# Reducing complexity in Qualitative Comparative Analysis (QCA): Remote and proximate factors and the consolidation of democracy

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**Abstract.** Comparative methods based on set theoretic relationships such as 'fuzzy set Qualitative Comparative Analysis' (fs/QCA) represent a useful tool for dealing with complex causal hypotheses in terms of necessary and sufficient conditions under the constraint of a medium-sized number of cases. However, real-world research situations might make the application of fs/QCA difficult in two respects – namely, the complexity of the results and the phenomenon of limited diversity. We suggest a two-step approach as one possibility to mitigate these problems. After introducing the difference between remote and proximate factors, the application of a two-step fs/QCA approach is demonstrated analyzing the causes of the consolidation of democracy. We find that different paths lead to consolidation, but all are characterized by a fit of the institutional mix chosen to the societal context in terms of power dispersion. Hence, we demonstrate that the application of fs/QCA in a two-step manner helps to formulate and test equifinal and conjunctural hypotheses in medium-size N comparative analyses, and thus to contribute to an enhanced understanding of social phenomena.

## Introduction: QCA – An additional logic of social inquiry

Comparative social scientists frequently encounter a dilemma. On the one hand, the number of relevant cases they are interested in is limited to a medium-size N (c. 25–50) and, on the other hand, the hypotheses developed at the theoretical level postulate a rather complex interplay of (not necessarily many) variables producing the phenomenon they are seeking to explain. As an example, just think of those who study the causes of democratization in the late twentieth century. Even if a wide definition of democratization is used, the universe of relevant cases will barely exceed 50. At the same time, the literature has produced a long list of possible and plausible hypotheses on what promotes democratization. Another case in point is questions related to phenomena that take place in the European Union (EU). Even after the most recent enlargement, the universe is fixed to 25 (maybe soon 27) cases. This

article is about some methodological implications of this common dilemma in (macro-)comparative social research. The novel methodological approach we offer should be useful to a wide range of comparative social scientists with interests as different as regime change, European integration, ethnic conflicts, or interest associations, just to mention a few.

A potentially useful method for treating hypotheses entailing complex causal patterns was proposed by the American social scientist Charles C. Ragin. His work on 'Qualitative Comparative Analysis' (QCA) (Ragin 1987, 2000) can be seen as an extension of John Stuart Mill's well-known methods into a systematic (computer-based) comparative approach (see, e.g., Mahoney 2000b: 401; Skocpol 1984: 379). At the centre of this method is the identification of necessary and sufficient conditions linked to the outcome.[1] There are different versions of QCA: the older variant (Ragin 1987) requires a dichotomization of the variables and is based on Boolean algebra. In addition to this, the more recent variant (Ragin 2000) also allows for values between the extremes of '0' and '1'.[2] These so-called 'fuzzy values' describe the degree of membership of a given case in the category formed by the variable. These scores are assigned on the basis of theoretical knowledge and empirical evidence (Ragin 2000: 150–170; Verkuilen 2005). Technically speaking, fuzzy set QCA (fs/QCA) builds on a combination of the original Boolean variant and fuzzy set theory (Klir et al. 1997: 73ff; Zadeh 1965, 1968).

Many of the most prominent hypotheses not only in the sub-field of studying the Consolidation of Democracy (CoD), but also in most others, make rather complex statements about causal patterns that go well beyond simple linearity, additivity and unifinality. As a consequence of this, more attention must be paid to the methodological implications of the concept of complex causality in order to overcome the misfit between ontology and methodology (Hall 2003).

The aim of this article is to propose a two-step approach as a tool for dealing with complex causality in mid-size N studies and as a partial solution to some of the problems inherent in the use of fs/QCA.[3] In order to develop our argument, we will first present a set theoretic approach to the concepts of 'necessity' and 'sufficiency'. Then we will discuss the phenomenon of 'limited diversity' and its impact on drawing inference in comparative research. The major point here is that limited diversity is ubiquitous in comparative research and has strong impacts on inferences drawn; however, it is commonly overlooked and neglected, especially in correlation-based statistical techniques. Third, we will show that the distinction between remote and proximate causal conditions for an outcome can be found in many social scientific research areas, and making use of this distinction helps to mitigate the problem of limited diversity. Fourth, we will propose a two-step fs/QCA module designed

for dealing with complex causal patterns based on the distinction between remote and proximate factors. We will argue that this new approach is useful for all those who try to develop and verify complex causal hypotheses examining the interplay of sufficient and necessary conditions for a given outcome. In a final section, we will demonstrate that the application of the two-step fs/QCA approach to the analysis of 32 (neo-)democracies generates novel insights on the complex equifinal and conjunctural patterns leading to CoD. More specifically, we will show that different types of democracy consolidate in different societal contexts: what is decisive for CoD is that institutions and context fit in terms of power dispersion.

## Framing necessity and sufficiency in terms of set relations

The issue of causal complexity and how to deal with it in comparative research has received growing attention in recent years (e.g., Bennett 1999; Braumoeller 1999, 2003; Braumoeller & Goertz 2000; Dion 1998; Goertz 2003; Mahoney 2000b; Ragin 1987, 2000; Western 2001). In the following, we will briefly present a set theoretical approach. It is far from easy to formulate a precise definition of 'complex causality' because scholars often only refer to certain aspects of it rather than dealing with the generic phenomenon. Terms like 'substitutability' (Cioffi-Revilla 1981), 'multiple conjunctural causation' (Ragin 1987), 'contextualization' or 'multiple paths' all describe special cases of complex causality (Braumoeller 2003: 210). We follow Ragin (2000) and hold that one efficient way to approach the issue of causal complexity, both in conceptual and empirical-analytical terms, and to unravel the commonalties of all the above mentioned special forms of complex causality, is to make use of the notions of 'necessity' and 'sufficiency'.[4]

Commonly, 'a cause is defined as necessary if it must be present for a certain outcome to occur. A cause is defined as sufficient if by itself it can produce a certain outcome' (Ragin 1987: 99). Hence, necessity is present if, whenever we see the outcome, we also see the cause, although we might also see the necessary cause without the outcome. In contrast, sufficiency is present if, whenever we see the cause, then we also see the outcome. However, we might also see the outcome without the sufficient cause. Following this, necessity and sufficiency statements lead to the use of set theoretic relations as indicated by the 'if . . . then' structure. It is thus possible to represent and think about necessity and sufficiency by making use of notation systems, operations and forms of representation as set up by set theoretic approaches such as Boolean algebra and fuzzy sets.

The main advantage of set theoretic relationships is that Boolean and fuzzy set algebra also allow the consideration of those factors as causally relevant that alone are not sufficient or necessary. To take an (invented) example of three conditions: economic development (D), ethnic homogeneity (E) and democratic experience (X), which are all hypothesized to account for the outcome Consolidation of Democracy (CoD). It can be imagined that D could be both necessary and sufficient for CoD (the solution formula would be ~~CoD = D~~); necessary, but not sufficient (one possible term would be ~~D → CoD~~ $D \cdot E \rightarrow$ ~~CoD~~);[5] sufficient, but not necessary (one possible term would be ~~D → CoD~~ $D + E \rightarrow$ ~~CoD~~). However, D could also be neither sufficient nor necessary – for example, if CoD were either produced by ethnic homogeneity or a simultaneous presence of democratic experience and economic development ($E + (X \cdot D) \rightarrow$ ~~CoD~~). The latter two examples in particular show that an adequate causal statement may be highly complex, entailing not only conjunctural causation, but also equifinality.[6] This may be further complicated. For example, economic development could have a positive effect on CoD if it is combined with democratic experience, but in ethnically homogeneous societies, economic development could be considered counter-productive for the consolidation of democracy (the solution term of this example would be $(E \cdot d) + (X \cdot D) \rightarrow$ ~~CoD~~).[7] This means that Boolean and fuzzy algebra also allow for factors that have a different effect in different settings, and thus notions such as contextualization, conjunctural causation or chemical causation (Mill 1970) are represented by these equations. In mainstream social sciences, the concepts of 'necessity' and 'sufficiency' have long been judged irrelevant for theorizing. It is believed that hardly any relevant theories use these notions, and that they imply a deterministic causal pattern since any deviant case must lead to the rejection of necessity and sufficiency. However, Braumoeller & Goertz (2000), along with others, convincingly demonstrate that hypotheses that use necessity and sufficiency abound (Goertz & Starr 2003).[8]

Complex causal hypotheses in terms of necessity and sufficiency pose serious problems for many comparativists simply because of the standard data analysis techniques: 'Additive linear models are an inherently inadequate way of modelling multiple causal path processes' (Braumoeller 1999: 7). Using non-additive specification (i.e., interaction terms) offers no practical solution to the problem, especially if the N is medium to low (say, 20–40), as is often the case in macro-comparative social research (Braumoeller 1999: 9ff). Causal complexity is the exact opposite of the assumptions of linear and additive regression analysis, not to mention the unifinal character of regression. Whereas large N statistical techniques have led to a remarkable increase in terms of rigour and breadth of comparative analyses, there is no doubt that this has come at the expense of theoretical subtlety (Braumoeller 1999: 3).

