Joachim Blatter and Samuel Huber,
University of Lucerne, Switzerland

Parsimony or Coherence

Alternative Principles for Designing Two Coherent Types of Configurational Comparative Analysis

Paper prepared for the ECPR Joint Sessions,
Nottingham, 25-30 April 2017

Work in Progress – please do not cite without permission

Abstract

Against the backdrop of an explosion of CCA/QCA applications and of methodological controversies, we make the case for distinguishing two types of CCA. We start by transforming an overview over currently existing QCA approaches into an explicit typology in order to evaluate all types in respect to their practical feasibility and methodological consistency. Next, we lay the groundwork for a more deductive approach for developing coherent types of CCA. Such an approach aligns methodology to ontology and epistemology. We briefly scrutinize that "Truth Seekers" and "Sense Makers" apply different strategies for securing validity with the four stages of an empirical research process: a) specification and b) concretization of concepts and explanatory models; drawing conclusions c) for the cases under study and d) beyond these cases.

In the second part of the paper, we use the developed groundwork for aligning methodological literature on QCA/CCA to two distinct and internally consistent types of CCA. A first, outcome-centered type aims at identifying individual "Boolean difference makers" in a predetermined population of cases. Within such an approach it is most consequent to strive for parsimony when it comes to dealing with limited diversity. Furthermore, the relationship between "theory" (the specification and operationalization of concepts and models) and "data" (the resulting model solutions) is approached in a linear fashion in the form of robustness checks.
A second, theory-centered type aims to specify and concretize theoretical concepts and models in order to maximize the empirical scope of theoretically coherent causal configurations. Within such an approach, it is most appropriate to accept only theoretically coherent counterfactuals when dealing with limited diversity. Furthermore; the relationship between "theory" and "data" is used in a much more iterative way. Here we go one step further as the existing methodological literature and argue that not only the specification of models but also the specification and concretization of concepts should be done with the goal to maximize the coherence and empirical scope of theoretically coherent configurations.

1. Introduction[1]

In recent years, we have witnessed an explosion of empirical studies which are based on the methodology/philosophy and/or on the methods/techniques of what Charles Ragin first called the "Comparative Method" (Ragin 1987) and later on "Qualitative Comparative Analysis" (QCA).[2] Furthermore, we have seen a pluralization of methods that refer to Ragin's work (e.g. Baumgartner 2013; Mikkelsen 2015; Rihoux / Ragin 2008). For those – like us – who perceive "configurational thinking" (Ragin 2000: 70) as forming the conceptual heart of these analytical approaches and techniques, it makes sense to use the term "Configurational Comparative Analysis" (CCA). Finally, methodologists have started to develop "standards of good practice" and "tools" for improving the quality of CCA-applications (e.g. Schneider / Wagemann 2010; Schneider / Wagemann 2012; Skaaning 2011; Thiem 2016a; Thiem 2016b; Maggetti / Levi-Faur 2013). Many of these standards are uncontested (Huber 2016: 21), but for others, controversies have emerged (Cooper / Glaesser 2016; Thiem 2016b).

All these developments make it reasonable to think about different kinds or types of CCA methodologies. Such a typology could be useful for descriptive purposes, since it could help us to track the application of CCA methods in empirical studies – and thereby to continue the work of Marx / Rihoux Ragin (2014), Wagemann / Buche / Siewert (2016) and Rihoux et al. (2013) – in a more systematic way. But it could also be useful for prescriptive purposes since it might help methodologists to align specific research goals and presumptions in a coherent way to specific techniques and quality standards and to become more in line with Peter Halls plea to "align methodology to ontology" (Hall 2003). Finally, a typology of different CCAs might even help to overcome some of the disputes among methodologists.[3]

The typology that we start to develop in this paper has three goals:

- It aims at the development of CCA-methodologies which are characterized internally by a consistent set of techniques of data creation and data analysis, and ex-

[1] We would like to thank Eva Thomann and Martino Maggetti for sharing an earlier draft of their conference paper with us. Our discussion of their work refers to this earlier version of their paper, which might be different from the version Thomann and Maggetti have handed in for the conference.

[2] See http://www.compasss.org/bibdata.htm for a bibliographical database of journal articles using CCA.

[3] See the 2016 Comparative Political Studies Special Issue on "Debating Set Theoretic Comparative Methods" for more recent methodological debates on CCA.

ternally by a coherent research design with a coherent set of research goals, epistemological principles and ontological presuppositions.

- We hope to contribute to the debates among CCA-methodologists by showing that there are different kinds of CCAs. We think that there is no one single right way to apply CCA nor do we advocate that anything goes.
- Finally, our contribution should also be read as a plea to realign methodology and theory in Political Science. Methodological coherence and sophistication is certainly an important precondition for the accumulation of knowledge, but it should not come at the price of drifting away from any meaningful understanding of theory.

We start by scrutinizing a typology recently presented by Thomann and Maggetti (2016). In their inductively developed typology, Thomann and Maggetti discover three important dimensions for differentiating distinct CCA-studies (case- versus variable orientation, causal versus substantive interpretability, inductive versus deductive) and they link these dimensions and approaches to questions of feasibility, validity and reliability. Nevertheless, neither the dimensions nor the quality criteria are connected to more general discussions on the ontological and epistemological foundations of research methods, and the eight logically possible types are not systematically evaluated in respect to the question of which of them forms a coherent research design.

In order to overcome these limitations, we base our attempt to develop a useful CCA-typology on the foundations which have been used in order to develop a systematic overview over different qualitative methodologies in general (Blatter et al 2016, Blatter 2016). First, we introduce a pragmatic approach towards epistemological and ontological stances which allow us to ground two of Thomann/Maggetti's dimensions on a more fundamental level: *Truth Seekers* aim for explanations in which only those causes are included for which we have proven that they are "Boolean difference makers." *Sense Makers*, in contrast, strive for explanations, in which a coherent configuration of constitutive and causal factors do not only fit to the cases under study but also represent concepts which link the specific empirical study to wider and more general discourses.

Furthermore, we show how Truth Seekers and Sense Makers are striving for validity[4] within each step of an explanatory study: a) specification of concepts, b) concretization (operationalization) of concepts, c) drawing causal conclusion for the cases under study and d) generalization beyond the cases under study.

These foundations help us to develop two types of CCA as comprehensive and coherent research designs. The first type is driven by an interest in identifying "Boolean difference makers" (Baumgartner 2015) for a specific outcome in a given population of cases. It is an *Outcome-centered* research design which aims at developing an explanatory model that corresponds to a given external reality. The second type is driven by an interest in the clarification of the conceptual boundaries of causal conditions in order to maximize the empirical scope of theoretically coherent causal configurations. It is a *Theory-centered* research design which aims at specifying and concretizing the boundaries of meaningful (theoretically coherent) concepts and explanatory frameworks.

The two types have not only different goals and underpinnings; they also lead to slightly different sequences in applying the four steps of an explanatory study, and they demand different procedures and tools for securing validity.

1. Differentiating CCAs: An Inductive Approach

Most recently, Eva Thomann and Martino Maggetti (2016) provided an insightful overview over approaches of and tools to QCA/CCA. They argue that approaches to QCA differ on three axes (Thomann / Maggetti 2016: Abstract, 6/7):

1. the "approach to cases" can either be "case-oriented" or "variable-oriented", whereby a case-orientation goes practically along with a rather small number of cases and a variable-orientation with a rather large number of cases.
2. the "approach to the causal argument" can aim at "causal" or "substantive" interpretability of results, and
3. the "approach to theory" can be "deductive and theory-evaluating" or "inductive and exploratory" (Thomann / Maggetti 2016: 8).

According to Thomann / Maggetti, a case-oriented approach to cases should provide a "close analysis of particular cases focused on deep contextual knowledge" and "in-depth case knowledge plays a pivotal role in establishing measurement and internal

[4] A similar argumentation could be presented when it comes to the other major quality standard – reliability (Blatter 2016). Nevertheless, for reasons of clarity and comprehensibility, we limit our discussion to only one quality standard: validity.

validity." "Intensive qualitative engagement with the cases" and within-case analysis is required for "purposively selected small- to intermediate-N samples" (ibid.), whereas in a "variable-oriented" approach "cases are understood in terms of a well-defined set of variables calibrated into sets" (Thomann / Maggetti 2016: 9). This latter approach actually precludes intimacy with cases due to their large number and concentrates on cross-case inference (ibid.).

Thomann / Maggetti further present "causal" and "substantive" interpretability as two "different strategies for maintaining internal validity in light of 'noisy' social science data" (Thomann / Maggetti 2016: 10). For a "substantive" interpretability, a causal argument should be plausible and free from logical contradictions. Such a "substantive" interpretability should further provide "meaningful" explanations. It is here, where Thomann / Maggetti situate counterfactual claims in QCA. An approach based on "causal" interpretability on the other hand accepts only "Boolean difference-makers" as causal factors. Eliminating redundancies is the strategy for ensuring causal interpretability here (Thomann / Maggetti 2016: 21). Whereas "inductive" approaches to theory should help the researcher to generate new insights, "deductive" approaches formulate theoretical expectations against which the results can be compared. (Thomann / Maggetti 2016: 11).

