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# Configurational comparative methods: A guided bibliography

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## To the reader

The purpose with this document is to provide students and other beginners with a guided overview of methodological literature on configurational comparative methods (CCMs, sometimes also ‘set-theoretic methods’, or ‘Qualitative comparative analysis’ (‘QCA’)).<sup>1</sup> The bibliography is divided into eight sections (A–H). The first two (A and B) include introductory literature – general introductions and introductions to software. You should be able to use the main CCMs (csQCA and fsQCA) in your own research project (e.g. master’s thesis) after a careful reading of selected titles from these two blocks.<sup>2</sup> The third section (C) lists literature that deal with the less known variants of CCMs, i.e. mvQCA, gsQCA and CNA. Section (D) lists more advanced methodological contributions on CCMs while section (E) lists special issues and symposia debating the pros and cons of CCMs. Section (F) continues with studies discussing CCMs and multi-method research. Section (G) includes reviews. In section (H), finally, I list useful websites and blogs. Like (A) and (B), the last two sections include essential reading for people new to CCMs. Each section lists the entries according to the year of publication, with the oldest title appearing first. All entries are in English, except two general textbooks. For each section, I include a brief guide to the literature. The PDF symbol (📄) appears after journal articles available online. By clicking on the symbol, you are directed to a web page where you can (buy and) download the article as a PDF file (or read its HTML version, if you for some obscure reason prefer that).

My intention is to update this document as new publications appear. If there is a publication (book, article, chapter) that you think should be added to the bibliography, please contact me.




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<sup>1</sup> Methods included in the family are crisp-set QCA (csQCA), fuzzy-set QCA (fsQCA), generalized-set QCA (gsQCA), multi-value QCA (mvQCA) and Coincidence Analysis (CNA).

<sup>2</sup> You should, of course, also read general literature on research design and research methods. It is beyond the topic of this bibliography to discuss such literature. An excellent starting point is, however, *Social science methodology: A unified framework* by John Gerring (Cambridge University Press, 2012).

## A. General introductions to CCMs

This section lists titles that offer general introductions to CCMs. If you are completely new to the topic, I suggest that you start by reading [A12] and then continue with [A15]. The (by now classical) works by Charles C. Ragin [A1, A2, A6] are also recommended.

- [A1] Ragin CC (1987) *The comparative method: Moving beyond qualitative and quantitative strategies*. Berkeley: University of California Press.
- [A2] Ragin CC (2000) *Fuzzy-set social science*. Chicago: University of Chicago Press.
- [A3] De Meur G, Rihoux B (2002) *L'analyse quali-quantitative comparée (AQQC-QCA): Approche, techniques et applications en sciences humaines*. Louvain-la-Neuve: Academia-Bruylant.
- [A4] Smithson M, Verkuilen J (2006) *Fuzzy set theory: Applications in the social sciences*. (Quantitative Applications in the Social Sciences, no 147.) Thousand Oaks, CA: SAGE Publications.
- [A5] Schneider CQ, Wagemann C (2007) *Qualitative Comparative Analysis und Fuzzy Sets: Ein Lehrbuch für Anwender und jene, die es werden wollen*. Opladen: Verlag Barbara Budrich.
- [A6] Ragin CC (2008) *Redesigning social inquiry: Fuzzy sets and beyond*. Chicago: University of Chicago Press.
- [A7] Caramani D (2009) *Introduction to the comparative method with Boolean algebra*. (Quantitative Applications in the Social Sciences, no 158.) Thousand Oaks, CA: SAGE Publications.
- [A8] Rihoux B, Ragin CC (eds) (2009) *Configurational comparative methods: Qualitative comparative analysis (QCA) and related techniques*. (Applied Social Research Methods Series, vol. 51.) Thousand Oaks, CA: SAGE Publications.
- [A9] Grofman B, Schneider CQ (2009) An introduction to crisp set QCA, with a comparison to binary logistic regression. *Political Research Quarterly* 62(4), pp. 662–672. 
- [A10] Schneider CQ, Wagemann C (2010) Qualitative comparative analysis (QCA) and fuzzy-sets: Agenda for a research approach and a data analysis technique. *Comparative Sociology* 9(3), pp. 376–396. 
- [A11] Wagemann C, Schneider CQ (2010) Standards of good practice in Qualitative comparative analysis (QCA) and fuzzy-sets. *Comparative Sociology* 9(3), pp. 397–418. 
- [A12] Schneider CQ, Wagemann C (2012) *Set-theoretic methods for the social sciences: A guide to Qualitative comparative analysis*. (Strategies for Social Inquiry.) Cambridge: Cambridge University Press.




