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How To Refine Theoretical Problems:

An Explication of a Key Sociological Competence

Abstract: I offer an explication of a powerful but hitherto hardly explicated key sociological competence: the refinement of theoretical problems. In order to be able to construct theoretical problems such as social order or intersubjectivity, specific concepts are necessary. These problem-defining concepts are at the heart of many sociological approaches and determine which questions can be asked in the first place. Scholars can use them in either of two ways: by working with them or by working on them. This article deals with the different ways of working on them, which are called 'techniques of theoretical problem refinement'. Since these techniques are mostly based on tacit knowledge, it seems necessary to make them explicit, not least from a didactic point of view. The article reconstructs the use of four such techniques employed by authors as diverse as Niklas Luhmann, Star and Griesemer, Mark Granovetter, and Meyer and Rowan. Based on this reconstruction, an initial systematization of basic techniques of theoretical problem refinement is identified: Theoretical problems can be refined on the basis of theoretical or empirical arguments and by means of problem emancipation or problem supplementation. Such a set serves as a starting point for the exploration of further techniques and their application in sociological practice.

Keywords: Theorizing, Sociological Concepts, Functionalism, Social Theory, Systems Theory

Theoretische Problemverfeinerung:

Explikation einer soziologischen Schlüsselkompetenz

Zusammenfassung: Der Beitrag widmet sich einer wichtigen, aber bislang kaum beachteten soziologischen Schlüsselkompetenz: der Verfeinerung theoretischer Probleme. Um theoretische Probleme wie soziale Ordnung oder Intersubjektivität konstruieren zu können, sind spezifische Begriffe erforderlich. Derartige Problembegriffe stehen im Zentrum vieler soziologischer Ansätze und bestimmen, welche Fragen überhaupt gestellt werden können. Soziolog:innen können auf zwei Arten von ihnen Gebrauch machen: indem sie mit ihnen arbeiten oder indem sie *an* ihnen arbeiten. Der Beitrag befasst sich mit verschiedenen Verfahrensweisen, an ihnen zu arbeiten. Diese werden als „Techniken theoretischer Problemverfeinerung" bezeichnet. Da diese Techniken zumeist auf Erfahrungswissen beruhen, erscheint ihre Explikation nicht zuletzt aus didaktischer Sicht geboten. Der Beitrag rekonstruiert die Verwendung von vier solchen Techniken, die von so unterschiedli-

chen Autor:innen wie Niklas Luhmann, Star und Griesemer, Mark Granovetter sowie Meyer und Rowan eingesetzt werden. Auf der Grundlage dieser Rekonstruktion wird eine erste Systematisierung grundlegender Techniken theoretischer Problemverfeinerung herausgearbeitet: Theoretische Probleme können auf Basis theoretischer oder empirischer Argumente und mittels Problememanzipation oder Problemergänzung verfeinert werden. Eine solche Systematisierung dient als Ausgangspunkt für die Erforschung weiterer Techniken und deren Anwendung in der soziologischen Praxis.

Schlüsselwörter: Theoretisieren, Soziologische Begriffe, Funktionalismus, Sozialtheorie, Systemtheorie

1. Working with and working on problem-defining concepts

Concepts shape the social world no less than sociological inquiries. However, both in the social world and in sociological inquiries, we rarely ask how they actually work. What characterizes them? Why do we need them? And what are the consequences of using a specific concept and not another one? Assuming that certain concepts within a sociological approach are more central than others, I posit that the most critical ones are *problem-defining concepts*. They are the ones determining which types of questions can be asked in the first place and thus express the theoretical problems that a text is intended to solve (Schneider 1991).

Two classical examples of such theoretical problems are the problem of social order and the problem of intersubjectivity (Schneider 2002, p. 290 ff.), which can be stated as two key questions: How is social order possible, and how is intersubjective understanding possible? Although it is fascinating to investigate these theoretical problems and how especially the classics prioritized them and related them to each other (Schneider 2002; 2009b; 2009a), this article takes a different approach. It focuses on how they emerge in the texts in which they appear.

I intend to show that the refinement of theoretical problems by means of working on problem-defining concepts is a key sociological competence that has not yet received sufficient attention. Surprisingly, there is relatively little explicit knowledge about the different techniques for working on problem-defining concepts. If at all, sociologists learn how to work on problem-defining concepts implicitly – by reading sociological classics, for example. Indeed, such reading is part of working on problem-defining concepts. However, it is only a first step. It only leads to the identification of one's own new theoretical problem through a second step – namely by refining the theoretical problems of others, which can take place in different ways. Therefore, my question is: *how do sociologists work on 'their' problem-defining concepts based on a refinement of the theoretical problems of others*?

I present four examples to illustrate the variety of techniques of theoretical problem refinement by analyzing Niklas Luhmann's (2014) refinement of the problem of

law, Star and Griesemer's (1989) refinement of the problem of translation, Mark Granovetter's (1985) refinement of the problem of social order, and Meyer and Rowan's (1977) refinement of the double problem of efficiency and legitimacy. These texts were chosen for two very different reasons. Luhmann's text is analyzed because he is so far the only author who has made his technique of problem refinement explicit (Luhmann 1991b; 1991a; Bednarz 1984; Schneider 2009b, p. 52 ff.). The other three texts are analyzed because they have inspired entirely new strands of research. It can therefore be assumed that these texts are particularly well suited to explicating the best practices for working on problem-defining concepts. I will show that these four texts, which at first glance appear very heterogeneous, can be reconstructed using the same schema. They all construct their problem-defining concepts based on the theoretical problems of others, but they do so differently in two respects. Firstly, they work on their problem-defining concepts on the grounds of either theoretical or empirical considerations and, secondly, either based on an emancipation or a supplementation of the underlying theoretical problem.

In this undertaking, I contribute to two sociological streams of literature: the literature on sociological concepts and the literature on theorizing. The *literature on sociological concepts* is concerned with the question of how concepts emerge, how they are used and what their proper role in sociology could be. It spans not only the classics, sociological dictionaries and propaedeutics, but also scatters into at least three other areas of sociological discourse. *First*, following the work of Bruno Latour (2007, p. 142) and Michel Callon (1999, p. 194), there has been an increased sensitivity to questions about the proportion and role of sociological concepts in sociological texts. The extreme position of these authors is that the aim of social inquiry should be to contribute to the creation of a "list of terms" (Mol 2010, p. 265) that enable a particular attitude rather than developing theories based on concepts and providing explanations. *Secondly,* there is a lively debate in social sciences such as organization studies about the value of sociological concepts such as 'institution', which on the one hand are very influential, but on the other so underdetermined that it is difficult to distinguish them at all (Alvesson/Blom 2022). *Third*, there are vibrant discussions about the dynamics, trends and developments of sociological concepts. These include, for example, questions as to which sociological concepts were once successful, but now are forgotten (McGail 2021), which sociological concepts dominate sociology today (Grothe-Hammer/Kohl 2020), how sociological concepts relate to those from other social sciences (Moody/Light 2006), and how sociological concepts become effective 'outside' sociology – such as in the public sphere (Nassehi 2023, p. 7). In addition to a long debate on the performativity of sociological concepts (Bourdieu 1998; Callon 2008), the philosopher Ian Hacking (2000; 2002) in particular has caused a stir with his work on the interaction of concepts from the sociological and non-sociological worlds. What is missing in all these discussions, however, is a sense of the significance of problem-defining

concepts and an examination of how seminal texts work on problem-defining concepts based on a refinement of the theoretical problems of others.