Thomann and Maggetti stress the fact that to derive valid inferences, QCA-studies have to address these three components *in a coherent way*, while they also point to the fact that *inherent trade-offs* exist between these "intertwined" components which different approaches to QCA address in different ways (Thomann / Maggetti 2016: Abstract; 6f.). Nevertheless, they never develop an explicit typology of approaches by systematically combining all possible expressions of the three dimensions. This is very surprising since the formation of a typology that contains all possible combinations would have been in line with the kind of "configurational thinking" that is the basis of the QCA/CCA methodology.

In the following, we make their implicit typology explicit, following a property space-approach to typology creation which is in line with the writings of Ragin (2000: 66, 72, 77ff.) and most common in the QCA literature. In the tradition of Paul Lazarsfeld (1937), one starts with a multidimensional attribute space, which is then transformed into types. According to Ragin (2000: 72), one "…examin[es] different combinations of values on relevant variables and [treats] each [logically possible] combination of values as a potentially different type of case." Table 1 contains eight

types, representing all logically possible combinations of the two expressions in each of the three components (2^3).

Table 1: Eight QCA-types based on Thomann and Maggetti.

Eight QCA-types:	Approach to cases	Approach to causal Argument	Approach to theory
QCA-type 1 Case-oriented, causal, Deductive	Case-oriented	Causal interpretability	Deductive / theory-evaluating
QCA-type 2 Case-oriented, causal, Inductive	Case-oriented	Causal interpretability	Inductive / Explorative
QCA-type 3 Case-oriented, substantive, deductive	Case-oriented	Substantive Interpretability	Deductive / theory-evaluating
QCA-type 4 Case-oriented, substantive, inductive	Case-oriented	Substantive interpretability	Inductive / Explorative
QCA-type 5 Variable-oriented, causal, deductive	Variable-Oriented	Causal interpretability	Deductive / theory-evaluating
QCA-type 6 Variable-oriented, substantive, deductive	Variable-Oriented	Substantive interpretability	Deductive / theory-evaluating
QCA-type 7 Variable-oriented, causal, inductive	Variable-Oriented	Causal interpretability	Inductive / explorative
QCA-type 8 Variable-oriented, substantive, inductive	Variable-Oriented	Substantive interpretability	Inductive / explorative

Such an explicit typology based on all logically possible combinations allows reflecting systematically on the consistency and feasibility of each type. We start with the four case-oriented approaches, followed by an investigation into the four variable-oriented approaches.

The *QCA-types 1 and 2* (case-oriented, causal, deductive or inductive) strive to combine a case-oriented approach to cases with the aim to interpret the resulting conditions as difference makers. As mentioned before, Thomann and Maggetti describe "causal" and "substantive" interpretability as two different strategies for maintaining internal validity in light of "noisy" social science data. They also point to the important role case-knowledge plays in a case-oriented approach to ascertain internal validity (Thomann / Maggeti 2016: 3). Arguably, researchers using such a case-oriented approach while examining only a small to intermediate sample and having intimate case-knowledge, will prefer to use their case-knowledge to ascertain the internal validity of their results and to conduct counterfactuals based on their knowledge. Whereas QCA-types 1 and 2 seem to be possible from a research-

practical perspective, we therefore think that an orientation on cases as holistic entities and the goal to identify causes as difference makers represent a combination that is not consistent, which means that it should be avoided.

QCA-types 3 and 4 (case-oriented, substantive, deductive or inductive), in contrast, combine a case-oriented approach with the goal to reach a substantive explanation. Here again, the researcher gains intimate case-knowledge. He or she thereby also gains the knowledge on causal mechanisms, which later can be discussed in light of theories and used for counterfactual claims. Researchers thereby make their results more comprehensive and consistent. In consequence, types 3 and 4 represent types which combine their approach to cases and their approach to explanation in a much more consistent way in comparison to types 1 and 2.

QCA-types 5 to 8 all combine a "variable-oriented" approach to cases with different "approaches to the causal argument" and to theory. Variable-oriented approaches either need a sound theoretical framework or a procedure, which provides certainty in the internal validity and causal interpretability of inductively derived results. QCA-type 6 provides the former, whereas QCA-types 5 and 7 apply such a procedure by maximally reducing redundancy. QCA-type 8, in contrast, includes neither of these options. We start with exploring the latter in order to identify the problems right at the beginning.

QCA-type 8 (variable-oriented, substantive, inductive) aims at inductive theory-building and meaningful explanations while at the same time following a variable-oriented approach to cases which actually "precludes intimacy with cases due to their large number" (Thomann / Maggetti 2016: 9). Furthermore, there is no strong theoretical framework since this QCA-type follows an exploratory or inductive approach to theories. It is therefore not clear, how the "theoretical and empirical knowledge" (Thomann / Maggetti 2016: 20) which is necessary for counterfactual claims in the substantive approach to causality can be gained. Thomann / Maggetti seem to be aware of this problem when they write: "Yet often, iterative or inductive model specification relies on insights gained from cases that are costly to obtain with a large N (…). Variable-oriented applications might lend themselves more to an a priori procedure of theoretically founded model building" (Thomann / Maggetti 2016: 24). In other words, "variable-oriented" approaches are not a very productive choice for inductive and exploratory research due to the disadvantageous combination of miss-

ing case- AND theory-knowledge. This makes QCA-type 8 a highly questionable approach.

QCA-type 6 (variable-oriented, substantive, and deductive) is less problematic from a functional perspective since it follows a "deductive" approach to theories, Theoretical knowledge should therefore be at hand for the counterfactual claims in the "substantive" approach to the causal argument. *QCA-type 5* (variable-oriented, causal, deductive) and *QCA-type 7* (variable-oriented, causal, inductive) seem to be more suitable for a variable-oriented approach. In QCA-type 5 there is already theoretical knowledge at hand (deductive) and the maximal reduction of redundancies assures internal validity and causal interpretability despite missing case-knowledge in a large-N research design. *QCA-type 7* (variable-oriented, causal, inductive) lacks intensive theory- and case knowledge, but the maximal reduction of redundancies in the "causal approach to the causal argument" again assures the causal interpretability and the internal validity of the results. Overall, we conclude that QCA-type 5 is the best configuration for a variable-oriented approach, QCA-types 6 and 7 are acceptable, but QCA-type 8 should be avoided.

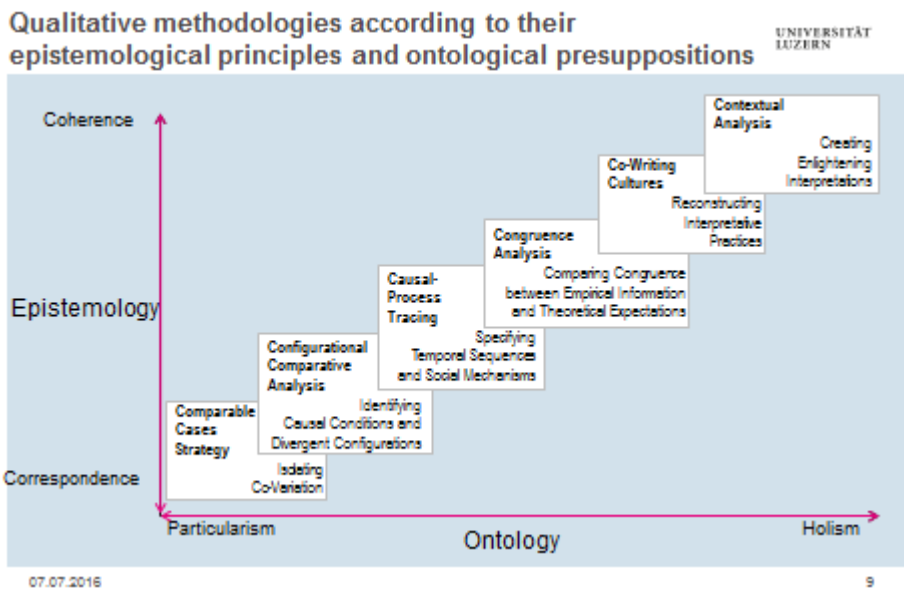
Overall, we conclude Thomann and Maggetti's overview over QCA approaches has given us important hints about the dimensions in which QCA/CCA-studies can differ. Furthermore, a transformation of their three-dimensional field into a property space with eight logically possible types paved the way towards identifying those approaches which seems to be most productive in the sense that they represent combinations of options along the three dimension which are coherent and do not produce large trade-offs. If one sticks to the original "case-orientation" then QCA should not strive for identifying causes as "difference makers" but for a substantial explanation of the few cases that one can study intensively. If one conceptualizes conditions similar to variables then it makes not only sense to investigate a larger number of cases, but also to strive for identifying causes as "difference makers". The third dimension – inductive versus deductive – matters much less in respect to the question whether research approaches are coherent or not. In the following, we can build on these insights, but before we present our own types of CCA designs, we want to present some more general foundations, in order to build our types on solid ground and to pave the way to a systematic discussion of the divergent tools that we apply for enhancing validity during the various steps of the research process.

2. A Deductive Approach to Develop Coherent Methodologies

We now turn to a more deductive approach for developing internally coherent types of CCA. Such an approach embeds CCA methodology in the wider debate on qualitative methodologies (e.g. Blatter / Haverland 2014; Brady / Collier 2004; Goertz / Mahoney 2012; King / Keohane / Verba 1994; Mahoney / Rueschemeyer 2003). In this section we provide some conceptual foundations for such an approach before we apply these foundations to CCA in the next section.