- [A13] Legewie N (2013) An introduction to applied data analysis with Qualitative comparative analysis. *Forum: Qualitative Social Research* 14(3), pp. 1–45. 
- [A14] Wagemann C, Schneider CS (2015) Transparency standards in Qualitative comparative analysis. *Qualitative and Multi-Method Research* 13(1), pp. 38–42. 
- [A15] Thiem A (2017) Conducting configurational comparative research with Qualitative comparative analysis: A hands-on tutorial for applied evaluation researchers and practitioners. *American Journal of Evaluation* 38(3), pp. 420–433. 

## B. CCM software

This section focuses on software. Empirical research using CCMs is often conducted using R, Stata, fs/QCA or Tosmana. Using R is recommended, but beginners not familiar with this environment might do well in starting with fs/QCA or Tosmana. fs/QCA (current version 3.0) is introduced in [B6], Tosmana (version 1.6) in [B5]. (Note that fs/QCA is designed for csQCA and fsQCA, Tosmana for csQCA, mvQCA and, since version 1.5, fsQCA.)

If you use R, there are two main packages to consider; QCA (current version 3.3) [B7, B10] or QCAPro (current version 1.1-2) [B9]. Both packages have a common ancestor, introduced in [B3] and [B4]. Observe that QCA and QCAPro should not be loaded in the same R session because some object and function names still overlap. The package SetMethods [B8] was originally a companion package to [A12] above but includes also functions for performing multi-method research within the CCM framework.

Other software is also available (see e.g. [B2]). For pedagogical reasons, I only include the most commonly used in this bibliography. Readers interested in other solutions than those mentioned here should check out [H1] below.



- [B1] Longest KC, Vaisey S (2008) fuzzy: A program for performing qualitative comparative analyses (QCA) in Stata. *Stata Journal* 8(1), pp. 79–104. 
- [B2] Robinson C (2013) Contradictions in fsQCA. *Quality and Quantity* 47(5), pp. 2847–2867. 
- [B3] Thiem A, Duşa A (2013a) Boolean minimization in social science research: A review of current software for Qualitative comparative analysis (QCA). *Social Science Computer Review* 31(4), pp. 505–521. 
- [B4] Thiem A, Duşa A (2013b) *Qualitative comparative analysis with R: A user's guide*. New York: Springer.

- [B5] Cronqvist L (2016) Tosmana. Manual available at [https://www.tosmana.net/downloads/tosmana\\_manual1\\_52.pdf](https://www.tosmana.net/downloads/tosmana_manual1_52.pdf).
- [B6] Ragin CC (2017) User's guide to Fuzzy-set/Qualitative comparative analysis. Manual available at <http://www.socsci.uci.edu/~cragin/fsQCA/download/fsQCAManual.pdf>.
- [B7] Duşa A (2018) QCA: Qualitative comparative analysis. [R package, version 3.3.] Manual available at <https://cran.r-project.org/web/packages/QCA/QCA.pdf>.
- [B8] Medzihorsky J, Oana I-E, Quaranta M, Schneider CQ (2018) SetMethods: Functions for set-theoretic multi-method research and advanced QCA. [R package, version 2.3.1.] Manual available at <https://cran.r-project.org/web/packages/SetMethods/SetMethods.pdf>.
- [B9] Thiem A (2018) QC Apro: Advanced functionality for performing and evaluating Qualitative comparative analysis. [R package, version 1.1-2.] Manual available at <https://cran.r-project.org/web/packages/QCApro/QCApro.pdf>.
- [B10] Duşa A (2019) *QCA with R: A comprehensive resource*. New York: Springer.

### C. More on variants of CCMs















Although you get a fairly good general understanding of the main techniques (csQCA and fsQCA) by reading the titles in section (A), there may be situations where you need additional information. gsQCA and CNA are not fully introduced in any of the titles in (A), and interested readers should check out [C7] (CNA) and [C12] (gsQCA) for details. If you are interested in mvQCA, read textbooks and [C10]. [C1] and [C2] give introductions to MSDO/MDSO<sup>3</sup>, a pre-QCA strategy involving a systematic matching and pairing of cases (see also [H2] below). [C4] presents temporal QCA (TQCA) and [C5] discusses QCA with remote and proximate explanatory factors. These extensions are also discussed in the main textbooks listed in section (A).


