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The "qualitative" in qualitative comparative analysis (QCA): research moves, case-intimacy and face-to-face interviews

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Abstract

Qualitative Comparative Analysis (QCA) includes two main components: QCA "as a research approach" and QCA "as a method". In this study, we focus on the former and, by means of the "interpretive spiral", we critically look at the research process of QCA. We show how QCA as a research approach is composed of (1) an "analytical move", where cases, conditions and outcome(s) are conceptualised in terms of sets, and (2) a "membership move", where set membership values are qualitatively assigned by the researcher (i.e. calibration). Moreover, we show that QCA scholars have not sufficiently acknowledged the data generation process as a constituent research phase (or "move") for the performance of QCA. This is particularly relevant when qualitative data–e.g. interviews, focus groups, documents–are used for subsequent analysis and calibration (i.e. analytical and membership moves). We call the qualitative data collection process "relational move" because, for data gathering, researchers establish the social relation "interview" with the study participants. By using examples from our own research, we show how a dialogical interviewing style can help researchers gain the in-depth knowledge necessary to meaningfully represent qualitative data into set membership values for QCA, hence improving our ability to account for the "qualitative" in QCA.

Keywords Calibration · Data generation · Interviewing · In-depth knowledge · Qualitative data

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1 Introduction

Qualitative Comparative Analysis (QCA) is a configurational comparative research approach *and* method for the social sciences based on set-theory. It was introduced in crisp-set form by Ragin (1987) and later expanded to fuzzy sets (Ragin 2000; 2008a; Rihoux and Ragin 2009; Schneider and Wagemann 2012). QCA is a diversity-oriented approach extending "the single-case study to multiple cases with an eye toward configurations of similarities and differences" (Ragin 2000:22). QCA aims at finding a balance between complexity and generalizability by identifying data patterns that can exhibit or approach set-theoretic connections (Ragin 2014:88).

As a research approach, QCA researchers first conceptualise cases as elements belonging, in kind and/or degree, to a selection of conditions and outcome(s) that are conceived as sets. They then assign cases' set membership values to conditions and outcome(s) (i.e. calibration). Populations are constructed for outcome-oriented investigations and causation is conceived to be conjunctural and heterogeneous (Ragin 2000: 39ff). As a method, QCA is the systematic and formalised analysis of the calibrated dataset for cross-case comparison through Boolean algebra operations. Combinations of conditions (i.e. configurations) represent both the characterising features of cases and also the multiple paths towards the outcome (Byrne 2005).

Most of the critiques to QCA focus on the methodological aspects of "QCA as a method" (e.g. Lucas and Szatrowski 2014), although epistemological issues regarding deterministic causality and subjectivity in assigning set membership values are also discussed (e.g. Collier 2014). In response to these critiques, Ragin (2014; see also Ragin 2000, ch. 11) emphasises the "mindset shift" needed to perform QCA: QCA "as a method" makes sense only if researchers admit "QCA as a research approach", including its qualitative component.

The qualitative character of QCA emerges when recognising the relevance of case-based knowledge or "case intimacy". The latter is key to perform calibration (see e.g. Ragin 2000:53–61; Byrne 2005; Ragin 2008a; Harvey 2009; Greckhamer et al. 2013; Gerrits and Verweij 2018:36ff): when associating "meanings" to "numbers", researchers engage in a "dialogue between ideas and evidence" by using set-membership values as "*interpretive tools*" (Ragin 2000: 162, original emphasis). The foundations of QCA as a research approach are explicitly rooted in qualitative, case-oriented research approaches in the social sciences, in particular in the understanding of causation as multiple and configurational, in terms of combinations of conditions, and in the conceptualisation of populations as types of cases, which should be refined in the course of an investigation (Ragin 2000: 30–42).

Arguably, QCA researchers should make ample use of qualitative methods for the social sciences, such as narrative or semi-structured interviews, focus groups, discourse and document analysis, because this will help gain case intimacy and enable the dialogue between theories and data. Furthermore, as many QCA-studies have a small to medium sample size (10–50 cases), qualitative data collection methods appear to be particularly appropriate to reach both goals. However, so far only around 30 published QCA studies use qualitative data (de Block and Vis 2018), out of which only a handful employ narrative interviews (see Sect. 2).

We argue that this puzzling observation about QCA empirical research is due to two main reasons. First, quantitative data, in particular secondary data available from official databases, are more malleable for calibration. Although QCA researchers should carefully

distinguish between measurement and calibration (see e.g. Ragin, 2008a,b; Schneider and Wagemann 2012, Sect. 1.2), quantitative data are more convenient for establishing the three main qualitative anchors (i.e. the cross-over point as maximum ambiguity; the lower and upper thresholds for full set membership exclusion or inclusion). Quantitative data facilitate QCA researchers in performing QCA both as a research approach and method. QCA scholars are somewhat aware of this when discussing "the two QCAs" (large-n/quantitative data and small-n/more frequent use of qualitative data; Greckhamer et al. 2013; see also Thomann and Maggetti 2017).

Second, the use of qualitative data for performing QCA requires an additional effort from the part of the researcher, because data collected through, for instance, narrative interviews, focus groups and document analysis come in *verbal* form. Therefore, QCA researchers using qualitative methods for empirical research have to first collect data and only then move to their analysis and conceptualisation as sets (analytical move) and their calibration into "numbers" (membership move) for their subsequent handling through QCA procedures (QCA as a method).

Because of these two main reasons, we claim that data generation (or data construction) should also be recognised and integrated in the QCA research process. Fully accounting for QCA as a "qualitative" research approach necessarily entails questions about the data generation process, especially when qualitative research methods are used that come in verbal, and not numerical, form.