If the aim of a study is to make simple yet broad generalizations, these features of regression analysis are not a problem, but a strength. If, however, more subtle statements of complex causation are tested, it seems to be more appropriate to use other methods.[9] 'If we assume a more complex model than the reality requires, the data may allow us to reduce our model back to a simpler form, but if we assume a simple model for a complex phenomenon, we may be less likely to recognise our mistake' (Bennett 1999: 8). Hence, starting out with the assumption of complex causality is a better strategy than assuming simple causality. From what has been said so far about the features of set theoretical approaches in comparative social science, it has become clear that these hold the potential to deal more adequately with causal complexity in terms of necessity and sufficiency. Fs/QCA is one such method that 'demonstrates the premium on explanatory completeness by attaching causal inferences to all unique combinations of causes' (Western 2001: 357). We strongly agree with this claim.

The key to understanding why fs/QCA is useful for dealing with some forms of complex causality is to note that statements of necessity and sufficiency denote different subset relations between causal conditions and outcome. 'Whenever a causal condition is necessary but not sufficient for an outcome, instances of the outcome will form a subset of instances of the causal condition' (Ragin 2000: 213). Following set theory, this implies that for each case, the scores for the necessary condition are equal to or higher than the scores for the outcome. Inversely, instances of a sufficient cause are a subset of instances of the outcome. Thus, the scores in the sufficient condition of each case are equal to or higher than its score in the outcome. Displaying the conditions on the x axis and the outcome on the y axis, this means the following: if all cases fall below the main diagonal (see Figure 1), the scores on the
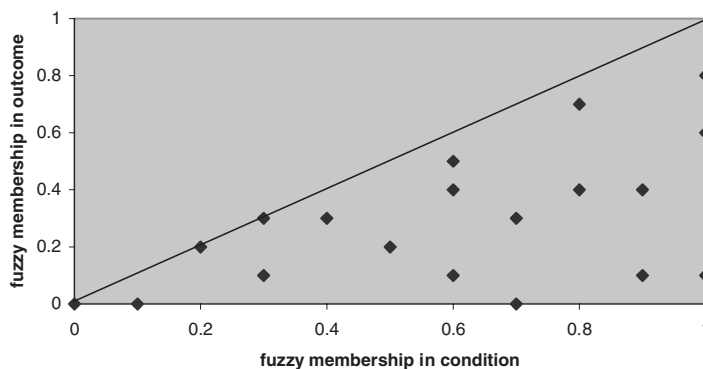


*Figure 1.* X-Y plot for necessary condition.

outcome are higher than in the cause; consequently, the cases of the outcome are a subset of the cases of the cause and thus the cause can be interpreted as being necessary for producing the outcome (Ragin 2000: 215).

Respectively, if all cases fall above the main diagonal (see Figure 2), the scores on the cause are higher than on the outcome; the cases of the cause are a subset of the cases of the outcome and, thus, the cause can be interpreted as being sufficient for producing the outcome (Ragin 2000: 235ff; Goertz 2003).[10] In a nutshell, the search for meaningful patterns in a data set using fs/QCA is based on the straightforward idea of subset relations between the (combinations of) causal conditions and the outcome. Looked at from this angle, the inadequacy of regression for dealing with complex causality in terms of necessity and sufficiency is the fact that this method is based on covariation, whereas necessity and sufficiency denote set relations.[11]

### Some problems in the application of fs/QCA

As with any method, fs/QCA is not free from problems when applied to 'real' data. By and large, these problems depend on the number of variables that go into the analysis and the number of cases examined. Fs/QCA is, therefore, not exempted from addressing the well-known problem of 'too many variables, too few cases'. More specifically, we discuss the issue of overtly complex results that are often generated with fs/QCA and the phenomenon of limited diversity.

First, considering the number of variables, it immediately becomes clear that what we have presented so far as an advantage of using fs/QCA (namely, the possibility of formulating causally complex statements) contains the poten-
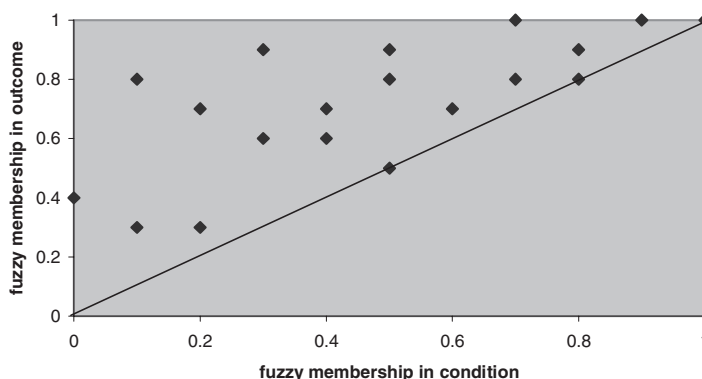


*Figure 2.* X-Y plot for sufficient condition.

tial for turning into a disadvantage. If too many variables are introduced into a model, the results can become overly complex. If we imagine a (still considerably low) number of six independent variables, the resulting solution term might be composed by one or more paths, which include all six initial conditions. In such a case, some components of the solution formula (i.e., some of the paths that lead to the outcome) may capture only one case, suggesting that they are analytically different from the rest.[12] Even if there are paths towards the outcome that do not combine all causal conditions, the result may still prove impossible to interpret in a theoretically meaningfully way.

Second, a related but technically much more sensitive issue is connected to the low number of cases. The key concept here is 'limited diversity' – a crucial issue for causal inference that, however, is usually overlooked both in case studies and statistical techniques. Diversity is limited when logically possible configurations of relevant conditions do not appear empirically. For example, if four conditions have been identified, $16 (= 2^4)$ combinations of these dichotomously coded conditions are possible. However, it might well be that not all of these 16 possible combinations are empirically observable. In fact, a set of 16 cases does not guarantee that they will cover all 16 possible combinations as several cases might share the same combination of conditions. Unfortunately, the effect is exponential. For a (not unusual) set of 8 factors, all of which have potentially made some contribution to the outcome, $256 (= 2^8)$ possible combinations exist, and a much higher number than 256 cases would be required in order to avoid limited diversity. Thus, in research reality, the presence of so-called 'logical remainders' (i.e., logically possible but empirically not observed configurations) is the rule rather than the exception (Ragin 2000: 107, 198).

As mentioned above, limited diversity is regularly overlooked in statistical analyses as the following simple example demonstrates. Imagine a researcher wishes to explain the presence of welfare state institutions with the presence of a strong left party and the presence of trade unions as independent variables. The data shows the situation illustrated in Table 1. Notice that the 300 cases are distributed among only three of the four logically possible combinations. A

*Table 1.* Limited diversity in correlational techniques

| Row | Strong left party | Strong unions | Welfare state | N |
|-----|-------------------|---------------|---------------|-----|
| 1 | 1 | 1 | 1 | 100 |
| 2 | 1 | 0 | 0 | 100 |
| 3 | 0 | 0 | 0 | 100 |
| 4 | 0 | 1 | ? | 0 |

simple inspection of the table shows that 'Strong Unions' is perfectly corre-lated with the dependent variable 'Welfare State'. The bivariate correlation coefficient between these two variables is 1; whereas it is only 0.5 between 'Strong Left Party' and 'Welfare State'. Running multiple regression, the beta coefficient for 'Strong Unions' becomes 1 and for 'Strong Left Party' 0. The conclusion most likely drawn from this regression result is that strong unions make welfare states emerge. Left parties, in turn, would be considered irrelevant.

However, this conclusion is based on a simplifying assumption. There are no empirical instances of countries *without* left parties *but with* strong unions. Thus, we do not know whether such countries would exhibit a welfare state (row 4 in Table 1). Yet in regression analysis, the computer simulates an outcome value for this fictitious case. In the example presented here, the regression equation assumes that if countries without left parties *but with* strong unions existed, they would have a welfare state. This purely computer-guided assumption is necessary in order to produce the most parsimonious solution. Simplifying assumptions are highly influential on the results obtained and the inferences drawn. The major problem then is that these simplifying assumptions are, by and large, hidden from the researcher – often even for those well trained in statistics.[13] Furthermore, it cannot be denied that the issue of limited diversity soon gets out of hand, especially with the common practice of including many control variables in multiple regression. This leads to a high level of limited diversity and, thus, to numerous simplifying assumptions that are implicitly made without the explicit consent or dissent of the researcher.

Fs/QCA forces the researcher to make explicit decisions on the logical remainders. In general, this approach offers three ways to handle limited diversity. First, all logical remainders are treated as if the outcome showed the value of 0 ('blanket assumptions'). Second, for all logical remainders, the outcome values are chosen such that the most parsimonious solution is obtained. And third, theory is used as a guide for assigning the outcome values of logical remainders. The first two strategies are somewhat constricted in their use; 'blanket assumptions' is the most conservative approach to limited diver-sity since it takes only the empirically observable information into account. It may work for a small number of variables because the effects of this coding procedure can still be controlled. Yet, if the number of variables (and with it, the likelihood of limited diversity) increases, too many blanket assumptions would have to be made and the result would not be based on enough empirical evidence in order to be easily generalized. By contrast, the parsimony strategy may over-simplify and thus creates problems for drawing inference. As already mentioned, it is the computer that decides which outcome is assigned to each logically possible but empirically non-existing combination of causes without

informing the researcher about these crucial decisions. Thus, theory has to play a prominent role in order to cope with limited diversity.