[C8], [C9], [C11] and [C13] debate how multilevel data should be analyzed within the CCM framework. [C14] to [C17] present and discuss Necessary condition analysis (NCA).

- [C1] De Meur G, Berg-Schlosser D (1994) Comparing political systems: Establishing similarities and dissimilarities. *European Journal of Political Research* 26(2), pp. 193–219. 
- [C2] De Meur G, Berg-Schlosser D (1996) Conditions of authoritarianism, fascism, and democracy in interwar Europe: Systematic matching and contrasting of cases for ‘small N’ analysis. *Comparative Political Studies* 29(4), pp. 423–468. 

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<sup>3</sup> Most similar with different outcome/Most different with similar outcome.






- [C3] Goertz G, Mahoney J (2005) Two-level theories and fuzzy-set analysis. *Sociological Methods and Research* 33(4), pp. 497–538. 
- [C4] Caren N, Panofsky A (2005) TQCA: A technique for adding temporality to Qualitative comparative analysis. *Sociological Methods and Research* 34(2), pp. 147–172. 
- [C5] Schneider CQ, Wagemann C (2006) Reducing complexity in Qualitative comparative analysis (QCA): Remote and proximate factors and the consolidation of democracy. *European Journal of Political Research* 38(1), pp. 71–101. 
- [C6] Vink MP, Van Vliet O (2009) Not quite crisp, not yet fuzzy? Assessing the potentials and pitfalls of multi-value QCA. *Field Methods* 21(3), pp. 265–289. 
- [C7] Baumgartner M (2009) Inferring causal complexity. *Sociological Methods and Research* 45(5), pp. 751–786. 
- [C8] Denk T (2010) Comparative multilevel analysis: Proposal for a methodology. *International Journal of Social Research Methodology* 13(1), pp. 29–39. 
- [C9] Rohlfing I (2012) Analyzing multilevel data with QCA: A straightforward procedure. *International Journal of Social Research Methodology* 15(6), pp. 497–506. 
- [CI0] Thiem A (2013) Clearly crisp, and not fuzzy: A reassessment of the (putative) pitfalls of multi-value QCA. *Field Methods* 25(2), pp. 197–207. 
- [CI1] Denk T, Lehtinen S (2014) Contextual analyses with QCA-methods. *Quality and Quantity* 48(6), pp. 3475–3487. 
- [CI2] Thiem A (2014) Unifying configurational comparative methods: Generalized-set Qualitative comparative analysis. *Sociological Methods and Research* 43(2), pp. 313–337. 
- [CI3] Thiem A (2016) Analyzing multilevel data with QCA: Yet another straightforward procedure. *Quality and Quantity* 50(1), pp. 121–128. 
- [CI4] Dul J (2016) Necessary condition analysis (NCA): Logic and methodology of “necessary but not sufficient” causality. *Organizational Research Methods* 19(1), pp. 10–52. 
- [CI5] Vis B, Dul J (2018) Analyzing relationships of necessity not just in kind but also in degree: Complementing fsQCA with NCA. *Sociological Methods and Research* 47(4), pp. 872–899. 
- [CI6] Thiem A (2018) The logic and methodology of “necessary but not sufficient causality”: A comment on Necessary condition analysis (NCA). *Sociological Methods and Research*, advance online publication. 

- [CI7] Dul J, Vis B, Goertz G (2018) Necessary condition analysis (NCA) does exactly what it should do when applied properly: A reply to a comment on NCA. *Sociological Methods and Research*, advance online publication. 















## D. CCMs in practice

This large section<sup>4</sup> includes titles that focus on various different phases and aspects of CCM research. Many discuss quite advanced issues, but a number of articles are definitely worth a reading also for beginners. [D1] on the selection of conditions, for example, is recommended, as is also [D2] on calibration strategies. [D4] introduces consistency and coverage measures, and [D10] discusses robustness issues. [D14] might also be good reading for people new to CCMs.














