Köln Z Soziol
https://doi.org/10.1007/s11577-026-01063-y

Kölner Zeitschrift für Soziologie und Sozialpsychologie

RESEARCH ARTICLE

Theories of Middle Range

Clarification, Revision, and Substitution of an Overly Indeterminate Concept

Hartmut Esser

Received: 21 February 2025 / Accepted: 16 February 2026

Abstract The concept of "theories of middle range" has been widely accepted in sociology, but it has also attracted some criticism. One objection is that sociological explanations must always be based on general laws, namely at the level of the microfoundations of actors' actions, as conceived in the model of sociological explanation. Following on from this and from Boudon and Bourricauld's concept of "structural models" and that of situational logics following Popper, this article revises the concept, focusing on the explanatory power of a sociological explanation for arbitrarily general or particular explananda. Explanatory power is seen as a function of three characteristics of the respective microfoundation: logical content, theoretical complexity, and the range of the respective theory of action as microfoundation. Against this background, different sociological approaches are classified according to these criteria, which can be used to evaluate Merton's goal: progress in the scope and validity of sociological explanations for objects of all forms of particularity and universality.

Keywords Sociological explanations · Situational logics · Structural models · Explanatory power · Ideal types and generalizations

✉ H. Esser
Mannheim Centre of European Social Research, University of Mannheim
A 5,6, 68159 Mannheim, Germany
E-Mail: hartmut-esser@t-online.de

Published online: 12 March 2026

Theorien mittlerer Reichweite

Klärung, Revision und Änderung eines unnötig unbestimmten Konzepts

Zusammenfassung Das Konzept der „Theories of Middle Range“ hat in der Soziologie eine breite Aufnahme gefunden, aber auch einige Kritik. Eine davon war der Einwand, dass soziologische Erklärungen immer schon auf allgemeinen Gesetzen beruhen müssten, und zwar auf der Ebene der Mikrofundierung des Handelns von Akteuren, wie es im Modell der soziologischen Erklärung konzipiert ist. Der Beitrag nimmt im Anschluss daran und an das Konzept der „Strukturmodelle“ bei Boudon und Bourricauld und das der Situationslogik nach Popper eine Revision vor, bei der die Erklärungskraft einer soziologischen Erklärung für beliebig generelle oder partikulare Explananda im Mittelpunkt steht. Die Erklärungskraft wird dabei als eine Funktion von drei Eigenschaften der jeweiligen Mikrofundierung gesehen: logischer Gehalt, theoretische Komplexität und die Reichweite der jeweiligen Handlungstheorie. Vor diesem Hintergrund gibt es dann eine vergleichende Einordnung verschiedener soziologischer Ansätze nach diesen Kriterien, mit der sich das Kriterium der Überlegungen von Merton bewerten lässt: Fortschritte in der Reichweite und Validität soziologischer Erklärungen für Gegenstände aller Formen von Partikularität und Universalität.

Schlüsselwörter Soziologische Erklärungen · Situationslogik · Erklärungskraft · Idealtypus und Generalisierung

1 Clarifying the Concept of Theories of Middle Range

“Theories of middle range” (TMR) is one of the most prominent concepts in sociology. Like several other similarly well-known and significant concepts, it is due to Robert K. Merton. In Merton’s work, the concept refers to, among other things, a strategy for dealing with the large gap in sociology between all-encompassing “grand theories” on the one hand and the small-scale empirical work on specific social issues on the other. His proposal: to develop, expand upon, and explore the generalizability of theories explaining associations between certain conditions in empirically narrow domains—without any explicit reference to an overarching theory behind these associations from which the individual phenomena might be claimed to be derived. Concrete examples of these narrow domains include the concept of relative deprivation, role sets, status inconsistency, and self-fulfilling prophecies as “the unanticipated consequences of purposive action” (Merton 1936). Merton’s recommendation to sociologists was that they should work relentlessly and yet unassumingly on such limited models, instead of waiting in vain for “the grand theory”: He argues that TMR could at least provide some orientation in the often confusing assembly of disconnected and disparate results that make up a large part of everyday empirical research.

The concept of TMR was immediately well received, probably (but not only) because of the encouraging prospect that even small steps could contribute to the development of sociology, meaning that there was no need to wait for an overarching

system of concepts and axioms—or for a sociological genius of the standing of Newton or Einstein in the realm of physics. Of course, this does not mean that sociologists can just do whatever they like: Even a theory of "middle range" is first and foremost a "theory." Merton leaves no doubt about this: "The term sociological theory refers to logically interconnected *sets of propositions* from which empirical uniformities can be *derived*" (Merton 1949, p. 39; emphases not in the original).

To be considered a useful contribution to theory, a set of propositions is needed. Only then can the next step in Merton's line of reasoning be realized: the explanation, consolidation, and coordination of empirical findings. Very much in this vein is the position taken by Raymond Boudon in his own work on the concept of TMR: "A 'scientific theory' is a *set of statements* that *organize* a set of hypotheses and relate them to segregated observations. If a 'theory' is valid, it '*explains*' and in other words '*consolidates*' and *federates* empirical regularities which on their sides otherwise appear segregated" (Boudon 1991, p. 520; emphases not in the original).

The problem that then arises for sociology (and the social sciences as a whole) is well known: There are no general "laws" at the level of social structures, and the few regularities that one might think of, for example as "quasi-laws," are not without exceptions and depend on many other, mostly unmanageable, assumptions. The standard example, also given by Nancy Cartwright (2020, p. 271 ff.) in her discussion of the problem, is the conjecture that there are no wars between democracies. Of course, this absence of general laws does nothing to answer the most general question: Should we not still strive to develop an overarching explanatory sociological theory, one that will also function as a guideline for work on concepts with a limited range? Is the long march of trial and error, as the concept of TMR demands, really a sound approach? Shouldn't it be possible—and might it even be advisable—to at least attempt to *directly* develop general explanations for the questions under investigation?

This is the subject of the following contribution. It deals with the clarification, revision, and, finally, the substitution of the concept of TMR with another one, namely, "structural models" (STM). The sections on *clarification* and *revision* propose such a *direct* strategy for the development of theories and for their integration in the social sciences, rather than an indirect detour via the more tentative work on TMR (Sects. 2 to 7). This follows an early critical proposal by Karl-Dieter Opp (1970). The section on *structural models* presents this direct strategy in detail: STMs, like TMRs, are typical and particular constellations of certain conditions and contexts, albeit ones that provide a "general explanation" of the empirical facts that are consistently oriented toward the same outcome and demonstrably effective and genuinely explanatory in practice (Sect. 8). The concept is due to a proposal by Raymond Boudon and Francois Bourricauld (1982) regarding the logic of *historical* explanations, especially for specific contexts and even singular events, such as the so-called Tocqueville paradox for the explanation of certain processes in the French Revolution.

Successful STMs must function with invariable and immediate reliability; if the model fails, it should also be corrected immediately. An explanation, once found in a *particular* or *local* context, can then be applied—as with the TMR—to the process of abstracting and generalizing this new explanatory pattern to contexts

with a certain family resemblance: The distinction is that an effective STM is not a potentially provisional, incomplete preliminary, or an otherwise limited solution, but instead an already *proven*, theoretically *well-founded*, and empirically *successful* tool. Boudon and Bourricauld cite Albert O. Hirschman's concept of *Exit, Voice and Loyalty* (1970) as a prototype (see also Kohler and Krawietz 2026, this issue). Like the TMR, it can be extended intensionally to other analogous fields via idealization, abstraction, and generalization if the relevant conditions and contexts are equivalent, such as the move of customers from one particular brand to another, or the decline of universities, a railroad company, or even marital relationships. Nothing needs to be "enlarged" further.

The background to the concept of TMR and the ideas at the core of its revision and substitution as described here are not particularly revolutionary. There are two aspects: *First*, with the now well-developed heuristic of the model of sociological explanation (MSE; see Opp 2026, this issue; Tutić and Voss 2026, this issue; Raub 2026, this issue), a conceptual framework is available through which general, deductive–nomological explanations of sociological explananda are possible according to the Hempel–Oppenheim (HO) scheme—without requiring an overarching, axiomatic social–theoretical system. All that is required is that, at *some* point in the MSE's argument, there is at least one general "law" governing the connection between the structural, social conditions and their collective consequences that is also applicable to the new context for which the model's applicability is being tested.

Second, in the context of the MSE, these laws operate at the *micro* level, those of action, behavior, and learning as determined by the logic of selection. The action–theoretical *microfoundation* of the MSE thus forms the general nomological core for a causal explanation of its structural relationships. The reason for this is obvious: If there are no general laws at the macro level of structural relationships, then the only option is to try to explain them at the level below. Where else? That is why the necessary nomological core cannot itself be based on macrostructural constellations, no matter how "micro" they may empirically be, such as dyads, communications, relations, or networks: There are simply no general laws sui generis for these either. This provides the practical justification for the MSE's methodological individualism, which underpins its ability to explain macro-level outcomes from micro-level actions.

In this context, questions concerning the generality and limitations of sociological analyses and theories require further differentiation. The generality of a theory refers to its *extension*, that is, the range of contexts and cases to which it is applicable. Conversely, the generality of a concrete analysis depends on its *intension*, that is, the level of abstraction in its content: from particular, local, and singular phenomena up to broader, more universal issues. This latter aspect is often described as the *scope* of an approach or analysis. The *range* of each explanatory theory must be distinguished from its scope: What is included in the explanation, and what cannot be captured by it? Within the MSE, this distinction turns on the *explanatory power* of the microfoundation employed and the *complexity* of the theory's architecture, dimensions almost completely overlooked in existing reconstructions of Merton's concept. This is a grave omission, and consequently, it here forms the core of this revision of the familiar concept of TMR according to Merton, of its substitution

with that of structural models and the direct strategy of theory development, and the positioning of the various sociological approaches in this concept of explanatory power.

In this broader context, the article deals with eight aspects: (1) variants of the interpretation of the concept of TMR, (2) the described revision of the concept, (3) the general methodological framework that forms the foundation of the revision—and especially (4) the model of sociological explanation and the concept of processual situation logic, (5) some objections and alternative proposals for an explanatory sociological theory, (6) a systematization of particularly significant approaches and developments in this context, and finally, (7) the concept of structural models and perspectives of further methodological classifications—especially (8) those of integrative theory development and application in sociology.