In their four-volume collection on "Qualitative Research in Political Science," Blatter et al. (2016) specify different methodologies through their location within a two-dimensional conceptual field in order to provide orientation over the broad and bewildering field of qualitative methodologies. In the first dimension they present distinct epistemological stances, whereas in the second dimension we find divergent ontological presumptions (see figure 1).

Figure 1: Qualitative Methodologies according to their epistemological principles and ontological presuppositions



Source: Blatter, Haverland and van Hulst (2016: xxi)

The typology has been developed on the based on two principles:

a) Maximizing internal consistency for each methodology

b) Maximizing external distinctiveness between methodologies

The first principle means that each methodology has been described as a coherent research design if it is focused on a specific purpose and based on the adequate ontological presuppositions as well as the corresponding epistemological principles and

practices. Furthermore, a (good) methodology consists of a coherent set of methods for data creation and data analysis. In other words, the typology is based on the assumption that for each kind of research interest/question there is an optimal set of adequate epistemological principles for gaining knowledge, ontological presuppositions about an adequate conceptualization of the social world, and the corresponding techniques of data creation and data analysis.

For providing an overview over the entire spectrum of qualitative methods, the authors specify the distinct methodologies through maximizing the differences between the various methodologies. Nevertheless, they emphasize that you find distinct specifications for each methodology. Therefore, the methodologies are not presented as clear-cut points in the conceptual field but as overlapping planes (Blatter et al 2016: xxi). Nevertheless, the general logic of such a deductive approach implies that also on a lower level of abstraction where you find more specified types within each methodology, these types should be characterized by a coherent fit among specific research purposes, epistemological principles, ontological presuppositions and the corresponding methods of data creation and data analysis, as well.

Pragmatic approaches towards epistemology and ontology

What are the basic alternatives stances when it comes to epistemology and ontology? Before we sketch the answers to this question, we have to clarify how we understand epistemology and ontology. In a later paper, Blatter (2016: 5 and 12) slightly but crucially modified some definitions in comparison to the intro to the compendium and clarifies that the typology is based on a pragmatic approach to questions of epistemology and ontology. This means that we do not start with questions like "what is the (true) nature of social reality?", "what can we (really) know?", and "what criteria must knowledge satisfy in order to be called knowledge rather than belief?"[5] Such formulations imply that there is one true answer to these questions and they immediately lead to disputes about fundamentals and to incommensurable positions. A pragmatist, in contrast, starts with a concrete purpose: a research goal or question. We can imagine all kinds of research goals and a pragmatist assumes that each and every question is legitimate (for a systematic overview over research goals in qualitative research, see Blatter, Langer and Wagemann 2017). Furthermore, a pragmatic

[5] All these questions are based on the definitions of ontology and epistemology of Blaikie (1993:6/ 7). "True" and "really" are added in order to highlight the essentialist tendency in his definitions.

stance implies that neither epistemology ("what do we want to know?") nor ontology ("how do we have to think about the social reality if we want to know this?") comes first, but that that the two answers should be answered in a coherent way (Blatter, Langer, Wagemann 2017).

In consequence, an epistemological stance implies a set of principles and procedures for gaining knowledge, laid out in quality criteria, given a specific understanding of what kind of knowledge we are striving for, and this understanding of knowledge depends on what we want to know, in other words: on our research goal.

Ontology: materialism versus idealism and particularism versus holism

We will scrutinize the alternatives in respect to these three aspects shortly, but first we have to clarify the meaning of an ontological stance from a pragmatic point of view: Such as stance should neither be equated with the philosophical debate on whether the social reality that we study exists independent of the human mind (as Blaikie 1993 does) nor limited to debate about deterministic versus probabilistic causality (as it is common among methodologists, e.g. Brady 2008). Instead, like in the information sciences (e.g. Tom Gruber 1992), the notion of ontology refers to the basic vocabulary that we use for conceptualizing our basis entities and their relationships (in theories, models or programs) with the goal of sharing information across many contexts. In consequence, a pragmatic stance on questions of ontology implies answers to two-fold questions: given our research goal, how do we have to conceptualize the basic entities of the social world and the relationship among these entities?

Materialism and Idealism represent the potential options in respect to the first sub-question, particularism and holism those for the second sub-question. A materialist account assumes that biological needs, material resources, formal institutions and observable behavior are the entities on which we should build our knowledge on in the social world. In contrast, idealists presume that psychological predispositions, communicative processes, informal institutions and (inter-)subjective meanings are the crucial building-blocks for explanations (as well as for analytic descriptions/comparisons) in the social sciences.

For the second sub-question, we can differentiate between particularism and holism as the principled answers. Particularistic approaches to theory- or model-building assume that the functioning of parts of a system is determined by their internal properties and the entirety of the system is the result of the interactions among the indi-

vidual parts. Holistic approaches, by contrast, claim that the behavior/functioning of the particular elements is defined by the entire system, i.e. that entireties have an ontological status of their own and are more than the sum of their individual parts (Esfeld 2003).

After having clarified our pragmatic stance towards questions of epistemology and ontology, we now turn towards scrutinizing the principled alternatives in respect to research purposes, understanding of theory, explanation and causation as well as in respect to the corresponding approaches to securing validity.

Epistemology I: Different understandings of useful knowledge

When it comes to basic research goals and the kind of knowledge that we as social scientists aspire we can distinguish between those who align with the natural scientists and those who have strong affinities to the arts and humanities: The first can be labelled "Truth-Seekers;" they strive for descriptive and causal models with high levels of correspondence to the "real" world because such models are useful from an instrumental perspective since they allow the goal-oriented manipulation of the social world. The second can be called "Sense-Makers;" they strive for descriptive and explanatory frameworks with a high level of coherence because such frameworks are useful from an interpretative perspective since they allow a reflexive orientation in – and a deliberate (re-)construction of - the social world.

Epistemology II: Different understandings of explanation and theory

Truth Seekers and Sense Makers strive for different kinds of knowledge and therefore have different understandings of how an explanation and a theory should look like. For the former, an explanation should consist of causes as "Boolean difference makers" (see next section); a theory has to be formulated on a low level of abstraction as a model (usually formalized as an equation), and has to include all causes which have been proven to be difference makers within a specified empirical field. For the latter, an explanation should consist of abstract concepts which specify a general world view (paradigm); a theory is formulated on a rather high level of abstraction as an interpretative framework, and it has to contain those constitutive and causal concepts that are individually necessary and together sufficient for a convincing interpretation. Empirical observations are used to concretize the concepts and their relationships as well as to clarify the reach and relevance of the theory in the social world (for details see Blatter 2016: 5-8).

At the cross-road of ontology and epistemology: Different understandings of causes

Truth seekers assume that causes are "Boolean difference makers" (Baumgartner 2015). Difference-making understandings of causality stipulate that causes are characterized by their property of making some sort of difference to their effects. On the other side, there are those who stipulate that causality is a relational concept and not a property that a factor inhibits. Whereas Baumgartner mentions only those alternative understandings of causation that combine a relational approach with Scientific Realism, Sense-Makers are much more aligned to a constructivist/conventionalist philosophy of science. For us, the most important difference is that Truth Seekers start with "observations" and apply primarily formal logics and mathematics in order to bolster causal claims; Sense Makers, in contrast, start with "ontologies" (understood as specific conceptualizations of the social world, see above) and use corresponding concepts and theories as interpretative frameworks in their attempts to create meaningful causal narratives out of a broad array of observations.

For the identification and isolation of causes and effects, Truth Seekers usually adhere to the "experimental template" developed in the natural sciences and in medicine. Sense Makers can take their inspirations from philosophy, but also from cognitive and computer sciences. The crucial point is that causes are not understood as something that exists in the real world, but that causal concepts should be embedded in the wider web of meanings/discourses. For the Social Sciences, this means to embed the concepts that we use within the broader conceptual field that we scrutinized before (Materialism versus Idealism, Particularism versus Holism).

Nevertheless, as Blatter et al. (2016) indicated, the "experimental template" and a purely conventional understanding of causation represent only the most extreme positions on the side of the Truth Seekers and the Sense Makers. In both camps, we discover less single-minded positions.

Brady (2008) starts with the experimental template, because it combines two important understandings of causation in a very efficient way:

a) the "counterfactual understanding," expressed by Hume as "if the first object had not been, the second had never existed" (Hume 1748 according to Brady 2008: 233). This understanding implies that it is crucial to control for alternative factors of influence in order to isolate the consequences of a causal factor.

b) the "manipulation approach" to causation, which emphasizes the importance of autonomous interventions for isolating the effect that results from a specific cause.

In experiments, control and targeted interventions are combined; therefore, it represents the gold standard for establishing causality for those who stress the science in the social sciences (Brady 2008: 247).