This study's contributions are twofold. First, we present the "interpretative spiral" (see Fig. 1) or "cycle" (Sandelowski et al. 2009) where data gradually transit through changes of state: from meanings, to concepts to numerical values. In limiting our discussion to QCA as a research approach, we identified three main moves composing the interpretative spiral: the (1) relational (data generation through qualitative methods), (2) analytical (set conceptualisation) and (3) membership (calibration) moves. Second, we show how in-depth knowledge for subsequent set conceptualisation and calibration can be more effectively generated if the researcher is open, during data collection, to support the interviewee's narration and to establish a dialogue—a relation—with him/her (i.e. the relational move). It is the researcher's openness that can facilitate the development of case intimacy for set conceptualisation and assessment (analytical and membership moves). We hence introduce a "dialogical" interviewing style (La Mendola 2009) to show how this approach can be useful for QCA researchers. Although we mainly discuss narrative interviews, a dialogical interviewing style can also adapt to face-to-face semi-structured interviews or questionnaires.

Our main aim is to make QCA researchers more aware of "minding their moves" in the interpretative spiral. Additionally, we show how a "dialogical" interviewing style can facilitate the access to the in-depth knowledge of cases useful for calibration. Researchers using narrative interviews who have not yet performed QCA can gain insight into–and potentially see the advantages of–how qualitative data, in particular narrative interviews, can be employed for the performance of QCA (see Gerrits and Verweij 2018:36ff).

In Sect. 2 we present the interpretative spiral (Fig. 1,) the interconnections between the three moves and we discuss the limited use of qualitative data in QCA research. In Sect. 3, we examine the use of qualitative data for performing QCA by discussing the relational move and a dialogical interviewing style. In Sect. 4, we examine the analytical and membership moves and discuss how QCA researchers have so far dealt with them when using qualitative data. In Sect. 5, we conclude by putting forward some final remarks.

2 The interpretative spiral and the three moves

Sandelowski et al. (2009) state that the conversion of qualitative data into quantitative data ("quantitizing") necessarily involves "qualitazing", because researchers perform a "continuous cycling between assigning numbers to meaning and meaning to numbers" (p. 213). "Data" are recognised as "the product of a *move* on the part of researchers" (p. 209, emphasis added) because information has to be conceptualised, understood and interpreted to become "data". In Fig. 1, we tailor this "cycling" to the performance of QCA by means of the interpretative spiral.

Through the interpretative spiral, we show both how knowledge for QCA is transformed into data by means of "moves" and how the gathering of qualitative data consists of a move on its own. Our choice for the term "move" is grounded in the need to communicate a sense of movement along the "cycling" between meanings and numbers. Furthermore, the term "move" resonates with the communicative steps that interviewers and interviewee engage in during an interview (see Sect. 3 below).

Although we present these moves as separate, they are in reality interfaces, because they are part of the same interpretative spiral. They can be thought of as moves in a dance; the latter emerges because of the succession of moves and steps as a whole, as we show below.

The analytical and membership moves are intertwined-as shown by the central "vortex" of the spiral in Fig. 1-as they are composed of a number of interrelated steps, in particular
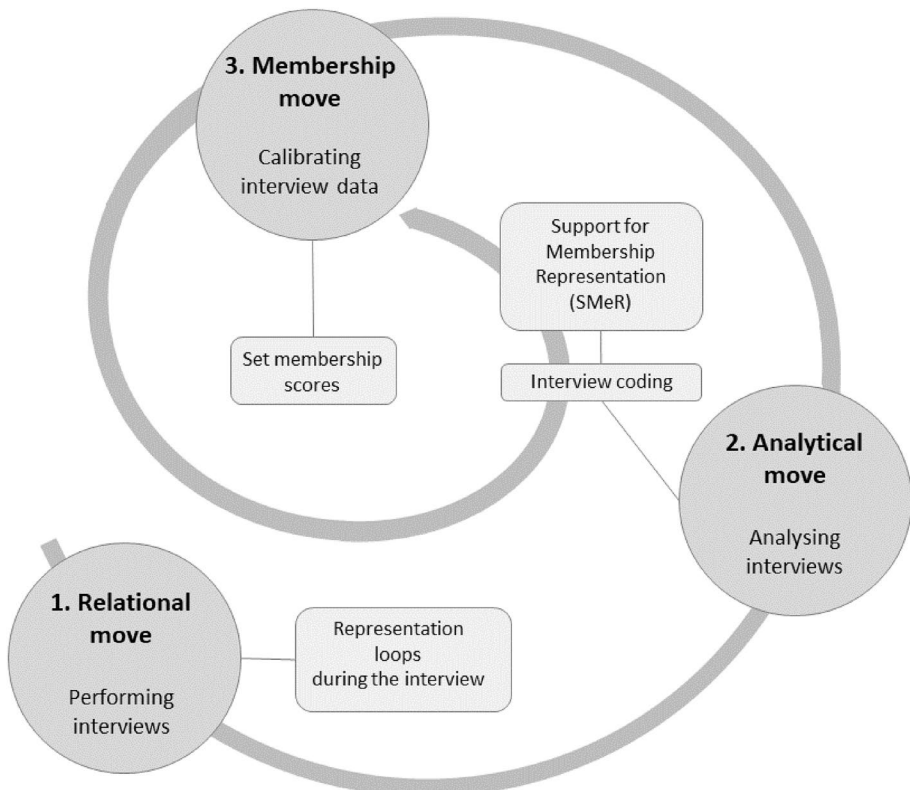

Fig. 1 The interpretative spiral and the relational, analytical and membership moves

case selection, theory-led set conceptualisation, definition of the most appropriate set membership scales and of the cross-over and upper and lower thresholds (e.g. crisp-set, 4- or 6-scale fuzzy-sets; see Ragin 2000:166–171; Rihoux and Ragin 2009). Calibration is the last move of the dialogue between theory (concepts of the analytical move) and data (cases). In the membership move, fuzzy sets are used as "an interpretative algebra, a language that is half-verbal-conceptual and half-mathematical-analytical" (Ragin 2000:4). Calibration is hence a type of "quantitizing" and "qualitizing" (Sandelowski et al. 2009). In applied QCA, set membership values can be reconceptualised and recalibrated. This will for instance be done to solve true logical contradictions in the truth table and when QCA results are interpreted by "going back to cases", hence overlapping with the practices related to QCA "as a method".