It is also good to know something about the critique towards CCMs. [D11] and [D16] are examples of critical articles. For responses, see [D31] and also [E6-i] (and E6-ii).

- [D1] Amenta E, Poulsen JD (1994) Where to begin: A survey of five approaches to selecting independent variables for Qualitative comparative analysis. *Sociological Methods and Research* 23(1), pp. 22–53. 
- [D2] Verkuilen J (2005) Assigning membership in a fuzzy set analysis. *Sociological Methods and Research* 33(4), pp. 462–496. 
- [D3] Ragin CC, Sonnett J (2005) Between complexity and parsimony: Limited diversity, counterfactual cases, and comparative analysis. In S Kropp, M Minkenberg, eds. *Vergleichen in der Politikwissenschaft*. Wiesbaden: VS Verlag für Sozialwissenschaften, pp. 180–197.
- [D4] Ragin CC (2006) Set relations in social research: Evaluating their consistency and coverage. *Political Analysis* 14(3), pp. 291–310. 
- [D5] Goertz G (2006) Assessing the trivialness, relevance, and relative importance of necessary or sufficient conditions in social science. *Studies in Comparative International Development* 41(2), pp. 88–109. 
- [D6] Ragin CC (2008) Measurement versus calibration: A set-theoretic approach. In JM Box-Steffensmeier, HE Brady, D Collier, eds. *The Oxford handbook of political methodology*. Oxford: Oxford University Press, pp. 174–198.
- [D7] Herrmann AM, Cronqvist L (2009) When dichotomisation becomes a problem for the analysis of middle-sized datasets. *International Journal of Social Research Methodology* 12(1), pp. 33–50. 

<sup>4</sup> I might split it into several sections the future. Suggestions are welcomed.

- [D8] Eliason SR, Stryker R (2009) Goodness-of-fit tests and descriptive measures in fuzzy-set analysis. *Sociological Methods and Research* 38(1), pp. 102–146. 
- [D9] Marx A (2010) Crisp-set Qualitative comparative analysis (csQCA) and model specification: Benchmarks for future csQCA applications. *International Journal of Multiple Research Approaches* 4(2), pp. 138–158. 
- [D10] Skaaning S-E (2011) Assessing the robustness of crisp-set and fuzzy-set QCA results. *Sociological Methods and Research* 40(2), pp. 391–408. 
- [D11] Hug S (2013) Qualitative comparative analysis: How inductive use and measurement error lead to problematic inference. *Political Analysis* 21(2), pp. 252–265. 
- [D12] Glaesser J, Cooper B (2014) Exploring the consequences of a re-calibration of causal conditions when assessing sufficiency with fuzzy set QCA. *International Journal of Social Research Methodology* 17(4), pp. 387–401. 
- [D13] Thiem A (2014) Membership function sensitivity of descriptive statistics in fuzzy-set relations. *International Journal of Social Research Methodology* 17(6), pp. 625–642. 
- [D14] Thiem A (2014) Navigating the complexities of Qualitative comparative analysis: Case numbers, necessity relations, and model ambiguities. *Evaluation Review* 38(6), pp. 487–513. 
- [D15] Duşa A, Thiem A (2015) Enhancing the minimization of Boolean and multivalued output functions with eQMC. *Journal of Mathematical Sociology* 39(2), pp. 92–108. 
- [D16] Kroglund C, Choi DD, Poertner M (2015) Fuzzy sets on shaky ground: Parameter sensitivity and confirmation bias in fsQCA. *Political Analysis* 23(1), pp. 21–41. 
- [D17] Hackett U (2015) But not both: The exclusive disjunction in Qualitative comparative analysis (QCA). *Quality and Quantity* 49(1), pp. 75–92. 
- [D18] Thiem A (2015) Parameters of fit and intermediate solutions in multi-value Qualitative comparative analysis. *Quality and Quantity* 49(2), pp. 657–674. 
- [D19] Baumgartner M (2015) Parsimony and causality. *Quality and Quantity* 49(2), pp. 839–856. 
- [D20] Haesebrouck T (2015) Pitfalls in QCA's consistency measure. *Journal of Comparative Politics* 8(2), pp. 65–80. 
- [D21] Rohlfing I (2015) Mind the gap: A review of simulation designs for Qualitative comparative analysis. *Research and Politics*, pp. 1–4. 