2 Variants and Interpretations

The concept of TMR was conceived by Merton as a pragmatic way of reconciling the approaches aiming to establish—or assuming the existence of—an all-encompassing but sterile "grand theory" on the one hand and the frequently confusing results of small-scale empirical research on the other. The concept has triggered lively discussion over the decades, with a rough classification of the prevailing perspectives distinguishing four distinct schools of thought (see also Opp 2013a, pp. 347–352, 2013b, pp. 406–407): (1) those seeing TMR as provisional or incomplete explanations that need to be expanded and completed, (2) those understanding TMR as dealing with phenomena "between" the largest social structures and the microprocesses of everyday interactions, (3) those who regard TMR as sufficient for claims that are not concerned with whether or not there will one day be an overarching theory capable of integrating and consolidating everything, and finally, (4) those who see TMR as a form of analysis for "generating mechanisms" to make visible the relationships hidden beneath a surface-level observation and which then might also explain the relationships visible on the surface causally and in depth.

The *first* view is that of Merton himself, which was readily followed by many at the time, including Raymond Boudon (1991). But it has also been rejected: The indirect search for better solutions is not a fruitful or productive one, and it is argued that it is much more appropriate to tackle the specific phenomenon under investigation using a TMR straight away, immediately developing a direct strategy of explanation (Opp 1970; see also Sect. 3 below). This position is the starting point for the revision of Merton's concept in this contribution.

The *second* view—that TMR can be located between the largest social structures and everyday microphenomena—has been proposed in certain strands of institutionalist theory in particular, including actor-centered institutionalism. These approaches also rely on a microfoundation but, perhaps surprisingly, do not engage with the methodological individualism of MSE (cf. Mayntz 2004, for example). The core of sociological analyses, they argue, is more the "meso" level of institutions, corporate actors, and organizations at the middle level between macro and micro. This, in turn, is the level of TMR, they argue, understanding the concept as providing theories

for this middle level *between* macro and micro. From the perspective of MSE, this claim is not valid: Institutions, corporate actors, and organizations, like all social entities or figurations, are always collective facts without their own laws, the analysis of which, as in all other cases, is only possible via the MSE and an explanatory microfoundation.

The *third* interpretation, which accepts TMR as sufficient practice for everyday research, on the other hand, is tantamount to a capitulation to the entire theoretical and explanatory problem; pragmatism is all very well, but this is not a wholly satisfactory solution either, even if it has become well established in some areas and although there has certainly been growth of knowledge there (see also Sect. 4, in particular the contribution by Cartwright 2020).

The *fourth* aspect, finally, which conceives of TMR as uncovering the "generating mechanisms" of an empirical event, has been emphasized most clearly by representatives of "analytical sociology" (Hedström and Udehn 2009; Diekmann 2026, this issue), but many others also mention it: "Mechanisms" are a look behind the curtains, and that is what TMR does to a certain extent. It should be borne in mind that it is not only a matter of uncovering further, now visible connections but also of causal ("deep") explanations of surface phenomena.

In the discourse on this topic, the four points of view were soon linked to more fundamental debates from the philosophy of (social) science: first, the possibility of deductive–nomological explanations according to the HO scheme in general; the significance and possibility of "reductive" explanations, presupposing an overarching nomological axiomatics; questions regarding the comparability of theories and possible incommensurabilities among them that arise with their development; and finally, more generally, concerns about the justifiability of (general) theories if one were to rely only on "evidence" and the inductive path of generalization. These more methodological and philosophical discussions form the starting point for the following systematization of the concept of TMR and for the development of a different perspective and solution for the very important objective that Merton associated with the concept of TMR: the cumulative expansion of knowledge most broadly, and more specifically, the development and integration of theory in sociology—and beyond.

3 The Revision

The core of Merton's recommendation for gradual and rather tentative work on the TMR as the best strategy for approaching a universal social theory has rarely been contradicted. Quite the contrary: It patently represents a good way of happily settling into a ritualized research routine, of engaging in "normal science." But was this really good advice? Karl-Dieter Opp was one of the very few to criticize Merton's proposed indirect strategy of developing theories by way of the "long march" with TMR, and he did so vehemently (Opp 1970). He calls the recommendation a misapplied "sociological dogma." The core of his criticism lies in the particular "*strategy* for the construction of a general sociological theory" proposed by Merton (Opp 1970, pp. 243–244, 252–253; emphasis not in the original). Opp distinguishes between

a direct and an indirect strategy for developing theory. The direct strategy consists of the immediate attempt at a ("general") theoretical explanation, with as much general explanatory power as possible; if it does not succeed, it can and indeed must be modified and immediately replaced by an alternative theory. In his view, this is in fact the required and also usual procedure. However, Merton proposes an indirect strategy: the construction of a theoretical explanation at a provisional and less demanding level of general validity, before going on to attempt a more far-reaching theoretical explanation than would have initially been possible, albeit without waiting for the one all-encompassing nomological theory.

A number of historical, logical, and methodological reasons are given in favor of this strategy. The most immediate practical argument is that, without a directly applicable methodological and theoretical framework of the most general possible coverage, empirical research risks leading to further confusion rather than contributing to cumulative knowledge. More broadly and philosophically, though, following Popper's *Logic of Scientific Discovery*, is the argument that formulating any theory wholly *inductively*—via the collection and generalization of empirical evidence alone—is impossible anyway and cannot solve the fundamental problem of induction.

At the time he was first engaging with Merton's concept of TMR, Opp, like some others, was already considering a version of the macro–micro–macro model of sociological explanation. This forerunner of the MSE was later presented by Coleman in the first chapter of his *Foundations*; it became popularized with his name as the "Coleman Boat" and was also closely associated in its reception with a strict rational choice theory (RCT) approach (Coleman 1990; for more on the largely forgotten precursors of the model, including Opp, cf. Raub 2021; see also Raub et al. 2022; Raub 2024; Raub 2026, this issue). This is the background for the proposed revision of the concept of TMR, by combining it with the MSE: Any intended theoretical development should move toward expanding the *range* of the *microfoundation* of sociological explanations with its explanatory power and theoretical complexity, and the rather disoriented search via the indirect strategy can be safely omitted. It would only slow things down.

4 The Methodological Framework: The Model of Sociological Explanation and the Concept of Situational Logics

The model of sociological explanations has many predecessors, not least Max Weber, and Raymond Boudon deliberately calls it the Weber schema (see Opp 2026, this issue; Tutić and Voss 2026, this issue; Raub 2026, this issue). Its structure is well known, and it now also plays a central role in discussions about the TMR, even if it is sometimes reinvented, for example by Nancy Cartwright in her lectures on the TMR in 2020, or (implicitly at least) by Pierre Bourdieu, Andrew Abbott, Anthony Giddens, and Neil Gross—albeit on occasion either unwittingly or one-sidedly. Figures 1, 2, 3, and 4 show an expanded version of the essential connections.

The basic logic of the MSE consists of the three well-known steps, as depicted in Fig. 1: There is a sociological explanandum, a relation between certain structural

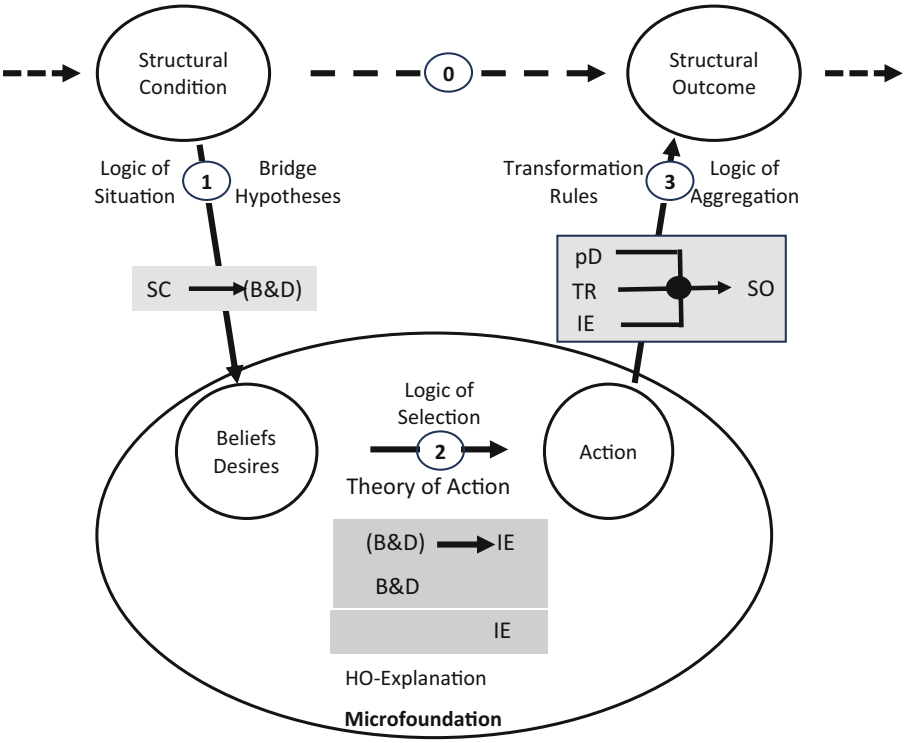

Fig. 1 Model of sociological explanation. *SC* structural condition, *B&D* beliefs and desires, *pD* partial definition of the respective collective explanandum, *TR* transformation rules, *IE* individual effects, *SO* structural outcome, *HO* Hempel–Oppenheim

conditions (SC) and structural outcomes (SO; arrow 0). Because there are no general "laws" at this level or above, an in-depth detour via a *nomological* microfoundation is necessary. There are three steps: the logic of the situation (arrow 1), the logic of selection (arrow 2), and the logic of aggregation (arrow 3). The nomological core lies in the logic of selection as the necessary *microfoundation*: There is a general causal connection between certain dispositions in the actors and what they do in each case under these circumstances, a certain theory of action—rational choice theory, for example. This would, in this case, mean that certain "beliefs" and "desires" of the actors (B&D) cause them to act, resulting in individual effects (IE) according to a certain function, such as expected utility maximization.

This function forms the "general law" that is required for an explanation (according to Hempel and Oppenheim) of the structural explanandum (SO). It specifies the necessary action–theoretical "law" (B&D → IE) with a more or less broad extension of generality for the claimed range. It is the justification for the fact that we are dealing with a *causal* relation and *not* just an empirically stable "mechanism." This also means that the microfoundation in question can capture as many relevant conditions as possible for the selection at hand: in addition to B&D → IE, for example, imagined patterns of framing a subjective "definition of the situation"

or practiced automated processes in the form of entire "scripts" as initial conditions, F&S ("frames" and "scripts") → IE, which depend on the cognitive "match" with certain cues—"symbols" with cultural and social "meaning," for example, which go beyond "beliefs" and "desires" and maximization and can overwrite them completely.

The relevant point for the question of the development of theory is that it is not simply a matter of alternative microfoundations, one of which applies under a certain condition and the other under another, but that such a *conditionalization* can in turn be explained via an *overarching* modeling. Seen in this way, it is not a "reduction" but a "correction," an in-depth explanation. Popper once described this using this classic example: "Newton's theory *unifies* those of Galileo and Kepler. But far from being merely a conjunction of these two theories—playing the role of explicanda for Newton—it *corrects* them by *explaining* them" (Popper 1972, p. 39; translation by HE; emphases not in original).