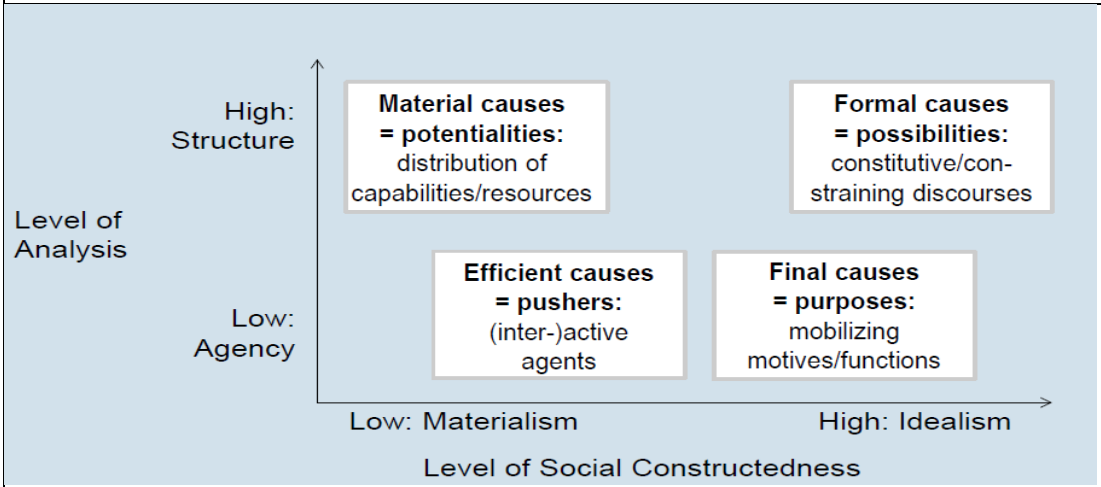
Nevertheless, Brady identifies two further understandings of causation which are less particularistic in their approach to causation in as much as they are less focused on the identification of the effects of a single cause. First, there is the "regularity approach," which is linked to Hume's other definition of "a cause to be an object, followed by another, and where all the objects similar to the first, are followed by the objects similar to the second" (Hume 1748 according to Brady 2008: 233). It focusses on the identification of the multiple causes of a specific effect. Second, there is the "mechanism approach" to causation, which is concerned with temporal processes and social mechanisms that link cause and effect on a lower level of analysis (Brady 2008: 242-245).

These understandings of causation can be described and differentiated with the terminology of formal logic. The counterfactual approach inhibits an understanding of a cause as a necessary AND sufficient condition for the effect; the regularity approach broadens this understanding by accepting conditions which are necessary but not sufficient and conditions which are sufficient but not necessary. This implies that individual causes are most often INUS-conditions: insufficient but necessary parts of a condition which is itself unnecessary but exclusively sufficient for an effect (Brady 2008: 227). Truth Seeking adherents of CCA follow this regularity approach to causation (Thiem 2016b: 3), whereas those who want to combine truth-seeking with sense-making have to go beyond the understandings of causations that Brady includes in his overview.

Kurki (2006, 2008) has reminded us that we can draw on Aristotle for getting a "deeper and wider" understanding of causation in comparison to the understandings that we just laid out. In order to present those understandings of causation, we have to transfer Aristotle's famous four causes into the context of the social sciences and translate them into the language of modern social science theory. In the following, we extend Kurki's work by connecting Aristotle's four causes to the ontological ma-

trix that we scrutinized above. Aristotle distinguishes four kinds of causes: material, formal, efficient and final causes.

Figure 2: Different kinds of causes



Source: Blatter 2016: 15

According to Kurki (2008: 219-222) material and formal causes are located on the structural level of analysis, whereas efficient and final causes are located on the lower level of individual or corporate agency. Material causes can be seen as the material resources and natural conditions which enable and delimit the potential range and direction of action; formal causes can be perceived as the normative-cognitive structures (discourses) which define the possible (imaginable) range and direction of action. Within a social science context, final causes can be understood as purposes which mobilize and/or motivate action. Finally, efficient causes refer to agents who produce action through their pushing and pulling activities. Figure 2 shows how these four causes can be located within the conceptual space that opens up when we look at the principled answers in respect to the major ontological questions.

Overall, we can conclude that Truth Seekers have a purely empiricist understanding of what a cause is: it is a factor that makes a difference in respect to a specific kind of outcome in a clearly delimitated population of cases. Sense Makers, in contrast, strive for causes which are not only coherently aligned with an outcome in an empirical field of study (with loose boundaries) but which are also linked to fundamental concepts in the wider (scientific) discourse.

Methodology: Different approaches for securing validity

The next and last step in our endeavor to provide foundations for different types of CCAs is to present the distinct strategies for securing validity during the research process that Truth Seekers and Sense Makers apply.

Table 1 and the following description contain the four main tasks which one has to fulfill during an empirical research process: a) specification and b) concretization (operationalization and measurement) of the concepts on which our explanation is based on; and drawing conclusion on the (causal)[6] relationships among the concepts c) for the studied cases and d) beyond those cases.

Table 1: Alternative Strategies for securing validity in four stages of the research process

	Description	**Explanation**
Securing validity for the cases under study	**b) Concretization**: Applying **convergent** OR **complementary** indicators; and **continuous** OR **dichotomous** scales	**c) Conclusion**: Linking abstract (causal) relationships to concrete observations through **inference** OR **interpretation**
Securing validity beyond the cases under study	**a) Specification**: Selecting the concepts of explanatory models/ the attributes of concepts with reference to **int. content** OR **ext. context**	**d) Generalization**: Determining the conceptual and empirical scope through in-/excluding causes and cases with reference to **alternative** OR **aligned concepts**

In the first step (a), we have to have to specify our explanatory model by deciding which concepts to include as potential causal factors and we have to decide which attributes we include or exclude when we specify the included concepts. For the latter task, we find methodological reflections which we also can apply to the former task. Adcock (2005) distinguishes between a classic approach to concept formation and a language focused approach. Whereas the first approach is particularistic and inward-looking, focusing on an internally consistent content of the concept, the second one is holistic and outward-looking, which implies a reflection on the context of the concept in order to understand and define its content. The former implies that the

[6] It depends on our understanding of causes/causation whether and under which conditions we accept that the conclusion that we draw on the basis of empirical observations really comes down to be a causal one.

researcher derives at a "systematized concept" from a more unspecified "background concept" (Adcock and Collier 2001: 531). The latter approach, in contrast, implies that one identifies an intersubjective meaning of the concept by reflecting on its position in the scientific discourse. Practically, valid attributes of a concept are derived by differentiating the selected concepts from similar concepts and by specifying the relations among the selected concepts. The same approaches can be applied on a higher level when we decide which concepts we include in our explanatory model: A particularistic approach includes all individual factors for which we find a substantial argument in the literature that it might have an effect on the outcome; a holistic approach, in contrast, includes only causal configurations – combinations of factors/conditions for which one finds arguments that they have to come together for producing the outcome.

In the second step (b), we have to answer two further questions: Which indicators shall we in-/exclude when we operationalize the selected attributes of our concepts, and which scales shall we use in order to measure these indicators? These two questions involve two further boundary decisions and once again, we find two principled strategies for finding an appropriate answer: For those who assume that indicators are the observable causes or consequences of an abstract/unobservable concept (often called latent variable), valid indicators must be "convergent" (Adcock and Collier 2001: 537-542). For those, in contrast, who assume that indicators do not have a causal but a constitutive relationship to the concept, it makes more sense to choose "complementary" indicators (Goertz 2006: 14/15 and 62-65). Furthermore, those who think that the causes or consequences of a concept depend on "differences in degree" should select continuous scales, whereas those who belief that a constitutive relationship between indicator and concepts implies that what matters is a "differences in kind" should select dichotomous (or at least categorical) scales.

The third step (c) is usually taking center stage in methodological reflections and it involves the principles and procedures by which the researcher draws causal conclusions from empirical evidence to abstract relationships. This step is focused on the conclusion for the studied cases – in consequence, within this step we are concerned with what it often called the "internal validity" of our explanation. The two principled ways to do this are usually seen as the most important differences between Truth Seekers and Sense Makers. Whereas the former "infer" their conclusion from a set of observations to a proposed abstract relationship on the bases of formal logic or

mathematics, the latter "interpret" the set of observations with the help of linguistic tools in order to produce a meaningful explanation. For the former, a valid explanation is one that is logically consistent; for the latter, a valid explanation is one that is based on a coherent and convincing argumentation.

The final step (d) in the research process involves reflection on the question how far we can generalize the explanation that we found conclusive for the cases that we studied beyond those cases. Very often, this question is phrased as concerning the "external validity" of the results. The latter formulation assumes that we studied a "sample" of cases which is drawn from a broader population with fixed (or "natural") boundaries and that external validity is primarily a question of the representativeness of the sample for the entire population.

Nevertheless, we prefer the first formulation because it highlights the fact that once again we are faced with the task to reflect on boundaries. In other words, we have to think about the conditions which determine the wider empirical scope of our findings. For Truth Seekers it is adequate to understand these "scope conditions" as representing all kinds of further causal factors which might make a difference in respect to the outcome. Since they will not be investigated in detail, their causal influence on the outcome has to be "controlled for." This means that only those cases are included into the set of studied cases which are similar in respect to these scope conditions. Within the holistic approach of the Sense Makers, it is more adequate to focus on those "scope conditions" which fit to the specific theoretical framework that delineates the constitutive and causal factors that have been included in the explanatory model. In a nutshell, when Truth Seekers think about scope conditions they reflect on alternative causes to the ones they have included in their explanatory model; Sense-Makers, in contrast, think about background conditions which make the working of the corresponding theoretical framework (specified in a model of coherent causal configuration) likely.