The relational move displayed in Fig. 1 expresses the additional interpretative process that researchers engage in when collecting and analysing qualitative data. De Block and Vis (2018) show that only around 30 published QCA-studies combine *qualitative* data with QCA, including a range of additional data, like observations, site visits, newspaper articles.

However, a closer look reveals that the majority of the published QCA-studies using qualitative data employ (semi)structured interviews or questionnaires.[1] For instance, Basurto and Speer (2012)[2] proposed a step-wise calibration process based on a frequency-oriented strategy (e.g. number of meetings, amount of available information) to calibrate the information collected through 99 semi-structured interviews. Fischer (2015) conducted 250 semi-structured interviews by cooperating with four trained researchers using pre-structured questions, where respondents could voluntarily add "qualitative pieces of information" in "an interview protocol" (p. 250). Henik (2015) structured and carried out 50 interviews on whistle-blowing episodes to ensure subsequent blind coding of a high number of items (almost 1000), arguably making them resemble face-to-face questionnaires.

In turn, only a few QCA-researchers use data from narrative interviews.[3] For example, Metelits (2009) conducted narrative interviews during ethnographic fieldwork over the course of several years. Verweij and Gerrits (2015) carried out 18 "open" interviews, while Chai and Schoon (2016) conducted "in-depth" interviews. Wang (2016), in turn, conducted structured interviews through a questionnaire, following a similar approach as in Fischer (2015); however, during the interviews, Wang's respondents were asked to reflexively justify the chosen questionnaire's responses, hence moving the structured interviews closer to narrative ones. Tóth et al. (2017) performed 28 semi-structured interviews with company managers to evaluate the quality and attractiveness of customer-provider relationships for maintaining future business relations. Their empirical strategy was however grounded in initial focus groups and other semi-structured interviews, composed of open questions in the first part and a questionnaire in the second part (Tóth et al. 2015).

Although no interview is completely structured or unstructured, it is useful to conceptualise (semi-)structured and less structured (or narrative) interviews as the two ends of a continuum (Brinkmann 2014). Albeit still relatively rare as compared to quantitative data, the more popular integration of (semi-)structured interviews into QCA might be due to the

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[1] As also noted by de Block and Vis (2018), QCA researchers are not always clear about what they exactly mean with "in-depth" or "open" interviews and how they informed the calibration process (e.g. Verweij and Gerrits, 2015), especially when also quantitative data and different coders were used (e.g. Chai and Schoon, 2016).

[2] See online appendix.

[3] We are aware that other studies combining narrative interviews and QCA have been carried out, but here we limit our discussion only to already published articles that we are aware of at the time of writing.

advantages that this type of qualitative data holds for calibration. The "structured" portion of face-to-face semi-structured interviews or questionnaires facilitates the calibration of this type of qualitative data, because quantitative anchor points can be more clearly identified to assign set membership values (see e.g. Basurto and Speer 2012; Fischer 2015; Henik 2015).

Hence, when critically looking at the "qualitative" character of QCA as a research approach, applied research shows that qualitative methods uneasily fit with QCA. This is because data collection has not been recognised as an integral part of the QCA research process. In Sect. 3, we show how qualitative data, and in particular a dialogical interviewing style, can help researchers to develop case intimacy.

3 The relational move

Social data are not self-evident facts, they do not reveal anything in themselves, but researchers must engage in interpretative efforts concerning their meaning (Sandelowski et al. 2009; Silverman, 2017). Differently stated, quantitising and qualitising characterise both quantitative and qualitative social data, albeit to different degrees (Sandelowski et al. 2009). This is an ontological understanding of reality that is diversely held by post-positivist, critical realist, critical and constructivist approaches (except by positivist scholars; see Guba and Lincoln, 2005:193ff). Our position is more akin to critical realism that, in contrast to post-modernist perspectives (Spencer et al. 2014:85ff), holds that reality exists "out there" and that epistemologically, our knowledge of it, although imperfect, is possible–for instance through the scientific method (Sayer 1992).

The socially constructed, not self-evident character of social data is manifest in the collection and analysis of qualitative data. Access to the field needs to be earned, as well as trust and consent from participants, to gradually build and expand a network of participants. More than "collected", data are "gathered", because they imply the cooperation with participants. Data from interviews and observations are heterogeneous, and need to be transcribed and analysed by researchers, who also self-reflectively experience the entire process of data collection. QCA researchers using qualitative data necessarily have to go through this additional research process–or move-to gather and generate data, before QCA as a research approach can even start. As QCA researchers using qualitative data need to interact with participants to collect their data, we call this additional research process "relational move".

While we limit our discussion to narrative interviews and select a few references from a vast literature, our claim is that it is the ability of the interviewer to give life to interviews as a distinct type of social interaction that is key for the data collection process (Chase 2005; Leech 2002; La Mendola 2009; Brinkmann. 2014). The ability of the interviewer to establish a dialogue with the interviewee–also in the case of (semi-)structured interviews–is crucial to gain access to case-based knowledge and thus develop the case intimacy later needed in the analytical and membership moves. The relational move is about a researcher's ability to handle the intrinsic duality characterising that specific social interaction we define as an interview. Both (or more) partners have to be considered as necessary actors involved in giving shape to the "inter-view" as an ex-change of views.

Qualitative researchers call this ability "rapport" (Leech, 2002:665), "contract" or "staging" (Legard et al., 2003:139). In our specific understanding of the relational move

through a "dialogical"[4] interviewing style, during the interview 1) the interviewer and the interviewee become the "listener" and the "narrator" (Chase, 2005:660) and 2) a true dialogue between listener and narrator can only take place when they engage in an "I-thou" interaction (Buber 1923/2008), as we will show below when we discuss selected examples from our own research.