The development of the microfoundation of the model of sociological explanation in this direction is thus the central aspect for evaluating the effective rank of the various approaches to sociological explanation, such as RCT, or the various attempts to extend it and to capture the phenomenon of bounded rationality, as well as including other types of Weberian actions beyond rationality, such as affectuality, value orientations, or traditionalism, and of more recent claims for pragmatist or interpretative approaches.

The connection of the levels in the MSE occurs via the two transitions (1) from top to bottom and (3) from bottom to top. The connection (1) in the figure consists of the bridge hypotheses of a correct description of the covariation of SC with the initial conditions of the respective microfoundation, including measurement procedures and auxiliary assumptions, for example about biases and exceptions in the description of the situation (SC → (B&D)). The third step (3), the logic of aggregation, consists of three parts: first, the (partial) definition of the respective collective explanandum (pD), for example, a statistical parameter such as for social segregation, a friendship as a "relationship," or a game–theoretical equilibrium; second, certain transformation rules (TR) for the derivation of the respective collective effect via the individual effects (IE); and third, the actions of the individual actors previously explained in steps (1) and (2).

The three conditions of aggregation are *conjunctively* linked to each other; i.e., only together do they form the necessary unity to complete this first elementary step of the sociological explanation according to the MSE. Figure 2 summarizes the relationships in the form of a *syllogistic* argument of a regular "deductive–nomological" explanation in three steps, where the "law" is not a mere formal axiom but a generalized empirical regularity assuming the causality of the relationship.

In addition, other formalizations have become common in which the necessary laws are represented as causal *functions*, not utilizing the syllogistic language of necessary and sufficient conditions, as well as a reaction to special difficulties with the syllogistic notation, such as the problem of bilateral reduction sentences, INUS conditions (Mackie 1974), reversed causation, and other aspects, addressed, for instance, by James S. Woodward on the limits of the HO syllogism (see below and Tutić and Voss 2026, this issue).

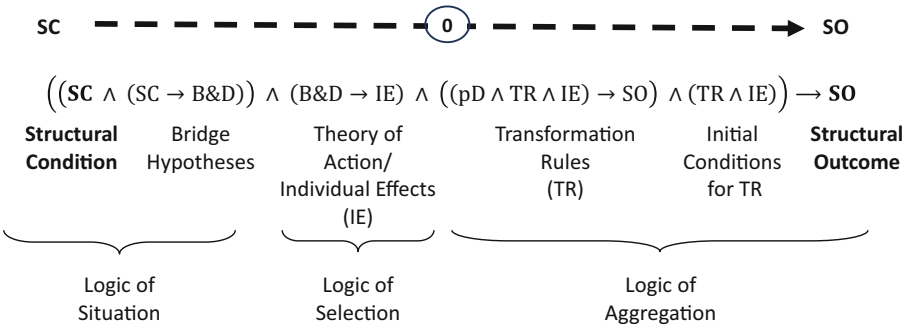

Fig. 2 Model of sociological explanation as a general deductive and nomological explanation. *B&D* beliefs and desires

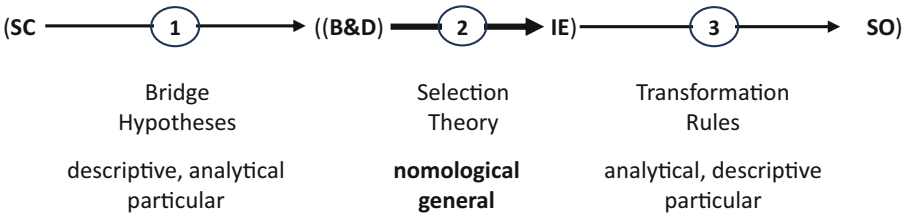

Fig. 3 Causal–analytical form of the model of sociological explanation. *SC* structural condition, *B&D* beliefs and desires, *IE* individual effects, *SO* structural outcome

The representation of the three steps as a chain of conditions, causal laws, and aggregation rules can be further simplified and converted into the causal–analytical notation of directed acyclic graphs (DAGs) and chain-causation, which has become common in analytical empirical research as structural equation models or constellations of causality in the framework of the counterfactual approach (Fig. 3). The reason for this is obvious: Most criticism of HO explanations had to do with the syllogistic structure of the explanatory argument, which left room for unnecessary complications, such as in the concepts of the INUS criterion or bilateral reduction sentences—difficulties that can be avoided if the formalization of the explanation via DAG structures is used.

Staying within the conceptual context of TMR and its revision, let us now focus on the question of the generalization and particularity of the three connections of the MSE. The macro–micro transition (step 1) of the bridge hypotheses and descriptive rules, like the micro–macro transition back to the transformation rules and the explanandum itself (step 3), *always* consists of only *particular* facts, sometimes abstractly simplified, and possibly supplemented by analytical specifications—for example in the (partial) definition of the explanandum, including the individual actions as part of it. In contrast, the logic of selection, the respective theory of action (step 2), *must* be *nomological* and as *general* as possible. If there are limitations, then that is perhaps to be accepted for the moment, but it is not crucial. Even if the problem is only "invariant" as a result of manipulations via experiments or other

sources, circumstances of this kind still introduce knowledge into the modeling that goes *beyond* the particular empirical case under consideration. Only then does the explanation gain "range" compared to all other forms of analysis, such as the "thick description" of a "generating mechanism," where the *causal* and *general* explanative core of the connection still remains hidden.

The MSE describes the elementary case of only *one* sequence of a potentially longer chain of events, i.e., processes. In the context of HO explanations, such sequences are also known as "genetic explanations" (Hempel 1965, pp. 254–255). The simplest cases are processes of consecutive events in which one outcome is the (initial) condition for the emergence of another outcome because there is a relevant (general) law for this in each case. In this way, even highly complex sequences can be explained nomologically—without there being an overarching law. Popper once described this in a particularly concise way:

> If the wind shakes a tree and Newton's apple falls to the ground, then no one will deny that these events can be described with the help of causal laws. However, there is not a law like that of gravity, not even a specific system of laws that would describe the actual, concrete succession of causally linked events. In addition to gravity, we would have to take into account the laws of wind pressure, the shaking movements of the branch, the tension in the stem of the apple, the bruising of the apple on impact, the chemical processes resulting from the bruising of the apple, etc. (Popper 1957, p. 92)

So even if there is no overarching law governing how an apple falls from a tree, a general explanation would be possible—provided the appropriate laws (and initial conditions and effects) exist at the relevant points. An overarching "apple-dropping" axiom is not necessary and indeed impossible to find. However, there can always be fundamentally random and unexplained external events that could alter the whole process and set it on a different path (E_1, E_2 in Fig. 4), thus increasing the difficulty of

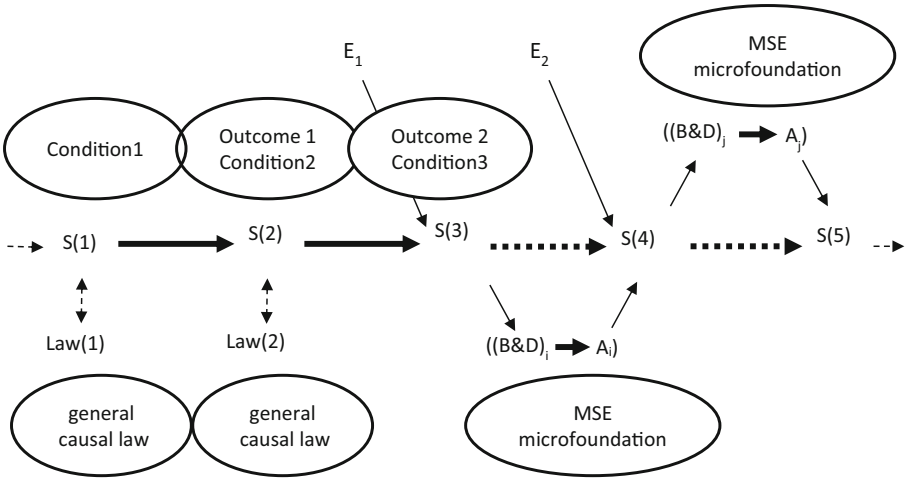

Fig. 4 Situation–logical explanation of social processes. *MSE* model of sociological explanation, *E* external event, *B&D* beliefs and desires, *A* actor

finding "general" laws for such complex processes. This is one of the main problems in the (futile) search for stable laws of history or societies.

You can imagine this similarly for social events: For example, there are chain reactions in the spread of rumors that look very similar to Newton's example. However, there is a fundamental difference: Unlike physical objects, social subjects are also (causally) controlled by inner states—beliefs and desires, for example—and the rational choice of an option. In these cases, the (causal) explanation must take a detour via the microfoundation of the three logics according to the MSE. There can be processes that are purely external, "physical," and controlled by blind causality, and those that are also subject to objective conditions, the social structures, but then receive their (causal) effect only via the perception and inner processing and "interpretation" of the actors. And these are then only the individual effects that lead to an objective collective state of affairs via the transformation rules—which can then again give rise to the next sequence.

Figure 4 shows such a "genetic" process in a longer sequence, the first two (steps S[1] to S[2] and S[2] to S[3]) for some nonsocial events such as the fall of the apple or the eruption of a volcano. In each case, there are applicable (natural) laws and thus also the explanation for the process and the connections to it. The situation S(3) now, unlike before, also affects actors, for example when a village is threatened and the villagers are hurrying to safety. This would affect the bridge hypotheses for assessing the beliefs and desires of the actor A_i—is it better to flee now or to wait and see?

Now the *actors* and the MSE with its three logics come into play with the logic of selection as its nomological core at each step: the perception of the event; the activation of dispositions, beliefs and desires, for example; and the performance of actions with their individual effects and the aggregation up to the collective level, such as the mass exodus to a neighboring country. At that point, further reactions of actors A may occur: welcome or rejection, depending on the initial social conditions, such as attitudes of helpfulness or xenophobia.

Figure 4 shows this for the sequence from S(3) to S(5), in each case with the "social" detour of the three logics in the Weberian scheme with their nomological microfoundation as a special feature of sociological causal chains. There is a clear difference in the way in which causality and explanation intervene in each case: in the case of natural law events as the *external* influence of *external* conditions and "laws" and in the case of social processes as (externally) activated *internal* interpretations and deliberations, something that (presumably) does not exist in the case of physical objects. In the case of *social* events and processes, the explanatory–causal connection therefore changes from external direct causes to internal causes and the *detour* via the three steps of the MSE.

