1976), in which he much regretted that Adorno had not accepted his challenge, attacked members of the Frankfurt School for their predilection for high-sounding trivialities, and described their influence as "irrationalist" and "intelligence-destroying" (Popper [1970] 1976, 253). Above all, Popper

reacted to the articles by Habermas and to the title of the book, which suggested that Popper was a positivist when, in his own opinion, he was the main critic of logical positivism (see Popper 1974, 69-71; 1976, 87-90). Popper's complaints were to no effect, but his article was included as the last contribution to the English edition of *Positivismusstreit*, titled *The Positivist Dispute in German Sociology* (Adorno et al. 1976).

9. Those who have read the French sociologist Emile Durkheim recognize in these statements the defining characteristics of a "social fact." In *The Rules of Sociological Method*, Durkheim suggests that social facts are characterized by being (a) external to the individual and (b) invested with coercive power (Durkheim [1895] 1982, 52). "The first and most basic rule," therefore, "is to consider social facts as things" (p. 60). The parallel with Popper's institutionalism is almost complete. The difference is that Popper does not say that *all* institutions are coercive.

10. Popper's talk was advertised in the following manner in the 23 February 1963 issue of *Harvard University Gazette*:

TUESDAY, FEBRUARY 26

POLITICAL ECONOMY LECTURE (open to the public; sponsored by the Department of Economics). *Models, Instruments, and Truth*.

Karl R. Popper, University of London. Auditorium, Littauer centrum, 4 p.m.

Popper had been invited to Harvard by Abram Bergson, who was in charge of the political economy lectures. The lecture apparently was followed by some discussion, to judge from some material in the Karl Popper Collection at the Hoover Institution Archives (see especially the letter from Alfred H. Conrad to Popper dated 4 March 1963). That Popper's speech did not make too much of an impression on the Harvard community is clear from the fact that Abram Bergson, when we interviewed him, did not recall that Popper had ever been at Harvard (interview with Bergson on 6 August 1997). It may finally be mentioned that the copy of "Models, Instruments, and Truth" that Popper used in his 26 February 1963 speech differs on a few points from the version published in 1994. Most of the differences involved, however, are of little interest.

11. This statement may seem to be at odds with Popper's previous suggestion that apparently psychological elements, such as aims, wishes, motives, memories, and associations, be transformed into elements of the situation. Be that as it may, in his later writings (see quotation above) he brings back the subject into situational analysis. "Situational logic is as much concerned with the situation as experienced by the acting subject as with the objective situation as it actually was, and thus with the objective errors of the acting subject" (Popper 1969, 200).

12. The reader is referred not only to Popper's critique in *The Open Society and Its Enemies* and in *The Poverty of Historicism* but also to his scathing remarks about people like Adorno and Habermas in the 1960s. See, for example, Popper ([1970] 1976, 295-97).

13. To clarify Merton's position, it should be noted that while he attacks grand theory for being general in the sense of *all encompassing*, this does not preclude that a social mechanism is usually general in the sense of being *universal*. See Merton (1968).

14. From the viewpoint of sociology there is one great advantage to focusing on the situation, as Popper does in "Models, Instruments, and Truth." This is that the analyst's attention is drawn to the unity and structure of the particular part of social reality in which the actor happens to be present—the "social situation." The power of looking at things from this perspective has been demonstrated in sociology by a number of scholars, especially Erving Goffman. Any sociologist will immediately recognize the similarities between Popper's situational analysis and that of Goffman in, say, *Behavior*

in *Public Places* (1963). Goffman defines the term "situation" in the following manner in this work: "By the term *situation* I shall refer to the spatial environment anywhere within which an entering person becomes a member of the gathering that is (or does then become) present. Situations begin when mutual monitoring occurs, and lapse when the second-last person has left" (Goffman 1963, 18). Goffman would have been happy to include Richard the Pedestrian in his gallery.

15. One important implication of this is that "if a set of initial conditions can lead to almost any final result, the initial conditions do not seem very important. The relevant "mechanism" [singling out one specific line of action] might be little more than the theorist's arbitrary choice of which equilibrium to invoke" (Cowen 1998, 139).