The *literature on theorizing*, with its focus on the practices of developing sociological theories, also prepares the ground for an increased preoccupation with working on sociological concepts (Swedberg 2016). This debate asks about the 'art' or 'craft' of the practical development of theories (Swedberg 2015). In contrast to the Anglo-Saxon school in this debate, centered around Swedberg and Abbott (2004), a continental European school currently seems to be forming (Carleheden 2019; Armbruster/Anicker 2024). According to the latter, questions about the tools of theory construction arise not only in the context of small-scale individual case studies with a claim to discovery, but also for approaches of more 'classical' theory work, which tend to be "generated from self-referential readings, comparisons or extensions of existing theories" (Farzin/Laux 2016, p. 243).[1]

Following this observation, Fabian Anicker (2020, p. 570) in particular, in a systematization of the implicit techniques and strategies of sociological theory construction in Pierre Bourdieu, Niklas Luhmann, and Jürgen Habermas, puts forward the thesis of a "far-reaching theoretical-technical convergence" in the writings of these authors. He argues that, with the help of the development of a framework, the contours of a theory construction technique independent of specific paradigms could be identified. Essential to this is the "principle that theories are to be understood as solutions to problems" and that not empirical "observations"– as in the Anglo-Saxon camp –, but "theories and their problems" stand at the beginning of theorizing (Anicker 2020, p. 570). In both camps, however, the question of *how exactly* theoretical problems are refined has not played a role so far.

This article links these two debates by contributing to a better understanding of the relevance of sociological concepts on the one hand and of their relationship to sociological theories on the other. Assuming that theories "in their objective sense" are indeed to be understood "as answers to questions or as solutions to problems" (Anicker 2020, p. 573), one may ask: how are the concepts that construct these problems crafted? This article thus complements and connects these two debates in order to sharpen the "requirement profile of practical theory work" (Anicker 2020, p. 569).

I proceed in three steps. In a first step, I prepare an understanding of what theoretical problem refinement is all about. On the one hand, I draw on the aforementioned continental European camp of theorizing; on the other hand, I draw on the idea of 'problem-defining concepts' introduced by Luhmann, which can be linked precisely to the understanding of theory in the problem/solution scheme mentioned above (Anicker 2020, p. 585).

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1   Quotations from non-English texts are translated into English by the author without further comments. If translations of the non-English originals into English are available, I have referred to these translations and not to the originals.

In a second step, I choose a comparative approach. I start with the technique of theoretical problem refinement as developed by Luhmann (2014) with regard to the theoretical problem of law. This technique lends itself particularly well as a basis for comparison, because Luhmann (1991b; 1991a) made his technique of problem refinement explicit (Bednarz 1984; Schneider 2009b, p. 52 ff.). In other words, his technique offers an excellent heuristic tool that can be used to make other techniques of theoretical problem refinement comparable. While, in contrast to Luhmann, most sociologists do not work *explicitly* in the problem/solution scheme, they nevertheless refine the theoretical problems introduced by others in the development of their texts. Instead of saying 'This is how I work on my concepts', they tacitly refine the theoretical problems of others. Therefore, I elaborate three further techniques of theoretical problem refinement on the basis of Luhmann's heuristic. In a final step, the results are generalized, a first list of possible techniques of theoretical problem refinement is created, and possibilities for future research are discussed.

2. Key terms and method of analysis

I am not alone in assuming that sociological theories operate within the problem-solution framework. Following the German sociologist Wolfgang Ludwig Schneider (1991), Anicker (2020, p. 573) has argued that sociology has a common approach to both the practice of theory comparison and theory construction: "the objective understanding of theory through the interpretation of theories to problems." Based on this assumption, Anicker (2020, p. 575 f.) develops a "technical three-step framework of theory construction":

> "Through the problem-related reconstruction of theories, the authors develop a certain problem level (1); by criticizing the existing theoretical solutions to problems, they create space for the alternative they favor (2) and claim a superior solution for the (typically slightly shifted) problem formulation (3)."

I accept this framework, but would like to take a closer look at the literature to find out *how* 'problem formulations' can be 'slightly shifted'. Anicker (2020, p. 591) already gives a first indication of this when he notes that "either the problem definition or the connection between problem and solution is criticized". But again: *how* exactly is either the problem definition or the connection between problem and solution criticized? Whereas Anicker is interested in the identity of the different approaches, I use this framework to analyze their differences. *What techniques of theoretical problem refinement can we identify?* In order to be able to answer this question in a methodologically sound manner, I need to clarify some methodological assumptions. Besides Anicker's framework, I draw on Luhmann's concept of 'problem-defining concepts'.

Luhmann claims that the "most general level of analysis" of theories is characterized by "concepts formulating problems [Problembegriffe]" (Luhmann 1995, p. 15), which I call 'problem-defining concepts' in the following. Luhmann uses this term

at a crucial point in the explication of general systems theory, namely with regard to the question of the extent to which the concept of the social system can be applied to various phenomena.

> "If one wants to check the fruitfulness of generalizations, one must position the concepts used at the most general level of analysis, […] as concepts formulating problems [Problembegriffe]" (Luhmann 1995, p. 15).

As noted in the introduction, problem-defining concepts construct – as the name says – theoretical problems, e.g., the problem of social order or the problem of intersubjectivity.[2] What is important is not only what they construct, but also the function that such a construction implies: *They help avoid the supposed compulsion to view sociological objects as things.* Things are characterized by the fact that they have certain attributes. A single-colored air mattress can, for example, be blue *or* white and 1.5 meters *or* 2 meters wide. Naturally, social phenomena can also be analyzed with the help of such concepts. For example, according to Ahrne and Brunsson (2005), meta-organizations are characterized by having organizations – and not individuals – as members, and according to Ametowobla and Kirchner (2023) platforms are characterized by their center-periphery structures – and not by other possible structures. So as not to be misunderstood: These are completely legitimate uses of concepts. However, at least according to Luhmann and the present approach, the *central* concepts in theories are not defined in this way. They are to be kept empty, so to speak, and only describe a problem instead of incorporating concrete solutions into the definition of the concept. Applied to the example just given from the world of perception (the air mattress), one would therefore determine only that an object (which is thus not yet substantiated as a thing) has a color and a width at all (Bednarz 1984, p. 351).

Luhmann criticizes the use of concepts in the thing mode not in general, but only when it becomes the central focus of a sociological theory. Thus, social systems should be defined exclusively by a theoretical problem, for example the problem of double contingency (Luhmann 1995, p. 108), and not by specifying particular *solutions* to this theoretical problem. In that regard, Luhmann accuses Talcott Parsons of having covertly transformed a problem-defining concept into an attribute-defining concept ('Merkmalsbegriff').[3] Parsons commits the cardinal error of not only defining the problem that every social system faces, but also selecting

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2 Luhmann does not speak of 'theoretical problems' but of 'reference problems' ('Bezugsprobleme') (e.g., Bednarz 1984; Luhmann 1995, p. 52 ff.). Although this terminology is more precise within a systems-theoretical framework, it tends to interfere with generalizing the underlying idea beyond systems theory. This is why I use the term 'theoretical problem' throughout the text.

3 In the original German version Luhmann at this point speaks of 'Merkmalsbegriffe', which is translated into "concepts describing possibilities" (Luhmann 1995, p. 15). I deviate from this translation and speak closer to the original of 'attribute-defining concepts'.

one solution (= functional equivalent) to this problem and incorporating it into the conceptual definition. This is precisely where Luhmann takes a different route:

> "Nothing forces one to seek the solution for the problem of double contingency exclusively in an already existing consensus, thus in the social dimension. There are functional equivalents […]" (Luhmann 1995, p. 104).