Such chains of causally linked social actions and their consequences as an initial condition for the next step can be described, again following Popper, as situational logic: the more or less fixed and undisturbed "path dependence" of social processes. Perhaps the best-known example here was given by Merton himself, who referred to the unintended consequences of rumors for the collapse of banks. This process has occasionally—and grandiosely—been introduced into the sociological discourse as a grand new discovery: by Abbott, for example, discussing social processes, or in

the hype about the "mechanisms," or by Cartwright for the TMR itself. However, with sufficient reference to Popper, Hempel and Oppenheim, Hernes, Boudon, and Coleman, the process has been abundantly clear for some time.

Such sequences can be arbitrarily complex patterns of *intensionally* unique, particular, or widespread processes with a large *extension*. None of these would be fundamentally excluded or "limited" as an explanandum. This is different for the respective possible explanations. It depends on whether there are applicable general *laws* at the various "particular" points of initial conditions. If not, an explanation would not be possible, and we would have to make do with (hopefully valid) descriptions: narratives. This applies to physical, chemical, and biological sequences as well as to sequences of social action. In the case of social processes, as in the elementary case of Weber's scheme, it is the microfoundation that provides the necessary nomological core. This makes it completely clear what is important in the development of theory: the explanatory power of the microfoundation in the respective theory of action and its range in the possibilities of capturing the broadest possible scope of the intensional areas—both explananda and the explanantia—including the various specialized sociologies of, for instance, migration, ethnic stratification, and ethnic conflicts, as captured in Robert S. Park's well-known *Race Relations Cycle*, or in general models to explain different processes of diffusion by James S. Coleman, Elihu Katz, and Herbert Menzel; the emergence of social segregation by Thomas S. Schelling; or the dynamics of *Exit, Voice and Loyalty* by Albert O. Hirschman.

5 Objections and Suggestions

The concept of a direct strategy of analyzing and developing the scope of sociological theories, as proposed by Opp in his critique of Merton, overlaps with a number of objections and proposals to classify the concept of TMR in the various currents of theoretical debate in sociology and the philosophy of science. The key points of three particularly significant contributions will be addressed here: James S. Woodward on the fundamental possibility of HO explanations; Nancy Cartwright on the advantages of abandoning the search for overarching theories altogether; and Alban Bouvier on approaches that already point in the direction advocated here, including those of analytical sociology.

5.1 James S. Woodward

The contributions of James S. Woodward (2000, 2005) are the most credible when it comes to opposing the possibility of a direct strategy according to Opp and the MSE. His core argument is that the "general laws" necessary for an HO explanation do not exist and that they are also unnecessary: There are always exceptions, and there is only conditional validity. For the purpose of "generalizing" a theoretical hypothesis, it is sufficient for the correlation to be "invariant" beyond the individual cases, especially if there have been targeted experiments with a controlled manipulation of the relevant conditions that remain robust against different interventions and variations.

Woodward's objection, if accepted, would severely affect the concept of direct strategy, as well as all other concepts that presuppose HO explanations. But is it really a relevant objection? "Generality" and the properties of "law-likeness" are, like everything else in the empirical sciences, impossible to prove. There are rules and procedures that can be used to test whether they do *not* exist: methodologies of causal analysis and the detection of the conditionalization of validity. Experiments are particularly suitable instruments for this, and at their core they are in fact targeted interventions and manipulations, which also include practical applications. The results are always more or less robust and "invariant" correlations that point beyond the respective current case. This in no way means that the *assumption* of laws becomes an inductive arbitrariness: Everything that has been found elsewhere and confirmed in rigorous tests must be included, if necessary, in new studies of our own, such as experiments on models of behavioral economics, cognitive social psychology, or neuroscience.

Ultimately, in the social sciences in particular, little more can be demanded than robust regularities for theories of action or behavior, ones that have been confirmed in other instances or fields. The *previously* known extension of invariances now concerns the explanatory power of a theoretical hypothesis, including the logical content of the hypothesis, the valid empirical interpretation of the theoretical constructs via measurement hypotheses, and, finally, the proof in targeted tests, i.e., if nothing else can be "proven", the robustness of the findings after treatments with intervention and manipulation.

5.2 Nancy Cartwright

Nancy Cartwright (2020) approaches the concept of TMR from the position of the developed natural sciences, which are often cited as a model for the possibility and fruitfulness of axiomatic deductive theory systems. Accordingly, the established natural sciences also increasingly deviate from the traditional view, dealing with more "local" questions and partial solutions—this is often considered sufficient, for example in chemistry and biology. Their starting point is the question of the conditions for an appropriate evidence-based evaluation of political programs, in which the actual consequences of practical measures based on established convictions are at stake, for example in the field of education or in the design of political institutions.

The core of Cartwright's answer lies in the aspects put forward in the context of the concepts of analytical sociology, first and foremost the reference to "structural mechanisms" as "generating" processes of the production of a state of affairs behind the empirical processes of events. It prepares a series of characteristics necessary for, and the difficulties inherent in, the proposals: Are all relevant factors included? Have the activities required for implementation been taken into account? Are contexts really "causal" relationships, or are there not in fact special conditions that entail the interactive–processual conditionalization of the effects? For Cartwright, all of this amounts to equating the concept of TMR with the concept of "mechanisms," which has now become broadly commonplace in methodological discussions in the social sciences, albeit not always in the sense of strengthening analytical sociology's claims to rigidity (cf. Kroneberg and Kalter 2012).

In this context, Cartwright outlines the elements necessary for such a concept at the level below the grand theories. These consist of a mixture of elements that are well known in the methodology of MSE: Causal explanations, microfoundation, and processual situational logic are all intended to illuminate the initially hidden "real" processes and to provide corrective explanations when there are anomalies or contextual conditionalizations. However, this in turn requires a series of conditions that are difficult, if not impossible, to fulfill, given the plasticity of the contexts and the "untidiness" that is, following Cartwright, supposedly inherent to social processes in particular. It is difficult to think of general "laws" anyway—at best, "middle-range laws," regularities bound to certain contexts.

However, she continues, this in no way should discourage scientists who are keen to work on such projects, which are inevitably "middle range" at best. Instead of pursuing the futile goal of the all-explaining grand theory, it is more advisable to concentrate on cultivating successful *practices* in the research communities and to be satisfied with the instrumental usefulness of partial solutions: a "community-practice-centered instrumentalism" (cf. Sonntag and Nisic 2026, this issue). In this context, criteria of coherence and plausibility are more important than an ultimately unachievable goal of approximating truth as a regulative idea. It is, if you like, a combination of the binding heuristic instructions given by the MSE and the pragmatic renunciation of the possibility of an explanatory sociology that is bound to certain methodological criteria. It would ultimately be the abandonment of what Weber, Merton, Popper, Opp, Boudon, Coleman, and others regarded as the basis of scientific theory and the regulative idea of the social sciences in particular—as the value basis (*Wertbasis*) on which a scientific community has agreed with shared "good reasons"—knowing full well that this can only be a conventionally agreed upon justification that could also be configured quite differently.

5.3 Alban Bouvier

Alban Bouvier's contribution (2023) goes in a different direction: Even if there are many indications that science is messy and divided, this by no means entails that the real world itself is and that science only correctly reflects it in its disunity; the consequence then would indeed be to necessarily abandon the standards of scientific work, the regulative idea of approximating truth, and the goal of a unity of the (social) sciences. However, Bouvier proposes a contrary argument: The idea of TMR should not lead to a situation in which we are content with less precision and a less targeted range of statements, possibly passing off and rationalizing the relaxation thus gained as an advantage of flexibility, openness, and pluralism—as has obviously happened in economics and biology in the meantime. For the social sciences in particular, Bouvier sees the danger of "balkanization," whether negligent or deliberate, and cautions that this process of fragmentation will only intensify if allowed to—and that social scientists should attempt to correct for and resist this effect. He rightly calls this rather defensive view the "weak option" of dealing with the problem of (dis)unity (Bouvier 2023, p. 12), the option that Merton himself initiated in his proposal and which so many were then happy to follow.

The background for this revival of the orientation toward more methodological rigor, especially in the social sciences, involves two rather recent developments, mentioned in Bouvier's contribution as two poles of "analytical sociology": James S. Coleman's approach, which he proposes in his magnum opus *Foundations of Social Theory* (Coleman 1990), and the variant of analytical sociology as proposed in the *Oxford Handbook of Analytical Sociology* (Hedström and Bearman 2009). Bouvier describes the Coleman approach from *Foundations* as a "strong option" and that from the *Oxford Handbook* as an "intermediate option" between the weak and the strong option (Bouvier 2023, p. 4 ff.). Both are variants of the Weberian model, outlined above as MSE.

The differences are easily recognized. Coleman pursues a strong methodological rigor in his *Foundations*, with requirements such as the logical content, precision, and parsimony of a theory; the overarching theoretical basis is a narrow version of RCT, which is also applied to phenomena for which the approach is rather problematic, such as unconditional trust, unwavering commitment, or unquestionable authority beyond interest and control alone, the central categories for Coleman. The Oxford variant adopts some of the basic rules of rigorous sociology but loosens them in some important ways: Explanations according to the HO scheme are not really possible; it is much more fruitful to uncover "mechanisms" by reconstructing the inner connections; and a particularly precise microtheory is neither possible nor necessary, and certainly not the narrow version of RCT as proposed by Coleman.

There are also a whole host of phenomena that are almost impossible to accurately grasp theoretically, such as those that Jon Elster has so extensively presented in his work (Elster 1989, 2015), as well as those that, in Peter Hedström's "desires, beliefs, opportunities" (DBO) approach, led to the dissolution of an (overly) rigorous commitment to the rules of HO explanation and the precision of statements, thus approaching the other pole again (Hedström 2005, 2021): the abandonment of explanations, the turn to instrumentalist behaviorism, and the abandonment of methodological standards. It is thus more necessary than ever to concentrate on the further development of TMR in the spirit of Merton, conceived above all as the elaboration and application of "mechanisms." Within this broad approach, it would be eminently possible for there to be something like "intermediate" theories of middle range, arranged in a hierarchy of more or less far-reaching theories, which would indeed be of the more open type as suggested in the Oxford approach (Bouvier 2023, p. 14).