- [D22] Braumoeller BF (2015) Guarding against false positives in Qualitative comparative analysis. *Political Analysis* 23(4), pp. 471–487. 
- [D23] Garcia-Castro R, Ariño MA (2016) A general approach to panel data set-theoretic research. *Journal of Advances in Management Sciences and Information Systems* 2, pp. 63–76. 
- [D24] Thiem A, Baumgartner M (2016) Modeling causal irrelevance in evaluations of configurational comparative methods. *Sociological Methodology* 46(1), pp. 345–357. 
- [D25] Thiem A, Spöhel R, Duşa A (2016) Enhancing sensitivity diagnostics for Qualitative comparative analysis: A combinatorial approach. *Political Analysis* 24(1), pp. 104–120. 
- [D26] Thiem A (2016) Standards of good practice and the methodology of necessary conditions in Qualitative comparative analysis. *Political Analysis* 24(4), pp. 478–484. 
- [D27] Rohlfing I (2016) Why simulations are appropriate for evaluating Qualitative comparative analysis. *Quality and Quantity* 50(5), pp. 2073–2084. 
- [D28] Baumgartner M, Thiem A (2017) Model ambiguities in configurational comparative research. *Sociological Methods and Research* 46(4), pp. 954–987. 
- [D29] Rohlfing I (2018) Power and false negatives in Qualitative comparative analysis: Foundations, simulation and estimation for empirical studies. *Political Analysis* 26(1), pp. 72–89. 
- [D30] Schneider CQ (2018) Realists and idealists in QCA. *Political Analysis* 26(2), pp. 246–254. 
- [D31] Baumgartner M, Thiem A (2018) Often trusted but never (properly) tested: Evaluating Qualitative comparative analysis. *Sociological Methods and Research*, advance online publication. 
- [D32] Thomann E, Maggetti M (2018) Designing research with Qualitative comparative analysis (QCA): Approaches, challenges, and tools. *Sociological Methods and Research*, advance online publication. 
- [D33] de Block D, Vis B (2018) Addressing the challenges related to transforming qualitative into quantitative data in Qualitative comparative analysis. *Journal of Mixed Methods Research*, advance online publication. 
- [D34] Veri F (2018) Fuzzy multiple attribute conditions in fsQCA: Problems and solutions. *Sociological Methods and Research*, advance online publication. 







## E. Debates and exchanges on CCMs



A number of special issues and symposia provide informative debates on the pros and cons of CCMs. I have chosen to include these in a separate section to provide a better overview of the included titles. A few articles ([E4-ii], [E5-vi], [E5-vii] and [E5-viii]) are not directly relevant for CCMs but might still be worth a read. A response to the critiques in [E5] can be found in [E6-iii]. An additional response to [E7-i] can be found in [D24] above.








[E1] Symposium: Qualitative comparative analysis. In *Qualitative Methods* 2(2).













- [i] Mahoney J (2004) Introduction: A note on terminology. *Qualitative Methods* 2(2), p. 2. 
- [ii] Ragin CC, Rihoux B (2004) Qualitative comparative analysis: State of the art and prospects. *Qualitative Methods* 2(2), pp. 3–13. 
- [iii] Lieberman S (2004) Comments on the use and utility of QCA. *Qualitative Methods* 2(2), pp. 13–14.
- [iv] Seawright J (2004) Qualitative comparative analysis vis-à-vis regression. *Qualitative Methods* 2(2), pp. 14–17. 
- [v] Mahoney J (2004) Reflections on fuzzy-set/QCA. *Qualitative Methods* 2(2), pp. 17–21. 
- [vi] Ragin CC, Rihoux B (2004) Replies to commentators: Reassurances and rebuttals. *Qualitative Methods* 2(2), pp. 22–24. 
- [vii] Lieberman S (2004) Response to reassurances and rebuttals. *Qualitative Methods* 2(2), p. 25.










[E2] Symposium on Qualitative comparative analysis. In *Studies in Comparative International Development* 40(1).

- [i] Seawright J (2005) Qualitative comparative analysis vis-à-vis regression. *Studies in Comparative International Development* 40(1), pp. 3–26. 
- [ii] Achen CH (2005) Two cheers for Charles Ragin. *Studies in Comparative International Development* 40(1), pp. 27–32. 
- [iii] Ragin CC (2005) Core versus tangential assumptions in comparative research. *Studies in Comparative International Development* 40(1), pp. 33–38. 
- [iv] Seawright J (2005) Assumptions, causal inference, and the goals of QCA. *Studies in Comparative International Development* 40(1), pp. 39–42. 