A *problem-defining concept* can therefore be distinguished from an *attribute-defining concept* in that it does not "fix the essential features" (Luhmann 1995, p. 15) of an object (e.g., a social system), but only the specific theoretical problem this very object essentially has to solve – in whatever possible way. Instead of using an attribute-defining concept to jump to the conclusion that 'social systems are consensus-dependent', a problem-defining concept only states that social systems solve the problem of double contingency. Therefore, 'consensus' is not conceived as an attribute (= a constant) of social systems but as one possible way (= a variable) of instantiating the refined (more abstract) theoretical problem of double contingency *among others*. The theory is not supposed to decide how problems are solved: "Which specific values belong to such a functional class or variable, is a matter of empirical knowledge" (Luhmann 1991a, p. 15). Thus, while attribute-defining concepts imply constants, problem-defining concepts 'only' imply variables.[4]

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4   If one looks for similarities between problem-defining concepts and what Cassirer (1923) calls function-concepts [Funktionsbegriffe], one will find them here – and only here. In my opinion Cassirer's distinction between function-concepts and substance-concepts is not suitable for grasping sociological concepts beyond quantitative sociology and very rigid theoretical approaches such as that of Talcott Parsons. It is no coincidence that Cassirer developed this distinction on the basis of the conceptual understanding of the natural sciences and does not even mention the social sciences. The aim of a function-concept is to fix "the systematic total-ity [Inbegriff] to which […] marks [Merkmale] belong as special determinations" (Cassirer 1923, p. 22). With the help of function-concepts – this is a terminology that Cassirer (1923, p. 23) repeatedly employs – "objects of the first order" (tables, lamps) are replaced by "objects of the second order" (atoms, light rays). This contrast has two problematic implications. *First*, the objects of the first order in Cassirer's early monography are consistently "objects of sense-perception" (Cassirer 1923, p. 23) or abstract objects (like numbers). *Second*, Cassirer starts from a scientific worldview that cannot be reconciled with many epistemological positions in sociology. Natural numbers, for example, are suitable examples of function-concepts because there is a precise rule that makes the placement of each individual number understandable in the context of the other numbers. After 3 comes 4. Or: in a mathematical function – assuming our D is N – y=9 follows y=4 when progressing from x=2 to x=3 and the function being $y=x^2$. The individual terms derive their meaning exclusively from the mutual reference specified by rules. The important difference between objects of the first and objects of the second order is that the latter, as idealizations, are characterized by the fact that their "total content is expressed in the relations established between the individual elements by the act of unification" (Cassirer 1923, p. 23 f.). This applies, for example, to chemical elements and also to many quantitative concepts in the social sciences. Such an understanding of function-concepts fur-ther implies that *the scope of possible sub-concepts is confined*. Therefore, I see Parsons' concept of action (as a non-quantitative concept) as the closest concept to a function-concept. Those who understand the rule that action systems must make environmental adjustments with regard to the present and future also understand why these action systems must solve four (and only four) problems. Parsons thus provides the extreme case of a problem-defining concept that is

In this sense, problem-defining concepts have a protective function. They protect the sociologist from prematurely clinging to a possible solution to a problem and thus (implicitly) reifying it. At the same time, however, problem-defining concepts also protect against the arbitrariness of 'anything goes'. Not every phenomenon can be employed as a solution to a given problem. In a strict sense, problem-defining concepts thus force the sociologist to think in terms of contingency. Solutions in the social world are neither necessary nor arbitrary.

3. Four techniques of refining theoretical problems

In the following, I will go through some particularly striking examples that demonstrate how theoretical problem refinement can be carried out. After the presentation of the examples, points of comparison are identified, which can be completed with the help of further work and expanded into a toolbox for techniques of theoretical problem refinement.

3.1 Theoretical problem emancipation: Niklas Luhmann

The first example of working on problem-defining concepts is provided by Luhmann's (2014) book *A Sociological Theory of Law*, published 1972 and translated into English in 2014. Before discussing this example, it should again be emphasized that Luhmann (1995, p. 15) explicitly conceives the central concepts of his theory as problem-defining concepts. The sociologist is supposed to aim at "interpreting more heterogeneous facts with the same concepts and thus ensuring the comparability of widely differing facts" (Luhmann 2012, p. 17). Being a sociologist is a matter of working out theoretical problems and dealing with them in the course of theoretical and empirical research (Nassehi 2011, p. 45 ff.). The "real theoretical achievement" is the "construction of problems" (Luhmann 1995, p. 54).

In the functional analyses elaborated in this book, *abstraction as a technique for refining theoretical problems* plays the central role. According to Luhmann, it is only through the "abstracting gaze" (Luhmann 1999, p. 40 fn.) that "scientific theoretical achievements" become possible at all, since only through this gaze can "evidently unequal things" be compared (Luhmann 1992, p. 409 f.). Theoretical problems must first be constructed, i.e., isolated through abstraction, before the concrete phenomenon and its consequences can be analyzed. Only in this way can equivalents be "convincingly and justifiably" uncovered (Luhmann 1999, p. 20).

also a function-concept. However, this does not apply to most other problem-defining concepts in sociology. In the case of Luhmann, for instance, it only applies to few concepts, like communication, which implies three and only three fundamental problems. *Whenever theorists leave open the horizon of possible instantiations of the concept, they resist the rigidity of the function-concept.* And conversely: the set of possible function-concepts is much larger than the set of possible problem-defining concepts, since problem-defining concepts refer to very specific relations, namely those of problems and solutions (and not, for example, of possible reproductive behavior and species or of chemical elements and proton numbers).

Central to this technique of abstraction and the method underlying it – process-oriented functional analysis – is the concept of function (Bednarz 1984; Rachlitz/Grossmann-Hensel/Gehrmann 2024). Functions render different phenomena comparable, which at first glance and in their factual complexity may be vastly heterogeneous. In this way, heterogeneous objects such as a sociology student's bookshelf and a poster of a popstar such as Katy Perry can be rendered comparable. For example, they are both an expression of a certain accumulation of cultural capital. In that sense, a function refers to a "relationship of x (a so-called variable) to y, when y serves as a perspective for determining the equivalences of x (i.e., as a perspective for the variation of the variable x)" (Luhmann 2018, p. 6). To illustrate this abstract idea with another example: A lighter (x_1) and a match together with a matchbox (x_2) are functionally equivalent with regard to the prospect of producing fire (y). They may be highly heterogeneous and different in their appearance, their materiality or in their other functions (e.g., a crafting utensil or a keepsake) – they are nevertheless functionally equivalent (for the abstracting observer). This implies two things that set such an approach of functional analysis apart from other approaches. *Firstly*, a function does not merely identify a necessary requirement (= functional requisite). The relation of specific functional requisites and social arrangements that serve these functional requisites (= institutions, structures) is only *one* application of functional analysis (Luhmann 1973, p. 236). *Secondly*, abstraction as a necessary step in functional analysis does not mean that one 'subtracts' attributes from an existing phenomenon to obtain a concept with fewer attributes (Cassirer 1923, p. 14 f.;Luhmann 2014, p. 325 fn.15), e.g., by going from the concept 'lighter' to the concept 'tool' or – to use the example from above – by going from the concept 'cultural capital' to the concept 'capital'. Luhmann refers to this form of abstraction as a "classificatory method" (Luhmann 2012, p. 17). The functional method, on the contrary, goes hand in hand with the discovery of more abstract functions of phenomena, e.g., double contingency instead of consensus – in view of the fact that more concrete functions have already been established by theoretical approaches from inside and outside sociology.

In the case of *A Sociological Theory of Law*, the theoretical problem refinement of which I will illustrate in the following, Luhmann refines the theoretical problem that gives the book its name: law. For doing so, he takes the step of abstraction of the function of law by drawing upon the sociology of law on the one hand and "*forms of self-description of the legal system*", e.g., "legal theory" and "legal dogma" on the other (Luhmann 2014, p. 286).

The aim of his associated literature review is not to determine the current state of research. It is all about developing his own problem-defining concept based on the theoretical problems of others. Starting from the latter, the sociologist must take a "more abstract" approach (Luhmann 2014, p. 315 fn.122) to determine what lies behind the concepts of law that can be found in the sociological and non-sociological literature theorizing this concept. Through detailed and complex analyses, *A*

Sociological Theory of Law concludes that the theoretical problem of law can be refined to "*congruently generalised normative behavioural expectations*" (Luhmann 2014, p. 77; 1995, p. 330 ff.). In such a view, the function of law is nothing but this theoretical problem and the set of all possible solutions to this very problem. A sociologist who theorizes law in this way deals with the following theoretical problem: which social mechanisms safeguard normative expectations, i.e., unlikely expectations which are not abandoned although they are time and again disappointed?

