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Adding fuel to the conflict: How gas reserves complicate the Cyprus question

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Citation

Karakasis, V. P. (2020, October 15). *Adding fuel to the conflict: How gas reserves complicate the Cyprus question*. Retrieved from <https://hdl.handle.net/1887/137884>

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Title: Adding fuel to the conflict : how gas reserves complicate the Cyprus question

Issue Date: 2020-10-15

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Q-methodology

5.1 INTRODUCTION

The objective in this exploratory research is to endogenize agency by letting the Greek-Cypriots and Turkish-Cypriot elites articulate what is meaningful and significant when it comes to hydrocarbons' management and its association with the Cyprus conflict. To tackle such a challenge, I apply Q-methodology, a method described as 'the best-developed paradigm for the investigation of human subjectivity' (Dryzek and Holmes 2002, 20). I begin this chapter by laying out some background information about Q-methodology and its utility in social science research. I then present the necessary steps for its implementation: (a) the forming a universe of subjective statements regarding the topic (concourse), (b) the reduction of these statements to a manageable number (Q-sample) through discourse analysis, (c) the sorting procedure by the P-Set and (d) the factor or centroid analysis. Table 5.1 displays the stages I followed in the Q-research design.

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5.2 THE UTILITY OF Q-METHODOLOGY

As a research method, Q-methodology was introduced by William Stephenson (1953) to quantitatively study individuals' subjectivity. It enables a structured approach to identifying people's understandings of particular issues by highlighting significant differences in respondents' attitudes (Brown 1993). Among the key premises of Q is that subjectivity can be communicated and systematically analysed. It allegedly provides a rigorous measure of human subjectivity (Brown 1980). It uncovers ways of thinking about an issue although it does not quantify the prevalence of those ways of thinking (Brown, 1980). The results of a Q-study reflect a population of viewpoints, but not a population of people (van Exel and de Graaf 2005). It requires a relatively small number of possibly diverse respondents, but the sample does not have to be representative of the population. Therefore, results cannot be generalized.

Table 5.1. The stages for this study's Q-research design

Phases	Techniques	Outcome
1. Concourse	Answers from open-ended interviews with Greek-Cypriot and Turkish-Cypriot opinion-leaders in November 2014 and November-December 2015	300 statements
2. Q- Sample	Classification through two criteria: Vital elements of statements Claims of elements	48 statements
3. Q-sort	Reaching out to 23 Greek-Cypriots and 21 Turkish-Cypriot opinion-leaders Presentation of 48 statements on 48 imprinted cards to each side	Factor-Centroid Analysis

Some may question why I used Q-methodology instead of R-methodology in the form of surveys and questionnaires in my effort to decipher the perceptual quality of the Greek-Cypriot and Turkish-Cypriot communities on this topic. Multiple reasons account for this choice. While R-methodology is used to get respondents to articulate their views on isolated statements, Q-methodology identifies respondents' views in statements after they have evaluated all statements presented to them (Silviu, et al. 2017). Furthermore, in contrast with R-methodology, Q-Methodology traditionally seeks to provide a picture of the pre-existing perspectives among the population (as articulated in the opinion articles), rather than investigating the level of support for those perspectives among the population, a logic represented by R-methodology (Silviu, et al. 2017). This implies that the procedure for sampling respondents differs from that in R-methodology (*ibid.*). Rather than random sampling and large sample sizes as used in R-methodology, Q-methodology uses purposive sampling and smaller sample sizes, involving people who have exhibited adequate knowledge with respect to the topic under investigation (Karakasis, 2019). In my case, I searched for policymakers, journalists, NGO representatives, academics and businessmen from both sides to articulate their views on the gas reserves and the conflict.

Q-methodology has been widely used in the fields of public administration, political sciences and conflict studies. In the field of public administration, Brown and Ungs (1970) used Q-methodology to study reactions to Kent State violence, Yarwood and Nimmo (1976) to examine definitions and attitudes about bureaucracy and Brewer et al. (2000) to investigate public service motivation. Jeffares and Skelcher (2011) adopted Q-methodology to examine how public managers think about questions of democratic legitimacy and accountability within network forms of governance. Steunenberg et al (2011) adopted Q-methodology to examine the main discourses in Germany and Turkey on Turkey's accession to the EU. Van Eijk et al. (2017) made use of Q-methodology to map citizens' views on their engagement in co-production activities in the domain of community safety, with special reference to neighbourhood watch schemes in Belgium and the Netherlands. Niedzialkowski et al. (2018) applied Q-methodology to investigate the attitudes of key stakeholder groups (local communities, NGOs, scientists, protected area staff, foresters, public officials, general public) towards the involvement of local communities in managing various forms of biodiversity conservation in Poland.