Independent of this difference, both, Truth Seekers and Sense Makers have to justify their decision to assign these factors the role of external conditions which delineate the empirical scope of the explanation instead of including them into the explanatory model/framework. Furthermore, as soon as one accepts that a research process involves a back and forth movement between conceptual decisions and empirical results, it becomes clear that decisions about the boundaries of the explanatory models are interdependent with decisions about the boundaries of the population of cases

that the explanatory models covers. How the in-/exclusion of potential causal conditions in the explanatory model impacts on the in-/exclusion of cases which are covered by this model - and vice versa – depends on the underlying understanding of causation. We will show in the next sub-section that the two distinct types of CCA approach the existing interdependence between these two boundary decisions quite differently.

For now, we want to highlight that in three of the four stages of the research process we are confronted with making decisions about boundaries:

a) We *specify* the boundaries of the concepts which we include in our explanatory model by deciding which attributes we include in their definition
b) We *concretize* the boundary of the concepts by deciding how we concretize/operationalize these concepts and how we categorize/measure empirical observations
c) We decide about the *conceptual* and the *empirical* scope of our explanation by deciding whether we include causal factors and cases in our explanatory model or assign them the roles of external scope conditions and non-covered cases.

These decisions have a strong impact on the conclusions that we draw in the remaining stage (c), and that is true for both, Truth Seekers and Sense Makers. Both have to make these decisions in a reflective and transparent way if they want to secure the validity of their findings. But pure Truth Seekers and those who want to combine truth-seeking with sense-making have to apply different principles, standards and tools for making these decisions. We will show this in more detail in the next section where we apply these insights for scrutinizing two distinct types of CCA.

3. Towards Two Consistent Types of Configurational Comparative Analysis

In figure 1, CCA was placed on the lower right hand side in the field of qualitative methodologies. This implies that an ideal-typical CCA has more affinities to truth-seeking and less to sense-making. An explanation that a researcher derives with the help of CCA is judged more on the basis of its level of correspondence to the empirical world and less on how theoretically coherent the explanatory model is. Nevertheless, within the field of CCA methodology and of CCA applications, we find different leanings. Some try to make CCA a consistent instrument for pure truth-seeking endeavor (e.g. Thiem and Baumgartner 2016), whereas others insist that the results of a CCA should be "meaningful" (e.g. Schneider 2016). In the following, we want to show that both options are viable, but that they lead to different principles and tools for securing validity in CCAs.

3.1 Different research goals: Explaining outcomes versus applying theories

We call the first coherent CCA approach, one that is solely geared towards revealing empirical truth, an *outcome-centered approach*. This is because it starts with an interest in a specific kind of outcome within a clearly demarcated population of cases, and it aims to reveal those conditions which are individually necessary and – presumably in combination with other factors – sufficient for this specific outcome. The abstract prototypical research questions reads as follows: *„Which conditions have made a specific kind of outcome in a specific set of cases possible?"* Examples for research questions could be: „What are the necessary and sufficient conditions for a stable democracy in Latin American states?"

We call a second coherent CCA, one that aims to combine truth-seeking with sense-making, a *theory-centered approach*. This approach is broadly in line with Ragin's (1987: 169) and Schneider / Wagemann's (2012: 295ff., 304) writings on theory-evaluation when it starts with an interest in the empirical concretization and in the empirical scope of divergent theories in a rather loosely demarcated field of research. In difference to Schneider / Wagemann, we understand theories strictly as consisting of a *coherent* configuration of causal conditions and the corresponding outcome. Configurations of conditions in theory-evaluation should therefore *not* include conditions of multiple different theories, but different theories should be evaluated in sequential, separated CCAs.[7] The abstract prototypical research question reads as follows: *"In which (sets of) cases has a specific kind of outcome been made possible by (a) theoretically coherent set(s) of explanatory conditions?"* While the outcome-centered approach asks for the conditions to explain (pre-)given cases, this approach asks for the cases, which can be explained by a (pre-)given combination of theoretical conditions. An exemplary research question could be: "In which countries have the conditions that a functionalist theory emphasizes (systemic need AND transition scenario) made a strong constitutional court possible and in which countries has this been made possibly by the conditions which Realists highlight (established elite AND threat of elite change)?"

[7] This is why in our view Schneider / Wagemann's (2012) hypothetical example for theory-evaluation (on p. 297) is combining at least three "theories" which in our view should be separately and sequentially evaluated (after having been internally differentiated regarding their multiple causal conditions): 1. Systemic factors/functionalism ("presidential system of government"), 2. Materialism/realism ("economic prosperity"), 3. Historical institutionalism ("British colonial past").

3.2 Different principles and practices for securing validity during the research process

Both approaches start with justifying their interest in a specific kind of outcome. Please note that such a justification should not be framed as an interest in explaining the variety of outcomes that we can observe in the social world. Instead, we should justify what makes a specific kind of outcome worth-wile to investigate the conditions that make this kind of outcome possible.

The **first major task** within an outcome-centered approach is to justify case selection, in other words, to reflect on the scope conditions which distinguish the selected population of cases from potential further cases (Schneider / Wagemann 2010: 5; Rihoux / Lobe 2009: 230, 330; Thomann / Maggetti 2016: 4). In contrast to statistical analysis, within such a CCA, we do not select a representative sample of a population, but we investigate the entire population of cases which share some basic similarities. Case-selection is therefore supposed to be purposively, not randomly (Rihoux / Lobe 2009: 230; Thomann / Maggetti 2016: 14). In practice, we often find the kind of seemingly "natural" boundaries that we presented in our first exemplary research question.[8] But from a methodological point of view, an explicit reflection on the conditions which form the common background for all our selected cases is an important aspect for clarifying the empirical scope of our findings. This is especially important, since such a CCA does not only take into account all positive cases (cases which inhibit the outcome of interest), but have to include also all possible cases (cases which do not inhibit the outcome of interest, but have the necessary background conditions for such an outcome) (Goertz 2006: 213).

The first major step within a theory-centered approach is to justify the selection of theories which one wants to apply for explaining a specific kind of outcome in a specific field of research. This is done by summarizing the state of the art in a specific way: we do not present the factors of influence which we find in the literature indi-

[8] Here we are referring to regional units. Of course the case/country selection for such regional units is still only "seemingly natural". Examples for such studies would be Mahoney's (2003) article on the "Long-run Development and the Legacy of Colonialism in Spanish America" or Berg-Schlosser's (2007) mvQCA on the "Determinants of Democratic Successes and Failures in Africa" which both are clearly occupied with geographical regions.

vidually, but we group those factors of influence that are consistent with more general theories (paradigms) and try to develop more comprehensive explanatory approaches. By linking individual factors to general theories, we do not only provide order and orientation into the field of research, but we make sure that the potential explanations are framed in such a way that the results can be communicated across the boundaries of the empirical field and that they contribute to the larger debates within the social sciences.

The **second stage** within both approaches is to specify the potential causal conditions that we include in our explanatory models and to specify the attributes of the concepts that form these potential causal factors. It is crucial to understand that within the outcome-centered approach, which focusses solely on identifying causes as difference-makers, the selection of conditions and attributes follow the classic, particularistic and inward-looking approach for the specification of our model (through the selection of conditions) and for the specification of our conditions (through the selection of attributes). Despite the fact that CCA is grounded on the presumption that a plurality of causal factors join forces in order to create the outcome of interest (Ragin 2000: 64ff.; Schneider / Wagemann 2012: 6), the formalist search for individual causes as Boolean difference-makers avoids any presumption about the specific way in which causal factors join forces: within an outcome-centered approach, they can work together in a way in which their causal forces simply add up or in a way in which each factors pursues a specific functional role, so that a substitution of the causal force of one factor through a larger causal force of the other factor is not even possible in principle (Blatter and Haverland 2014: 93/94). In other words, such an approach inhibits only a very weak or thin form of "configurational thinking" (Ragin 2000: 70) in as much as it focusses on the necessary co-existence of a plurality of causal conditions and a specific outcome, not on the specific kind of interaction among the conditions which make them actually causing the outcome. In consequence, it is fully adequate to include all individual factors in our explanatory model for which we have a strong argument that they – based on their autonomous causal power – have a causal effect on the outcome of interest. Accordingly, the hypothesis that we formulate at the end of our justification for the inclusion of a specific condition in our model, stipulates a causal connection between a single condition and the outcome. The only difference to a hypothesis that animates a statistical analysis

(where often one theory is included as one indicator) is the fact that the causal connection is implying a deterministic connection and not a probabilistic one.[9] For example: "A presidential system is an insufficient but necessary condition within an unnecessary but sufficient causal configuration for a stable democracy in South America."

Very often, the empiricist studies which follow the outcome-centered approach do not inhibit very complex concepts when they specify and operationalize their conditions and outcomes. This means these concepts usually do neither have divergent attributes or multiple indicators.[10] Nevertheless, if they do, it is most consist within such an approach to select those attributes for defining a concept which we assume to trigger the causal mechanisms that make the cause actually affecting the outcome (Goertz (2006). In contrast to the theory-oriented approach, we focus single-mindedly on the potential causal connection to the outcome, and not on the connections to other potential conditions.