Unfortunately, social scientific theories frequently do not generate expectations that are strong enough to guide decisions in the light of limited diversity. Ragin & Sonnett (2004) suggest to only engage in 'easy counterfactuals' (i.e., to assign outcome values only for those logical remainders for which strong theoretical expectations exist). Hence, rather than reflecting on all logically possible combinations, only those on which strong expectations exist are used. This approach to dealing with limited diversity leads to results that are located in-between the less complex solutions when computer-performed assumptions (strategy 2) are allowed for, and the more complex solutions when no such assumptions are made (strategy 1). In sum, 'given limited diversity, no matter which conclusion the researcher presents, it involves statements (and thus assumptions) about conditions that have *not* been observed' (Ragin 2000: 106; emphasis in the original). While we perceive it as a major strength of fs/QCA to force scholars explicitly to think about non-existent cases, there is no straightforward solution to this problem in standard statistical techniques. In the following, we propose a complementary strategy for tackling the problem of how to draw inferences in the presence of limited diversity. We will first present the strategy's main component – namely, the distinction between remote and proximate causal conditions. We will then show how this contributes to remedying the problems of limited diversity and to achieving digestible but, nevertheless, theoretically subtle results.

## The distinction between remote and proximate conditions

In this section, we argue that many social scientific theories (implicitly) base their arguments on a list of conditions that can be divided into two groups, which can be labelled 'remote' and 'proximate' factors. Take the example of the research on CoD. Over the last decades, the literature has produced a long list of potential explanatory factors, including characteristics of *countries* such as the level of socio-economic development, the degree of ethno-linguistic heterogeneity or the geo-strategic location. At the same time, characteristics of the *democratic system* are also cited as potential factors for CoD, such as the governmental format, the electoral system, the territorial division of competencies or the party system. At an intuitive level, it seems obvious that country characteristics exert their impact on CoD at a different level than democratic regime type factors. Claiming that high socio-economic development sustains democracy simply requires different assumptions than claiming that parliamentary democratic arrangements foster CoD.[14]

We believe that the difference between remote and proximate factors can be generalized in the following way. The two terms delineate a continuum in which causally relevant factors can be situated. Factors close to the two extremes differ in various respects. First, remote factors are relatively stable over time. This is why they are also often referred to as '*structural*' factors, or simply the '*context*'. Second, their origin is often also remote on the time and/or space dimension from the outcome to be explained in most of the cases. Third, as a consequence, remote factors are (almost) completely outside the reach of the conscious influence of present actors and thus contexts and historical legacies are treated as exogenously given to the actors. Thus, the idea of 'remoteness' is not only related to space and time, but, first and foremost, to the causal impact that is assumed. In contrast, *proximate* factors vary over time and are subject to changes introduced by actors. Proximate factors do not originate far in the past, but are the products of (more or less conscious and purposeful) actions of human agency, if not human action itself. Proximate factors are also temporarily and spatially closer to the outcome to be explained and, as a consequence of this, more closely linked to it.

It is important to note that the precise conceptualization of remote and proximate conditions depends on various factors such as the research question, the research design or the way the dependent variable is framed. Hence, it is possible that in one study institutions are seen as remote factors, while they are perceived as proximate factors in another. Note that the remote-proximate dichotomy is not a synonym for the micro-macro divide. In the empirical example below, both remote and proximate factors are measured at the macro-level. In a different research setting, however, proximate factors could be perceived as actor-based and process-oriented events located at the micro-level, as is common in structure-agency approaches (e.g., Mahoney & Snyder 1999; Mayntz & Scharpf 1995).[15]

Theorizing the effect of different combinations of remote and proximate factors is fundamental to many, if not most, approaches in empirical research.[16] The institutionalist literature has worked out a number of factors that set the frame for economic actors and policy processes in political economy (Crouch 2003; Hall & Soskice 2001; Streeck 1992, 1997); political sociology models the arena(s) within which political parties and interest groups interact (Lehmbruch 1979); and the cleavage approach presents the institutional contexts that lead to the (notably divergent) evolution of party systems (Rokkan & Lipset 1967).[17] The distinction between remote and proximate factors has also been discussed in social science methodology. Following Kitschelt (1999), explanations that rely exclusively on remote (structural) factors provide for causal depth, but fall short of demonstrating the causal mechanisms that link deep, distant causes with an outcome. By contrast, explanations based on

proximate factors display causal mechanisms often, but not necessarily, at the micro-level. Most of the time, the latter type of explanation is too shallow because it runs the risk of leading to tautological statements with part of what should belong to the *explanandum* as the *explanans*. Consequently, a good causal statement consists of finding the right balance between the two core features: causal depth and causal mechanisms. 'Too much depth may deprive explanations of causal mechanism, but some proposed mechanisms may lack any causal depth' (Kitschelt 1999: 10).

Arguing that 'there is nothing to be gained from pitting deeper and more distant (i.e., temporally prior) structural or cultural variables against proximate causes in the same equation' (Kitschelt 1999: 24), Kitschelt suggests a two-step approach to analyzing causal patterns. We fully agree with this basic idea. However, rather than using standard statistical techniques, we suggest the use of fs/QCA in the form of a two-step fs/QCA approach. This should lead to a result that is composed of several remote (structural) conditions within which proximate causal factors work. The basic feature of fs/QCA results as causally complex statements is maintained, if not strengthened: certain proximate causal conditions may produce the outcome in a given context, but not in others. At the same time, however (and this is crucial), overly complex results are avoided because theoretical reasoning is employed in order to exclude some logically possible configurations from the outset. More precisely, it is the theoretically driven division of causal factors into proximate and remote conditions that is decisive for reducing the problem of limited diversity.

Briefly, the basic logic of the two-step fs/QCA module is the following. In a first step, only the remote structural factors are analyzed with fs/QCA. The result of this first step will be different (combinations of) contextual factors that make the outcome possible. Notice that this does not mean that these contexts are necessary conditions. Necessity implies that whenever the outcome is present, the cause is also present. Following the logic of equifinality, there are, however, different contexts in which the outcome is possible. Thus, these contexts are labelled 'outcome-enabling conditions'. The aim of the second fs/QCA analytic step consists of finding the combinations of proximate factors *within* the different structurally defined contexts that jointly lead to the outcome. In sum, we argue that the distinction between remote and proximate factors reflects the (implicit) structure of most social scientific theories and opens up the possibility for a two-step fs/QCA approach. The first step examines the contextual conditional combinations, under which a given outcome is more likely to occur than in other contexts. The second step leads to the precise formulation of causal paths which have provoked the outcome. Before detailing the empirical analysis, we now briefly demonstrate how the distinction of causal conditions between remote and proximate factors is

helpful with regard to dealing with the problem of 'limited diversity' in that it reduces the number of logically possible combinations through theoretical reasoning.

## Remote and proximate factors and the reduction of logical remainders

It goes without saying that the decomposition of the analysis into two steps (first only remote, then remote and proximate together) leads to a number of different sets of simplifying assumptions for each step. This can be easily shown by referring to the highest possible number of logical remainders (z), requiring consideration by the researcher. Generally, these can be computed as $z_{max} = 2^k - 1$, with k being equal to the number of causal conditions.[18] This maximum number of logical remainders increases exponentially with the number of causal conditions. Consequently, $z_{max}$ will be considerably lower if the parameter k can be split into $k_1$ and $k_2$ (with $k_1 + k_2 = k$). Ideally, $k_1$ and $k_2$ should be as equal as possible – that is, both $k_1$ and $k_2$ should be k/2. If, for example, k = 8 (a common scenario in comparative research), the maximum number of logical remainders is $2^8 - 1 = 255$. If the two analytical steps can be ideally modelled into two sub-sets containing four variables each ($k_1 = k_2 = 4$), then the maximum number of logical remainders becomes $2^4 - 1 + 2^4 - 1 = 30$ (in this case, almost 90 per cent less). Even in the worst case scenario of organizing the eight variables (namely, into two and six), the maximum number of logical remainders becomes $2^2 - 1 + 2^6 - 1 = 66$, still about three-quarters less.

Figure 3 shows the effect of a two-step analysis on limited diversity.[19] The upper line represents the maximum number of logical remainders in a one-step approach ($2^k - 1$). The middle line represents the maximum number of logical remainders in a two-step approach if one category consists only of two variables and the other contains the rest (the 'worst case scenario', with $2^2 - 1 + 2^{k-2} - 1 = 2 + 2^{k-2}$). The lower line represents the maximum number of logical remainders in a two-step approach, where the set of variables is equally distributed among the categories (the 'best case scenario', with $2^{k/2} - 1 + 2^{k/2} - 1 = 2 \cdot 2^{k/2} - 2$ in the case of an even number of variables, and $2^{k/2-0.5} - 1 + 2^{k/2+0.5} - 1 = 2^{k/2-0.5} + 2^{k/2+0.5} - 2$ in the case of an odd number of variables).[20] In sum, Figure 3 provides a straightforward graphical representation of how useful our two-step approach for the solution of the problem of limited diversity is; it limits the number of logical remainders and thus increases the researcher's capacities of drawing solid inferences from their findings.