In the field of political science, Johnston and Feldman (1984) used Q-methodology to formulate a schematic model of how people organize their beliefs about the political world by integrating aspects from sociological and psychological perspectives. Sullivan et al. (1992) did the same to systematically assess how patriotism is factored into US electoral politics. Callahan et al. (2006) made use of Q-methodology to explore the way individuals processed the war on terror as articulated by officials in the Bush administration and captured by the media. Kanra and Ercan (2012) explored the changes in attitudes among Islamic and secular groups in Turkey through a Q-analysis of discourses regarding Islam, democracy, secularism and dialogue.

More recently, scholars from conflict studies have embraced Q-methodology to decipher the perceptual quality of the Kurdish conflict in Turkey. More particularly Uluğ and Cohrs (2016) explored representations of the Kurdish conflict among laypeople in a multi-ethnic city in Turkey based on comprehensive models of conflict analysis. Furthermore, the same authors, working on the same subject, explored the conflict understandings of Track II actors in the Kurdish conflict context and compared them with conflict understandings of Track I actors in order to spot the similarities and differences between these actors (Uluğ and Cohrs 2017). However, no academics so far have investigated the Cyprus conflict through this method. Therefore, from a strictly methodological point of view, this research constitutes a methodologically pioneering work in examining the Cyprus conflict along with its energy nuances. In my view, Q offers a person-centred stance on this topic, which is essential if someone seeks to comprehend the subjective ‘underlayers’ accounting for ‘intractability’ and the protracted character of the conflict.

5.3 THE STEPS OF Q-METHODOLOGY

Four distinct stages account for the implementation of Q-methodology: (a) the formation of the *concourse*, (b) the Q-sample, (c) the P-sets and the sorting procedure and (d) the factor or centroid analysis.

5.3.1 The concourses: answers to the open-interview questions

Q-methodology has its roots in the *concourse*, meaning the universe of subjective communicability surrounding the gas developments in and around Cyprus. I can find this communicability in ‘ordinary conversation, back-fence gossip, commentary deposited on Internet blogs and exchanged in chat rooms and extending to the high-level discourses of epistemic communities across all the sciences’ (Brown & Good, 2010, 1151). There is no doubt that facts may be invariably interlaced with opinions. The division between the two turns on the principle of self-reference, which constitutes a focal point of Q-methodology (ibid.). The volume of opinion representing the universe of communicability is, in principle, infinite in magnitude (ibid.). Unlike sampling in surveys, where we can determine the population boundaries and the number of cases, when it comes to the boundaries of communicability on energy security, we cannot fix them because the latter’s content is limitless.

To form the *concourse*, I employed open-ended interviews with dozens of Cypriot policymakers, research analysts, academics and journalists. There is a particular reason why I resorted to open-ended interviews. According to McKeown and Thomas (1988), the use of interviewing for the purpose of identifying a *concourse* is consistent with the principles of Q. They suggest that a few interviews could suffice in this respect. An important aspect to be addressed is the language of conduct with the subjects of my research. While as a Greek I

could communicate with my Greek-Cypriot interlocutors in Greek, with the Turkish-Cypriots, the situation was quite different. Having studied for two years at Istanbul Bilgi University (2006-2008), I gained a good understanding of the Turkish language. This helped me ask some questions to the Turkish-Cypriot opinion-leaders in Turkish. Some of my respondents articulated their thoughts in Turkish. In cases where I could not understand their answers, I sent the transcripts to a Turkish-speaking colleague, who translated them. Most of my Turkish-Cypriot respondents were kind enough to give their answers in English. Without ruling out the possibility that the selection of English may have impacted the interpretation of my findings, I resorted to further research on these people: I searched for transcripts of other interviews they may have given in different fora and checked whether the meanings I took from their answers were deviating from ones they had articulated in different interviews. Via this form of 'triangulation', I sought to ensure that the English language did not distort the key message that my Turkish-Cypriot respondents delivered. In this way, I was able to guard against the bottom-up interpretation of my findings from not being compromised by any 'linguistic' misinterpretation.