The *theory-oriented approach*, aiming at a combination of truth-seeking and sense-making, specifies the explanatory model and the conditions quite differently. In this approach, we always seek to attain theoretical coherence, albeit in a way that systematically (and not just for illustrative purposes!) confronts theoretically coherent expectations with empirical observations. Accordingly, we do not only reflect on which configuration of conditions has to be present from a specific theoretical perspective in order to provide a comprehensive explanation, but also how these conditions have to be understood and specified in order to interact coherently with other conditions in order to build a causal pathway or network that leads to the outcome of interest. In line with what we laid out in the section on ontological fundaments, the most prototypical causal configuration consists of a structural condition and an action-centered condition, thereby combining causal factors on different levels of analysis. Nevertheless, the causal configuration can also contain a combination of a distant cause and a corresponding proximate cause (Kitschelt 2003; Schneider / Wagemann 2012: 253-255) or a combination of a broader structural and an institutional condition (Schneider 2004). It is crucially important, though, that each of the conditions which are

[9] While CCA may not be "*a deterministic method* by default" (Schneider / Wagemann 2013: 316f) since it allows for deviations of perfect super-/subset relations, the implied hypotheses meant here are of such a deterministic character.

[10] For an example see Cebotari / Vink (2013). All the set-data of the conditions are results of direct transformations of single variables/indicators of quantitative raw data sets.

included within such a causal configuration plays its specific and indispensable role in the causal pathway towards the outcome. Therefore, such a theory-oriented approach inhibits a much stronger or thicker form of "configurational thinking" in comparison to the outcome-centered approach. A simple co-existence of a plurality of causal conditions within a (positive) empirical case is not seen as being sufficient for representing configurational causation. In consequence, the hypotheses that we formulate express these reflections and contain two or more interdependent factors a potential causes for an outcome, e.g.: "The combination of a culturally homogeneous society and a presidential system is sufficient for a stable democracy."

As already indicated before, the second approach is also much less particularistic when it comes to concept formation. When we select the attributes of the concepts which specify the meaning of our (potential) causal conditions and of the outcome, we must not only reflect on the mechanisms which lead to the outcome, but also on how these mechanisms combine with the mechanisms that connect the other conditions to the outcome. In consequence, such an approach has a strong affinity to an understanding of causal mechanisms as a multi-component concept which links causal factors on various levels of analysis to a specific outcome (Blatter and Haverland 2014).

The **third stage** in both approaches involves the concretization/operationalization of our concepts (conditions and outcome). In our context, we focus on what is one of the most central and specific features of CCA (and one major reason why CCA has become equated with set-theoretical methods): the process of calibration which turns raw data into categorical data (Schneider / Wagemann 2012: 32ff). The way raw data is transferred into set data is one of the most characteristic features of CCA which makes it distinct from other methods. Nevertheless, also here we can deduce quite different ways to calibrate depending on whether we strife single-mindedly for truth-seeking or for a combination of truth-see-king and sense-making.

Calibration involves two major decisions: A principled decision on whether our concepts should capture only "differences in kind" (leading to crisp-sets) or both, "differences in kind" and "differences in degree" (leading to fuzzy sets) (Schneider / Wagemann 2012: 24ff); and a strategic decision whether we fixate the boundaries between our measurement categories in an inductive-empirical way or in a deductive-theoretical form (Schneider / Wagemann 2012: 32).

If we have a theoretical argument emphasizing that membership is an existential all-or-nothing affair, we should apply crisp-sets which imply a single cut-off point between "in" and "out."[11] Nevertheless, if we assume that membership comes in parts and that it is the degree of membership that makes a difference, than it is more appropriate to apply fuzzy-sets with empirically derived threshold in addition to the theoretically derived anchor points.[12]

Within fuzzy-set applications, we can distinguish between those who erase (almost) all aspects of thinking in "difference in kind" and those who still strive to capture both, "differences in kind" and "differences in degree". The former do not only fix the thresholds (e.g., between a category labeled "rather in" and "almost fully in" (e.g. 0,75) but also the anchor points for the categories of "fully in" (1) and "fully out" (0) and the cross-over point where a case in "neither in nor out" (0,5) by looking only at the empirical data. Furthermore, when they look at the interdependency between these boundary-markers of the membership sets and the solution terms that represent the causal conditions, they do this in terms of "robustness" checks (e.g. Schneider / Wagemann 2012: 284ff., Skaaning 2011). From the perspective of a Truth Seeker, those anchor points and thresholds are best which provide stable solutions.

Adherents of sense-making, in contrast, try to justify the decisions on the anchor points with reference to theory (Schneider / Wagemann 2012: 32). Nevertheless, very often theoretical arguments do not provide precise and therefore fully convincing justifications for a concrete boundary marker, so that some arbitrariness remains. If it is not possible to derive concrete anchor points through theoretical deduction, there is still another strategy available within a theory-oriented approach. The concretization of anchor points and thresholds can be done through an iterative process in which empirical data and the resulting solution equations point us to theoretically useful anchor points and thresholds. For such an iterative approach, we would need a (not yet existing) algorithm which allows us to find those anchor points and thresholds that optimize the theoretical coherence and explanatory scope of our explanatory model. In other words, we propose that within a theory-oriented approach, we should

[11] For example, Hannah Arendt had once (in a context in which millions of refugees were in danger of ending up as stateless people) famously stated that citizenship (understood as formal membership in a national polity) represents the fundamental "right to have rights" – implying that those with the formal nationality status have (all) rights and those without this status have no rights (Arendt [1951] 2004).

[12] This would correspond to the more recent insight that in current liberal states citizenship rights are not reserved for nationals. It is not only that alien residents have many but not all civic, social and political rights (Soysal 1994), but also that not all nationals have the full set of rights (Cohen 2009).

not fixate the various boundaries of our concepts *ex ante*, but to see the fixing of the boundaries of our concepts and the optimization of our solution models as yet another part of iterative "learning from ones data" (Wagemann / Schneider 2015: 39). From such a perspective, "theory" does not come into the play as an argument for a specific anchor point or threshold, but as the aspiration to conduct CCA with the goal to produce theoretically coherent explanations. Confronting theory with empirical data does not mean to test whether a causal factor is a difference-maker or not (Ragin 1987: 16), but to concretize the boundaries of the concepts which represent the conditions and the outcome of a theoretically coherent explanation.

This leads us to the **fourth stage** of the research process which involves the drawing of logical inferences from concrete observations to abstract conclusions. It is very important to emphasize that both types of CCA approaches we delineate in this paper draw their conclusions for the cases under study primarily in the form of logic-based inferences (language-based interpretation has also its place, but all is done for minimizing this element in the process of drawing conclusions). This is the main reason why all kinds of CCA are clearly aligned to the truth-seeking corner in figure 1. Nevertheless, as we will see in a moment, also for this "analytic moment" (Schneider / Wagemann 2010) we can point to different principles, strategies and tools for those who aim single-mindedly for identifying difference-makers in comparison to those who combine this goal with striving for theoretically coherent explanations.

The first step involves the decisions that we have to make on a more technical level, where we have to deal with the phenomenon called "limited diversity" (Ragin 1987: 104). The second step involves the iterative process described as "moving back and forth between ideas and evidence" (Wagemann / Schneider 2015: 39).

The way we deal with limited diversity has been at the heart of recent methodological controversies (Baumgartner 2015; Cooper / Glaesser 2016; Schneider / Wagemann 2012: 177, 279; Thiem 2016c; Schneider / Wagemann 2016). Our differentiation between two CCA approaches might be helpful for the insight that there is no single correct way, but that the adequate ways to deal with limited diversity depend on the CCA approach.

"Limited diversity" refers to the fact that within the population of cases that we study we do not find cases for all logically possible configurations (Ragin 2000: 139). Those configurations that do not exist within the population are called "logical re-

mainders" (Ragin 1987: 104ff.). Analysts can apply counterfactuals for these non-existing cases. If this is done with the goal to increase parsimony, it is also called "simplifying assumptions." Baumgartner (2015) shows, that it is most appropriate for identifying Boolean difference makers, if we choose the most liberal minimizing strategy. This strategy allows introducing all kinds of counterfactuals if they contribute to maximizing parsimony. And he further shows that in order to avoid untenable simplifying assumptions it is necessary to exchange the minimizing algorithm that is based on the Quine-McCluskey optimization procedure with a different algorithm that is tailor-made for identifying Boolean difference makers.

Schneider and Wagemann (2012) have followed Ragin's path (from Ragin 1987 to 2008: 171-172) in arguing that we should take theoretical knowledge into account when we deal with logical remainders and apply counterfactuals. Therefore, they developed criteria for so-called intermediate solutions in which directional expectations are introduced and problematic counterfactuals are excluded from the minimization process (Schneider / Wagemann 2012: 218, 200ff, 279). Broadly in line with the reasoning of a theory-oriented CCA is the so-called Theory-Guided Enhanced Standard Analysis (TESA) (Schneider / Wagemann 2012: 211ff.). TESA mainly consists in "(…) replacing parsimony with theoretical soundness as the primary decision rule (…)" (Schneider / Wagemann 2012: 197) when minimizing set data. This means that "good counterfactuals" – counterfactuals which are theoretically consistent, *but do not contribute to the parsimony of solutions paths* – are nevertheless included in the minimization process (Schneider / Wagemann 2012: 212, 327). While we are aware that there is criticism regarding the procedure of TESA (Cooper / Glaesser 2015; Thiem 2015), we still think that the basic rationale behind TESA is pointing into the right direction for conducting a theory-oriented CCA: to include (only) theoretically coherent counterfactuals into the minimization process. Where we are more specific and disagree with Schneider / Wagemann is regarding one precondition for regarding a combination of conditions as "theoretically coherent": Only if all combined conditions in a truth table row can be aligned to an overarching theoretical paradigm can a configuration of conditions potentially be regarded as "theo-

retically coherent."[13] The same holds true for conditions if conjunctural directional expectations are to be formulated (Schneider / Wagemann 2012: 325).