6 A Systematization

The result of the various contributions and the reference to the model of sociological explanation is easy to summarize: "General" explanations of sociological questions can be made without reference to an (axiomatic) "general theory." The "generality" and the causal justification of the explanation are derived from the specific action–theoretical microfoundation. But apart from that, everything is more or less "limited": Both the explananda and the (initial) conditions to which the relevant microfoundation refers are *always* only of limited range. The central problem with

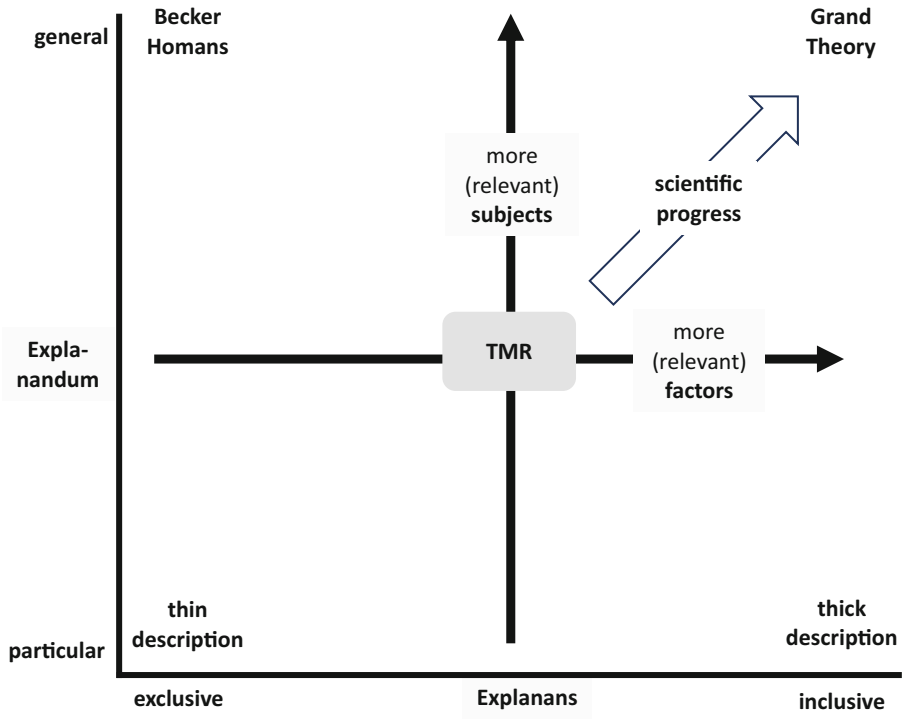

Fig. 5 Middle-range theories for explanandum and explanans. *TMR* theories of middle range

TMR is the question of how to transfer solutions, once they have been found, to equivalent cases and what the relationship between "limitation" and "generalization" looks like. Hedström and Udehn provide an illuminating typology on this (Fig. 5 is a slightly modified version of Fig. 2.1 in Hedström and Udehn 2009).

The typology refers to two dimensions: the specific explanandum (*y*-axis) and the conditions in the explanans for explanations according to the HO scheme (*x*-axis). The vertical axis describes the generality of the explanandum (from particular to general) and the horizontal axis the inclusivity of the factors involved in a particular explanation. This field designates four constellations, distinguished by their respective explanatory scope and substance. In the bottom half, we have the story-telling modes of a purely narrative enumeration of actual processes, without further consideration of explanatory conditions. The thick description may include at least some explanatory condition, whereas the thin description would be simple historical "narratives." Examples of the thick description might be Goffman's analyses of role behavior in typical social settings.

In the top half of the field, the approaches of Gary Becker or George C. Homans are representative of more exclusive general explanation and the "grand theories" of Parsons, Luhmann, or Giddens for a comprehensively inclusive or all-encompassing general theory. The concept of TMR stands in the middle of the typology between the two axes and reflects the latest state of research: no longer wholly particular, but also far from general; not only concentrated on an exclusive factor, but also not

yet inclusive enough with regard to their explanatory conditions. Merton's proposal, ultimately, boils down to the fact that scientific development moves inexorably to the top right of the diagram, by way of the further elaboration of the existing or the creation of new TMR, with the explicit end goal of an explanatory theory that is as general as possible (depicted by the block arrow).

The concept looks quite plausible, and implicitly the vast majority of contributions to TMR have followed this idea, albeit in different ways. What is missing in all of this, however, is what Opp so clearly emphasized in his criticism of the direct strategy: Irrespective of all the differences in the scope of intensional content of the explananda and the inclusivity of the explanatory factors taken into account, the *explanatory power* of the underlying theoretical foundation is of central importance. This would be a third dimension in the evaluation of the state of research and thus in the development toward a general and explanatory sociological theory.

The explanatory power of a theory is dependent on a number of characteristics, the core of which is the fulfillment of the conditions of the most general and well-proven HO explanation possible. In the context of the MSE and the microfoundation it uses, there are essentially three dimensions: the formal structure of the explanatory model according to the *logical content* of falsifiability; the *complexity* of the theory architecture, for example according to the richness of the transformation rules for the individual effects, either as simple demographic patterns or as complex aggregations to systems as in game–theoretical models; and the *range* of the *microfoundation* used in a certain theory of action/behavior within the framework of the MSE. In addition, there is always the criterion of empirical evidence, which is left open in this overview and not included further for reasons of simplification; additionally, it is also permanently subject to change. This is illustrated in Table 1.

The three dimensions of explanatory power are represented by three columns for logical content, theoretical complexity, and the range of microfoundations, in each case for given degrees of scope for the individual explananda and the conditions considered for the explanans (the two dimensions in the overview in Hedström and Udehn 2009). The rows indicate, from bottom to top, different levels of *explanatory* power on the single dimensions according to the MSE and their situation–logical

Table 1 Theory development in theories of middle range according to three dimensions of explanatory power: logical content, theory complexity, and range of the respective microfoundation

Approach	Logical content	Explanative theoretical complexity	Range of microfoundation
DPT/MFS	High	High	High
BRT	High	High	High
RCT	High	High	Medium
SPS	High	Medium	Medium
DBO	Low	Medium	Low
Parsons	Low	Low	Low
Luhmann	Low	Low	Low
Giddens	Low	Low	Low

DPT/MFS dual-process theories or models of frame selection, *BRT* bounded rationality, *RCT* rational choice theory, *SPS* sociology as population science, *DBO* desires, beliefs, opportunities

extension to processes, equilibria, and social systems beyond rather simple statistical aggregations or broad, but mostly empty, orientation hypotheses, as with Parsons, Luhmann, or Giddens.

7 Approaches and Developments

With all this context, it is now possible to localize different approaches in sociology in the three dimensions of explanatory power. We start with Coleman and his special concept of the MSE, the solution to the problem of a general social theory, which Bouvier calls the "strong" option (RCT in Table 1). Coleman applies a particularly strict form of RCT with a high logical content—the economic theory of exchange and market theory—to a wide variety of sociological explananda with unparalleled consistency. His approach can therefore be regarded as comparatively "general" for the explananda covered, but also as decidedly "exclusive" because only the narrow form of RCT is used. For this reason, Bouvier labeled the Coleman approach as (too) "strong" and as too narrow for the claim of a "general" social theory that also includes constructs other than those of rational egoism. On the other hand, the approach explicitly refers above all to social systems, such as markets or systems of exchange and negotiation, and is therefore fundamentally broader in the range of theoretical complexity than approaches that only refer to statistical aggregates or even merely concepts (as with Parsons, Luhmann, and Giddens, at the bottom of Table 1 in all dimensions). For despite its genuinely broad range of explanatory power, RCT still is limited, as has become increasingly apparent, and restricted to phenomena in which beliefs and desires, and their maximization, determine actions.

Analogously, the approach of *sociology as population science* (SPS; Table 1; Goldthorpe 2016) also has a lower theoretical complexity and range: It is largely limited to relations between sociodemographic aggregates and ignores all (strategic) interdependencies, which are the core of Coleman's systems theory. This reduces the explanatory power in comparison to Coleman's strong approach with exchange systems. The action theory used by Goldthorpe is similarly strict to Coleman's, and the inclusivity is thus comparably low. If the focus is only a specialization in certain fields, such as the sociology of education or mobility research, there is nothing wrong with this. However, there are tendencies to limit the entire systematic aspect of sociological work to this strict approach, for whatever reason: SPS lacks, for instance, the important distinction between interests and markets, norms and institutions, social and systems integration, or meaning and culture, among other things, or indeed a justification for considering sociology as a kind of subfield of social demography at all (Goldthorpe 2016).

The DBO approach according to Hedström (Hedström 2005; Hedström and Bearman 2009) is similar in generality and much broader in the scope of inclusivity: There are no a priori limitations in the explananda—but nor are there any for the explanatory factors. Very much in the same spirit as the various collections of anomalies in RCT and of heuristics in everyday decision-making—which authors such as Elster, Gigerenzer, and others have presented as manifestations of "bounded rationality" (Elster 1983; Gigerenzer and Selten 2001) without subjecting them to

further theoretical systematization or integration—Hedström also makes no attempt to bring them into the form of a theoretical system. Rational choice theory, narrow or broad, is rejected and its precision and logical content abandoned in favor of a loose orientation of microfoundations on three possible influences (desires, beliefs, and opportunities). The (causal) function essential for any explanatory theory is left unspecified, and the category of subjective "meaning"—so central to the Weberian model—is dismissed by Hedström as irrelevant, as are the expectations and motives of the RCT approach or models of the "definition of the situation" (Hedström 2021). In consequence, the explanatory power of the DBO approach hardly differs from that of a "thick description," be it verbally as a "narrative," as a descriptive report on statistics of effects and distributions, or as the result of the computer-aided extraction of inductively obtained patterns from large stacks of "big data."

Goldthorpe and Hedström thus each represent an approach that falls below the standards already achieved or maintained by Coleman and the various variants of RCT: Goldthorpe in the (factual) restriction of theoretical complexity to sociodemographic patterns, and Hedström in the lack of explanatory power altogether. Bouvier, on the other hand, considers Coleman's approach to be too narrow. He criticizes the fact that Coleman clearly overstretches the possibilities of the strict RCT in some applications and that he includes aspects that go beyond the scope of even the extended versions of the RCT. Bouvier's reservations here paved the way for much (deliberate) criticism of Coleman's magnum opus *Foundations*, for example regarding his distinction between "power" and "authority"; following Weber, authority also involves *ideas* and *mental* models, beliefs, and desires such as those of the "legality" of social inequality, which *cannot* be accommodated in the concepts of RCT. Similarly, Hedström and the Oxford School are to be excluded, because—in denying the relevance of mental models, including beliefs and desires—they follow a kind of behavioristic inductivism with all its shortcomings.

In essence, the development of theory is a question of extending RCT theory from a narrow version limited to "economic" exchange processes without losing explanatory power. There are two ways RCT could potentially be adapted: first, as a broader variant, with the addition of motives and expectations, such as altruism, that go beyond the expectations of rational utility (bounded rationality [BRT]; Table 1); second, as an overarching change to microfoundations, achieved by developing a *comprehensive* model of action selection that includes RCT (narrow or wide) as a special case, in coexistence with other special cases of *non*rational action. The model can then explain under what conditions the other type of microfoundation is appropriate and explanatory.