Drawing on the content of chapters 3 and 4, where the historical background and the energy security stage were introduced, I conducted field research and open-ended interviews in order to construct the historical and energy shared positions in the Greek-Cypriot and Turkish-Cypriot communities; these positions involved interpretations over the conflict on the island, understandings of natural resources and the main stakes that the contending parties attach to the monetization of the gas reserves and the future prospects as regards the utilization of the natural resources and their impact on the peace negotiations. I created two concourses: one for the Greek-Cypriot side and one for the Turkish-Cypriot one. The statements forming the Greek-Cypriot and Turkish-Cypriot concourses derived from the answers of Greek-Cypriot or Turkish-Cypriot interviewees respectively.

There were several reasons to prefer interviews over other methods of collecting statements. Qualitative interviews in the local languages allowed me to see political life on the island in a comprehensive way, from all possible angles (Rubin and Rubin 2012, 4). Open-ended interviews are especially useful in circumstances where the policy deliberation on a sensitive issue, such as hydrocarbons' management in conflictual environments, is nearly invisible. They allowed me to examine the complexity of the real world by exploring multiple perspectives towards energy security questions in the context of a protracted conflict environment.

A question that arose was about my preference for open-ended interviews instead of structured interviews. The reason why I opposed the use of structured interviews is that they 'may override the rich qualitative nuances' that opinion-leaders from each side bring to the concourse (Ellingsen, Storksen and Stephens 2010, 397). Instead, I resorted to 'umbrella' questions, which enabled multiple possible answers from the selected interviewees. The concourse in

this respect is expressed through those answers that manifest the meanings that the selected interviewees ascribe to the monetization of the gas reserves and on the lessons they have drawn from the Cypriot conflict. Interviewing them led me to more thoughtful and nuanced conclusions about what is at stake from the perspective of the Greek-Cypriot and Turkish-Cypriot communities. The answers to my questions yielded a corpus of 300 related statements for both sides.

5.3.2 The Q-samples: the linguistic use of ‘political discourse analysis’

The next step was to take a sample from this ‘volume’ just as a ‘geologist requires a rock sample or a pollster requires a respondent sample for more detailed study’ (Durning & Brown, 2006, 538). The point here is to represent all potential elements displayed in the set of Greek-Cypriot and Turkish-Cypriot answers respectively. To reduce the Greek-Cypriot and Turkish-Cypriot concourses to a more manageable volume, I made use of a procedure as independently as possible from my particular interests. Being completely independent is, of course, impossible, in the sense that I had to make judgements about including and excluding statements in the first place. According to Brown (1980, 73), ‘there is no standard Q sample for a concourse. Any suitably comprehensive sample is adequate for purposes of experimentation’. As stated, the point of the sampling process is first to ensure that the key elements of the discourses are identified. The key elements include the historical interpretations of the Cyprus conflict from both sides, the factors behind its intractability as explained by both contenting parties, the stakes behind the gas reserves, the perceived motives behind Turkey’s gunboat diplomacy, the role of Greece, the Turkish-Cypriots’ participation in the hydrocarbons’ management as well as the underpinning logic motivating the Republic of Cyprus’ agreements with Greece, Israel and Egypt.

So how could I ensure that the Q-study captured these quintessential elements of my statements of both concourses? Since there is no rigid guideline that could direct me in the sampling, I engaged in what Seidel (1985) calls ‘political discourse analysis’. Discourse, in this particular methodological framework, is not used as the theoretical instrument designed to navigate me throughout the meanings and understandings that the opinion-leaders apply to the gas reserves and their impact on the conflict. I rather used it as a ‘linguistic terrain’ that secured the representativeness of the elements displayed in the answers above and guaranteed as much variation as possible.