We now turn to the iterative process in which we reflect on or adjust all boundary decisions that we made in the first stages in light of the solutions that we get when we apply these decisions to our raw data.

Within an outcome-centered approach, the core task is to test the robustness of the solution model, primarily by exposing its sensitivity to the decisions made in the calibration process (Thiem 2014). If we take the particularistic ontological stance of pure Truth Seekers seriously, adjusting these calibrations with the goal to enhance the coverage and consistency of the solution model has to be treated with suspicion. Such a stance would demand that the boundaries of each concept should be defined according to their internal content and not with its external impact on the explanatory model. There is more openness in such an approach towards adjusting the boundary of the explanatory model (through shifting a causal factor from the position of a condition that is included in the model to the position of being a scope condition, or the other the other way round) with the goal to strengthen the internal consistency of the model. Please note that the term "consistency" is used here - as it is common in CCA methodology - in a purely empirical sense. In crisp-set analysis, this understanding is most obvious, because it means to avoid contradictions in truth table rows, but the same empirical understanding applies to fuzzy-sets, as well. This means that "consistency" has nothing to do with theoretical "coherence" in the sense that a causal configuration/pathway has to consist only of conditions that individually and in combination make sense from a specific paradigmatic perspective. Since within an outcome-centered approach, we do not want to rule out that each condition might have autonomous causal power (it might even be possible that an individual condition alone is identified as a sufficient condition), the process of including and dropping conditions can be done without looking at theoretical coherence.

Within a theory-oriented approach, we approach the task of going back and forth between explanatory model and empirical data quite differently and exploit the opportunity of "learning from ones data" for theory (Wagemann / Schneider 2015: 39) much more extensively. It is not just about to find out how robust the solution is if

[13] This also means that we would not regard Koenig-Archibugi's "theory-guided" assumptions in Schneider / Wagemann's example (2012: 212-214) as "theoretically coherent", since Koenig-Archibugi formulates assumptions for the combination of conditions "Europeanized public" (constructivism/idealism) and "high capabilities" (realism/materialism).

we specify and operationalize the concepts differently or if we in- or exclude individual conditions in our explanatory model. Instead, within such an approach, we strive for solutions which include only theoretically coherent causal configurations. In consequence, we have to go back to the boundary specifications of the conditions (and the outcome) as well as the entire explanatory model, and we have to adjust those boundaries in such a way that this goal is maximized. In other words: The main goal of the confrontation between explanatory models and empirical data is to find out how the concepts (conditions and outcome) should be specified and concretized best in order to create coherent explanations with a wide empirical scope. This implies, though, that within a theory-oriented approach, we are not as free in including and excluding individual conditions in explanatory models as we are within an outcome-centered approach. Further conditions can only be included if they can coherently aligned to other conditions within a theoretically coherent causal configuration; conditions can only be dropped if the model still consists of coherent configurations, which usually means that we do not drop individual conditions but entire causal configurations. At the end, these considerations as well as reasons of practicality lead to the conclusion that those who want to use CCAs for combining truth-seeking and sense-making should treat each theoretically coherent causal configuration as an explanatory model in itself. In consequence, they should confront each model separately in order to determine those conceptual boundaries for each theoretically coherent model that goes together with the largest empirical scope.

Finally, we get to the **fifth and last stage** in the research project, a stage where we reflect on which conclusions we can draw beyond the studied cases. Within an outcome centered approach, this stage implies that we once again emphasize the scope conditions of our explanatory results. Since the scope conditions represent potential further causal conditions and we do not have tested whether their existence or non-existence interferes with the working of the causal conditions that we included in our model, we should refrain from generalizing the explanation beyond the population of cases which exhibit the scope conditions. Even more, and in contrast to statistical analysis, we should also refrain from generalizing the explanation towards further cases which exhibit the scope conditions. It might be likely that our explanation holds also for these cases which are very similar to our studies cases, but if we take

the deterministic presuppositions of CCA seriously,[14] we cannot rule out that each further case – even if it is a similar case defined by the same scope conditions – can exhibit a new pathway to the outcome of interest.

Within a theory-centered approach, we do not generalize our findings towards larger populations of cases but towards the "population of theories" that we find within the larger scientific discourse. A theory-oriented CCA contributes to this discourse in various ways: First, it helps to clarify the meaning of a theoretical framework for a specific field of research. The iterative movements between concept boundaries and solution models leads to the identification of those specifications (sets of attributes) and those concretizations (anchor points and thresholds for membership) of our concepts (conditions and outcome) which provide the largest empirical scope (number of cases) for a theoretically coherent causal configuration. In other words, it helps us to transfer abstract and general theories into concrete explanations in a specific field of research.

Second, a theory-oriented CCA contributes to the struggle among paradigmatic perspectives in the wider scientific discourse. If we find out that one theoretically coherent causal configuration has a much wider empirical scope than another theoretically coherent causal configuration, and that this holds after we tried to optimize their empirical scope through adjusting conceptualization and measurement, we can draw a corresponding conclusion for the appropriate standing of the corresponding paradigmatic perspectives from the specific field of research to the wider theoretical discourse. For doing this in an explicit and reflective way, we should follow the advice that Blatter and Haverland (2014: 144ff) have formulated for theory-oriented case studies: in addition to the empirical results we reflect on the standing of paradigms or theories in the discourse and on the ex-ante likeliness the theoretical perspectives for providing an explanation with a large empirical scope. The bases for the latter are the scope or background conditions that we mentioned before. If a causal configuration based on a paradigmatic theory performs well despite the fact that the corresponding background conditions do not exist, the more impact the empirical findings have (or at least: should have) on the discourse. Nevertheless, in contrast to pure empiricist introductions of the logics of Bayesian up-dating, a theory-oriented approach bases its generalizing conclusions of the empirical findings less an the ex-ante expectations

[14] See also footnote 9. While we are aware that CCAs provides means to deviate from strict determinism, we would still regard the method as based on deterministic presuppositions.

that we gain by looking at background conditions in the field of research, but at least as much on an explicit reflection on the ex-ante standing of the divergent theoretical frameworks in the discourse (Blatter 2016).

4. Summary and Conclusion

In our paper, we tried to align existing methodological advice to two distinct types of CCA which are both coherently focused on specific research goals and embedded in corresponding epistemological principles and ontological presuppositions. We try to make the case that both types are useful methodologies if they are applied in a consistent way. Furthermore, we found that those who are single mindedly focused on truth-seeking have developed very coherent techniques for securing internal validity, but it came at the price of applying a very thin understanding of "configurational thinking" (Ragin 2000: 70). On the other side, those who want to keep some of the holistic thinking that inspired the introduction of CCA into the social sciences at the beginning (Ragin 1987), should develop their ideas on theory-evaluation and TESA even further into one clearly theory-oriented approach. Not just the specification of the explanatory model, but also the specification and concretization/calibration of the conditions which represent the causal conditions and the outcome, should be done in an extensively iterative way in order to maximize theoretical coherence. Such a CCA type would not only allow connecting CCA to more abstract and general theories by including only conditions which can be aligned to the same theoretical paradigms, but it would also be more in line with the spirit and terminology of CCA. This is, because such a theory-oriented type of CCA is in itself an example of configurational thinking in as much as it aims as a consistent combination of truth-seeking and sense-making!

In line with our approach to connect the debate on CCA methodology to the wider discourse on (qualitative) methodology, we would like to end up with some more principled remarks. The divergent qualitative methodologies that are laid out in figure 1 differ in respect to a very important aspect: The more the methodologies are located on the right hand side, the more theory and method are perceived as one and the same thing. Most often, when interpretative scholars write or talk about their "method" they actually refer to their "theoretical lens" or to their "paradigmatic perspective" and argue that this perspective determines not only what they see in the empirical world, but also how they draw their conclusions. Such a presumption

comes down to a social science practice in which method and theory are not differentiated (e.g. Soeffner 2014). The more the methodologies are located on the left hand side, the more such a differentiation between theory and method has taken place. We perceive such a differentiation as something positive in principle, since differentiation allows for specialization and this, in turn, spurs innovation. Such a differentiation comes at a price, though: Empirical studies are getting more and more method-driven. At the same time, they are getting more and more disconnected from the concepts and debates that the "theorists" pursue within the various disciplines of the social sciences (especially in Political Science). This will go on as long as methodologists apply a thin and unreflective understanding of the term "theory." Most often, in methodological publications we do not find an explicit reflection on what a theory is. Implicitly, a theory is equated with a hypothesis, or even worse, it is equated with understandings that we find in everyday language: a) a theory is a claim that is not proven (yet), or b) a theory is an ideal or an abstraction, and the reality is categorially different, because it is practical and/or concrete. Our paper should be read as a plea that methodologists and practitioners of CCA should contribute to reconnecting method and theory in Political Science. For this, is should be recognized that the accumulation of knowledge needs not only techniques for a systematic confrontation of abstract concepts and frameworks with empirical data, but also shared concepts which allow to communicate across fields and (sub)disciplines.

5. Literature

Adcock, R. (2005). "What is a Concept?" *Political Concepts: Committee on Concepts and Methods Working Paper Series*, no. 1, April 2005.

Adcock, R and D. Collier (2001). "Measuring Validity: A Shared Standard for Qualitative and Quantitative Research." *American Political Science Review* 95(3): 529-546.