Starting from such a problem abstraction, Luhmann identifies several ways how this theoretical problem can be solved. He demonstrates this technique of looking for possible solutions (= functional equivalents) in numerous places in *A Sociological Theory of Law* – particularly in the chapter on congruent generalization (Luhmann 2014, p. 73 ff.), but also in many passages elsewhere in his book (Luhmann 2014, p. 114 ff.). He identifies "joy in others' misfortune (*Schadenfreude*), one's own visible suffering, complaints to third parties, […] the causing a scandal" and "sanctions" as such functional equivalents (Luhmann 2014, p. 78).

Sanctions as the functional equivalent, which according to Luhmann primarily structures *modern positive* law, is at the center of his analysis throughout the book (Luhmann 2014, p. 78). This solution, which could also be called the 'focal functional equivalent', is described in much more detail in terms of its intended and unintended consequences. At the same time, the *refined* theoretical problem of law is indeed more abstract than sanctions as *one* particular solution. In Luhmann's account, sanctions are no longer, as it had been assumed in the literature, an attribute (= a constant) of law, but *one* possible way (= a variable) of instantiating a more abstract function *alongside others*. Sanctions, causing of scandal and all other solutions mentioned above thus become possible instantiations of the problem-defining concept 'law'. The theory does not decide how problems are solved, but *it does provide a search heuristic that helps to determine which phenomena can be identified as a solution to this specific problem.*

Those who define law through sanctions therefore obscure the possibility of comparing this solution with others. Consequently, sanctions are intended as *one* manifestation of the more abstract concept of law as congruently generalized normative behavioral expectations. This conceptual move transforms the concept of law into a variable that encompasses not only sanctions as a specific manifestation but also other manifestations such as causing a scandal. The main function of theory is thus to determine the scope of possible solutions and to "treat a range of empirical factors as variable that have so far been neglected or assumed as constant" (Luhmann 1999, p. 28).

Up to this point, I have reconstructed how Luhmann's text creates comparability through a problem-defining concept. Subsequently, he identifies the specific features of *modern positive* law based on sanctions as a special case of solving the

generic problem of congruently generalized normative behavioral expectations and the consequences of this particular type of problem-solving. The substantive results of *A Sociological Theory of Law* – such as the idea that law in modernity takes on a programmatic character (Luhmann 2014, p. 174), becomes a lever for social change (Luhmann 2014, p. 227), and differentiates along the distinction of programming and programmed (Luhmann 2014, p. 184) – are all implications of this step. Functional analysis does not "legitimise" these developments – it is "comparative" (Luhmann 2014, p. 286) and reveals to what extent the focal solution is special, i.e., how it differs from other solutions, and what empirical consequences its particularity has in comparison to and in interaction with other possible historically or cotemporally instantiated solutions.

Through this "methodological-theoretical construction", system-theoretical social research is meant to be able to do something different from the "dominant trend of sociological research" diagnosed by Luhmann, i.e., exposing "uncomfortable causalities" and "latent functions" (Luhmann 1995, p. 510 fn.106;1994).

In summary, Luhmann begins *firstly* with an analysis of the theoretical problems of law that the literature provides. In doing so, he notes that these theoretical problems are prematurely understood in terms of a specific solution – the sanction. *Secondly*, he counters such a strict coupling of theoretical problem and solution with a loose coupling and thus emancipates the theoretical problem from its specific solution. *Thirdly*, building on this, he carries out more abstract (= less intuitive and plausible in everyday life) comparisons than has hitherto been possible.

3.2 Empirical problem emancipation: Star and Griesemer

As a second example of working on problem-defining concepts, I draw on the text *Institutional Ecology, 'Translations' and Boundary Objects: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology, 1907-39* by Star and Griesemer (1989). In this article – which, according to Google Scholar (as of March 26, 2025), has been cited 16,510 times – the authors develop the concept of 'boundary objects', which encompasses a variety of objects such as museums, checklists, databases, or regional boundaries. All these objects serve the same function: to facilitate shared knowledge while generating different communicative ties. But how do the authors arrive at this concept?

The article begins with a theoretical problem described as the "problem of translation" or "the problem of common representation in diverse intersecting social worlds" (Star/Griesemer 1989, p. 389). This theoretical problem stimulates the search for answers to the question as to how it is possible to generate unified knowledge when 'nature', as a long-established guarantor of such knowledge, is no longer reliable. This theoretical problem is adopted from the literature – namely from "Latour, Callon and Law" (Star/Griesemer 1989, p. 388). The technique for dealing with this problem is as follows: At the outset, the solution to this problem

found in the literature, known as "the Latour-Callon model of interessement" (Star/Griesemer 1989, p. 387), is examined. 'Interessement' refers to the process of translating non-scientific concerns into scientific ones, or, from the scientists' perspective, to the utilization of non-scientific actors for the scientists' own purposes, which position themselves as 'gatekeepers'. This solution found in the literature is compared with the solution the authors themselves identify in their empirical material. Based on this comparison, the authors argue that the two solutions differ systematically, leading to the conclusion that the literature so far represents a one-sided description of this solution. From the authors' point of view, the reason for this one-sided description is a too narrowly defined theoretical problem.

Therefore, the article undertakes an expansion of the concept of 'interessement' (Star/Griesemer 1989, p. 388) and replaces it with 'boundary object' to describe this expansion. This new solution, explicitly given a new term, is necessary to analyze what is empirically observed in the first place: "We […] develop the concept of boundary objects to analyze a case study of a research natural history museum" (Star/Griesemer 1989, p. 388). One must emancipate the theoretical problem of translation from the solution previously assumed as given in the literature (interessement) in order to recognize that translation can be carried out by multiple actors simultaneously and that special entities are created to enable this simultaneity. As a designation for these special entities, the text introduces a concept. Boundary objects are solutions to the problem of a non-monopolizing translation:

> "The problem of translation as described by Latour, Callon and Law is central to the kind of reconciliation described in this paper. In order to create scientific authority, entrepreneurs gradually enlist participants […] from a range of locations, re-interpret their concerns to fit their own programmatic goals and then establish themselves as gatekeepers […]. Latour and Callon have called this process *interessement*, to indicate the translation of the concerns of the non-scientist into those of the scientist" (Star/Griesemer 1989, p. 389).

In particular, the last sentence of this extract encompasses both the adoption and the refinement of the theoretical problem. Star and Griesemer (1989, p. 389) are also concerned with the problem of translation, but not in terms of a n:1-translation. Instead, they focus on a n:m-translation ("many-to-many"). Therefore, there is not just one solution to the theoretical problem – where scientists monopolize translation (the concept of *interessement*) – but also an alternative, and at least according to the subtext of the paper, a more widespread solution: that different actors simultaneously perform such translation functions.

It is not necessarily the case that there is only one monopolizing translator. Rather, the empirical case of the museum in Berkeley demonstrates that there are different translators who do not each monopolize their translations but instead allow for other translations as well (Star/Griesemer 1989, p. 389). This insight shifts the theoretical problem. In light of the alternative solution of boundary objects, it becomes clear that the monopolization of translation is only one solution among others

for a more abstract theoretical problem, which involves connecting difference, i.e., "diversity" or "heterogeneity", and identity, i.e., "cooperation" (Star/Griesemer 1989, p. 393; 414):

> "This is an analytic concept of those scientific objects which both inhabit several intersecting social worlds [...] *and* satisfy the informational requirements of each of them" (Star/Griesemer 1989, p. 393).

The authors present a solution to a theoretical problem that is more stable than other solutions. Nevertheless, functional equivalents to this solution are identified:

> "The production of boundary objects is one means of satisfying these potentially conflicting sets of concerns. Other means include imperialist imposition of representations, coercion, silencing and fragmentation" (Star/Griesemer 1989, p. 413).

Interessement thus becomes a functional equivalent alongside others. The text, nonetheless, focuses on the focal functional equivalent of boundary objects and determines the scope of this concept. The sociologist who uses the concept of boundary objects wields a tool that allows her to compare museums not only with roadmaps and checklists but even with the borders of California.