For this purpose, I adopted a method proposed by other Q-methodologists (Dryzek and Berejikian 1993, Steunenberget al. 2011). I sorted all statements according to two criteria which define ‘politically-charged’ statements, the vital elements of in such statements and the kind of claims about the general situation at hand. With respect to the first aspect, I sampled the statements based on (a) the identification of an ontology or set of entities, clearly mentioned in these statements (political or economic leaders, drilling companies, nations, states, EU, UN,

lobby groups); (b) the degrees of agency with which these entities are accredited to act or be acted upon; (c) the motivations that are acknowledged behind the courses of action of these entities or agents (maximization of material self-interests, greed, redressing grievances); and (d) conceptions of natural and unnatural political relationships (dependency or inter-dependency relations, trade-relationships, energy cooperation or any form of interaction between people, nations or any other entities).

Regarding the second criterion and particularly the types of claims embodied in a statement, I used a classification laid out by Toulmin (1958), Dryzek and Berejikian (1993, 51), and Steunenberg et al. (2011, 452). The sorts of claims that can be made in my statements are: (a) definitive (regarding the very meaning of terms in question); (b) designative (concerning questions of facts or speculations); (c) evaluative (apropos of the worth of something that does or could exist); and (d) advocative (speaking of something that should or should not exist). The combination of these two criteria produced a four-by-four matrix cell structure, used here as a 'heuristic device' to sample the concourse. I depict this matrix in [Table 5.2](#) and indicatively provide some statements (from both concourses) in each cell in order to illustrate my reasoning throughout the classification.

The next question that someone may raise is about the number of statements that the Q-sample should consist of. From my research, I observed that most Q-studies contain samples of 40 to 50 statements, without neglecting the possibility of more statements. What kind of criteria should I have considered in defining the boundaries of the sample? On the one hand, I flagged the representativeness and variation of the statements as the most important criterion. On the other hand, before approaching Cypriot opinion-leaders currently involved in the debate, such as policymakers, civil servants and energy affiliates, I was aware that most of them would not devote a lot of their time (more than one hour) to rank more than 50 statements. Therefore, I opted for 48 statements for each side. Appendix 7a presents the statements used for the Greek-Cypriot P-Set and Appendix 7b presents the statements used for the Turkish-Cypriot P-Set.

5.3.3 Explaining the sampling of the P-Sets and the Q-sort procedure

Having collected and classified the 48 statements into the categories described above, I placed every statement ('item') into a printed and numbered individual card. I needed a number of people who would rank these statements. In the language of Q-methodology, I needed to formulate my P-set. P-Sets, as in the case of Q samples, offer breadth and comprehensiveness, instrumental features that would increase my confidence that the major discourses under investigation would be clearly demonstrated. They are usually smaller than the Q sets (Brouwer 1999). The people comprising the P-Set are not randomly selected. On the contrary, they are theoretically relevant to the Cyprus conflict and with adequate knowledge on the importance of the natural resources. Therefore, on both sides of the island, I opted for opinion-leaders/elites with clear and distinct viewpoints regarding both 'items' under investigation. In their quality as

Table 5.2. A sample of the heuristic device for reducing discourse

Discourse Element ¹					
	Ontology	Agency	Motivations	Natural/unnatural relationships	
Type of claim	Definitive	(1) Energy in our case is deeply securitized at a political level: screw the economics.	(2) In the case of political-military conflicts, energy has not been, so far, a factor conducive to their resolution but evolved as an essential chapter of the pre-existing conflict.	(3) Americans want to clear the Cyprus question out of their way in order to normalize their relations with Turkey, while Syria is in between.	(4) The challenge of a pipeline from Leviathan to Turkey would be that if the single market we have is Turkey, then Turkey may dictate the prices.
	Designative	(5) Greek-Cypriots fear that Turkish-Cypriots will be potentially treated as the ‘Trojan horse’ of Turkey.	(6) Turkish diplomats are making plans on the construction of the gas pipeline from Leviathan to Turkey without consulting the Turkish-Cypriots.	(7) Turkish-Cypriots are after decision-making. What they actually want is to have a say in the decision-making: ‘let’s do the explorations jointly.’	(8) Exporting the current Cypriot gas reserves to Turkey establishes the conditions of a unilateral dependency on Turkey.
	Evaluative	(9) The construction of a pipeline to Greece is not a feasible option due mainly to the depth of the waters and to the lack of Israel’s interest in investing in such a pipeline.	(10) Even if the Turkish-Cypriots had natural gas reserves, they would have to engage with capitalism; unfortunately, that is life.	(11) All countries in our region, Cyprus, Israel and Egypt, approached the whole debate purely from a political point of view having priority over the business logic.	(12) Through the potential utilization of natural gas, Greek-Cypriots thought they had gained a negotiation tool in their confrontation vis-à-vis Turkey.
	Advocative	(13) After the establishment of an escrow account, for every \$100 that the Greek-Cypriots would earn from the utilization of the hydrocarbons, a proportion could be directed to the Turkish-Cypriots. We can apply this proposal even without a settlement	(14) Cypriots could have a peace fund for reconstruction after peace. This fund should be used to introduce new things on the island (fixing traffic)	(15) The Greek-Cypriots should not make the energy issue an existential question for the Republic of Cyprus, as if its existence depends on talking about hydrocarbons with Turkish-Cypriots.	(16) Without a meeting with the Turkish-Cypriots – not Turkey – to discuss the energy issue, the Greek-Cypriots will find themselves under the ‘Damoclean sword’ of Turkey.