- [E3] Special issue: Case-based approaches to the analysis of quantitative data. In *Methodological Innovations* 6(2). 
- [i] Cooper B, Glaesser J (2011) Introduction to the special issue: Case-based approaches to the analysis of quantitative data. *Methodological Innovations* 6(2), pp. 1–5.
  - [ii] Dymnicki AB, Henry DB (2011) Using clustering methods to understand more about the case. *Methodological Innovations* 6(2), pp. 6–26.
  - [iii] Fischer M (2011) Social network analysis and Qualitative comparative analysis: Their mutual benefit for the explanation of policy network structures. *Methodological Innovations* 6(2), pp. 27–51.
  - [iv] Cooper B, Glaesser J (2011) Selecting cases for in-depth study from a survey dataset: An application of Ragin’s configurational methods. *Methodological Innovations* 6(2), pp. 52–70.
  - [v] Hellström J (2011) Conditional hypotheses in comparative social science: Mixed-method approaches to middle-sized data analysis. *Methodological Innovations* 6(2), pp. 71–102.
  - [vi] Marx A, Duşa A (2011) Crisp-set Qualitative comparative analysis (csQCA), contradictions and consistency benchmarks for model specification. *Methodological Innovations* 6(2), pp. 103–148.
  - [vii] Thomson S (2011) Exploring when maternal interest is sufficient for high attainment in mathematics: A configurational analysis using longitudinal data. *Methodological Innovations* 6(2), pp. 148–160.
- [E4] QCA, 25 years after “The Comparative Method”: Mapping, challenges, and innovations – mini-symposium. In *Political Research Quarterly* 66(1). 
- [i] Rihoux B, Marx A (2013) Qualitative comparative analysis at 25: State of play and agenda. *Political Research Quarterly* 66(1), pp. 167–171.
  - [ii] Ragin CC (2013) New directions in the logic of social inquiry. *Political Research Quarterly* 66(1), pp. 171–174.
  - [iii] Rihoux B, Álamos-Concha P, Bol D, Marx A, Rezsöházy I (2013) From niche to mainstream method? A comprehensive mapping of QCA applications in journal articles from 1984 to 2011. *Political Research Quarterly* 66(1), pp. 175–184.
  - [iv] Emmenegger P, Kvist J, Skaaning S-E (2013) Making the most of configurational comparative analysis: An assessment of QCA applications in comparative welfare-state research. *Political Research Quarterly* 66(1), pp. 185–190.






- [v] Fiss PC, Sharapov D, Cronqvist L (2013) Opposites attract? Opportunities and challenges for integrating large-N QCA and econometric analysis. *Political Research Quarterly* 66(1), pp. 191–198.
- [vi] Maggetti M, Levi-Faur D (2013) Dealing with errors in QCA. *Political Research Quarterly* 66(1), pp. 198–204.
- [vii] Bol D, Luppi F (2013) Confronting theories based on necessary relations: Making the best of QCA possibilities. *Political Research Quarterly* 66(1), pp. 205–210.
- [viii] Schneider CQ, Wagemann C (2013) Doing justice to logical remainders in QCA: Moving beyond the standard analysis. *Political Research Quarterly* 66(1), pp. 211–220.
- [ix] Rohlfing I, Schneider CQ (2013) Improving research on necessary conditions: Formalized case selection for process tracing after QCA. *Political Research Quarterly* 66(1), pp. 220–235.
- [E5] Symposium: The set-theoretic comparative method; critical assessment and the search for alternatives. In *Qualitative and Multi-Method Research* 12(1).
- [i] Collier D (2014) Problematic tools: Introduction to symposium on set theory in social science. *Qualitative and Multi-Method Research* 12(1), pp. 2–9. 
- [ii] Lakoff G (interview) (2014) Set theory and fuzzy sets: Their relationship to natural language. *Qualitative and Multi-Method Research* 12(1), pp. 9–14. 
- [iii] Sartori G (2014) Logic and set theory: A note on dissent. *Qualitative and Multi-Method Research* 12(1), pp. 14–15.
- [iv] Tanner S (2014) QCA and causal inference: A poor match for public policy research. *Qualitative and Multi-Method Research* 12(1), pp. 15–25. 
- [v] Krogslund C, Michel K (2014) A larger N, fewer variables problem? The counterintuitive sensitivity of QCA. *Qualitative and Multi-Method Research* 12(1), pp. 25–33. 
- [vi] Elkins Z (2014) Measuring partial membership in categories: Alternative tools. *Qualitative and Multi-Method Research* 12(1), pp. 33–41. 
- [vii] Braumoeller BF (2014) Analyzing interactions: Four alternative models. *Qualitative and Multi-Method Research* 12(1), pp. 41–46. 
- [viii] Bennett A (2014) Process tracing with Bayes: Moving beyond the criteria of necessity and sufficiency. *Qualitative and Multi-Method Research* 12(1), pp. 46–51. 