A key result of the article is a sub-differentiation of the focal functional equivalent of boundary objects into – following the examples mentioned – "repositories", "ideal types", "standardized forms", and "coincident boundaries" (Star/Griesemer 1989, p. 410 f.).[5] "Among these objects are specimens, field notes, museums and maps of particular territories" (Star/Griesemer 1989, p. 408). *All* of them enable the *simultaneity* of identity and difference through various techniques of modularization and abstraction.

Summarized, Star and Griesemer's technique of theoretical problem refinement is surprisingly similar to Luhmann's in that it employs the technique of problem emancipation: it also decouples an existing theoretical problem from a monopolized solution in the literature. However, unlike Luhmann, this problem emancipation is not based on theoretical arguments or a comparison of different research literatures, but rather on an empirical case. The next two examples will not rely on problem emancipation, but on problem supplementation.

3.3 Theoretical problem supplementation: Mark Granovetter

Another example of a seminal sociological text that refines a theoretical problem – albeit in a markedly different way to those described above – is Granovetter's (1985) *Economic Action and Social Structure: The Problem of Embeddedness.*[6] In this article,

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5 Strictly speaking, this is a second functional analysis. The second-order functional equivalents are initially introduced in an abstract manner – "from a purely logical point of view, problems posed by conflicting views could be managed in a variety of ways [...]" (Star/Griesemer 1989, p. 404) – and then categorized in part based on the empirical material.

6 For more details on Granovetter's argument, see Callon's (1998, p. 8 ff.) particularly trenchant reconstruction.

which has been cited 54,146 times according to *Google Scholar* (as of March 26, 2025), the problem-defining concept is not refined through the emancipation of a theoretical problem from its solution but rather through a technique that could be called 'theoretical problem supplementation'.

The simple, but groundbreaking argument of the article works by delineating two argumentative patterns in sociology and economics with respect to the theoretical problem of social order. Granovetter identifies the blind spot of these approaches not through *empirical* anomalies (as will be the case for the article studied in chapter 3.4). Instead, he first constructs these approaches as camps and then ascribes the same theoretical flaw to them – despite their otherwise fundamentally different functioning. They 'atomize' actors by excluding their concrete social relationships:

> "A fruitful analysis of human action requires us to avoid the atomization implicit in the theoretical extremes of under- and oversocialized conceptions. Actors do not behave or decide as atoms outside a social context, nor do they adhere slavishly to a script written for them by the particular intersection of social categories that they happen to occupy" (Granovetter 1985, p. 487).

Thus, two camps are presented, both of which address a theoretical problem drawn from the literature – considered by some as *the* fundamental sociological problem: "the problem of order" (Granovetter 1985, p. 487). The economic camp is said to consider only individual preferences and their containment in 'institutional arrangements' (the undersocialized conception), while the sociological camp is said to consider only generalized expectations and their containment in 'morality' (the oversocialized conception). However, both camps fail to adequately address the fact that actors, who may indeed exhibit individual preferences and generalized expectations, are inevitable embedded in *concrete social relationships*: "The embeddedness argument stresses instead the role of concrete personal relations and structures (or 'networks') of such relations in generating trust and discouraging malfeasance" (Granovetter 1985, p. 490).

The technique of theoretical problem refinement that the article pursues does not involve pointing to a more abstract theoretical problem that could both retain and relativize the existing approaches simultaneously. Instead, Granovetter advocates to *supplement* the problem, i.e., to compound the original problem by adding layers of new relations of problems and solutions – summarized with the term 'embeddedness'. It is particularly important at this point that such a problem supplementation goes hand in hand with a "less sweeping" approach, because it does not simply *replace* existing solutions with others.

> "Up to this point, I have argued that social relations, rather than institutional arrangements or generalized morality, are mainly responsible for the production of trust in economic life. But I then risk rejecting one kind of optimistic functionalism for another, in which networks of relations, rather than morality or arrangements, are the structure that fulfills the function of sustaining order" (Granovetter 1985, p. 491).

At this point, Granovetter 'exposes' common techniques of theoretical problem refinement as overly optimistic – and explicitly rejects such optimistic approaches for his own technique (see also Granovetter 2017). In contrast, he presents his alternative as follows:

> "One is to recognize that as a solution to the problem of order, the embeddedness position is less sweeping than either alternative argument, since networks of social relations penetrate irregularly and in differing degrees in different sectors of economic life, thus allowing for what we already know: distrust, opportunism, and disorder are by no means absent" (Granovetter 1985, p. 491).

Granovetter uses the new concept in a way similar to a moderator variable in statistics (Judd 2001). The consideration of networks does not simply replace the examination of other factors that explain social order. Instead, the network can either strengthen or weaken an already existing relationship. Consequently, the technique of theoretical problem refinement relies on the idea that the solutions to the problem exhibit quantifiable differences, allowing for predictions that can be represented in mathematical functions. One type of network enhances one type of order, while another type does so in a different manner (e.g. Granovetter 1973; 1976). And just as this de-packaging reveals different degrees of order, it also ensures that the solution to the problem does not provide a sufficient explanation. It can even fail or turn into its opposite:

> "[…] while social relations may indeed often be a necessary condition for trust and trustworthy behavior, they are not sufficient to guarantee these and may even provide occasion and means for malfeasance and conflict on a scale larger than in their absence" (Granovetter 1985, p. 491).

In summary, Granovetter also refines a reference problem by means of working on a problem-defining concept. He refines the existing theoretical problem of social order by introducing a moderating solution alongside the two prevalent solutions (institutional arrangements and generalized morality). The network solution functions in a way similar to a gearshift, influencing whether the other two solutions have a stronger or weaker effect. By supplementing the problem theoretically in this way, the approach makes solutions to the problem of social order less stable. There are different possible solutions to the problem of social order, and it is not the task of sociology to present one of these solutions as theoretically superior. Instead, the task is to demonstrate empirically in which contexts different solutions are more or less efficacious.

3.4 Empirical problem supplementation: Meyer and Rowan

Finally, one of the foundational texts of Neoinstitutionalism provides a last example of a technique for refining theoretical problems. The claim that a Neoinstitutionalist argument can be reconstructed based on problem-defining concepts and their implicit functional analyses may, of course, be surprising at first, given that Neoinstitutionalism explicitly positions itself as an alternative to functionalism (Meyer/ Jepperson 2021, p. 10 f.). In this distinction, however, 'functionalism' does not refer

to the use of problem-defining concepts but rather to the reduction of explanation to a specific function: the efficiency function. Thus, what Neoinstitutionalism rejects on closer inspection is an approach that reduces social phenomena to such an efficiency function (efficiency functionalism).

In the following, I will reconstruct one of the key texts of Neoinstitutionalism, i.e., *Institutionalized Organizations: Formal Structure as Myth and Ceremony*, an article by Meyer and Rowan (1977), which has been cited 47,366 times according to *Google Scholar* (as of March 26, 2025).

While Luhmann (2014) and Star and Griesemer (1989) start their theoretical problem refinements with the step of abstraction to determine the theoretical problem and devote a significant portion of their efforts to accomplish this, Meyer and Rowan (1977) – as was the case with Granovetter (1985) – omit this step. However, the article also does not present an alternative theoretical problem to those established in the literature. How does it proceed instead?

As the title of the article suggests – '*Formal Structure as…*' – the authors initially focus on elucidating the conditions of formalization: "One of the central problems in organization theory is to describe the conditions that give rise to rationalized formal structure" (Meyer/Rowan 1977, p. 342). The questions are: why are formal organizations "endemic in modern societies" (Meyer/Rowan 1977, p. 343) and why does formalization occur at all? So why, for example, do companies set up process flowcharts for econometric analyses or why do hospitals create positions for accountants? The existing theories on this need to be questioned. The current literature has settled on a general assumption that needs to be challenged on the basis of empirical evidence and alternative social theory proposals.