As a communicative style, in a dialogical interview not only the researcher cannot disappear behind the veil of objectivity (Spencer et al. 2014), but the researcher is also aware of the relational duality–or "dialogueness"–inherent to the "inter-view". Dialogical face-to-face interviewing can be compared to a choreography (Brinkman 2014:283; Silverman 2017:153) or a dance (La Mendola 2009, ch. 4 and 5) where one of the partners (the researcher) is the *porteur* ("supporter") of the interaction. As in a dancing couple, the listener supports, but does not lead, the narrator in the unfolding of her story. The dialogical approach to interviewing is hence non-directive, but supportive. A key characteristic of dialogical interviews is a particular way of "being in the interview" (see example 2 below) because it requires the researcher to consider the interviewee as a true narrator (a "thou").[5]

In a dialogical approach to interviews, questions can be thought of as frames through which the listener *invites* the narrator to tell a story in her own terms (Chase 2005:662). The narrator becomes the "subject of study" who can be disobedient and capable to raise her own questions (Latour 2000: 116; see also Lund 2014). This is also compatible with a critical realist ontology and epistemology, which holds that researchers inevitably draw artificial (but negotiable) boundaries around the object and subject of analysis (Gerrits and Verweij2013). The case-based, or data-driven (ib.), character of QCA as a research approach hence takes a new meaning: in a dialogical interviewing style, although the interviewer/listener proposes a focus of analysis and a frame of meaning, the interviewee/narrator is given the freedom to re-negotiate that frame of meaning (La Mendola 2009; see examples 1 and 2 below).

We argue that this is an appropriate way to obtain case intimacy and in-depth knowledge for subsequent QCA, because it is the narrator who proposes meanings that will then be translated by the researcher, in the following moves, into set membership values.

Particularly key for a dialogical interviewing style is the question formulation, where interviewer privileges "how" questions (Becker 1998). In this way, "what" and "why" (evaluative) questions are avoided, where the interviewee is asked to rationally explain a process with hindsight and that supposedly developed in a linear way. Also typifying questions are avoided, where the interviewer gathers general information (e.g. Can you tell me about the process through which an urban project is typically built? Can you tell me about your typical day as an academic?).[6] "Dialogical" questions can start with: "I would like to propose you to tell me about…" and are akin to "grand tour questions" (Spradley 1979; Leech 2002) or questions posed "obliquely" (Roulston 2018) because they aim at collecting stories, episodes in a certain situation or context and allowing the interviewee to be relatively free to answer the questions.

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[4] Without going into further details on this occasion, the term "dialogical" explicitly refers to the "dialogical epistemology" as discussed by Buber (1923/2008) who distinguishes between an "I-thou" relation and an "I-it" experience. In this perspective, "dialogical" is considered as a synonym of "relational" (i.e. "I-thou" relation).

[5] See footnote.4

[6] The interviewer avoids posing evaluative and typifying questions to the narrator, but the former naturally works through evaluative and typifying *research* questions.

An example taken from our own research on a QCA of large-scale urban transformations in Western Europe illustrates the distinct approach characterising dialogical interviewing. One of our aims was to reconstruct the decision-making process concerning why and how a certain urban transformation took place (Pagliarin et al. 2019). QCA has already been previously used to study urban development and spatial policies because it is sensitive to individual cases, while also accounting for cross-case patterns by means of causal complexity (configurations of conditions), equifinality and causal asymmetry (e.g. Byrne 2005; Verweij and Gerrits 2015; Gerrits and Verweij 2018). A conventional way to formulate this question would be: "In your opinion, why did this urban transformation occur at this specific time?" or "Which were the governance actors that decided its implementation?". Instead, we formulated the question in a narrative and dialogical way:

Example 1 Listener [L]: Can you tell me how the site identification and materialization of Ørestad came about?

Narrator [N]: Yes. I mean there's always a long background for these projects. (…) it's an urban area built on partly reclaimed land. It was, until the second world war, a seaport and then they reclaimed it during the second world war, a big area. (…) this is the island called Amager. In the western part here, you can see it differs completely from the rest and that's because they placed a dam all around like this, so it's below sea level. (…)

[L]: When you say "they", it's…?

[N]: The municipality of Copenhagen.[7] (…)

In this example, the posed question ("how… [it]… came about?") is open and oriented toward collecting the specific story of the narrator about "how" the Ørestad project emerged (Becker 1998), starting at the specific time point and angle decided by the interviewee. In this example, the interviewee decided to start just after the Second World War (albeit the focus of the research was only from the 1990s) and described the area's geographical characteristics as a background for the subsequent decision-making processes. It is then up to the researcher to support the narrator in funnelling in the topics and themes of interest for the research. In the above example, the listener asked: "When you say "they", it's…?" to signal to the narrator to be more specific about "they", without however assuming to know the answer ("it's…?"). In this way, the narrator is supported to expand on the role of Copenhagen municipality without directly asking for it (which is nevertheless always a possibility to be seized by the interviewer).

The specific "dialogical" way of the researcher of "being in the interview" is rooted in the epistemological awareness of the discrepancy between the narrator's representation and the listener's. During an interview, there are a number of "representation loops". As discussed in the interpretative spiral (see Sect. 2), the analytical and membership moves are characterised by a number of research steps; similarly, in the relational move the researcher engages in representation loops or interpretative steps when interacting with the interviewee. The researcher holds (**a**) an analytical representation of her focus of analysis, (**b**) which will be re-interpreted by the interviewee (Geertz, 1973). In a dialogical style of

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[7] Copenhagen, Interview 5, September 1, 2016.

interview, the researcher also embraces (**c**) her representation of the (**b**) interviewee's interpretation of (**a**) her theory-led representation of the focus of analysis. Taken together, (**a**)-(**b**)-(**c**) are the structuring steps of a dialogical interview, where the listener's and narrator's representations "dance" with one another. In the relational move, the interviewer is aware of the steps from one representation to another.