This would be, in essence, a conditionalization of the microfoundation and the "corrective" explanation of the anomalies, heuristics, and biases proposed by Elster or Gigerenzer, for example. It is embedded within an overarching framework that integrates and corrects RCT, BRT, and forms of "pragmatistic" habitual and undeliberated reactions or symbolic interpretative reactions. These are approaches of the so-called dual-process theories or models of frame selection (Table 1), which could potentially allow for the unification of sociological social theory, for instance by including interpretative, normative, or pragmatist approaches in the MSE (see also Sect. 9 below on this). Raymond Boudon was almost the only one to cross

this boundary to suggest a microfoundation expanded with certain interpretative and cultural aspects within the framework of an "explanatory" sociology, and he did so early on, guided by his proximity to Weberian sociology and its concept of the four types of action.

It would also be a further solution to Bouvier's problem: This approach is not too narrow and not too strong, but also not too broad and certainly not weak either, but also not just "intermediate" but a further *advance* in constructing or describing microfoundations in a more general and inclusive fashion, while at the same time offering more explanatory directivity for all variants of theoretical complexity. These topics have been discussed and empirically investigated in cognitive social psychology for some time, beginning with Max Weber and Alfred Schütz, and more recently by, e.g., Chaiken and Trope (1999) and Fazio (1990), and in sociology by DiMaggio (1997), Miles (2015), and Vaisey (2009). Lizardo et al. (2016) could be mentioned for dual-process theories, as could, for models of frame selection, Esser (1993, 2009), Esser and Kroneberg (2015), and, more recently, Kroneberg and Tutić (2021), Tutić (2022), and Tutić et al. (2023). There are also attempts to extend economic RCT in these directions, as in Bicchieri (2006), Rubinstein and Zhou (1999), and Gintis (2017) with a kind of culturalized game theory (see Esser 2020).

These approaches could significantly expand the scope of successfully explained explananda and the conditions that can be used, as well as the range of explanatory power of the microfoundation of the MSE. Compared to Boudon's contribution, these concepts have taken a few more steps toward a concept with a significantly expanded extension of generality and inclusivity in scope, and in the range of explanatory power of microfoundations—theoretically elaborated and, now at least, empirically well documented. The current hurdle seems to be to develop game–theoretical (system) models with *combinations* of rational–strategic and automatic–unconscious reactions and thus, for example, to integrate the different variants of role theory (cf., as perhaps the only attempt to date, Montgomery 1998), one of Merton's unresolved examples of a typical theory of middle range.

8 Structural Models

Probably the most important result of tracing the discussions concerning TMR and the transition to the view of a direct strategy of the development of theory is that there are no fundamental limitations in terms of the extension of intensional content, i.e., in the scope of the explananda and explanantia, but there are restrictions in the range of explanatory power in the microfoundation on which the analyses with the model of sociological explanation and situation logic depend in their nomological core. From this perspective, there would no longer be any meaningful reference for a concept of theories of *middle* range because the explanations would include phenomena of all kinds, both singular and universal, and the scope would depend on the research interest and the choice of a particular explanandum and explanans. This would also eliminate the well-known and ongoing dispute between sociological and historical explanations or between macro, meso, and micro sociological perspectives: All objects could be dealt with, each as a combination of the diligence of historians,

ethnographers, and institutional researchers in the empirical descriptions and the analytical generalization of the described perspective (cf. Kroneberg 2019). The differences would be solely a question of the division of labor and the comparative cost advantages between the approaches, but not one of ontological differences, incommensurability, or the heuristics and methodology used.

Merton's concept did not intend this. However, there was always a formal, abstracting, and generalizing perspective of theory formation and application: the idealizing and simplifying modeling of typical constellations of conditions and contexts and the transfer to structurally similar constellations. Of course, this can also be seen as an extension, namely in the scope of the "intended applications" of models of a solution once it has been found: the use of the concept of relative deprivation in revolutions, of promotions in organizations, or of the feeling of unfairness experienced by children who have not made it to the upper pathways of education, for example. However, these would not be "provisional" solutions that still need to be corrected or otherwise expanded, but rather ready-made and well-working modules in a toolbox that is constantly growing and can be applied to more and more questions that previously defied explanation. Such models are more than just functioning pragmatic solutions or "mechanisms" that have become briefly visible but whose exact causal structure has not been further clarified. Rather, they are full (causal) explanations according to the HO scheme—albeit always for already delimited areas. It is precisely this limitation in the structuring abstraction of a solution once it has been found that constitutes its research–economic value.

Boudon and Bourricauld (1982) introduced the term "structural model" for such models. Hirschman's example of *Exit, Voice and Loyalty*, which Boudon and Bourricauld regard as the prototype of a structural model, illustrates this well (Fig. 6).

The starting point is a functioning exchange relationship in equilibrium between suppliers and customers in a market such as S(1). Then there is a sudden drop in the performance of the suppliers, characterized in the model as external influence E+. This changes the equilibrium, and there are two possible ways in which the process can branch out: The first option is the withdrawal of the customer to another supplier ("Exit" at S[2′]) and the breakdown of the exchange relationship ("Decay" at S[0]). The other possibility is the protest of the customer ("Voice" at S[2]), responded to

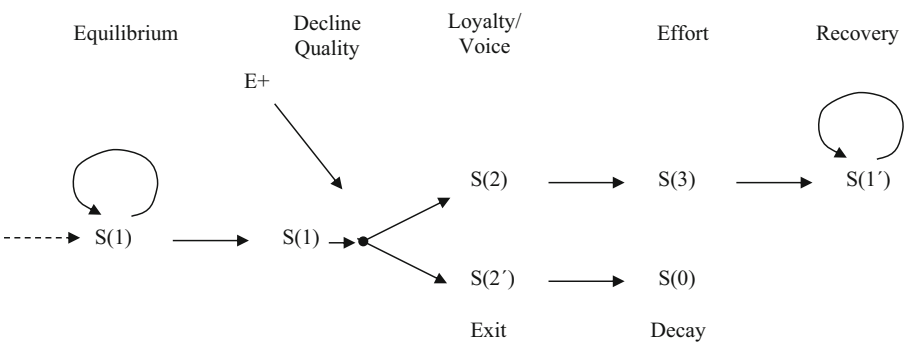

Fig. 6 *Exit, Voice and Loyalty* as a structural model

by greater efforts on the part of the supplier to restore earlier levels of performance ("Effort" at S[3]). The result is that the previous balance between the partners is restored ("Recovery" at S[1′]).

At first glance, the concept of STM looks like a theory of middle range: The explanandum is limited in scope, as are the conditions for explaining the respective transitions—market exchange, exit and decay, or voice and effort. However, extensions to the scope are easily conceivable, such as the breakdown of marriages or whole neighborhoods, but also the absence of social movements, the low level of public education, the lethargy of universities in France, or the demise of the German Democratic Republic. The list could be extended and expanded for different specialized sociologies. However, these would always have to be *valid* HO explanations: For the respective events and conditions, this would entail correctly describing and deriving the respective assumptions, bridge hypotheses, and transformation rules—a complex undertaking, perhaps, but not actually a "theoretical" problem of limited scope or range.

Next, what do we know about the range of microfoundations in structural models? It depends: Coleman's RCT would do a lot of heavy lifting but soon reach its limits, as Elster tells us. Strong RCT does not actually recognize any affections, and in particular no "unconditional" or "categorical" determinations, such as loyalty: brand adherence, a sense of responsibility for a community, unconditional love. In the model, these are the conditions for avoiding an exit and for the protest that is necessary—although not sufficient—to increase efforts and product quality again. This is the limitation of the RCT-based model in the scope of aspects excluded or included with a certain microfoundation, such as those provided by Max Weber in the three types of action alongside that of purposeful rationality: values, affects, and traditionality. The further development of the microfoundation to one that, for example, contains the *four* types of action each as a special case that *itself* can be explained, is the solution here: The scope must be expanded to include as many relevant conditions as possible to explain the actors' actions and thus the individual effects and structural consequences. The solution does not, therefore, lie in the mere extension of RCT to include other (rational) motives—for example, altruism or envy—and certainly not in the abandonment of precise functions in the microfoundation, as in the DBO approach. What is needed is a different *function* in the theory of action, one that is based not on the maximization principle but, for example, on the spontaneous and symbolically controlled triggering of reaction programs. The limitations in the theoretical range are a question of the elaboration and usage of

Table 2 Types of structural models

Structural models		
Ahistoric generalizations	General explanations for particular fields	Historically specific constellations
Menger/Weber	Boudon and Bourricauld	Schmoller/Weber
Markets Game–theoretical models Process models	Mixtures Combinations	Ideal types

the respective microfoundation: RCT, narrow or wide, and beyond, as for values, affects, or traditions that can override all rational deliberations.

Against this background, three types of constellations can be distinguished in the structural models (Table 2).

There are two poles in the structural models: ahistorical generalizations of universal connections (left) and historically specific constellations of singular events (right). In between are models of explanations of social relationships in particular fields. From the point of view of scope, these would correspond to TMR. All of them, however, are universal in terms of their theoretical range, and the limits only exist in terms of the explanatory power of the microfoundation and the theoretical complexity they can achieve. Structural models lie in between in most cases. However, this is not a limitation of their coverage of subjects but a combination and mixture of aspects of *both* poles: particularity and generality. This is especially typical for structural models, in contrast to TMR.

Examples of ahistorical generalizations include concepts such as markets, process models, and abstractly defined game–theoretical constellations. The main proponent of this approach at the time of the older methodological dispute (*Älterer Methodenstreit*) was Carl Menger. Markets and diffusion models can be underpinned with relatively sparse microfoundations such as RCT, and to the extent that RCT has an overarching validity, the models can also be broadly generalized. In the case of historically specific constellations, the concept of the "ideal type" forms the model case of a structural model: These are equilibria that hold for the interplay between certain particular, even singular structural characteristics, and that exist for historically delineated epochs—and then *only* in this *unique* combination. This corresponds to Gustav Schmoller's position of historicism, according to which there can be no explanations in history along the lines of the natural sciences because of their uniqueness.

However, with the concept of the ideal type, Max Weber gave historicism exactly that explanatory basis (see Albert 2008 for more details on this and its relationship with Merton's concept of TMR). One example would be the ideal type of "legal authority": In this context, characteristics such as "rationally delineated responsibilities" or "a continuously rule-bound operation of official business within an assigned competence" are *combined*, as structural features, with a microfoundation in which mental models of "frames" and "scripts"—such as the historically strongly localized "belief in the legality of established orders and the right of those appointed by them to exercise rule"—are anchored and unquestionably entail a certain action determined within this framework. Weber was referring to the historical constellation of the beginning of modernity. Almost everything is "particular": The structural characteristics certainly are, as is the belief in legality, not to mention the content of the respective mental models. Still, they can be included in the explanans as part of a causal and general microfoundation, a framework within which these contextually specific beliefs can be considered mental properties of the "subjective meaning" of the actors, "understood" via the bridge hypotheses, taken into account via the three logics of the MSE, and thus also "causally explained," as Weber puts it. In other words: subjective understanding and nomological explanation *all at once*.