## An empirical application of the two-step fs/QCA approach: Analyzing the causes of CoD

In this section, we demonstrate the practical applicability of the two-step approach with the example of 'Consolidation of Democracy' (CoD). In particular, we present an example of how to organize causally relevant conditions in remote and proximate factors; how the two-step-approach technically facilitates a QCA analysis; and how the result becomes theoretically easier interpretable.

### *The outcome CoD and its remote and proximate conditions*

Bypassing the extensive discussions on definition and conceptualization (e.g., Linz & Stepan 1996; Schedler 1998), in this paper we define CoD as the 'expected persistence of a liberal democracy' and conceptualize it in terms of the 'rule confirming behaviour of relevant political actors' (see Schneider 2004). The degree of CoD is measured with a new data set on more than thirty countries from six world regions that underwent a regime transition at some point during the last three decades. Based on the data gathered for the period 1974–2000, membership scores in the fuzzy set 'Consolidated Democracies' are assigned.

As Table 2 shows, 20 of 32 cases are more in than out of the set of consolidated democracies (scores higher than 0.5). Among the cases with high
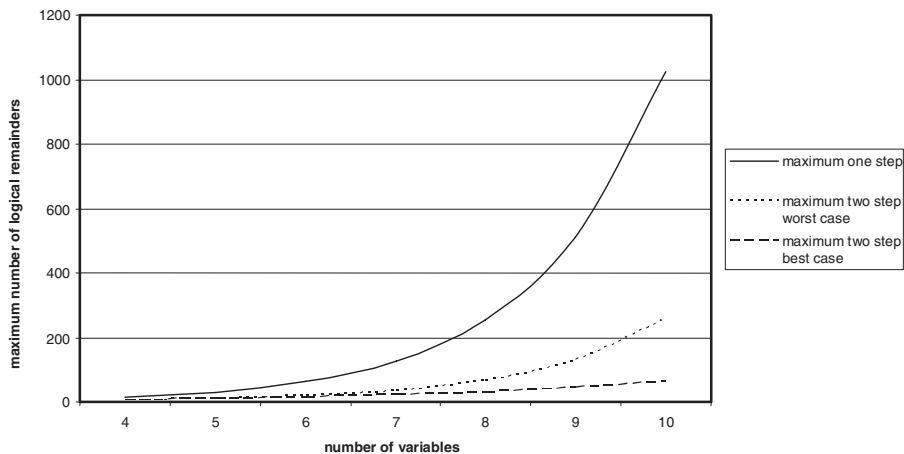


*Figure 3.* Number of logical remainders.

membership, we find the Southern European cases Spain, Greece and Portugal, some countries from Central Europe (most importantly: Slovenia), and Uruguay and Argentina. Most of these cases are the usual suspects. Notice, though, that such an unlikely candidate as Mongolia is more in than out of the

*Table 2.* Membership in fuzzy set 'Consolidated Democracy'

| Country (acronym) | Fuzzy membership in CoD |
|---|---|
| Spain (SP) | 1 |
| Uruguay (UR) | 1 |
| Greece (GR) | 0.9 |
| Portugal (PO) | 0.9 |
| Slovenia (SL) | 0.9 |
| Argentina (AR) | 0.8 |
| Czech Republic (CR) | 0.8 |
| Poland (PL) | 0.8 |
| Brazil (BR) | 0.6 |
| Bulgaria (BU) | 0.6 |
| Chile (CH) | 0.6 |
| Hungary (HU) | 0.6 |
| Mexico (MX) | 0.6 |
| Mongolia (MO) | 0.6 |
| Romania (RO) | 0.6 |
| Slovakia (SK) | 0.6 |
| Ecuador (EC) | 0.6 |
| Estonia (EST) | 0.6 |
| Latvia (LAT) | 0.6 |
| Lithuania (LIT) | 0.6 |
| Bolivia (BO) | 0.4 |
| Nicaragua (NI) | 0.4 |
| Peru (PE) | 0.4 |
| Turkey (TU) | 0.4 |
| Ukraine (UK) | 0.4 |
| Albania (AL) | 0.4 |
| Honduras (HO) | 0.4 |
| Georgia (GE) | 0.2 |
| Guatemala (GUA) | 0.2 |
| Russia (RU) | 0.2 |
| Belarus (BE) | 0.1 |

set of consolidated democracies. Among the cases with barely any fuzzy membership in CoD are the former Soviet republics Georgia, Russia and Belarus, and the Central American case Guatemala. For more detailed information on the structure of the data set and additional descriptive findings, see Schneider (2004) and Schneider & Schmitter (2004).

Going from the outcome to the conditions, the following *remote* factors are used in the analysis: level of economic development, level of education, degree of ethno-linguistic homogeneity, distance to the West, degree of previous democratic experiences and extent of communist past. These six conditions summarize sociocultural, economic and historical features of the countries. The *proximate* factors for CoD, in turn, are the executive format, the type of electoral law and the degree of party fragmentation. These institutional features represent the core based on which different types of democracies are defined.[21] As the purpose of the following empirical analysis is to demonstrate a methodological argument, we will not elaborate all steps of the research process.[22]

*The hypothesis: The match between institutions and contexts*

We expect relevant actors to follow democratic norms implemented in their country (and thus consolidate their democracy) if the degree of political power dispersion established by their type of democracy meets the needs for a certain degree of power dispersion created by the societal context. Hence, the following analysis is guided by the general expectation that democracies consolidate if the type of institutional configuration chosen fits the socio-structural contexts in which it is embedded. One way of theoretically framing the fit of democracy types to societal contexts is to look at the degree to which both institutions and contexts disperse political power.

Within the literature on *remote* societal factors, the issue of power dispersion is frequently encountered (e.g., Huntington 1968; Lijphart 1999; Vanhanen 1997). For instance, it is now almost common knowledge that ethno-linguistically divided societies create the need for a certain dispersion of political power among a relatively large set of different politically relevant actors in order to prevent conflict and thus to consolidate democracy. Other authors focus on different stages in economic development or on specific historical experiences when they argue that effective government and political stability can best be achieved through the concentration of power (Huntington 1968; Evans 1992; Haggard & Kaufman 1995; for a sceptical view, see Przeworski 1993).

The idea of conceptualizing different *proximate* institutional configurations along a dimension of power dispersion can be found, for example, in Colomer

(2001), Mainwaring and Shugart (1997) or Sartori (1994). The debate triggered by Juan Linz's (1990a, 1990b) statement that 'parliamentarism provides a more flexible and adaptable institutional context for the establishment and consolidation of democracy' (Linz 1990a: 68) has led scholars such as Mainwaring (1993), Mainwaring and Shugart (1997) and Sartori (1994) to overcome the crude dichotomy and differentiate types of presidential and parliamentarian systems and claim that these differences matter for their impact on CoD (Mainwaring & Shugart 1997: 463). Part of this argument rests on the observation that the effect of the governmental format depends on the presence of other features of the political system that do not directly belong to the governmental format. In the context of CoD, apart from the executive-legislative relation, two other features are considered as critical institutional choices: the design of the electoral system and the party system (e.g., Gasiorowski & Power 1998; Sartori 1994). Different mixes of these three central democratic institutions define different types of democracy, with each type having potentially different impacts on CoD.[23]

The gist of our argument is that the consolidating effect of each type of democracy (proximate condition) depends on the non-institutional, societal context in which it is implemented. Thus, whether CoD is fostered by a two-party or a multiparty system, by presidential or parliamentary forms of government, by proportional representation (PR) or majoritarian electoral formulas, or by any combination of these features ultimately depends on the presence and absence of characteristics such as ethnic composition, past democratic experience and levels of economic development. Hence, what matters for CoD is neither the specific *institutional configuration* in isolation, nor the *societal context*, but their fit in terms of power dispersion. It follows from this that one and the same institutional mix can have opposite effects on CoD. It may contribute to CoD when it fits the societal context, but if not, it may be detrimental to CoD.[24]

Our expectation about which combination of institutions and societal contexts are sufficient paths[25] towards CoD can be graphically summarized as shown in Figure 4. This is, no doubt, a complex causal statement as it is typical for QCA. The same variable (e.g., type of governmental system) is expected to have opposite effects on CoD, depending on the presence of other factors. At the same time, different (combinations of) variables can have identical effects on CoD. Hence, our expectation that CoD occurs if the type of democracy fits the context in terms of power dispersion is related to issues such as equifinality and conjunctural causation in the sense that different combinations lead to the same outcome.