In the following Example 2, the narrator re-elaborated (interpretative step b) the frame of meaning of the listener (interpretative step a) by emphasising to the listener two development stages of a certain project (an airport expansion in Barcelona, Spain), which the researcher did not previously think of (interpretative step c):

> *Example 2* [L]: Could you tell me about how the project identification and realisation of the Barcelona airport come about?
>
> [N]: Of the Barcelona airport? Well. The Barcelona airport is I think a good thermometer of something deeper, which has been the inclusion of Barcelona and of its economy in the global economy. So, in the last 30 years El Prat airport has lived through like two impulses of development, because it lived, let´s say, the necessary adaptation to a specific event, that is the Olympic games. There it lived its first expansion, to what we today call Terminal 2. So, at the end of the ´80 and early ´90, El Prat airport experienced its first big jump. (...) Later, in 2009 (...) we did a more important expansion, because we did not expand the original terminal, but we did a new, bigger one, (...) the one we now call Terminal 1.[8]

If the interviewee is considered as a "thou", and if the researcher is aware of the representation loops (see above), the collected information can also be helpful for constructing the study population in QCA. The population under analysis is oftentimes not given in advance but gradually defined through the process of casing (Ragin 2000). This allows the researcher to be open to construct the study population "with the help of others", like "informants, people in the area, the interlocutors" (Lund 2014:227). For instance, in example 2 above, the selection of which urban transformations will form the dataset can depend on the importance given by the interviewees to the structuring impact of a certain urban transformation on the overall urban structure of an urban region.

In synthesis, the data collection process is a move on its own in the research process for performing QCA. Especially when the collected data are qualitative, the researcher engages in a relation with the interlocutor to gather information. A dialogical approach emphasises that the quality of the gathered data depends on the quality of the dialogue between narrator and listener (La Mendola 2009). When the listener is open to consider the interviewee as a "thou", and when she is aware of the interpretative steps occurring in the interview, then meaningful case-based knowledge can be accessed.

Case intimacy is at best developed when the researcher is open to integrate her focus of analysis with fieldwork information and when s/he invites, like in a dance, the narrator to tell his story. However, a dialogical interviewing style is not theory-free, but it is "theory-independent": the dialogical interviewer supports the narration of the interviewee and does not lead the narrator by imposing her own conceptualisations. We argue that such dialogical I-thou interaction during interviews fosters in-depth knowledge of cases, because the

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[8] Barcelona, Interview 1, June 27, 2016. Translated from the original Spanish.

narrator is treated as a subject that can propose his interpretation of the focus of analysis before the researcher frames it within her analytical and membership moves.

However, in practice, there is a tension between the researcher's need to collect data and the "here-and-now interactional event of the interview" (Rapley, 2001:310). It is inevitable that the researcher re-elaborates, to a certain degree, her analytical framework during the interviews, because this enables the researcher to get acquainted with the object of analysis and to keep the interview content on target with the research goals (Jopke and Gerrits, 2019). But is it this re-interpretation of the interviewee's replies and stories by the listener during the interviews that opens the interviewer's awareness of the representation loops.

4 The analytical and membership moves

Researchers engage in face-to-face interviews as a strategy for data collection by holding specific analytical frameworks and theories. A researcher seldom begins his or her undertakings, even in the exploratory phase, with a completely open mind (Lund 2014:231). This means that the researcher's representations (a and c, see above) of the narrator's representation(s) (b, see above) are related to the theory-led frames of inquiry that the researcher organises to understand the world. These frames are typically also verbal, as "[t]his framing establishes, and is established through, the language we employ to speak about our concerns" (Lund 2014:226).

In particular for the collection of qualitative data, the analytical move is composed of two main movements: during and after the data collection process. During the data collection process, when adopting a dialogical interviewing style, the researcher should mind keeping the interview theory-independent (see above). First, this means that the interviewee is not asked to get to the researcher's analytical level. The use of jargon should be avoided, either in narrative or semi-structured interviews and questionnaires, because it would limit the narrator's representation(s) (b) within the listener's interpretative frames (a), and hence the chance for the researcher to gain in-depth case knowledge (c). Silverman (2017:154) cautions against "flooding" interviewees with "social science categories, assumptions and research agendas".[9] In example 1 above, the use of the words "governance actors" may have misled the narrator–even an expert–since its meaning might not be clear or be the same as the interviewer's.

Second, the researcher should neither sympathise with the interviewee nor judge the narrator's statements, because this would transform the interview into another type of social interaction, such as a conversation, an interrogation or a confession (La Mendola 2009). The analytical move requires that the researcher does not confuse the interview as social interaction with his or her analysis of the data, because this is a specific, separate moment *after* the interview is concluded. Whatever material or stories a researcher receives during the interviews, it is eventually up to him or her to decide which representation(s) will be told (and how) (Stake 2005:456). It is the job of the researcher to perform the necessary analytical work on the collected data.

After the fieldwork, the second stage of the analytical move is a change of state of the interviewees' replies and stories to subsequently "feed in" in QCA. The researcher

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[9] We take the risk to quote Silverman (2017) although in his article he warned about extracting and using quotes to support the researchers' arguments.

begins to qualitatively assess and organise the in-depth knowledge, in the form of replies or stories, received by the interviewees through their narrations. This usually involves the (double-)coding of the qualitative material, manually or through the use of dedicated software. The analysis of the qualitative material organises the in-depth knowledge gained through the relational move and sustains the (re)definition of the outcome and conditions, their related attributes and sub-dimensions, for performing QCA.