Arendt, H. [1951] 2004. *The Origins of Totalitarianism*. New York: Schocken Books.

Baumgartner, M. (2013). "Detecting Causal Chains in Small-N Data." *Field Methods* 25(3): 3-24.

Baumgartner, M. (2015). „Parsimony and Causality." *Quality and Quantity* 49(2): 839-56.

Blaikie, N. (1993). *Approaches to Social Inquiry*. Cambridge UK: Polity.

Blatter, J. and M. Haverland (2014). *Designing Case Studies: Explanatory Approaches in Small-N Research*. Basingstoke: Palgrave MacMillan.

Blatter, J. (2016). „Aligning Methodologies to Epistemologies and Ontologies in Qualitative Research: An Ideal-Typical Approach". Paper prepared for the Annual Meeting of the American Political Science Association in Philadelphia, September 1-4 2016.

Blatter, J., Haverland, M. and M. van Hulst [eds.] (2016). *SAGE Major Works „Qualitative Research in Political Science*". London: SAGE.

Blatter, J., Langer P.C. and Wagemann, C. (2017). *Qualitative Methoden in der Politikwissenschaft. Eine Einführung*. VS-Verlag für Sozialwissenschaft.

Brady, H. and D. Collier [eds.] (2004). *Rethinking Social Inquiry: Diverse Tools, Shared Standards*. Lanham, Maryland: Rowman & Littlefield Publishers.

Brady, H. (2008). "Causation and Explanation in Social Science." In: Box-Steffensmeier, J., Brady, H., Collier D. (eds.). *The Oxford Handbook of Political Methodology*. Oxford: Oxford University Press, 217-249.

Cebotari, V. and M. P. Vink (2013). "A Configurational Analysis of Ethnic Protest in Europe." *International Journal of Comparative Sociology* 54(4): 298-324.

Cohen, E. F. (2009). *Semi-Citizenship in Democratic Politics*. Cambridge: Cambridge University Press.

Cooper, B and J. Glaesser (2015). "Qualitative Comparative Analysis, Necessary Conditions, and Limited Diversity." *Field Methods* 28(3): 300-315.

Cooper, B. and J. Glaesser (2016). „Qualitative Comparative Analysis, Necessary Conditions, and Limited Diversity. Some Problematic Consequences of Schneider and Wagemann's Enhanced Standard Analysis." *Field Methods* 28(3): 300-315.

Esfeld, M. (2003). "Holismus und Atomismus in den Geistes- und Naturwissenschaften. Eine Skizze." In: Bergs, A. und S. I. Curdts (Hrsg.). *Holismus und Individualismus in den Wissenschaften.* Frankfurt (Main): Lang, 7-21.

Goertz, G. (2006). *Social Science Concepts. A User's Guide*. Princeton: Princeton University Press.

Goertz, G. and J. Mahoney (2012). *A Tale of Two Cultures. Qualitative and Quantitative Research in the Social Sciences*. Princeton: Princeton University Press.

Gruber, Tom (1992). "Towards Principles for the Design of Ontologies Used for Knowledge Sharing." In: *International Journal Human-Computer Studies* (43): 907-928.

Hall, P. (2003). „Aligning Ontology and Methodology in Comparative Research", in: Mahoney, J. and Rueschemeyer, D. [eds.]: *Comparative Historical Analysis in the Social Sciences*. Cambridge: Cambridge University Press, 373-406.

Huber, S. (2016). "Parsimony and Coherence. Validity and Reliability in Two Functionally Coherent Configurational Comparative Analysis (CCA-)Subtypes." Unpublished manuscript.

King, G., R.O. Keohane and S. Verba (1994). *Designing Social Inquiry. Scientific Inference in Qualitative Research.* Princeton: Princeton University Press.

Kitschelt, H. (2003). "Accounting for Postcommunist Regime Diversity: What Counts as a Good Cause?", in: G. Ekiert, S. E. Hanson (Hrsg.). *Capitalism and Democracy in Central and Eastern Europe: Assessing the Legacy of Communist Rule*. Cambridge: Cambridge University Press, 49-87.

Kurki, M. (2006). "Causes of a Divided Discipline: Rethinking the Concept of Cause in International Relations Theory." *Review of International Studies* 32: 189-216.

Kurki, M. (2008). *Causation in International Relations: Reclaiming Causal Analysis*. Cambridge: Cambridge University Press.

Lazarsfeld, P. (1937). "Some Remarks on Typological Procedures in Social Research." *Zeitschrift für Sozialforschung* 6: 119-139.

Maggetti, M. and D. Levi-Faur (2013). „Dealing with Errors in QCA." *Political Research Quarterly*, 66(1): 198-204.

Mahoney, J. and D. Rueschemeyer [eds.] (2003). *Comparative Historical Analysis in the Social Sciences*. Cambridge: Cambridge University Press.

Marx, A., B. Rihoux and C. Ragin (2014). "The Origins, Development, and Application of Qualitative Comparative Analysis: The First 25 Years." *European Political Science Review* 6(1): 115-142.

Mikkelsen, K. S. (2015). "Fuzzy-Set Case Studies." *Sociological Methods & Research*. DOI: https://doi.org/10.1177/0049124115578032

Ragin, C. (1987). *The Comparative Method. Moving Beyond Qualitative and Quantitative Strategies*. Berkeley, California: University of California Press.

Ragin, C. (2000). *Fuzzy-Set Social Science*. Chicago: University of Chicago Press.

Ragin, C. (2008). *Redesigning Social Inquiry: Fuzzy Sets and Beyond*. Chicago: University of Chicago Press.

Rihoux, B. and B. Lobe (2009). „The Case for Qualitative Comparative Analysis (QCA): Adding Leverage for Thick Cross-Case Comparison." In: Byrne, D. and C. Ragin (eds.). *The SAGE Handbook of Case-Based Methods*. London: SAGE.

Rihoux, B., P. Alamos-Concha, D. Bol, A. Marx and I. Rezsohazy (2013). "From Niche to Mainstream? A Comprehensive Mapping of QCA Applications in Journal Articles from 1984 to 2011." *Political Research Quarterly* 66(1): 175-184.

Schneider, C. (2004). "Patterns of Consolidated Democracies: Europe and Latin America Compared", EUI PhD Theses, Florence: European University Institute.

Schneider, C. (2016). „Real Differences and Overlooked Similarities: Set-Methods in Comparative Perspective." *Comparative Political Studies*, 49(6): 781-792.

Schneider, C. and C. Wagemann (2010). „Standards of Good Practice in Qualitative Comparative Analysis (QCA) and Fuzzy-Sets." *Comparative Sociology*, 9: 1-22.

Schneider, C. and C. Wagemann (2012). *Set-Theoretic Methods for the Social Sciences: a Guide to Qualitative Comparative Analysis*. Cambridge: Cambridge University Press.

Schneider, C. and C. Wagemann (2016). „Assessing ESA on what it is designed for: A reply to Cooper and Glaesser." *Field Methods* 28(3): 316-21.

Skaaning, S. (2011). „Assessing the Robustness of Crisp-set and Fuzzy-set QCA Results." *Sociological Methods & Research*, 40(2): 391-408.

Soeffner, H. (2014). "Interpretative Sozialwissenschaft", in: Mey, G., Mruck, K. (Hrsg.). *Qualitative Forschung. Analysen und Diskussionen – 10 Jahre Berliner Methodentreffen*. Wiesbaden: VS Verlag für Sozialwissenschaft, 35-53.

Soysal, Y. N. (1994). *Limits of Citizenship. Migrants and Postnational Membership in Europe*. Chicago: The University of Chicago Press.

Thiem, A. (2014). „Membership Function Sensitivity of Descriptive Statistics in Fuzzy-Set Relations." *International Journal of Social Research Methodology* 17(6): 625-42.

Thiem, A. (2015). "Standards of Good Practice and the Methodology of Necessary Conditions in Qualitative Comparative Analysis." *Political Analysis* 24(4): 478-484.

Thiem, A. (2016a). „QCApro: Professional Functionality for Performing and Evaluating Qualitative Comparative Analysis." R Package Version 1.0-0. http://cran.r-project.org/web/packages/QCApro/index.html

Thiem, A (2016b). „Standards of Good Practice and the Methodology of Necessary Conditions in Qualitative Comparative Analysis." *Political Analysis*, 1-7, DOI: 10.1093/pan/mpw024.

Thiem, A. (2016c). „Conducting Configurational Comparative Research With Qualitative Comparative Analysis: A Hands-On Tutorial for Applied Evaluation Scholars and Practitioners." *American Journal of Evaluation*, 1-14, DOI: 10.1177/1098214016673902.

Thiem, A. and M. Baumgartner (2016). „Back to Square One: A Reply to Munck, Paine, and Schneider." *Comparative Political Studbies* 49(6): 801-06.

Thomann, E. and M. Maggetti (2016). „Designing Research with Qualitative Comparative Analysis (QCA): Approaches, Challenges, and Tools." Unpublished manuscript.

Wagemann, C. and C. Schneider (2015). „Transparency Standards in Qualitative Comparative Analysis." *Qualitative & Multi-Method Research,* 13(1): 38-42

Wagemann, C., J. Buche and M. Siewert (2016). „QCA and Business Research: Work in Progress or a Consolidated Agenda? *Journal of Business Research* 69(7): 2531-2540.