Within the field of CoD studies, various scholars have expressed the need to make theoretical progress by formulating and empirically testing hypotheses

that are both subtle and generalizable (Coppedge 1999; Munck 2000, 2001). Without doubt, the idea of contextualizing the effect of institutions can be seen as a response to this. This can be placed somewhere along a dimension with, at one end, highly parsimonious, nomothetic theories that are aimed at making law-like statements (i.e., without clearly denoted temporal and/or spatial scope conditions) and, at the other end, highly complex, idiosyncratic explanations aimed at understanding single cases that are clearly situated in time and space. In the literature, the term 'middle-range theories'[26] is used for the kind of approach we are suggesting here. Furthermore, summarizing different combinations of factors under the same concept (i.e., power dispersion) is an example of a useful, though often neglected, practice in comparative social sciences. In Sartori's (1984, 1991) terms, we move up the ladder of abstraction and seek to establish the 'basic' rather than 'superficial' causes (Lieberson 1985: 185ff). In operational terms, in order to achieve the 'higher order construct' (Ragin 2000: 321–328) power dispersion, we create 'master variables' (Rokkan 1999) or 'macro-variables' (Berg-Schlosser & De Meur 1997).

*Step one: Searching for CoD-enhancing remote conditions*

Following the logic of the two-step fs/QCA module, the first step consists of an analysis of remote context conditions only. The model for the sufficiency test in Step 1 is the following:

$$ECON * EDUC * ETHLIN * CLOSE * DEMEX * NOCOM \leq COD,$$

where $\leq$ indicates that the expression to the left denotes a subset of the expression to the right. No doubt, this is a highly over-determined, complex[27] model since it claims that cases that display *all* fostering factors should also be consolidated democracies. The general aim of the following fuzzy set analysis

|  | | Remote context creates need for: | | |
|---|---|---|---|---|
|  | | *Power dispersion* | *Neutral* | *Power concentration* |
| **Proximate type of democracy is:** | *Power dispersing* | Sufficient combination for CoD | | NOT sufficient combination for CoD |
|  | *Neutral* | | | |
|  | *Power concentrating* | NOT sufficient combination for CoD | | Sufficient combination for CoD |

*Figure 4.* Fit of power dispersion between remote contexts and proximate democracy type and its impact on CoD: Theoretical expectations.

– like that of all other data processing techniques – is to reduce the complexity of this initial statement. The question now is which different combinations of conditions represent the information that is contained in the data.

Recently, Ragin (2004) developed the fuzzy truth table algorithm. It produces a table that displays three important pieces of information for each of the logically possible combinations of the six remote conditions (see Table 3). First, the consistency value running from 0 to 1 in column 'Consistency'[28] and, second, the number of cases that have a membership in the respective causal combination higher than 0.5 in column 'N'.[29] Third, the column 'CoD' indicates for each causal combination (a) whether it passes the test criteria for 'very often sufficient'[30] and (b) whether it contains enough cases.[31] If these two conditions are fulfilled, the conjunction passes the test, meaning that it is a sufficient condition for CoD. In essence, the column 'CoD' indicates which of the causal combinations produce the outcome (1, rows 1–18, 26 cases), and which ones do not (0, rows 19–20, six cases), as well as which combinations have no empirical instances (rows 21–64).[32] Finally, the last column 'Country' indicates which cases are described by the respective row (i.e., combination of conditions).

As Table 3 shows, the 32 cases can be organized into 20 out of 64 logically possible combinations (rows in the truth table). This implies that there are 44 logical remainders – that is, combinations for which empirical evidence is lacking (rows 21–64). This is a normal situation of limited diversity, common in comparative social science. The treatment of these logical remainders (i.e., the simplifying assumptions made) will influence the results obtained. As previously mentioned, contrary to most correlational based techniques, in fs/QCA, the researcher is forced to make conscious decisions with regard to missing empirical instances.

The commonalties of the more consolidated democracies (CoD = 1) are complex. Simple eye-balling reveals that the group of consolidated democracies comprises both socio-economic developed, but also less developed cases (column 'ECON'), former Communist and non-Communist countries (column 'NOCOM'), the same as ethno-linguistically homogeneous and heterogeneous countries (column 'ETHLIN'). Clearly, it is necessary to apply a formalized procedure for the logical reduction of complexity that goes beyond a quick first-glance approach in order to make sense of the results. Notice that Table 3 can be perceived as a representation of fuzzy sets in a dichotomous (crisp set) truth table. Despite its dichotomous appearance, the more fine-grained fuzzy information on the 32 cases is not lost and will be used in the subsequent analytical steps.[33] Thus, in order to reduce the complexity of the remote causal combinations fostering CoD, we will use the Quine-McClusky algorithm for dichotomous data (Ragin 1987).

*Table 3.* Consistency test of remote conditions for CoD

| Configuration | Conditions | | | | | | Outcome CoD | Consistency | N* | Country |
|---|---|---|---|---|---|---|---|---|---|---|
| | ECON | EDUC | ETHLIN | CLOSE | DEMEX | NOCOM | | | | |
| 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1.00 | 1 | BR |
| 2 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1.00 | 2 | CR, SK |
| 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1.00 | 2 | GR, PO |
| 4 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1.00 | 1 | AR |
| 5 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1.00 | 1 | SP |
| 6 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1.00 | 1 | MX |
| 7 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1.00 | 2 | CH, UR |
| 8 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0.90 | 1 | EC |
| 9 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0.89 | 1 | TU |
| 10 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0.88 | 3 | HU, PL, SL |
| 11 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0.86 | 1 | BU |
| 12 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0.84 | 2 | RO, AL |
| 13 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0.84 | 1 | HO |
| 14 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0.79 | 1 | PE |
| 15 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0.78 | 1 | MO |
| 16 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0.74 | 1 | EST |
| 17 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0.73 | 2 | NI, PA |
| 18 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0.71 | 2 | BO, GUA |
| 19 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0.53 | 1 | GE |
| 20 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0.49 | 5 | BE, RU, UK, LAT, LIT |
| ... | | | | | | | ? | | 0 | |
| 64 | | | | | | | ? | | 0 | |

Note: *N = number of cases with fuzzy membership score higher than 0.5

For the analysis, the rows with the outcome value 1 are set to 'true' and the 0 outcomes are set to 'false' and the logical remainders are set to 'don't care'. Plainly speaking, we are minimizing the logical combinations on the 1 outcome (i.e., the presence of CoD) because we are interested in those combinations that lead to CoD.[34] Setting all logical remainders to 'don't care' leads to the most parsimonious solution. Allowing for more parsimonious solutions in the first step logically implies that *less precise* accounts of the outcome will be produced. However, this is in line with our approach that assumes that neither remote nor proximate factors alone provide a satisfactory account for why the outcome occurs. The main thrust of our argument is that a dimension of consistency runs parallel to the dimension of precision or complexity of a solution term. Indeed, complexity and consistency of solution terms are directly linked to one another: the less complex and the less precise a solution term is, the more likely it is that it is also *less consistent*.[35] In the first step of the two-step fs/QCA approach our the model is deliberately under-specified and is therefore not expected to show a (close to) perfect fit to the data. This is why we speak of CoD-enhancing contexts at this point. Only when proximate factors are added to the analysis in the second step should the solution terms be found that combine remote and proximate factors and that lead to an (almost always) consistently sufficient result. In this sense, proximate factors increase the consistency of the solution terms by making the conjunctural solution terms more specific, theoretically complex and thus empirically consistent.

The analysis of the remote conditions leads to the following solution:

$$ECON + ETHLIN + NOCOM \rightarrow CoD$$

where '$\rightarrow$' indicates an 'explicit connection' (Ragin & Rihoux 2004) between the conditions to the left and the outcome to the right. As we can see, there are different remote contexts in which the consolidation of democracies is more likely than in others. First, as already stated, no single remote condition is necessary for the consolidation of democracy. And second, three of the six remote factors used in the initial model are logically redundant for representing the underlying structure of the data using the test parameters for sufficiency outlined above.[36] The consistency value of the context 'economically developed' is 0.93, for 'ethno-linguistically homogeneous' 0.82 and for 'non-former communist country' 0.24.[37] As explained above, the design of the two-step fs/QCA approach explicitly relies on the fact that the first step yields inconclusive results. The three remote context terms, thus, represent the underlying data in a logically minimized way, allowing for a certain level of deviation from the statement of sufficiency. While this inconsistency might disturb those

researchers who seek a perfect fit of the model to the data, it is justified in the framework of the two-step approach to partially 'mis-specify' the model in the first step. In addition to this more technical justification for accepting the results achieved after the first fs/QCA step, all three CoD-fostering contexts make theoretical sense since the literature has claimed that economic development, ethno-linguistic homogeneity and a non-communist past matter.

*Step two: Searching for proximate factors for CoD within different contexts*

Having determined the different contexts in which CoD seems to be more likely, the task in the second analytical step is to find the different *combinations* of institutional features of the neo-democracies *within* the three different contexts that lead to CoD. In general, CoD, as conceptualized here, is the compliance of relevant actors to democratic rules. It is assumed that actors will behave in a rule-affirming way if the rules of the democratic game reflect the distribution of power in a society. Since societies differ in their configuration of relevant social forces and thus their need for power dispersion, it follows that different configurations of democratic institutions should satisfy the expectations of the most relevant political actors.