In recognising the difficulty in integrating qualitative (interview) data into QCA procedures, QCA-researchers have developed templates, tables or tree diagrams to structure the analysed qualitative material into set membership scores (Basurto and Speer 2012; Legewie 2017; Tóth et al. 2017; see also online supplementary material). We call these different templates "*Supports for Membership Representation*" (SMeRs) because they facilitate the passage from conceptualisation (analytical move) to operationalisation into set membership values (membership move). Below, we discuss these templates by placing them along a continuum from "more theory-driven" to "more data-driven" (see Gerrits and Verweij 2018, ch. 1). Although the studies included below did not use a dialogical approach to interviews, we also examine the SMeRs in terms of their openness towards the collected material. As explained above, we believe it is this openness–at best "dialogical"–that facilitates the development of case intimacy on the side of the researcher. In distinguishing the steps characterising both moves (see Sect. 2 above), below we differentiate the analytical and membership moves.

Basurto and Speer (2012) were the first develop and present a preliminary but modifiable list of theoretical dimensions for conditions and outcome. Their interview guideline is purposely developed to obtain responses to identify anchor points prior to the interviews and to match fuzzy sets. In our perspective, this contravenes the separation between the relational and analytical move: the researcher deals with interviewees as "objects" whose shared information is fitted to the researchers' analytical framework. In their analytical move, Basurto and Speer define an ideal and a deviant case–both of them non-observable–to locate, by comparison, their cases and facilitate the assignment of fuzzy-set membership scores (membership move).

Legewie (2017) proposes a "grid" called Anchored Calibration (AC) by building on Goertz (2006). In the analytical move, the researcher first structures (sub-)dimensions for each condition and the outcome by means of concept trees. Each concept is then represented by a gradation, which should form conceptual continua (e.g. from low to high) and is organised in a tree diagram to include sub-dimensions of the conditions and outcome. In the membership move, to each "graded" concept, anchor points are assigned (i.e. 0, 0.25, 0.75, 1). The researcher then iteratively matches coded evidence from narrative interviews (analytical move) to the identified anchor points for calibration, thus assigning set membership scores (e.g. 0.33 or 0.67; i.e. membership move). Similar to Basurto and Speer (2012), the analytical framework of the researcher is given priority to and tightly structures the collected data. Key for anchored calibration is the conceptual neatness of the SMeR, which is advantageous for the researcher but that, following our perspective, allows a limited dialogue with the cases and hence the development of case intimacy.

An alternative route is the one proposed by Tóth et al. (2017). The authors devise the Generic Membership Evaluation Template (GMET) as a "grid" where qualitative information from the interviews (e.g. quotes) and from the researcher's interpretative process is included. In the analytical move, their template clearly serves as a "translation support" to represent "meanings" into "numbers": researchers included information on how they interpreted the evidence (e.g. positive/negative direction/effect on membership of a certain

attribute; i.e. analytical move), as well as an explanation of why specific set membership scores have been assigned to cases (i.e. membership move). Tóth et al.'s (2017) SMeR appears more open to the interviewees' perspective, as researchers engaged in a mixed-method research process where the moment of data collection–the relational move–is elaborated on (Tóth et al. 2015). We find their approach more effective for gaining in-depth knowledge of cases and for supporting the dialogue between theory and data.

Jopke and Gerrits (2019) discuss routines, concrete procedures and recommendations on how to inductively interpret and code qualitative interview material for subsequent calibration by using a grounded-theory approach. In their analytical move, the authors show how conditions can be constructed from the empirical data collected from interviews; they suggest first performing an open coding of the interview material and then continuing with a theoretical coding (or "closed coding") that is informed by the categories identified in the previous open coding procedure, before defining set membership scores for cases (i.e. membership move). Similar to Tóth et al. (2017), Jopke and Gerrits' (2019) SMeR engages with the data collection and the gathered qualitative material by being open to what the "data" have to "tell", hence implementing a strategy for data analysis that is effective to gain in-depth knowledge of cases.

Another type of SMeR is the elaboration of summaries of the interview material by unit of analysis (e.g. urban transformations, participation initiatives, interviewees' individual careers paths). Rihoux and Lobe (2009) propose the so-called short case descriptions (SCDs).[10] As a possible step within the interpretative spiral available to the researcher, short case descriptions (SCDs) are concise summaries that effectively synthesise the most important information sorted by certain identified dimensions, which will then compose the conditions, and their sub-dimensions, for QCA. As a type of SMeR, the summaries consist of a change of state of the qualitative material, because they provide "intermediate" information on the threshold between the coding of the interviews' transcripts and the subsequent assignment of membership scores (the membership move, or calibration) for the outcome and each condition. Furthermore, the writing of short summaries appears to be particularly useful to allow researchers that have already performed narrative interviews to evaluate whether to carry out QCA as a systematic method for comparative analysis. For instance, similar to what Tóth et al. (2017:200) did to reduce interview bias, in our own research interviewees could cover the development of multiple cases, and the use of short summaries helped us compare information per each case across multiple interviewees and spot possible contradictions.

The overall advantage of SMeRs is helping researchers provide an overview of the quality and "patchiness" of available information about the cases per interview (or document). SMeRs can also help spot inconsistencies and contradictions, thus guiding researchers to judge if their data can provide sufficiently homogeneous information for the conditions and outcome composing their QCA-model. This is particularly relevant in case-based QCA research, where descriptive inferences are drawn from the material collected from the selected cases and the degree of its internal validity (Thomann and Maggetti 2017:361). Additionally, the issue of the "quality" and "quantity" across the available qualitative data (de Block and Vis 2018) can be checked *ex-ante* before embarking on QCA.