- [E6] Exchanges: QCA and set theory. In *Qualitative and Multi-Method Research* 12(2).
- [i] Thiem A (2014) Mill's methods, induction, and case sensitivity in Qualitative comparative analysis: A comment on Hug. *Qualitative and Multi-Method Research* 12(2), pp. 19–24. 
  - [ii] Hug S (2014) We need an open discussion of QCA's limitations: A comment on Thiem. *Qualitative and Multi-Method Research* 12(2), pp. 24–27. 
  - [iii] Rohlfing I, Schneider CQ (2014) Clarifying misunderstandings, moving forward: Towards standards and tools for set-theoretic methods. *Qualitative and Multi-Method Research* 12(2), pp. 27–34. 
- [E7] Symposium: Qualitative comparative analysis. In *Sociological Methodology* 44(1).
- [i] Lucas SR, Szatrowski A (2014) Qualitative comparative analysis in critical perspective. *Sociological Methodology* 44(1), pp. 1–79. 
  - [ii] Ragin CC (2014) Comment: Lucas and Szatrowski in critical perspective. *Sociological Methodology* 44(1), pp. 80–94. 
  - [iii] Fiss PC, Marx A, Rihoux B (2014) Comment: Getting QCA right. *Sociological Methodology* 44(1), pp. 95–100. 
  - [iv] Olsen W (2014) Comment: The usefulness of QCA under realist assumptions. *Sociological Methodology* 44(1), pp. 101–107. 
  - [v] Vaisey S (2014) Comment: QCA works – when used with care. *Sociological Methodology* 44(1), pp. 108–112. 
  - [vi] Bowers J (2014) Comment: Method games – a proposal for assessing and learning about methods. *Sociological Methodology* 44(1), pp. 112–117. 
  - [vii] Seawright J (2014) Comment: Limited diversity and the unreliability of QCA. *Sociological Methodology* 44(1), pp. 118–121. 
  - [viii] Collier D (2014) Comment: QCA should set aside the algorithms. *Sociological Methodology* 44(1), pp. 122–126. 
  - [ix] Lucas SR (2014) Rejoinder: Taking heat and giving light – reflections on the early reception of “Qualitative comparative analysis in critical perspective”. *Sociological Methodology* 44(1), pp. 127–158. 
- [E8] Special issue: Debating set theoretic comparative methods. In *Comparative Political Studies* 49(6).

- [i] Paine J (2016) Set-theoretic comparative methods: Less distinctive than claimed. *Comparative Political Studies* 49(6), pp. 703–741. 
- [ii] Thiem A, Baumgartner M, Bol D (2016) Still lost in translation! A correction of three misunderstandings between configurational comparativists and regressional analysts. *Comparative Political Studies* 49(6), pp. 742–774. 
- [iii] Munck GL (2016) Assessing set-theoretic comparative methods: A tool for qualitative comparativists? *Comparative Political Studies* 49(6), pp. 775–780. 
- [iv] Schneider CQ (2016) Real differences and overlooked similarities: Set-methods in comparative perspective. *Comparative Political Studies* 49(6), pp. 781–792. 
- [v] Paine J (2016) Still searching for the value-added: Persistent concerns about set-theoretic comparative methods. *Comparative Political Studies* 49(6), pp. 793–800. 
- [vi] Thiem A, Baumgartner M (2016) Back to square one: A reply to Munck, Paine, and Schneider. *Comparative Political Studies* 49(6), pp. 801–806. 
- [E9] Special issue: Combining cross-case methods and process tracing in set-theoretic multi-method designs. In *Sociological Methods and Research* 47(1).
- [i] Beach D, Rohlfing I (2018) Integrating cross-case analyses and process tracing in set-theoretic research: Strategies and parameters of debate. *Sociological Methods and Research* 47(1), pp. 3–36. 
- [ii] Rohlfing I, Schneider CQ (2018) A unifying framework for causal analysis in set-theoretic multimethod research. *Sociological Methods and Research* 47(1), pp. 37–63. 
- [iii] Beach D (2018) Achieving methodological alignment when combining QCA and process tracing in practice. *Sociological Methods and Research* 47(1), pp. 64–99. 