The theoretical problem established in the literature is that of efficiency: "*Prevailing theories assume that the coordination and control of activity are the critical dimensions on which formal organizations have succeeded in the modern world*" (Meyer/Rowan 1977, p. 342). This (narrowed perspective, from the article's viewpoint) incurs two difficulties. *First*, it fails to account for numerous empirical forms of formalization. *Second*, it cannot explain why, in a variety of organizations, practices tend to deviate from their formal structures. The authors therefore hypothesize that there must be other factors leading to formalization. Besides efficiency, there must be an alternative theoretical problem that is addressed through certain formal structures and formalizations that do not correspond to any actual practice. Thus, an explanation is required for the fact that formalization is such a widespread phenomenon "that is partially free from the assumption that, in practice, formal structures actually coordinate and control work" (Meyer/Rowan 1977, p. 343).

This alternative theoretical problem is based on alternative theoretical approaches but also on the observation of empirical anomalies. The authors mobilize a number of predecessor theories to support the alternative explanation: first, Max Weber,

who has been interpreted one-sidedly by those who think in terms of efficiency (Meyer/Rowan 1977, p. 343), and second, Berger and Luckmann, Parsons, Udy, and Emery and Trist (Meyer/Rowan 1977, p. 346).

All these theorists are said to have emphasized that organizations align not only with efficiency but also with environmental expectations, and that their formalization results primarily from this. But even these approaches in themselves are not viable alternatives for two reasons. On the one hand, they have the tendency to throw the baby out with the bath water and bury the organizational under the institutional: "According to the institutional conception as developed here, organizations tend to disappear as distinct and bounded units" (Meyer/Rowan 1977, p. 346). On the other hand, they are also unable to explain the empirical anomalies resulting from the fact that formalization often does not correspond to organizational practices, which is to say that the "tightness of alignments between structures and activities" (Meyer/Rowan 1977, p. 353) varies greatly from organization to organization. The authors derive this anomaly from empirical studies: "An earlier generation of researchers concluded that there was a great gap between the formal and the informal organization" (Meyer/Rowan 1977, p. 342).

Although Meyer and Rowan are sometimes interpreted as having countered efficiency functionalism with legitimacy functionalism, their article does not employ the technique of problem *substitution*. Instead – structurally similar to Granovetter's argumentation (3.3) – it adopts the technique of problem *supplementation*:

> "Combining the ideas above with prevailing organization theory, it becomes clear that modern societies are filled with rationalized bureaucracies for two reasons. First, as the prevailing theories have asserted, relational networks become increasingly complex as societies modernize. Second, modern societies are filled with institutional rules which function as myths depicting various formal structures as rational means to the attainment of desirable ends" (Meyer/Rowan 1977, p. 345).

Thus, there are two theoretical problems (and not just one) that are addressed through formal structure. Reading the article in this anti-reductionist manner makes many of its hypotheses more comprehensible. From my perspective, the crucial thesis is that there is a spectrum of organizations: some whose formalization can be explained primarily by the efficiency problem, and others whose formalization can be explained by both the legitimacy problem and the efficiency problem (Meyer/Rowan 1977, p. 352). The actual functional analyses that the text subsequently carries out deal primarily with the latter, that is, with those organizations whose formalization can be explained by both the legitimacy problem and the efficiency problem, thus with "organizations reflecting institutionalized environments" (Meyer/Rowan 1977, p. 341).[7]

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7   In my opinion, this quote perfectly captures the core idea of the article, as it emphasizes on the one hand that the analytical focus remains on organizations with their own efficiency logic (and that organizations are by no means simply conceived as institutions), but on the other also underlines that the analysis is primarily concerned with those organizations that are oriented not only to organizational but also to institutional conditions: "All organizations, to

The *alternative* problem-defining concept, which constructs the "alternative source of formal structures" (Meyer/Rowan 1977, p. 341; 343), is thus that of legitimacy. Through formalization, the "organization becomes, in a word, legitimate" (Meyer/Rowan 1977, p. 349). The legitimacy of the structures must not be tacitly taken for granted. This is the cardinal error committed by the "prevailing theories" – they treat legitimacy of organization as "a given" (Meyer/Rowan 1977, p. 343). They thus block their view of the *theoretical* problem because they hastily identify it as a *social* problem (an anomaly to be eliminated): "The causal importance of such institutions in the process of bureaucratization has been neglected" (Meyer/Rowan 1977, p. 343). The text thus elucidates how formalization responds *not only* to efficiency *but also* to this additional theoretical problem of legitimacy.

It is only on the basis of this supplementary theoretical problem that certain solutions can be understood as solution-dependent problems.

> "Two very general problems face an organization if its success depends primarily on isomorphism with institutionalized rules. First, technical activities and demands for efficiency create conflicts and inconsistencies in an institutionalized organization's efforts to conform to the ceremonial rules of production. Second, because these ceremonial rules are transmitted by myths that may arise from different parts of the environment, the rules may conflict with one another" (Meyer/Rowan 1977, p. 355).

The first solution-dependent problem is that internal efficiency demands lead to conflicts in efforts to conform to the institutionally required formalizations. The second resulting problem is that conflicts arise between the institutionally required formalizations themselves. The article then argues that there is a way of organizing that can address both resulting problems simultaneously. "A stable solution is to maintain the organization in a loosely coupled state" (Meyer/Rowan 1977, p. 360).

Before the article reaches this conclusion, it first goes through a series of functional equivalents in line with a theorizing based on problem-defining concepts. These functional equivalents address both problem-dependent solutions, but not by processing them simultaneously. Instead, they resolve only one of the two solutions. The authors identify four functional equivalents to the focal solution ('stable solution') just cited:

> "First, an organization can resist ceremonial requirements. […] Second, an organization can maintain rigid conformity to institutionalized prescriptions by cutting off external relations. […] Third,
>
> one degree or another, are embedded in both relational and institutionalized contexts and are therefore concerned both with coordinating and controlling their activities and with prudently accounting for them. […] Nevertheless, the survival of some organizations depends more on managing the demands of internal and boundary-spanning relations, while the survival of others depends more on the ceremonial demands of highly institutionalized environments" (Meyer/Rowan 1977, p. 353). The 'to one degree or another' is later on in the article translated into "a continuum along which organizations can be ordered" – from "production organizations" at the one end to "institutionalized organizations" on the other (Meyer/Rowan 1977, p. 354). In Scott and Meyer (1983, p. 140), this point is further elaborated by the distinction between institutional and technical sectors in which "varying combinations may be observed".

an organization can cynically acknowledge that its structure is inconsistent with work requirements. […] Fourth, an organization can promise reform" (Meyer/Rowan 1977, p. 356).

Following these conceivable and empirically likely solutions, the article highlights that these solutions are only partial solutions, which are opposed by the focal solution: "Instead of relying on a partial solution, however, an organization can resolve conflicts between ceremonial rules and efficiency by employing two interrelated devices: decoupling and the logic of confidence" (Meyer/Rowan 1977, p. 356). The authors explore this focal solution, which also implies that the organization engages in an "avoidance of inspection and effective evaluation" (Meyer/Rowan, 1977, p. 360) in the further course of the text. However, they do not investigate its consequences.

The core of the argument is the aforementioned doubling of the prevalent theoretical problem in the literature. Many formal structures – such as the establishment of medical care and the employment of economists (along with their difficult-to-access analytical methods) (Meyer/Rowan 1977, p. 350) – cannot be explained solely by efficiency. It is necessary to take the simultaneous addressing of legitimacy and efficiency claims into account, which allows for a non-identity between practice and formal structure. There is not only technical isomorphism but also "institutional isomorphism" (Meyer/Rowan 1977, p. 349). Based on this supplementation of the theoretical problem, quantitative and qualitative analyses can be carried out to investigate in which situations the focal functional equivalent is more likely to emerge (Meyer/Rowan 1977, p. 360 f.).

4. Summary and outlook

This article started with the assumption that refining theoretical problems is a key but hitherto hardly explicated sociological competence. To refine theoretical problems that allow for the search for theoretical and empirical solutions, problem-defining concepts are needed. These can be used in two ways: one can work *with* them and *on* them. In this article, I have focused on those sociological texts that primarily do the latter. The article has thus outlined the first steps toward explicating *how* this is done. Drawing upon texts as heterogeneous as Luhmann (2014), Star and Griesemer (1989), Granovetter (1985), and Meyer and Rowan (1977), I have examined four techniques of such theoretical problem refinement. In the following, I generalize the results and derive research possibilities.