¹ The table is inspired by Dryzek and Berejikian (1993, 52). The numbers identify the cells from 1 to 16.

elites, they could define the discourses woven into the fabric of the resource-related debate on the island (Brown 1980).

5.3.3.1 *The formulation of the P-Sets*

I visited the Republic of Cyprus in July 2017 and approached a number of Greek-Cypriot opinion-leaders (23), who would eventually become the *P-Set* of my Q-analysis. I did the same in January 2018 and approached 21 Turkish-Cypriot opinion-leaders. Taking into consideration that Greek-Cypriots and Turkish-Cypriot are in a conflict, I decided to opt for two different P-Sets rather than one (the same way I opted for two concourses and two Q-sets). In the context of a conflict, where the division lines are natural distinct, divided by the Green-line I mentioned in Chapter 3, I had to investigate how each side formed its own positions.

What kind of criteria did I adopt for the selection of my participants on both sides? The first priority in the recruitment process was to identify participants who, due to their professional experience or affiliation, had a clearly defined viewpoint to express, while their viewpoint *per se* mattered in relation to the subject at hand. Thus, I selected policymakers, NGO representatives, energy affiliates (researchers, employees in oil refineries), civil servants and journalists with expertise on this topic. The second priority was to avoid an unduly homogenous participant group. Hence, besides the (professional) affiliation with the issue at hand, another criterion, age was also taken into consideration.

Pursuant to the first priority, I reached out to policymakers who have served as former foreign ministers, the incumbent leaders of different political parties and leading members of the Committee on Energy, Trade, Industry and Tourism in Cyprus. With respect to the policymakers, we strived for representativeness from the most popular parties in Cyprus.¹ While picking legislators and executives of various political colours, the hypothesis I wanted to test was whether the different official political positions of their representative parties (vis-à-vis the Cyprus conflict or other social and economic issues) predisposed their own position vis-à-vis the monetization of the gas reserves. For the same reason, I also sought for journalists who had worked in different newspapers or news websites and had published a handful of articles or analytical reports about the potential utilization of gas reserves in the Eastern Mediterranean. In addition, I opted for civil servants with adequate knowledge and experiential insights into this topic. Furthermore, I contacted energy affiliates, mainly researchers and analysts, who had extensively published in newspapers and academic journals on this topic.

¹ From the Republic of Cyprus, the conservative 'Democratic Rally', the Communist 'Progressive Party of Working People', the centreright wing 'Democratic Party' and the centre-left wing 'Citizens' Alliance'. From the Turkish-Cypriot side, I opted for representatives from the Republican Turkish party (CTP) and Communal Democracy Party (TDP), which favor social-democratic values, the United Cyprus Party, which favors socialist/left-wing values and the People's Party, which supports centre-right wing ideas.

Finally, I searched for NGO representatives, including political activists and sociologists, who had demonstrated a clear viewpoint on this topic.

This segmentation in professions offers the possibility of insights that I would have missed by only checking on the aggregate data produced by the Q-sorts. Presumably, different professions could have influenced the elites' views on what the actual stakes in the debate were. For instance, if we asked an energy affiliate about the priorities in this debate, we would assume that their answers would stress the need for market-oriented calculations to outweigh geopolitical considerations. The NGO representatives, striving for a stronger voice of civil society in the Cypriot realities might adhere to the notion of the construction of a peace fund for the reconstruction of the island. I anticipated that these elites would prioritize the technical and financial aspects of the debate over geopolitical expediencies. Along the same lines, I hypothesized that the politicians would accentuate the historical and geopolitical nuances of the debate and downplay its financial and technical utterances.