## F. CCMs and multi-method research

The following articles focus on how to use CCMs in combination with other (qualitative or quantitative) methods within the same research project. On the combination of CCMs with process tracing, see also [E4-ix] and [E9] above. On CCMs and mainstream quantitative methods, see [E3-v] and [E4-v]. [F6] is not exclusively focused on CCMs but includes essential reading for those conducting multi-method projects involving CCMs.

- [F1] Vis B (2012) The comparative advantages of fsQCA and regression analysis for moderately large-N analyses. *Sociological Methods and Research* 41(1), pp. 168–198. 
- [F2] Schneider CQ, Rohlfing I (2013) Combining QCA and process tracing in set-theoretic multi-method research. *Sociological Methods and Research* 42(4), pp. 559–597. 
- [F3] Schneider CQ, Rohlfing I (2016) Case studies nested in fuzzy-set QCA on sufficiency: formalizing case selection and causal inference. *Sociological Methods and Research* 45(3), pp. 526–568. 
- [F4] Nair LB, Gibbert M (2016) Analyzing inconsistent cases in management fsQCA studies: A methodological manifesto. *Journal of Business Research* 69(4), pp. 1464–1470. 
- [F5] Mikkelsen KS (2017) Negative case selection: Justifications and consequences for set-theoretic MMR. *Sociological Methods and Research* 46(4), pp. 739–771. 
- [F6] Goertz G (2017) *Multimethod research, causal mechanisms, and case studies: An integrated approach*. Princeton: Princeton University Press.

## G. Reviews of CCMs

A good way to learn about the current debates in some particular field is to read review articles. In addition to those listed below, see also [E4–iii] above.

- [G1] Rihoux B (2006) Qualitative comparative analysis (QCA) and related systematic comparative methods: Recent advances and remaining challenges for social science research. *International Sociology* 21(5), pp. 679–706. 
- [G2] Nurmi H, Kacprzyk J (2007) Fuzzy sets in political science: An overview. *New Mathematics and Natural Computation* 3(3), pp. 281–299. 
- [G3] Rihoux B (2008) Case-oriented configurational research: Qualitative comparative analysis (QCA), fuzzy sets, and related techniques. In JM Box-Steffensmeier, HE Brady, D Collier, eds. *The Oxford handbook of political methodology*. Oxford: Oxford University Press, pp. 722–736.
- [G4] Rihoux B (2013) Qualitative comparative analysis (QCA), anno 2013: Reframing The Comparative Method’s seminal statements. *Swiss Political Science Review* 19(2), pp. 233–245. 
- [G5] Marx A, Rihoux B, Ragin CC (2014) The origins, development, and application of Qualitative comparative analysis: The first 25 years. *European Political Science Review* 6(1), pp. 115–142. 

## H. Websites on CCMs

Below are a number of websites that are worth a visit. [H1] is the website of the international network of CCM scholars. Here you can find additional working papers and information about upcoming conferences, events and software. You can also subscribe to a newsletter. [H2] is a web app for conducting MDSO/MSDO. [H3] to [H6] are personal websites or blogs by CCM scholars and developers.

[H1] Comparative methods for systematic cross-case analysis: <http://www.compasss.org/>.

[H2] MDSO/MSDO: <http://www.jchr.be/01/v11.htm>.

[H3] Adrian Duşa: <https://adriandusa.eu/>.

[H4] Ingo Rohlfing: <https://ingorohlfing.wordpress.com/>.

[H5] Alrik Thiem: <http://www.alrik-thiem.net/>.

[H6] Eva Thomann: <http://www.evathomann.com/>.