16. See also Lastis (1976) for a related critique based on a distinction between "single-exit" and "multiple-exit" situations.

17. Our revised characterization of situational analysis is stated as a subjectivist model, in the sense that individuals are supposed to act appropriately according to the situation, as they conceive of it. This is how Popper tended to state the rationality principle in his later writings. His first statements of this principle were clearly objectivist, however, in assuming that individuals tend to act in a way that is objectively appropriate to the situation, or, more correctly, objectively appropriate as conceived by the social scientist. In our opinion, a full characterization of Popper's situational analysis should include both the objectivist and subjectivist versions of the rationality principle. For a discussion of this ambiguity in Popper's situational analysis, see Lagueux (1993) and Nadeau (1993).

18. As suggested by von Wright (1971), trivial explanations like these always tend to be the result when the action to be explained is identical or almost identical with the object of intention.

REFERENCES

- Adorno, T., et al. 1976. *The positivist dispute in German sociology*. New York: Harper & Row.
- Agassi, J. 1960. Methodological individualism. *British Journal of Sociology* 11:244-70.
- . 1975. Institutional individualism. *British Journal of Sociology* 26:144-55.
- Blaug, M. 1985. Comment on D. Wade Hands, "Karl Popper and economic methodology: A new look." *Economics and Philosophy* 1:286-88.
- Boudon, R. 1991. What middle-range theories are. *Contemporary Sociology* 20:519-22.
- Bunge, M. 1996. The seven pillars of Popper's social philosophy. *Philosophy of the Social Sciences* 26:528-56.
- Caldwell, B. 1991. Clarifying Popper. *Journal of Economic Literature* 29:1-33.
- Coleman, J. S. 1964. *Introduction to mathematical sociology*. New York: Free Press.
- . 1990. *Foundations of social theory*. Cambridge, MA: Harvard University Press.
- Cowen, T. 1998. Do economists use social mechanisms to explain?" In *Social mechanisms: An analytical approach to social theory*, edited by P. Hedström and R. Swedberg. Cambridge: Cambridge University Press.
- Dahrendorf, R. [1962] 1976. Remarks on the discussion. In *The positivist dispute in German sociology*, by T. Adorno et al. New York: Harper & Row.
- Durkheim, E. [1895] 1982. *The rules of sociological method*. London: Macmillan.

- Elster, J. Forthcoming. Rationality, economy, and society. In *The Cambridge companion to Weber*, edited by S. Turner. Cambridge: Cambridge University Press.
- Farr, J. 1985. Situational analysis: Explanation in political science. *The Journal of Politics* 47:1085-1107.
- Goffman, E. 1963. *Behavior in public places: Notes on the organization of gatherings*. New York: Free Press.
- Hedström, P., and R. Swedberg. 1996. Rational choice, empirical research, and the sociological tradition. *European Sociological Review* 12:127-46.
- . eds. 1998. *Social mechanisms: An analytical approach to social theory*. Cambridge: Cambridge University Press.
- Hernes, G. 1998. Real virtuality. In *Social mechanisms: An analytical approach to social theory*, edited by P. Hedström and R. Swedberg. Cambridge: Cambridge University Press.
- Hume, D. [1739-40] 1978. *A treatise of human nature*. Oxford: Oxford University Press.
- Jacobs, S. 1990. Popper, Weber and the rationalist approach to social explanation. *British Journal of Sociology* 41:559-70.
- Jarvie, I. C. 1972. *Concepts and society*. London: Routledge and Kegan Paul.
- Koertge, N. 1975. Popper's metaphysical research program for the human sciences. *Inquiry* 18:437-62.
- . 1979. The methodological status of Popper's rationality principle. *Theory and Decision* 10:83-95.
- Kraft, J. 1929. Soziologie oder Soziologismus? Zu Mannheim's "Ideologie und Utopie." *Zeitschrift für Völkerpsychologie und Soziologie* 5:406-17.
- Lagueux, M. 1993. Popper and the rationality principle. *Philosophy of the Social Sciences* 23:468-80.
- Latsis, S., ed. 1976. *Method and appraisal in economics*. Cambridge: Cambridge University Press.
- Merton, R. K. 1968. On sociological theories of the middle range. In *Social theory and social structure*, enlarged ed. New York: Free Press.
- . 1979. *The sociology of science: An episodic memoir*. Carbondale: Southern Illinois University Press.
- Nadeau, R. 1993. Confuting Popper on the rationality principle. *Philosophy of the Social Sciences* 23:446-67.
- Popper, K. 1944-45. The poverty of historicism I-III. *Economica* 11:86-103, 119-137; 12:69-89.
- . 1945. *The open society and its enemies*. 2 vols. London: Routledge & Kegan Paul.
- . 1950. *The open society and its enemies*. 2d ed. Princeton, NJ: Princeton University Press.
- . 1957. *The poverty of historicism*. London: Routledge & Kegan Paul.
- . 1962. Julius Kraft 1898-1960. *Ratio* 4:2-15.
- . 1963. *Models, instruments, and truth: The rationality principle in the social sciences*. Manuscript in the Karl Popper Collection at the Hoover Institution Archives at Stanford University.
- . [1949] 1968. Toward a rational theory of tradition. In *Conjectures and refutations*. New York: Harper & Row.
- . [1948] 1968. Prediction and prophecy in the social sciences. In *Conjectures and refutations*. New York: Harper & Row.
- . 1967. La Rationalité et le statut du principe de rationalité (1). In *Les fondements philosophiques des systèmes économiques*, edited by E. M. Claassen. Paris: Payot.