9 Conclusions and Perspectives

The concept of TMR proposed by Robert K. Merton has been received with great enthusiasm by many social scientists—unsurprisingly, in view of the confusion, the complications, and the great dichotomy between abstract "grand theories" and small-scale empirical everyday research. The concept is also itself a way of getting rid of many of the empty debates surrounding it, including the recommendation not to take on too much, and instead to proceed cautiously. This article suggested a reorientation. The starting point is the thesis that, with the model of sociological explanation and the sociological situational logic of social processes, there are now well-developed heuristics of sociological explanation and theoretical development. They make it possible to conceive of and achieve "general explanations" for phenomena of all kinds. This is because the necessary nomological core is not localized in a comprehensive system of categories or an overarching axiom of sociological laws, but rather in the microfoundation of action theory that is inherent in the model of sociological explanation.

This expands and differentiates Merton's concept. The generic term is what one might call the "coverage" of an explanation. It has two dimensions: The "scope" is an extension of the explananda and conceivable explanantia that are of interest in terms of their intension; there are no limits to this. However, there may be limitations in the "range" of the action–theoretical nomological core of the microfoundation, namely the explanatory power of said microfoundation.

With this specification and reorientation, ultimately, another concept comes into play, which is also implicitly touched on here and there by Merton (and others): that of *structural models*. These are, as mentioned, simplified models of typical constellations of specific, concrete conditions and contexts, as well as the transferal or generalization of these models to structurally similar constellations with different intensions of all kinds. The special features have been described in detail above. In conclusion, however, here are five further consequences of this reorientation for certain metatheoretical and philosophical debates, all concerning the program of a rigorous explanatory sociology. First, there is the rehabilitation of the HO scheme (1); next, the integration of the concept of structural models into notions of the so-called non-statement view (2); the particularities of Weber's ideal types as general explanatory models for singular constellations (3); the termination of the search for an overarching "grand theory" and the "reduction" of sociological explanations (4); and finally, a new perspective for the controversial and currently widely neglected goal of a "unity of the social sciences" (5).

1. The MSE as the basis both for the revision of the concept of TMR and for the proposal to advance the development and application of sociological theory via structural models is essentially based on the direct use of the *HO scheme* to explain the respective explananda and the many variants of its application. This has always been controversial and remains so, not least within the various schools of analytical sociology. The discussion surrounding the concept of TMR can also be understood as one about the disqualification of the HO concept: The necessary laws do not exist, and the instrumentalist practices of the middle range extant in actual scientific communities are sufficient—or even more important—for theory development. This

runs parallel to ideas that imply a (significant) relaxation of the criteria for the acceptability of theoretical concepts and empirical analyses.

The most serious example in recent times is the abandonment of all claims to an HO-derived methodology in the Hedström school's turn to behaviorist empiricism and—associated with this—a move toward a disordered inductivism heretofore unheard of even within the widespread "variable sociology" (cf. Hedström 2021). This explicit revitalization of the HO scheme as the basis for theoretical development does not mean that the difficulties associated with it are disregarded. The central objection is still that put forward by James S. Woodward (2000, 2005): There are no universal "laws," he argues, but at best invariances in experiments with targeted manipulations. All that is needed is a reference to invariances that go beyond the particular case under investigation and are as robust as possible against variations in the contextual circumstances. This is precisely where the field for further development would lie—starting from an initially very focused range in the microfoundation of the MSE, then growing increasingly wider.

2. Structural models have properties that seem to correspond to the concept of the *non-statement view*. This was once proposed as a kind of counterconcept to the HO explanation: "models" for entire constellations of theoretical "statements" and other assumptions, which, as a whole, functioned as an orientation for certain "intended applications," as it is called. As a guiding principle, they cannot be falsified. Their tenability only becomes apparent in the (intended) applications (cf. in direct reference to the MSE, or the Weberian model, the concept of ideal types, the non-statement view, and Merton's TMR: Albert 2006, 2007, 2008, 2010).

And indeed, this would correspond to the idea of the MSE and the conception of structural models based on it: Successful sociological explanations always and primarily involve the *entirety* of the bridge hypotheses and transformation rules and the respective measurement rules governing the empirical interpretation of the applied theoretical concepts. However, certain "statements" are also decisive in the models of the non-statement view, at least when it comes to specified content and applications of the MSE: the microfoundation. In this respect, the non-statement view is not unreasonable. Certain theories of action are often assumed to be true a priori: in Popper's situational logic and in Coleman's oeuvre, RCT, and pragmatist theories in, for example, Pierre Bourdieu or Neil Gross. However, these also always contain "statements," i.e., conjectures about general causal relationships, and if they do not hold in their usage, they can invalidate any (intended) application. This is another reason why the boundaries between statement and non-statement views are no longer drawn as sharply as they were. It is also more of a kind of heuristic for working with structural models: in its application to successful complexes of general explanations for particular patterns and "types" of interrelationships.

3. In the description of the different types of structural models in Table 2, the concept of the *ideal type* according to Weber is named as an extreme case (see again Albert 2007, 2008, 2010). An ideal type is a—historically possibly unique—constellation of certain structural features combined with a—potentially also unique—mental disposition of the actors. An example would be, as mentioned, legal rules, a balance of "rational" structures constantly reproduced via the "belief" of the actors, including "in the legality of established orders" and the individual

effects reliably generated by this, which repeatedly generate the ideal–typical structures in question via aggregation. The special feature is that it is not only abstract beliefs and desires that generate the individual effects, as is the case with other theories of action, such as RCT, but that the specific content of the mental models now also guides action: the "belief" in a certain substantive issue, possibly in such a way that this state of affairs no longer exists anywhere outside the specific structural constellation and historical situation. And because the content of the "belief" can change over the course of social change, an ideal–typical model that presupposes precisely this belief as an initial condition for the general explanation of action under the given structures as a microfoundation *only* works in *this* singular constellation in question.

4. With the concept of direct sociological explanation and structural models, the question of theoretical progress can also be addressed more easily. The development of theory is no longer dependent on the elaboration of an overarching nomological system from which the various hypotheses would have to be derived deductively and nomologically according to the HO scheme. As we have seen, it is sufficient to apply the heuristics of the MSE and the sociological situational logic. This also eliminates the need for a *reduction* of the specific hypotheses and findings to an overarching nomological framework for sociological explanations (cf. Schmid 2017 in detail). All that is needed is a (preferably) general nomological microfoundation. The "range" of the respective explanation is determined by its limits and possibilities in terms of explanatory power and theoretical complexity. Additionally, an extension of the range of microfoundations is also necessary, at least if the "coverage" of the existing models and microfoundations cannot be extended: from one-sided, exclusive variants such as the RCT or the habitus theory to overarching concepts such as the models of frame selection, which can explain when one or the other variant applies or not. However, this would not be a "reduction" but a "correction," an in-depth explanation (cf. Sect. 4 above on this point).

For such expansions and deepening of microfoundations, however, the perspective of a "reduction" could again be appropriate. If anomalies occur, this would make it necessary to establish connections between the respective theories of action on the one hand and the findings and theories of neurological research on the other; subsequently, one might have to continue on to the levels of biochemical and biophysical laws. In most cases, this would probably not be necessary for sociological explanations. But it would be possible, as a precaution so to speak, in the event of the extensions and corrections in microfoundations reaching their limits. It is the principle of "decreasing abstraction": as simple as necessary, as complex as necessary, because sociology is not psychology. It is "only" necessary, albeit at a crucial point.

5. However, this would also provide a new perspective for the aim of a "unity of the social sciences." Apart from more fundamentalistic methodological positions, such as not focusing on nomological explanations at all, or not considering criteria such as explanatory power and theoretical complexity to be of any further significance, the essential goal here is to bring together and conditionalize the most important "paradigms" of sociology: the normative, interpretative, pragmatist, or utilitarian paradigm, for example. Microfoundations have now been achieved with

sufficient range—i.e., via the dual-process and frame selection models—to fully cover these disparate paradigms, which could then be conditionalized to apply to a more overarching theory. The problem then no longer lies in the exclusivity of the different theories of action in microfoundations. Rather—and this has actually always been the case—it is more a question of a pragmatic segregation of the paradigms. This is understandable, and Merton's concept of TMR was quite helpful in calling for modesty with regard to this goal.

In revising this concept—and in particular, replacing it with the idea of structural models as a growing collection of successful explanations, which can then function as readymade modules in an expanding toolbox of analytical sociology—one could go even further. For agent-based modeling, a now well-developed technique of theory building according to the MSE and sociological situation logic, there are already longer lists of structural models, nothing more and nothing less than well-developed tools for typical problems. It can be assumed that Robert K. Merton also had something like this in mind when he first developed his concept of TMR, although the theory was perhaps not explicitly clear at the time. And if it is only now that this fact has become recognizable, one can simply refer to a metaphor in the title of another famous book by Robert K. Merton: *On the Shoulders of Giants*. Max Weber, Raymond Boudon, and James S. Coleman are also among them, these giants.

Acknowledgements The author thanks Gert Albert, Gunnar Otte, Werner Raub, Nico Sonntag, Andreas Tutić, and Thomas Voss for their valuable and substantive comments and suggestions, and especially Werner Raub and Nico Sonntag for their extremely precise and careful editing of both the text and the entire volume.

Funding Open Access funding enabled and organized by Projekt DEAL.

Conflict of interest H. Esser declares that he has no competing interests.

References

Albert, Gert. 2006. Max Webers non-statement-view. Ein Vergleich mit Ronald Gieres Wissenschaftskonzeption. In *Aspekte des Weber-Paradigmas. Festschrift für Wolfgang Schluchter,* eds. Gert Albert, Agathe Bienfait, Steffen Sigmund, and Mateusz Stachura, 47–79. Wiesbaden: VS Verlag für Sozialwissenschaften.

Albert, Gert. 2007. Idealtypen und das Ziel der Soziologie. *Berliner Journal für Soziologie* 17: 51–75.