Luhmann (2014) refines theoretical problems by means of theoretical problem emancipation with a focus on the refined theoretical problem. Figure 1 illustrates this:
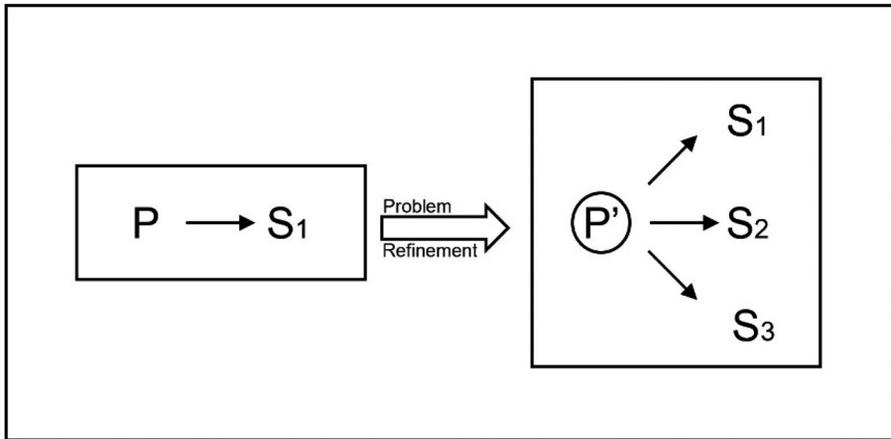
Fig. 1: Theoretical problem emancipation with a focus on the refined theoretical problem (Luhmann 2014)

Using this first technique, the sociologist starts with a theoretical problem in the literature (P) and notes that this theoretical problem is prematurely conceptualized in terms of a specific solution (S_1), for example, law in terms of sanctioning or double contingency in terms of consensus. She opposes such a strict coupling of problem and solution with a loose coupling and emancipates the problem from a specific solution to develop more abstract possibilities for comparison. To do this, she constructs a more abstract problem (P'), which opens up the view for comparing different solutions S_1, S_2, S_3.

Although coming from a completely different background, Star and Griesemer (1989) proceed in a surprisingly similar manner. They refine theoretical problems by means of empirical problem emancipation with a focus on a hitherto not regarded solution. Figure 2 illustrates this:
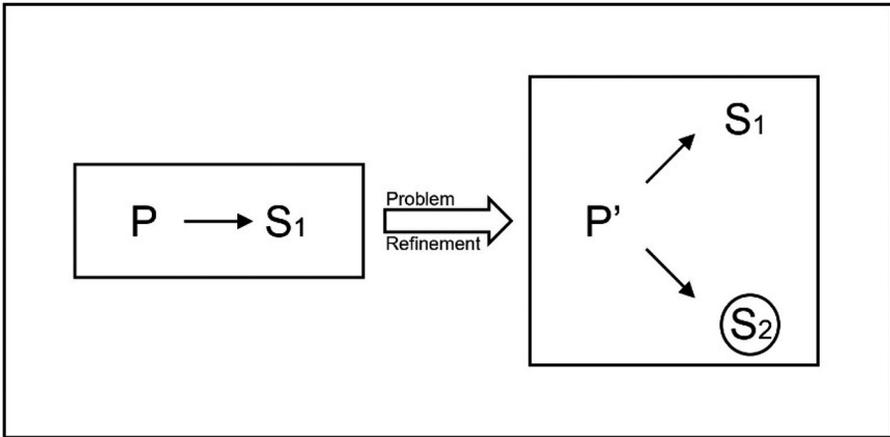
Fig. 2: Empirical problem emancipation with a focus on a hitherto not regarded solution (Star and Griesemer 1989)

Using this second technique, the sociologist starts also with the observation of a strict coupling of problem and solution (P-S_1). Such an observation is based not so much on theoretical considerations as on the sociologist's own empirical case, in which she finds that the theoretical problem P must be uncoupled from the existing solution S_1. The two key differences to the first technique are the empirical grounding of the argument and the different research interest, which is aimed at the newly discovered solution S_2 – and not at the theoretical problem itself.

Although Granovetter (1985) as well as Meyer and Rowan (1977) also engage in theoretical problem refinement, their approaches are quite different from the ones just summarized. Granovetter (1985) refines theoretical problems by means of theoretical problem supplementation with a focus on a 'moderator' solution. Figure 3 illustrates this:
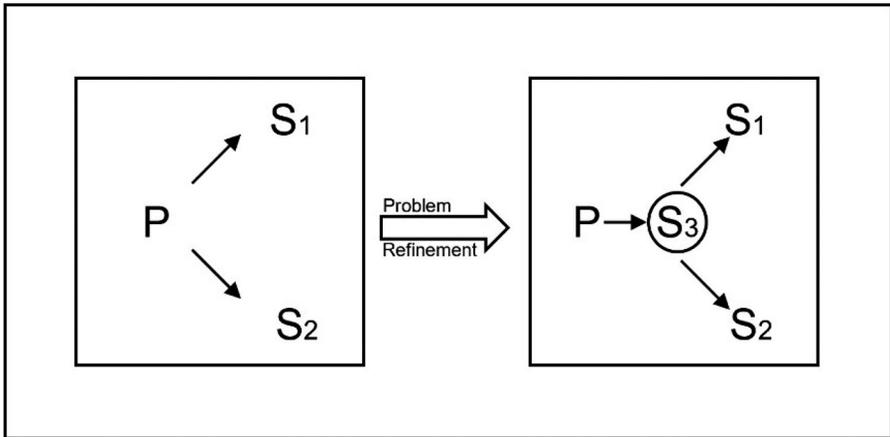
Fig. 3: Theoretical problem supplementation with a focus on a 'moderator' solution (Granovetter 1985)

Using this third technique, the sociologist starts with the critique that the literature has become accustomed to a problem-defining concept P (of social order based on 'atomization') that is associated with inadequate (over- or under-socialized) conceptualizations of solutions (S_1, S_2). Therefore, the theoretical problem needs to be refined to make another solution to this problem visible – in this case the network (S_3), which can be empirically positioned as a sort of moderator variable alongside the two solutions proposed so far in the literature. Through this additional factor, previously invisible differences in the social world can be made visible.

Meyer and Rowan (1977) take a similar approach when they refer to two problem descriptions that have become established in the literature but have not yet been considered together. They refine theoretical problems by means of empirical problem supplementation with a focus on reconfiguring problems/solutions. Figure 4 illustrates this:
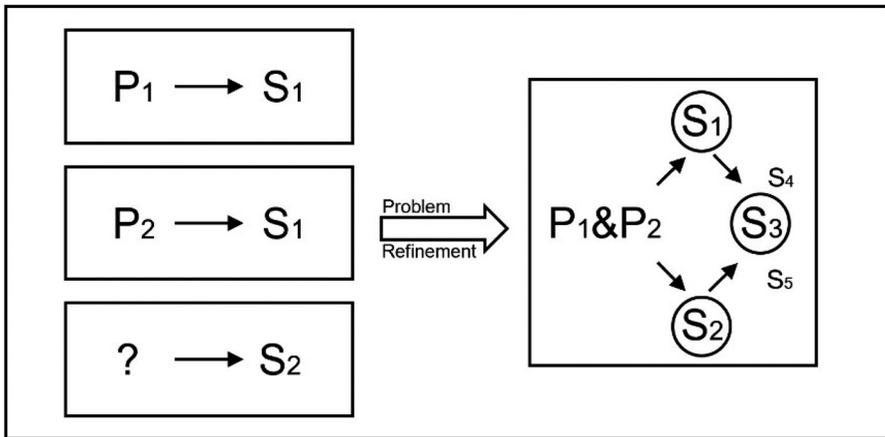
Fig. 4: Empirical problem supplementation with a focus on reconfiguring problems/solutions (Meyer and Rowan 1977)