- . 1969. A pluralist approach to the philosophy of history. In *Roads to freedom*, edited by Erich Streissler. London: Routledge & Kegan Paul.
- . 1972. On the theory of the objective mind. In *Objective knowledge: An evolutionary approach*. Oxford: Clarendon.
- . 1974. Intellectual autobiography. In *The philosophy of Karl Popper*, edited by P. A. Schilpp. 2 vols. La Salle, IL: Open Court.
- . [1962] 1976. The logic of the social sciences. In *The positivist dispute in German sociology*, by T. Adorno et al. New York: Harper & Row.
- . [1970] 1976. Reason or revolution. In *The positivist dispute in German sociology*, by T. Adorno et al. New York: Harper & Row.
- . 1976. *Unended quest: An intellectual autobiography*. Glasgow: Fontana/Collins.
- . [1983] 1985. The rationality principle. In *Popper selections*, by K. Popper (edited by D. Miller). Princeton, NJ: Princeton University Press. (Published in 1983 as *A pocket Popper*.) Glasgow: Fontana.
- . 1994. Models, instruments, and truth: The status of the rationality principle in the social sciences. In *The myth of the framework*, by K. Popper (edited by M. A. Notturmo). New York: Routledge.
- Simkin, C. 1993. *Popper's views on natural and social science*. Leiden: E. J. Brill.
- Sorokin, P. 1958. Review of Karl Popper, *The poverty of historicism*. *American Sociological Review* 32:344.
- von Wright, G. H. 1971. *Explanation and understanding*. Ithaca, NY: Cornell University Press.
- Watkins, J.W.N. 1963. On explaining disaster. *Listener*, 10 January, pp. 69-70.
- . 1970. Imperfect rationality. In *Explanation in the behavioural sciences*, edited by R. Borger and F. Cioffa. Cambridge: Cambridge University Press.
- Whitehead, A. N. [1925] 1948. *Science and the modern world: Lowell lectures, 1925*. New York: New American Library.
- Wisdom, J. O. 1970. Situational individualism and the emergent group properties. In *Explanation in the behavioural sciences*, edited by R. Borger and F. Cioffa. Cambridge: Cambridge University Press.

Peter Hedström is a professor of sociology at Stockholm University. His main interests are in the area of analytical sociological theory. His current research focuses on contagious social behavior, including theories appropriate for explaining such behavior and quantitative methods suitable for analyzing such processes.

Richard Swedberg is a professor of sociology, focusing on economic sociology, in the Department of Sociology at Stockholm University. His specialties are economic sociology and sociological theory. His current research is on entrepreneurship and on the economic sociology of Max Weber.

*Lars Udéhn is an associate professor of sociology at Stockholm University. He is the author of *The Limits of Public Choice* (1996) and of a number of articles. His current research project is a book on the history and meaning of methodological individualism.*