Albert, Gert. 2008. Soziologie mittlerer Reichweite. Die methodologischen Konzeptionen Robert K. Mertons und Max Webers im Vergleich. In *Soziale Konstellation und historische Perspektive. Festschrift*

für M. Rainer Lepsius, eds. Steffen Sigmund, Gert Albert, Agathe Bienfait, and Mateusz Stachura, 445–467. Wiesbaden: VS-Verlag für Sozialwissenschaften.
Albert, Gert. 2010. Handlungstheorien mittlerer oder universaler Reichweite? Zu einer latenten methodologischen Kontroverse. In *Soziologische Theorie kontrovers. Sonderheft 50, Kölner Zeitschrift für Soziologie und Sozialpsychologie*, eds. Gert Albert and Steffen Sigmund, 526-561-41. Wiesbaden: VS-Verlag.
Bicchieri, Christina. 2006. *The grammar of society. The nature and dynamics of social norms*. Cambridge: Cambridge University Press.
Boudon, Raymond. 1991. What middle range theories are. *Contemporary Sociology* 20: 519–522.
Boudon, Raymond, and François Bourricauld. 1982. *Dictionnaire critique de la sociologie*. Paris: PUF.
Bouvier, Alban. 2023. Middle-range theories and the unification problem in social science. In *The future of sociology*, eds. Robert Leroux, Thierry Martin, and Stephen Turner, 91–150. London: Routledge.
Cartwright, Nancy. 2020. Middle-range theory: Without it what could anyone do? *Theoria: An International Journal for Theory, History and Foundations of Science* 35: 269–323.
Chaiken, Shelly, and Yaacov Trope. 1999. *Dual-process theories in social psychology*. New York: Guilford Press.
Coleman, James S. 1990. *Foundations of social theory*. Cambridge, MA, London: Belknap Press.
Diekmann, Andreas. 2026. Analytical sociology. Generative models, mechanisms, explanations. *This issue*.
DiMaggio, Paul. 1997. Culture and cognition. *Annual Review of Sociology* 23: 263–87.
Elster, Jon. 1983. *Sour grapes: Studies in the subversion of rationality,* Cambridge: Cambridge University Press.
Elster, Jon. 1989. *Nuts and bolts for the social sciences*. Cambridge: Cambridge University Press.
Elster, Jon. 2015. *Explaining social behavior: More nuts and bolts for the social sciences*. Cambridge: Cambridge University Press.
Esser, Hartmut. 1993. The rationality of everyday behavior: A rational choice reconstruction of the theory of action by Alfred Schütz. *Rationality and Society* 5: 7–31.
Esser, Hartmut. 2009. Rationality and commitment: The model of frame selection and the explanation of normative action. In *Raymond Boudon: A life in sociology, Vol. 2, part two: Toward a general theory of rationality*, eds. Mohamed Cherkaoui and Peter Hamilton, 207–230. Oxford: The Bardwell Press.
Esser, Hartmut. 2020. Anreize, Kognition, Kultur und die symbolische Choreographie der Gesellschaft. Zum Vorschlag der (eher unfreundlichen) Übernahme der Soziologie durch eine abermals erweiterte Rational-Choice-Theorie bei Herbert Gintis. *Zeitschrift für Soziologie* 49: 91–110.
Esser, Hartmut. 2024. Middle range theorizing. In *Boudon reexamined. Nuts and bolts for contemporary sociological science*, ed. Gianluca Manzo, 81–101. Paris: Sorbonne Université Presses.
Esser, Hartmut, and Clemens Kroneberg. 2015. An integrative theory of action: The model of frame selection. In *Order on the edge of chaos: Social psychology and the problem of social order*, eds. Edward J. Lawler, Shane Thye, and Jeongkoo Yoon, 63–85. Cambridge: Cambridge University Press.
Fazio, Russell H. 1990. Multiple processes by which attitudes guide behavior: The MODE model as an integrative framework. In *Advances in experimental social psychology,* ed. Mark P. Zanna, 75–109. San Diego, CA: Academic Press.
Gigerenzer, Gerd, and Reinhard Selten (eds.). 2001. *Bounded rationality: The adaptive toolbox*. Cambridge, MA.: MIT Press.
Gintis, Herbert. 2017. *Individuality and entanglement. The moral and material basis of social life*. Princeton, NJ: Princeton University Press.
Goldthorpe, John H. 2016. *Sociology as a population science.* Cambridge: Cambridge University Press.
Hedström, Peter. 2005. *Dissecting the social: On the principles of analytical sociology*. Cambridge: Cambridge University Press.
Hedström, Peter. 2021. Coda—The past and future of analytical sociology. In *Research handbook on analytical sociology*, ed. Gianluca Manzo, 490–505. Cheltenham: Edward Elgar.
Hedström, Peter, and Peter Bearman (eds.). 2009. *The Oxford handbook of analytical sociology*. Oxford, UK: Oxford University Press.
Hedström, Peter, and Lars Udehn. 2009. Analytical sociology and theories of the middle range. In *The Oxford handbook of analytical sociology*, eds. Peter Hedström and Peter Bearman, 25–48. Oxford: Oxford University Press.
Hempel, Carl G. 1965. *Aspects of scientific explanation*. New York, NY: Free Press.
Hirschman, Albert O. 1970. *Exit, voice and loyalty. Responses to decline in firms, organizations and states*. Cambridge, MA: Harvard University Press.

Kohler, Ulrich, and Marian Krawietz. 2026. Exit, voice, loyalty in the German Democratic Republic, 1970–1989: A comparative analysis of six related theories using directed acyclic graphs. *This issue*.
Kroneberg, Clemens. 2019. Theory development in comparative social research. *Kölner Zeitschrift für Soziologie und Sozialpsychologie* 71(Suppl. 1): 29–51.
Kroneberg, Clemens, and Frank Kalter. 2012. Rational choice theory and empirical research. Methodological and theoretical contributions in Europe. *Annual Review of Sociology* 38: 73–92.
Kroneberg, Clemens, and Andreas Tutić. 2021. Action. In *Research handbook on analytical sociology*, ed. Gianluca Manzo, 186–203. Cheltenham: Edward Elgar.
Lizardo, Omar, Robert Mowry, Brandon Sepulvado, Dustin S. Stoltz, Marshall A. Taylor, Justin Van Ness, and Michael Wood. 2016. What are dual process models? Implications for cultural analysis in sociology. *Sociological Theory* 34: 287–310.
Mackie, John L. 1974. *The cement of the universe*. London: Oxford University Press.
Mayntz, Renate. 2004. Mechanisms in the analysis of social macro-phenomena. *Philosophy of the Social Sciences* 34: 237–259.
Merton, Robert K. 1936. The unanticipated consequences of purposive social action. *American Sociological Review* 1: 894–904.
Merton, Robert K. 1949. On sociological theories of the middle range. In *Social theory and social structure*, ed. Robert K. Merton, 39–53. New York: Free Press.
Miles, Andrew. 2015. The (re-)genesis of values: Examining the importance of values for action. *American Sociological Review* 80: 680–704.
Montgomery, James D. 1998. Toward a role-theoretic conception of embeddedness. *American Journal of Sociology* 104: 92–125.
Opp, Karl-Dieter. 1970. Theories of the middle range as a strategy for the construction of a general sociological theory—A critique of a sociological dogma. *Quality and Quantity* 4: 243–253.
Opp, Karl-Dieter. 2013a. What is analytical sociology? Strengths and weaknesses of a new sociological research program. *Social Science Information* 53: 329–360.
Opp, Karl-Dieter. 2013b. Rational choice theory. The logic of explanation, middle-range theories and analytical sociology. *Social Science Information* 53: 394–408.
Opp, Karl-Dieter. 2026. The methodology of the Cologne School of sociology as a precursor of analytical empirical sociology: Strengths and Weaknesses. *This issue*.
Popper, Karl R. 1957. *The poverty of historicism*. London: Routledge & Kegan Paul.
Popper, Karl R. 1972. Die Zielsetzung der Erfahrungswissenschaft. In *Theorie und Realität. Ausgewählte Aufsätze zur Wissenschaftslehre der Sozialwissenschaften,* ed. Hans Albert, 29–41. Tübingen: Mohr Siebeck.
Raub, Werner. 2021. Analytical sociology and its lesser-known antecedents: Structural individualism in European sociology. In *Research handbook on analytical sociology*, ed. Gianluca Manzo, 80–99. Cheltenham: Edward Elgar.
Raub, Werner. 2024. Coleman's problem and Boudon's solution: Rational choice theory as a tool for sociology. In *Boudon reexamined. Nuts and bolts for contemporary sociological science*, ed. Gianluca Manzo, 175–192. Paris: Sorbonne Université Presses.
Raub, Werner. 2026. Explanation in sociology and Coleman's diagram. *This issue*.
Raub, Werner, Nan Dirk de Graaf, and Klarita Gërxhani. 2022. Rigorous sociology. In *Handbook of sociological science. Contributions to rigorous sociology,* eds. Klarita Gërxhani, Nan D. de Graaf, and Werner Raub, 2–19. Cheltenham: Edward Elgar.
Rubinstein, Ariel, and Lin Zhou. 1999. Choice problems with a 'reference' point. *Mathematical Social Sciences* 37: 205–209.
Schmid, Michael. 2017. Theorie, Reduktion und mikrofundierende Erklärung. In *Die Provokation der Reduktion*, ed. Gerhard Wagner, 5–67. Wiesbaden: Harrassowitz.
Sonntag, Nico, and Natascha Nisic. 2026. Dynamics of model building. Challenges and prospects of the method of decreasing abstraction. *This issue*.
Tutić, Andreas. 2022. Cultural orientations and their influence on social behaviour: Catalysation and suppression. *Journal for the Theory of Social Behaviour* 52: 438–453.
Tutić, Andreas, and Thomas Voss. 2026. The covering-law model of explanation in social science—Strengths, limits, and alternatives. *This issue*.
Tutić, Andreas, Sascha Grehl, and Ulf Liebe. 2023. A dual-process perspective on the relationship between implicit attitudes and discriminatory behavior. *European Sociological Review* 40: 672–685.
Vaisey, Stephen. 2009. Motivation and justification: A dual-process model of culture in action. *American Journal of Sociology* 114: 1675–1715.

Woodward, James. 2000. Explanation and invariance in the special sciences. *British Journal of the Philosophy of Science* 51: 197–254.
Woodward, James. 2005. *Making things happen. A theory of causal explanation*. Oxford, New York: Oxford University Press.

Hartmut Esser studied economics, social psychology and sociology at the University of Cologne. He held positions as Professor for Methodology of Empirical Social Research at the University of Duisburg (1978–1982) and at the University of Essen (1982–1985), as Professor for Sociology at the University of Cologne (1987–1991) and as Professor for Sociology and Philosophy of Science at the University of Mannheim (1991–2009). His research interests include methodology of the social sciences, family sociology, migration and integration of migrants, interethnic relationships, ethnic conflicts, sociological theories of action and, recently, educational sociology, especially educational systems and inequalities.