For the membership move, the GMET, the AC, grounded theory coding and short summaries supports the qualitative assignment of set membership values from empirical

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[10] Gerrits and Verweij (2018) also emphasise the usefulness of thick case descriptions.

interview data. SMeRs typically include an explanation about why a certain set membership score has been assigned to each case record, and diagrammatically arrange information about the interpretation path that researchers have followed to attribute values. They are hence a true "interface" between qualitative empirical data ("words/meaning") and set membership values ("numbers"). Each dimension included in SMeRs can also be coupled with direct quotes from the interviews (Basurto and Speer 2012; Tóth et al. 2017).

In our own research (Pagliarin et al. 2019), after having coded the interview narratives, we developed concepts and conditions first by comparing the gathered information through short summaries—similar to short case descriptions (SCDs), see Rihoux and Lobe (2009)—and then by structuring the conditions and indicators in a grid by adapting the template proposed by Tóth et al. (2017). One of the goals of our research was to identify "external factors or events" affecting the formulation and development of large-scale urban transformations. External (national and international) events (e.g. failed/winning bid for the Olympic Games, fall of Iron Curtain/Berlin wall) do not have an effect per se, but they stimulate actors locally to make a certain decision about project implementation. We were able to gain this knowledge because we adopted a dialogical interviewing style (see Example 3 below). As the narrator is invited to tell us about some of the most relevant projects of urban transformation in Greater Copenhagen in the past 25–30 years, the narrator is free to mention the main factors and actors impacting on Ørestad as an urban transformation.

> **Example 3** [L]: In this interview, I would propose that you tell me about some of the most relevant projects of urban transformation that have been materialized in Greater Copenhagen in the past 25–30 years. I would like you to tell me about their itinerary of development, step by step, and if possible from where the idea of the project emerged.
>
> [N]: Okay, I will try to start in the 80's. In the 80's, there was a decline in the city of Copenhagen. (…) In the end of the 80's and the beginning of the 90's, there was a political trend. They said, "We need to do something about Copenhagen. It is the only big city in Denmark so if we are going to compete with other cities, we have to make something for Copenhagen so it can grow and be one of the cities that can compete with Amsterdam, Hamburg, Stockholm and Berlin". I think also it was because of the EU and the market so we need to have something that could compete and that was the wall falling in Berlin. (…) The Berlin Wall, yes. So, at that time, there was a commission to sit down with the municipality and the state and they come with a plan or report. They have 20 goals and the 20 goals was to have a bridge to Sweden, expanding of the airport, a metro in Copenhagen, investment in cultural buildings, investment in education. (…) In the next 5 years, from the beginning of the 90's to the middle of the 90's, there were all of these projects more or less decided. (…) The state decided to make the airport, to make the bridge to Sweden, to make… the municipality and the city of Copenhagen decides to make Ørestad and the metro together with the state. So, all these projects that were lined up on the report, it was, let's decide in the next 5 years.
>
> [L]: So, there was a report that decided at the end of the 80's and in the 90's…?
>
> [N]: Yes, '89. (…) To make all these projects, yes. (…).
>
> [L]: Actually, one of the projects I would like you to tell me about is the Ørestad.
>
> R: Yes. It is the Ørestad. The Ørestad was a transformation… (…).

The factors mentioned by the interviewee corresponded to the main topics of interest by the researcher. In this example, we can also highlight the presence of a "prompt" (Leech 2002) or "clue" (La Mendola 2009). To keep the narrator on focus, the researcher "brings back" (the original meaning of *rapporter*) the interviewee to the main issues of the interview by asking "So, there was a report…".

Following the question formulation as shown in example 3, below we compare the external event(s) impacting the cases of Lyon Part-Dieu in France (Example 4) and Scharnhauserpark in Stuttgart in Germany (Example 5).

> *Example 4* [N]: So, Part-Dieu is a transformation of the1970s, to equip [Lyon] with a Central Business District like almost all Western cities, following an encompassing regional plan. This is however not local planning, but it is part of a major national policy. (…) To counterbalance the macrocephaly of Paris, 8 big metropolises were identified to re-balance territorial development at the national level in the face of Paris. (…) including Lyon. (…) The genesis of Part-Dieu is, in my opinion, a real-estate opportunity, and the fact to have military barracks in an area (…) 15 min away from the city centre (…) to reconvert in a business district.[11]

> *Example 5* [N]: When the American Army left the site in 1992, the city of Ostfildern consisted of five villages. They bought the site and they said, "We plan and build a new centre for our village", because these are five villages and this is in the very centre. It's perfectly located, and when they started they had 30,000 inhabitants and now that it's finished, they have 40,000, so a third of the population were added in the last 20 years by this project. For a small municipality like Ostfildern, it was a tremendous effort and they were pretty good at it.[12]

In the examples above, Lyon Part-Dieu and Scharnhauserpark are unique cases and developed into an area with different functions (a business district and a mixed-use area), but we can identify a similar event: the unforeseen dismantling of military barracks. Both events were considered external factors punctually identifiable in time that triggered the redevelopment of the areas. Instead, in the following illustration about the "Confluence" urban renewal in Lyon, the identified external event relates to a global trend regarding post-industrial cities and the "patchwork" replacement of functions in urban areas:

> *Example 6* [N]: The Confluence district (…) the wholesale market dismantles and opens an opportunity at the south of the Presqu'Île, so an area extremely well located, we are in the city centre, with water all around because of the Saône and Rhône rivers, so offering a great potential for a high quality of life. However, I say "potential" because there is also a highway passing at the boundary of the neighbourhood.[13]

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[11] Lyon, Interview 4, October, 13 2016. Translated from the original French.

[12] Stuttgart, Interview 1, July, 18 2016.

[13] Lyon, Interview 1, October 11, 2016. Translated from the original French.

Although our theoretical framework identified a set of exogenous factors affecting large-scale urban transformations locally, we used the empirical material from our interviews to conceptualise the closing of military barracks and the dismantling of the wholesale market as two different, but similar types of external events, and considered them to be part of the same "external events" condition. In set-theoretic terms, this condition is defined as a "set of projects where external (unforeseen) events or general/international trends had a large impact on project implementation". The broader set conceptualisation of this condition is possibly not optimal, as it reflects the tension in comparative research to find a balance between capturing cases' individual histories (case idiosyncrasies) and more concepts that are abstract "enough" to account for cross-case patterns (see Gerrits and Verwej 2018; Jopke and Gerrit 2019). This is a key challenge of the analytical move.