Each analysis of proximate institutional factors within remote contexts contains four variables (one remote context condition in turn, plus the three institutional conditions). The benchmark criteria for passing the sufficiency test are the same as those employed for remote conditions.[38] However, we now treat the logical remainders in a different way. They are set to 'false', which means that no simplifying assumptions are allowed on any of the logical remainders. As explained previously, this is the most conservative set-up of the logical reduction process and leads to the most complex results. Because of the relation between consistency and complexity, this also implies higher consistency values for the solution terms. Whereas it was precisely the inconsistency and incompleteness of the context solution terms that formed an integral part of the first step, the aim of the *second* step is to obtain consistent solutions that illustrate the interplay between different institutional features and the context in which they are embedded. Hence, in the second fs/QCA step, we do not allow for any computer-induced simplifying assumptions, and instead reduce the complexity of the causal configurations based only on the empirical information at hand.[39]

Table 4 provides a summary of all sufficient conjunctions between remote contexts and proximate institutional configurations (paths) that lead to CoD. All ten paths display a consistency value higher than 0.7 and in all of them at least one case has a membership higher than 0.5. Thus, the results obtained

*Table 4.* Sufficient paths towards CoD

| COD = | Remote context | Proximate institutional configurations | Consistency | N | Country |
|---|---|---|---|---|---|
| *(p1)* | ECON • | parlia • EFPAHI | 0.86 | 4 | AR, MX, PL, UR |
| *(p2)* | econ • | PARLIA • efpahi | 0.80 | 3 | BU, AL, MO |
| *(p3)* | ETHLIN • | parlia • EFPAHI | 0.74 | 4 | BR, MX, PL, UR |
| *(p4)* | ETHLIN • | PARLIA • efpahi | 0.83 | 4 | BU, GR, MO, AL |
| *(p5)* | ethlin • | parlia • efpahi • PR | 1.00 | 1 | LT |
| *(p6)* | NOCOM • | parlia • EFPAHI • pr | 0.86 | 2 | MX, EC |
| *(p7)* | nocom • | efpahi • PR | 0.85 | 3 | BU, MO, AI |
| *(p8)* | nocom • | PARLIA • efpahi | 0.75 | 3 | BU, AL, LT |
| *(p9)* | – | PARLIA • PR | 0.70 | 13 | BU, CZ, GR, HU, PO, RO, SK, SL, SP, TU, AL, EST, LAT |
| *(p10)* | – | PARLIA • EFPAHI • PR | 0.78 | 10 | CZ, GR, HU, PO, RO, SK, SL, SP, TU, EST, LAT |

fulfil the sufficiency criteria that we established at the outset of the analysis. The outcome of the fs/QCA analysis corresponds to the widely shared common view that CoD (and many other phenomena, for that matter) is characterized by conjunctural causation. This means that combinations of factors jointly produce CoD, not single variables in isolation; this leads to equifinality – that is, different conjunctions lead to the same outcome (not one single path in all cases).

Let us now confront the two-step procedure with the simpler and more common strategy of analyzing all six remote and three proximate conditions in only one analytic step with nine conditions. This creates severe analytic problems. First, the amount of limited diversity increases dramatically: out of the $2^9 = 512$ logically possible combinations, a total of 485 lack empirical evidence. Hence, many more theoretically questionable assumptions about these logical remainders influence the final result. Second, if we use the same parameters, variables and cases for this conventional one-step procedure and use the most conservative strategy for dealing with the logical remainders (i.e., all are assumed to have the outcome value of 0), no less than 16 causal paths appear,[40] some of which are composed of up to nine components. Even the most parsimonious strategy in which the computer a-theoretically simulates outcome values for logical remainders still produces eight different[41] paths. Without any doubt, this kind of result is highly complex, making theoretically meaningful interpretations difficult. In sum, a one-step fs/QCA analysis does not adequately tackle the problem of limited diversity and leads to results that are difficult to interpret .

*Interpretation of the results*

Earlier, we introduced the notion of power dispersion and formulated the general expectation that different contexts require different degrees of power dispersion, and that institutions are capable of registering such dispersion. We now come back to the interpretation of the empirical results in the light of the expectations generated by the power dispersion approach. In terms of context conditions, we claim – together with many scholars (e.g., Horowitz 1985; Lijphart 1977) – that ethno-linguistic heterogeneity (ethlin) requires power dispersion. Furthermore, modernization theory claims that economic development (ECON) also induces a need for power dispersion through an increasing differentiation of society. In contrast, from the literature one can derive the claim that the lack of high levels of economic development (econ) and a long former communist past (nocom) both require the implementation of a more power concentrating type of democracy.[42]

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For the institutional configuration, the following categorization can be put forward. First, in the category of power *dispersing* institutional configurations, we find the combination of a (semi-)presidential system with a high number of parties in parliament (parlia · EFPAHI). In addition to this, we find the combination parlia · EFPAHI · pr, a subset of the former, which simply adds the criterion of having a majoritarian electoral system. Latin American countries such as Argentina, Mexico or Brazil, but also Poland, fall into this category. Second, in the category of power-dispersing *neutral* institutional configurations, we find (a) the combination of a presidential system with few parties and a proportional electoral system (parlia · efpahi · PR), (b) parliamentary systems with a proportional electoral system with or without many parties (PARLIA · PR + PARLIA · EFPAHI · PR), and (c) few parties and a proportional representation electoral system (efpahi · PR).[43] Third, the category of power *concentrating* institutional configurations contains only the combination of a parliamentary system with a low number of parties (PARLIA · efpahi). Countries such as Bulgaria, Lithuania or Mongolia, but also Greece, fall into this category.

Figure 5 displays the result of the fs/QCA analysis based on the power distribution scheme introduced above. The columns in the nine-fold cross-tabulation separate the CoD enhancing contexts according to the degree of power dispersion they establish, ranging from power dispersion on the left to power concentration on the right. Similarly, the three rows differentiate the different institutional configurations, or democracy types, according to their power dispersion capacity. Figure 5 follows the same logic as Figure 4. This time, the cell entries ($p_1$–$p_{10}$) indicate the different sufficient causal conjunctions for CoD that have been calculated by the two-step fs/QCA analysis and are also displayed in Table 4. The general expectation was that democracy

|  |  | | **Context creates need for:** | | |
|---|---|---|---|---|---|
|  |  | | *Power dispersion* | *Neutral* | *Power concentration* |
|  |  | *Type of democracy* | ECON/ethlin | ETHLIN/NOCOM/*no con* | econ/nocom |
| **Institutional configuration is** | *Power dispersing* | parlia·EFPAHI<br>parlia·EFPAHI·pr | p1[a] | p3<br>p6 |  |
|  | *Neutral* | PARLIA·[EFPAHI]·PR<br>parlia·efpahi·PR<br>efpahi·PR | p5 | [p10] p9 | p7 |
|  | *Power concentrating* | PARLIA·efpahi |  | p4 | p2      p8 |

Note: [a] cell entries p1–p10 indicate the different combinations of contexts and institutional configurations that form sufficient paths towards COD from Table 4.

*Figure 5.* Fit of power dispersion between remote contexts and proximate democracy type and its impact on CoD: Empirical findings.

consolidates if the type of democracy implemented matches the degree of power dispersion required by the societal context. The analysis should not display any sufficient path towards CoD that combines either a context that requires power distribution with power concentrating institutional configurations, or a context that requires power concentration with power dispersing institutions. And, in fact, the respective cells – the lower left and upper right cells – are empty. None of the consolidated democracies in our data has implemented either a power concentrating type of democracy in an ethnolinguistically heterogeneous or socio-economically developed context. Nor is there any case of CoD with a power dispersing democracy in a socio-economically less developed context or in former Soviet republics. Hence, none of the causal conjunctions that were identified as sufficient conditions for CoD contradict the theoretical expectations.

In sum, the fs/QCA-based two-step analysis contributes to the development of complex hypotheses on the causes of CoD. This result has several theoretical implications. In contrast to many modernization-theory-based claims, we find that there are no necessary preconditions for CoD. Instead, some democracies consolidate in unfavourable conditions, while others fail to consolidate in favourable contexts. The reason for this seems to be the choice of an (in)appropriate configuration of institutions. This also implies that there is no type of democracy – and much less a single institutional feature – that is *a priori* better for CoD. What matters instead is the fit with the context.

## Conclusion

In this article we started out with the argument put forward by Charles Ragin (2000) that complex causal statements in terms of necessary and sufficient conditions can be appropriately framed using set relations between causes and the outcome. In principle, we see QCA techniques as one appropriate methodological tool for assessing complex causal theories – especially in mid-size N designs – and thus for enabling the researcher to bring together methodology and ontology (Hall 2003). We argued that QCA techniques are not always free from problems though: overly complex results and limited diversity are common (although not QCA-specific) phenomena in real-world research situations. In response to these problems, we proposed an analysis in two steps: organized in remote factors, on the one hand, and proximate factors, on the other.