Using this fourth technique, the sociologist starts with the finding that the literature assumes two fixed couplings of theoretical problems and 'their' solutions (P_1 and S_1; P_2 and S_1) in isolation from each other – the same solution (formal structure, S_1) is explained by two theoretical problems (efficiency, P_1; legitimacy, P_2). She then demonstrates the contingency of *both* couplings. In contrast to the approaches discussed above, she does not do this based on theoretical considerations by abstracting the problem or finding an alternative solution. Rather, she points to a solution (an empirical anomaly) that cannot be explained by the two prevailing theoretical problems in isolation, but rather forces scholars to pay attention to the *relationship* between these theoretical problems resulting in the non-identity of formal structure and practice (S_2). This contrast shows that there are both formal structures that can be explained by striving for efficiency and those that can be explained by striving for efficiency *and* legitimacy. Only if both theoretical problems are taken into account can both these formal structures (S_1) and the non-identity of the legitimacy-based formal structures and their associated practices (S_2) be explained. The combination of both solutions then makes it possible to view them as subsequent problems that lead to further solutions (S_3, S_4, S_5), which can be investigated empirically. However, at the center of the analysis is one stable solution: decoupling (S_3).

Table 1 summarizes the four techniques of theoretical problem refinement presented in this article.

Text	Luhmann (1972)	Star and Griesemer (1989)	Granovetter (1985)	Meyer and Rowan (1977)
Technique of theoretical problem refinement	Theoretical problem emancipation with a focus on the refined theoretical problem	Empirical problem emancipation with a focus on a hitherto not regarded solution	Theoretical problem supplementation with a focus on a 'moderator' solution	Empirical problem supplementation with a focus on reconfiguring problems/solutions
Problem-defining concepts	Law	Translation	Social order	Efficiency and legitimacy
Focal solutions	Political sanctions	Boundary objects	Social relations (networks)	Decoupling
Theoretical basis / literature	Systems theory, sociologies of law, legal theory, and legal dogma	Literature on *interessement*	Theories of institutional arrangements and generalized morality	Classical organizational theory and institutional theory
Empirical foundation	Evidence not specific to a particular case	Evidence from a particular empirical case study	Evidence not specific to a particular case	Evidence from case studies that reveal empirical anomalies
Core technique for theoretical problem refinement	Decoupling the problem from its solution through abstraction	Decoupling the problem from its solution through an empirical case	Revealing the rigidity of the problem by adding a moderator solution	Combining two isolated problems based on an empirical anomaly
Aim of the theoretical approach	Comparison of heterogeneous phenomena / further theory-development	Understanding the underlying empirical case and further cases	Establishment of an improved general sociological approach	New explanation of already explained phenomena *and* anomalies
Application of the theoretical approach	Guidance for further historical / systematic analyses	Guidance for further case studies	Guidance for qualitative and quantitative studies	Guidance for qualitative and quantitative studies

Table 1: Four techniques of theoretical problem refinement

Based on these initial analyses, two follow-up considerations and research possibilities arise.

(1) With regard to the analytical scheme developed (Table 1), further techniques of theoretical problem refinement can be investigated. One obvious question pertains to which other techniques of theoretical problem refinement can be identified. The analyses of this article have shown that problem emancipation and problem supplementation are two basic ways of refining theoretical problems, each of which

can be based more on empirical or theoretical argumentation. Thus, there are at least two central axes for classifying techniques of theoretical problem refinement:

- Problem refinement primarily based on empirical or theoretical observations
- Problem refinement primarily based on problem emancipation or supplementation

In this respect, it is clear that this article is only a start – further techniques of theoretical problem refinement should be identified and developed into a more comprehensive list or even a taxonomy. In this way, it would eventually be possible to provide a toolbox for mastering different techniques of theoretical problem refinement. It would also make it possible to compare the techniques discussed here, all of which originate from the second half of the 20th century, with other techniques, especially those of the classics (Nassehi 2006;Schneider 2002; 2009a; 2009b).

Closely related to this is the question as to how large the respective proportion of techniques of theoretical problem refinement is and whether historical trends can be identified in this respect. On the one hand, it is reasonable to assume that there has been a shift in the 'origin' of problem-defining concepts. Luhmann's idea that problem-defining concepts should be generated primarily on the basis of theory may still have been plausible to the extent that it was based on the classic works of sociology, including the works of Talcott Parsons.[8] However, it could be argued that this plausibility has diminished considerably in recent decades. Moody and Light (2006), for instance, even point out that the focus of sociology today is on the study of social (rather than sociological) problems. In view of such a description of the situation, the question arises as to what extent sociology still needs theories as problem-creating devices in the first place. From such an extreme position, one could argue that it is sufficient to base theoretical problem refinement on the practice of gradually looking at one empirical case after the other, as suggested by Mol (2010, p. 265) and Latour (2007, p. 142), and at least considered by the late Luhmann (2012, p. 11 f.).[9]

A further follow-up question arises at this point if one asks, to a greater extent than I have done in this article, which types of theory suggest which techniques of problem refinement. Following Abend's (2008, p. 181) elaboration of seven different meanings of 'theory', it would, for example, be relevant to take a closer look at whether "the study of certain special problems that sociology has encountered" is only one type of theory or whether all sociological approaches are at least implicitly working on or with theoretical problems. Further it would be worthwhile

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8   In comparison to the three other techniques discussed here, Luhmann's technique is based on the goal of developing a "universal theory", i.e., a theory that "cuts peculiarly across the grain of classical sociological controversies" (Luhmann 1995, p. 15).

9   Interestingly, the four approaches presented in this article – in stark contrast to Latour's (2007, p. 8) straw man of a "standard sociology of the social" – are all anti-reductionist.

to examine whether specific techniques of theoretical problem refinement imply certain types of theory, e.g., whether problem supplementation goes hand in hand with a theory oriented to an "explanation of a particular social phenomenon" (Abend 2008, p. 178).

Closely related to this is the question of how different techniques of theoretical problem refinement are related to abductive analysis, which is "the engagement of data with a multiplicity of theorizations" (Timmermans/Tavory 2012, p. 181;2022). Timmermans and Tavory (2012, p. 180) have persuasively demonstrated the weaknesses of grounded theory and, on the basis of this criticism, asserted that by means of abductive analysis "instead of theories emerging from data, new concepts are developed to account for puzzling empirical materials." How exactly these concepts are to be 'developed', however, remains open in their account – as in the literature mentioned in the introduction. In my opinion, the techniques of theoretical problem refinement are therefore a promising complement to abductive analysis.[10]

(2) With regard to problem-defining concepts in general, it would be worthwhile to work out criteria for which problem-defining concepts are better and which are less suitable for conducting fruitful empirical research. Luhmann (1992, p. 418) posits, for example, that a problem-defining concept functions "poorly (for example: the notorious problem of system-maintenance [Bestandserhaltung]) if the number of possible solutions is too large". Problem-defining concepts should therefore not be too abstract. At the same time, however – as I have tried to show throughout this article – they should not be too concrete either. Hence, one possible criterion is the appropriate degree of abstraction of the concept. Other criteria would be quantifiability, differentiability, empirical and theoretical embedding, the facilitation of critical thinking, and aesthetics.

In addition to such normative questions, further empirical questions could be asked, such as about which techniques of theoretical problem refinement have established new strands of research or have not been able to push the boundaries of the questionable for a longer period of time (McGail 2021). Closely related to this is the question of the 'conditions for success' of problem-defining concepts 'outside' sociology (Bourdieu 1998; Callon 2008; Hacking 1999; 2002; Nassehi 2023). Are problem-defining concepts at all suitable as export goods or do other, more peripheral sociological concepts tend to be more successful in that regard? Only if the meaning of problem-defining concepts as well as the techniques of

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refining their underlying theoretical problems are made explicit in the way this article attempted to do can the question at least be asked as to how applicable they are in the 'social world' in comparison to other types of sociological concepts.

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