However, the core of the subsequent membership move is precisely to perform a qualitative assessment to capture these differences by assigning different set-membership values. In the case of Lyon Confluence, where the closing of the whole sale market as external event did happen but did only have a "general" influence on the area's redevelopment, the case was given a set membership value of 0.33 to this condition. In contrast, the case of Lyon Part-Dieu was given a set membership score of 0.67 to the condition "external events" because a French military area was dismantled, but it was also combined with a national strategy of the French state to redistribute territorial development across France. According to our analysis of the collected qualitative material, it was an advantage that the military area was dismantled but the redevelopment of Part-Dieu would have probably been affected anyway by the overall national territorial strategy.[14] Finally, the case of Stuttgart Scharnhauserpark case was given full membership (1.00) to the condition, because the US army left the area–which is an indication of a "fully exogenous" event–that truly stimulated urban change in Scharnhauserpark.[15]

Our calibration (membership move) of the three cases illustrated in Examples 4, 5 and 6 shows that set membership values represent a concept, at times also relatively broad to allow comparison (analytical move), but that they do not replace the specific way (or "meaning") through which the impact of external factors empirically instantiate in each of the cases discussed in the above examples.

In the interpretative spiral Fig. 1, there is hence–despite our wishes–no perfect correspondence between meanings and numbers (quantitising) and numbers and meanings (qualitising; see Sandelowski et al. 2009). This is a consequence of the constructed nature of social data (see Sect. 2). When using qualitative data, fuzzy-sets are "*interpretive* tools" to operationalise theoretical concepts (Ragin 2000:162, original emphasis) and hence are approximations to reality. In other words, set memberships values are *token*s. Here, we agree with Sandelowski et al. (2009), who are critical of "the rhetorical appeal of numbers" (p. 208) and the vagaries of ordinal categories in questionnaires (p. 211ff).

Note that calibration by using qualitative data is not blurry or unreliable. On the contrary, its robustness is given by the quality of the dialogue established between researcher

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[14] This consideration also relates to the interdependence, and not necessarily independence, of conditions in QCA, which is a topic that is beyond the scope of this study (see e.g. Jopke and Gerrits 2019).

[15] For a discussion regarding the "absence" of possible factors from the interviewees' narrations, we refer readers to Sandelowski et al. (2009) and de Block and Vis (2018). In general, data triangulation is a good strategy to deal with partial and even contradictory information collected from multiple interviewees. For our own strategy regarding data triangulation, we also used an online questionnaire, additional literature and site visits (Pagliarin et al. 2019).

and interviewee and by the acknowledgement that the analytical and membership moves are *types of representation*–as fourth and fifth representation loops. It might hence be possible that QCA researchers using qualitative data have a different research experience of QCA as a research approach and method than QCA researchers using quantitative data.

5 Conclusion

In this study, we critically observed how, so far, qualitative data have been used in few QCA studies, and only a handful use narrative interviews (de Block and Vis 2018). This situation is puzzling because qualitative research methods can offer an effective route to gain access to in-depth case knowledge, or case intimacy, considered key to perform QCA.

Besides the higher malleability of quantitative data for set conceptualisation and calibration (here called "analytical" and "membership" moves), we claimed that the limited use of qualitative data in QCA applied research depends on the failure to recognise that the data collection process is a constituent part of QCA "as a research approach". Qualitative data, such as interviews, focus groups or documents, come in verbal form–hence, less "ready" for calibration than quantitative data–and require a research phase on their own for data collection (here called the "relational move"). The relational, analytical and membership moves form an "interpretative spiral" that hence accounts for the main research phases composing QCA "as a research approach".

In the relational move, we showed how researchers can gain access to in-depth case-based knowledge, or case intimacy, by adopting a "dialogical" interviewing style (La Mendola 2009). First, researchers should be aware of the discrepancy between the interviewee/narrator's representation and the interviewer/listener'. Second, researchers should establish an "I-thou" relationship with the narrator (Buber 1923/2010; La Mendola 2009). As in a dancing couple, the interviewer/listener should accompany, but not lead, the narrator in the unfolding of her story. These are fundamental routes to make the most of QCA's qualitative potential as a "close dialogue with cases" (Ragin 2014:81).

In the analytical and membership moves, researchers code, structure and interpret their data to assign crisp- and fuzzy-set membership values. We examined the variety of templates–what we call Supports for Membership Representation (SMeRs)–designed by QCA-researchers to facilitate the assignment of "numbers" to "words" (Rihoux and Lobe 2009; Basurto and Speer 2012; Legewie 2017; Tóth et al. 2015, 2017; Jopke and Gerrits 2019).

Our study did not offer an overarching examination of the research process involved in QCA, but critically focussed on a specific aspect of QCA as a research approach. We focussed on the "translation" of data collected through qualitative research methods ("words" and "meanings") into set membership values ("numbers"). Hence, in this study the discussion of QCA as a method has been limited.

We hope our paper has been a first contribution to identify and critically examine the "qualitative" character of QCA as a research approach. Further research could identify other relevant moves in QCA as a research approach, especially when non-numerical data are employed and regarding internal and external validity. Other moves and steps could also be identified or clearly labelled in QCA as a method, in particular when assessing limited diversity, skewedness (e.g. "data distribution" step) and the management of true logical contradictions (e.g. "solving contradictions" move). These are all different mo(ve) ments in the full-fledged application of QCA that allow researchers to make sense of their data and to connect "theory" and "evidence".

Declarations

Conflict of interest The Authors declare not to have any conflict of interest to report.

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