In our understanding, such an approach has several advantages. First, it offers a practical solution to the general need to contextualize causal

statements and thus to formulate middle-range theories. Second, it reduces the problem of limited diversity, thus enabling the researcher to follow a conscious and theory-guided approach to the phenomenon of logical remainders (i.e., those ubiquitous logically possible combinations of condition variables for which comparative social scientists do not have empirical evidence at hand). And third, it more adequately reflects the (often implicit) structure of many social scientific hypotheses (i.e., theories that distinguish between contextual causal factors and more directly operating conditions). Compared to a standard one-step fs/QCA analysis, we claimed that the results from the two-step procedure are not only more likely to better correspond to the basic structures of typical hypotheses in macro-social research, but that they are also less complex and thus easier to embed in the scientific discourse. In fact, more often than one would wish, a one-step fs/QCA approach leads to hyper-complex and close-to-unintelligible results. In short, a two-step approach is a methodological tool that allows formulating and testing theoretically more insightful and convincing causal statements based on a more conscious treatment of logical remainders.

For the empirical application of the two-step fs/QCA approach, we analyzed the causes for CoD in 32 (neo-)democracies. We designed the first step in a possibilistic way in order to discover the contexts that *enable* the occurrence of the outcome. In this first step, some analytical criteria were relaxed in order to obtain parsimonious statements on outcome-fostering contexts, leaving room for further specification of the causal argument when introducing the proximate factors. The second step then combined proximate factors with the specific remote contexts, applying stricter parameters. The result of our analysis showed that new insights about the causes of CoD can be achieved with the two-step approach: new democracies consolidate if the specific combination of political institutions chosen fit the societal context in terms of power dispersion. We believe that this is a far from trivial finding since this straightforward-sounding basic cause (Lieberson 1985) – fit of institutions and contexts – can empirically manifest itself in different forms. Put differently, even under adverse conditions, there exists a chance to consolidate democracies through skilful institutional choice and adaptation. This implies that there are neither strong societal preconditions, nor generally superior types of democracy for CoD. The fact that there are different paths leading to CoD (i.e., conjunctural and equifinal causation) creates severe methodological challenges to which a two-step fs/QCA approach offers a partial solution. Consequently, without applying a context-sensitive two-step module of fs/QCA, which corresponds to the way in which our hypotheses were built, we would have been less likely to detect this specific interplay between remote contextual and proximate institutional variables.

In sum, this article offered a novel perspective on a familiar methodological problem in comparative social science – namely, how to test complex causal hypotheses in mid-size N studies. As there are clear and well-known limits of standard statistical techniques in such a research situation, we showed the potential of fs/QCA and its two-step module for overcoming some of the shortcomings. While we demonstrated the application of this approach with an example from the regime consolidation literature, we think that virtually all major fields of comparative social research can make use of the two-step procedure as well. Future research will show that the field of applicability is very broad. Without doubt, the two-step fs/QCA approach is but one possibility to develop the potential usefulness of fs/QCA as an additional methodological tool in comparative social sciences.

## Acknowledgements

## Notes

1. The development of QCA is closely related to the discussion between more qualitatively and more quantitatively oriented scholars that has gained new momentum since the early 1990s (see King et al. 1994; Mahoney & Rueschemeyer 2003; Brady & Collier 2004).
2. There is also a third version – namely, Multi-Value QCA (MVQCA) that extends the range of possible values to discrete figures other than 0 and 1 (for details, see Cronqvist 2003).
3. We use 'fs/QCA' as an acronym, as the dichotomies, which are central to the older variant of QCA, are in fact no more than a special case of a fuzzy set.
4. It is important to notice that other types of causal complexity exist. Path dependency approaches, critical juncture arguments or accounts based on contingent events are not (necessarily) based on set relations and thus fs/QCA may not be the appropriate method for testing such hypotheses (see Bennett & George 1997; Mahoney 2000a, 2003: 363ff). For some first attempts to insert a time dimension into the QCA algorithm, see Caren & Panofski (2005).

5. A '·' is a logical AND that indicates both factors must be simultaneously present; one factor alone would not produce the outcome. A '+' is a logical OR that indicates that either of the two factors (or both) would lead to the outcome.

6. 'In systems theory, this topic goes by the name of "equifinality", a property present in any system in which similar ends can be achieved via different means. In the social science literature, this term is sometimes used . . . , though "causal complexity" is more common. The philosophy of science literature refers to "causal chains" or "causal ropes", both of which have a prominent and well-established lineage dating back at least to Venn' (Braumoeller 2003: 210, footnote 3).

7. Capital letters indicate the presence of a factor, and small letters its negation.

8. Furthermore, it has been argued that statements about necessity and sufficiency imply deterministic relations between variables and are thus impracticable for empirical social research based on observational data. One important issue to bear in mind when talking about determinism is that the meaning of deterministic causation differs between research traditions. In qualitative comparative research, deterministic causation indicates the presence of necessary and sufficient conditions, while in quantitative statistical parlance, determinism refers to models in which the error term is specified to be zero (Seawright 2002: 179, footnote 3). In addition to this, and as will become clear in the subsequent empirical analysis, recent developments in the application of fuzzy set theory based algorithms for analyzing data allow for deviations from fully deterministic patterns and thus measurement error and omitted variables can be accounted for to a certain degree (Braumoeller & Goertz 2000; Goertz 2003; Ragin 2000: 223, 2003).

9. The exclusive application of regression is likely to lead to a vicious circle in which the use of simplifying methods leads to theorizing with a bias towards simple causal statements. This, in turn, is then used as a justification for the application of those methods that can only deal with simple causation. Braumoeller (1999: 3) puts it aptly: '[T]the premise of parsimony becomes a conclusion. . . . The primary danger inherent in such a situation is that theoretical complexity in statistical studies will dwindle until theories are no more nuanced than the techniques that are brought to bear in testing them.'

10. Quantitatively oriented scholars might call this heteroskedasticity and see it as an obstacle; however, it is seen as desirable in context sensitive case analyses (Mahoney 2000b: 397).

11. For an early discussion of the methodological problems involved when dealing with complex causality within the framework of statistical techniques, see Alker (1966). For more recent interesting attempts to overcome these problems within the framework of statistical techniques, see Braumoeller (1999, 2003). However, his suggestions all seem to depart from the precondition that a high number of cases can be included in the analysis, which is often not the case for many of the most interesting comparative research questions.

12. Notice that 'special (or deviant) cases' in fs/QCA are both conceptually and empirically different from outliers in regression analysis. This observation has important implications on how to use findings generated with these two methods in subsequent in-depth case analysis.

13. Introducing an interaction term would allow for the detection of the fact that diversity is limited in the data set. In fact, the model could not be estimated. However, neither is the use of interaction effects as a diagnostic means a common practice, nor is it a viable option if the N is low (and the situation less extreme than in the stylized example presented here).

14. For instance, socio-economic development is believed to change the societal structure in a democracy-fostering way, whereas (certain types of) parliamentary systems are believed to organize the political processes within the governmental system more adequately for democratic survival – regardless of the societal structure.

15. Furthermore, our approach does not privilege any of the possible links between remote and proximate factors as they are spelled out in Goertz and Mahoney's (2005) idea of two-level theories. Our suggestion is rather methodological, and it depends on the theory tested with our approach whether remote and proximate factors are in a causal, ontological or substitutable relation; either of the three is possible.

16. The numerous variants of neo-institutionalism (see Hall & Taylor (1996) for a categorization of the 'historical', 'rational choice' and 'sociological' variants) differ in many respects. However, they hold in common the fact that they are responses to pure behaviouralist views of policy making, and that they all emphasize some kind of institutions within which social action is embedded (DiMaggio & Powell 1991: 2, 5; Hall & Taylor 1996: 937; Hollingsworth 2000: 615; Kato 1996: 556; Shepsle 1989: 133; Thelen & Steinmo 1992: 1). Indeed, this basic idea of social action (proximate factors) occurring in institutionally constrained arenas (remote conditions) seems to be confirmed by all kinds of empirical research. Social actors are exposed both to conditions that they have the capacity (power, resources and knowledge) to change and to other conditions that cannot be influenced by the actors.

17. More specifically, possible examples of remote factors in terms of historical legacies are: previous democratic experiences in the case of consolidation of democracy; a long presence in government in the case of political parties; lengthy participation in a corporatist agreement in the case of interest groups; and experiences with war in the case of participation in peace missions. Remote factors that are not directly historically shaped include: ethnic cleavages and socio-demographic parameters in the case of country studies; the decision space accorded to political parties by the constitution; and the general role of interest groups in a given democracy. Examples of proximate factors include: currently discussed political issues in the case of research on the positioning of political parties; interest domains and membership affiliations in the case of interest groups; and opinion leadership in the case of social movements.

18. In general, $2^k$ logically possible combinations exist. However, since at least one of these combinations has to be present in any case, the maximum number of logical remainders is $2^k - 1$. This formula merely helps us to illustrate our argument. In reality, the number of maximum assumptions will be (much) lower than $2^k - 1$, mainly depending on the number and variety of cases analyzed.

19. The graph displays the situation from $k = 4$ onwards as any division of a number of variables lower than 4 into two separate groups does not make sense.

20. Recalculating this to answer the question of just how many simplifying assumptions can actually be saved by applying a two-step approach, the results are the following: at least $2^k - 1 - (2 + 2^{k-2}) = 2^k - 2^{k-2} - 3$ maximum simplifying assumptions can be saved ('worst case scenario'), with a saving of $2^k - 1 - (2 \cdot 2^{k/2} - 2) = 2^k - 2 \cdot 2^{k/2} + 1$ with an even number of variables, and $2^k - 1 - (2^{k/2-0.5} + 2^{k/2+0.5} - 2) = 2^k - 2^{k/2-0.5} - 2^{k/2+0.5} + 1$ with an uneven number of variables.

21. Future analysis could include the territorial division of competencies (federal versus unitary states) and the system of interest representation (corporatist versus pluralist systems) as additional features to describe democracy types.

22. Contrary to the standards of good practices (see Ragin & Rihoux 2004), we do not dwell on the (re-)selection of cases. Hence, no cases are dropped or added throughout the analysis; nor do we explain and recalibrate the fuzzy set membership scores assigned to cases (for more detailed information on this, see Schneider 2004).

23. To some extent, the discussion of the vices and virtues of presidentialism versus parliamentarism suffers from the fact that it constitutes only an imperfect representation of this dimension of power dispersion. Depending on the institutional configuration in which presidential or parliamentary systems are embedded, both systems can be power dispersing or power concentrating (see, e.g., Tsebelis 2002). One simple illustration of this is the case of the British prime minister Tony Blair, backed by an almighty parliamentary majority consisting of his own party, with, say, the former Brazilian president, Henrique Fernando Cardoso, who frequently had to confront a majority of opposition forces in both chambers and was supported only by an undisciplined (and over time: vanishing) faction of his own party coalition. Of course, the power dispersing characteristics of institutional configurations, or types of democracy, can be refined (most likely *ad infinitum*). The president's veto powers, the extent of the Prime Minister's rights in appointing a cabinet, immunity for the president and the prime minister and so on all make a difference to how powerful these institutional roles are (Mainwaring & Shugart 1997: 463–469).

24. The implementation of a parliamentary system with a majoritarian electoral system and low party fragmentation in an ethnically, religiously and/or linguistically divided society is likely to do more harm to the chances for CoD than a presidential system. Structural minorities are doomed to eternal electoral defeat with no chance to counterbalance the power of the omnipotent prime minister via a directly elected president or a reasonably effective opposition in parliament. In short, there is no single best type of democracy, and the fate of democracy in unfavourable contexts depends on skillful institutional choices and adaptations.

25. The term 'path' is used in order to refer to the causal conjunctions that combine remote and proximate factors; it is not related to any sequence of events in the sense used in path dependence models.

26. The concept of middle-range theories (Merton 1957; Esser 2002) not only offers a suggestive label for the type of hypothesis we propose, but it is also an appropriate conceptual framework for thinking about the task of how to formulate and test them. Middle-range theories denote the relations between causes and outcome that are bound in time and space. These scope conditions have to be explicitly integrated into the hypothesis and are thus not simply variables that are controlled for. The concept of middle-range theories is also appealing because it is characterized by the combination of a simple idea (in our case, the fit of institutions to contexts in terms of power dispersion) with the capacity to integrate otherwise dispersed hypotheses and empirical regularities (e.g., the frequently found correlations between parliamentarism and CoD or economic development and CoD). Due to their clearly stated limitations in time and space, middle-range theories lend themselves as building blocks for the development of more general theories in further research. The scope of middle-range theories is not necessarily limited to certain regions (area studies), but this can also refer to policy studies or research in political economy where national economies were recently grouped according to their institutional specificity (Hall & Soskice 2001).

27. In statistical terms, this model is a 6th-order interaction term, a model that is practically not estimable.

28. The consistency value expresses the degree to which the fuzzy set membership scores of all cases in a combination are consistent with the statement that this combination of conditions is sufficient for the outcome.

29. It is a fuzzy set theoretical rule that each element holds a membership score higher than 0.5 in only one causal combination (for the onlty exception to this rule, see Ragin 2000: 184ff).

30. We use a cut-off value of 0.7 for consistency. This means that 70 per cent of the cases' fuzzy membership scores in a causal combination must be consistent (i.e., they must lie above the main diagonal in the x-y plot).

31. We use the threshold of at least one case with a membership in the causal combination higher than 0.5 as indicated in column 'N'.

32. These rows are collapsed in Table 3.

33. See Ragin (2004) for the reason why the fuzzy truth table algorithm leads to different results and is preferable to the strategy of recoding fuzzy membership scores into crisp sets at the beginning of the analysis.

34. One of the most analytically fruitful features of fs/QCA is that one can also specify the non-occurrence of the outcome as a dependent variable. Social scientific theories are not always symmetric (i.e., the explanation of the occurrence of the outcome does not directly lead to the explanation for its non-occurrence) (Lieberson 1985).

35. The fuzzy set theoretical reason for this is straightforward. In order to calculate the membership of a case in the conjunction ABC, the minimum of its membership over A, B and C is taken (Klir et al. 1997). Hence, the membership in ABC over all cases will always be lower than (or in one case equal to) the membership over all cases in A, B, C or any bivariate combination of these. Generally speaking, adding conditions to a conjunctural solution term lowers the membership of cases in the conjunctural solution.

36. Here a note of caution is apt. Like all data processing methods, QCA and fs/QCA present a complexity reduced version – a particular perspective on the data, so to speak. The perspective, and thus the representation of the data, changes with the test parameters chosen. Had we chosen to set the non-existing cases to 'false' (the blanket assumption, see above) and not allowed the computer to simulate outcome values for these non-existing cases, then of course the result would be different.

37. The recalculation of consistency is necessary because the simplification of the causal combinations that pass the first test of consistency (shown in Table 3) changes the consistency values. In general, reducing the complexity of consistent causal combination is likely to introduce inconsistency.

38. This means that for each of the $2^4$ conjunctions, the threshold is a consistency value of 0.7 and at least one case has to have a membership higher than 0.5 in this conjunction. Conjunctions passing the criteria for consistency and empirical existence are seen as sufficient causes for CoD and thus the outcome value assigned to them is 1. Inconsistent but existing conjunctions are seen as insufficient conjunctions for CoD and thus their outcome value is 0. Combinations with no case having a membership higher than 0.5 are treated as logical remainders.

39. Notice that instead of excluding all simplifying assumptions, it is also possible to make use of 'easy counterfactuals' (see above and Ragin & Sonnett 2004).

40. LITERA*ethlin*SMALPOP*demex*noncom*PARLIA*EFPAHI*PR                    +
    econ*LITERA*ETHLIN*SMALPOP*demex*noncom*PARLIA*EFPAHI                   +
    econ*ETHLIN*SMALPOP*demex*noncom*PARLIA*EFPAHI*PR                       +

ECON*LITERA*ETHLIN*SMALPOP*noncom*PARLIA*EFPAHI*PR            +
ECON*LITERA*ETHLIN*SMALPOP*DEMEX*NONCOM*EFPAHI*PR            +
ECON*LITERA*ETHLIN*SMALPOP*DEMEX*NONCOM*PARLIA*PR            +
econ*LITERA*ethlin*SMALPOP*demex*NONCOM*parlia*EFPAHI*pr            +
econ*litera*ETHLIN*smalpop*demex*noncom*PARLIA*EFPAHI*PR            +
ECON*LITERA*ETHLIN*smalpop*demex*NONCOM*parlia*EFPAHI*pr            +
ECON*LITERA*ETHLIN*smalpop*demex*noncom*parlia*EFPAHI*PR            +
ECON*LITERA*ethlin*smalpop*demex*NONCOM*parlia*EFPAHI*PR            +
econ*LITERA*ethlin*SMALPOP*demex*noncom*parlia*EFPAHI*PR            +
econ*LITERA*ETHLIN*smalpop*DEMEX*NONCOM*parlia*EFPAHI*PR            +
econ*litera*ETHLIN*smalpop*demex*NONCOM*PARLIA*EFPAHI*PR            +
ECON*LITERA*ethlin*smalpop*DEMEX*NONCOM*PARLIA*EFPAHI*PR            +
econ*litera*ETHLIN*SMALPOP*DEMEX*NONCOM*parlia*EFPAHI*PR → COD

41. ECON + DEMEC + PARLIA + LITERA*NOCOM + efpahi
(nocom + ethlin + LITERA + CLOSE) → COD

42. Ethno-linguistic homogeneity (ETHLIN) and no former communist past (NOCOM), instead, do not generate *per se* the need for either the concentration or the dispersion of political power.

43. It is always important to remember that the classification of institutional configurations in terms of their power distributing effect applies to the conjunction as a whole. The effect of single elements of the conjunction, such as the system of government or the party system type, cannot be directly inferred from the effect of the conjunction. Interpreting single elements of a conjunction in isolation is a mistake in interpreting fs/QCA results because it clearly violates the fundamental conjunctural logic of this approach.

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