Age was another important criterion in the selection. Whether our subjects in both sides experienced the 1963 and 1974 events might have defined their views on the conflict. A member who experienced a turbulent past might have promoted a more peaceful settlement of the energy security question than someone with no relevant experiences, who had learned to live on a divided island for more than two or three decades. This could work also the other way round: an aged member of our elite, due to the experiences he or she had gathered, might have opposed any cooperation scheme with the other side. Appendix 8a presents some details about the participants of the Greek-Cypriot P-Set and Appendix 8b the respective ones of the Turkish-Cypriot P-Set.

5.3.3.2 The sorting procedure or the Q-sort technique

I assigned the Greek-Cypriot and Turkish-Cypriot participants of the P-Sets to evaluate the collected 48 statements (items). More precisely, I asked them to sort the items into a specific kind of rank order, dictated by the guidelines of Q-methodology. Some may call it a 'forced distribution' process because, regardless of the number of statements that the respondents agree or disagree with, the latter are somehow 'compelled' to match their preferences against the number of cells indicated in a board distribution template ([Figure 5.1](#)).

I devised the procedure as follows. First, from the 48 statements, the participants had to initially identify 19 statements they agreed with, 19 statements they disagreed with and 10 statements they considered neutral. Second, after the first 'scanning' and classification, each individual had to place each statement in order from -4 (for the items they most disagreed with) to +4 (for the items they most agreed with). This order appeared significant from the standpoint of the participants (Brown 1980, 195).

[illegible]

Figure 5.1. Board distribution template.

At this point, I have to (re-)establish that a Q-sort is more akin to evaluating statements for which right answers do not exist. The issue here is to render the subjectivity involved inviolate and, therefore, the Q-sort merely provides a forum tailor-made for its very expression. Besides the ranking process, most of the participants were called to enrich this sorting with comments and personal reflections on the vast majority of the 48 statements. These insights play a twofold role. On the one hand, they stand for the justification needed for the ranking procedure. On the other hand, they comprise the findings I used in order to enrich the qualitative analysis and the interpretation of the results.

Before moving forward with the analysis, I need to draw the attention to the timing of the q-sorting and interviews. The q-sorting transpired after the collapse of the Crans Montana which I mentioned in Chapter 3. I conducted my interviews during a pre-electoral period. The Republic of Cyprus was expecting presidential elections in January 2018, while in the same month Turkish-Cypriots were running their own parliamentary elections. During these time periods reaching a settlement of the Cyprus conflict was not flagged as the highest priority

for the electorates. However, this did not discourage many policy-makers to not incorporate the failure of the reunification talks in the pre-electoral battles and start a blame-game for who should be held accountable for the deadlock. Greek-Cypriot policymakers were pinpointing Turkey's intransigent stance as the main cause of the collapse of the reunification talks. On the other hand, Turkish-Cypriot policymakers were casting blame on the President of the Republic of Cyprus for prioritizing the cost of his (non) re-election over reaching a settlement.

5.4 Q-CENTROID ANALYSIS

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After gathering the Q-sort answers, I conducted a centroid analysis. In principle and in relation to multiple indicator measures, a centroid (or factor) analysis embodies a correlational method. Scholars routinely employ it in order to categorize variables and determine whether groups of indicators collected out of such Q-sorts tend to bunch together to form distinct clusters, referred to as factors or centroids (Bryman 2008, 161). While in the *R* method, the variables may refer to personality traits or psychological tests, in Q-methodology the observed variables are provided by the ranking of the 23 Greek-Cypriot and 21 Turkish-Cypriot Q-sorts.² The objective at this stage was to uncover the latent unobserved variables inferred from the larger set of these observed variables (Toshkov 2016, 139-140) and to determine the cluster of positions held by different groups within the Greek-Cypriot and Turkish-Cypriot P-Sets vis-à-vis the energy security debate across the island. The issue was to identify what kind of socially shared categories the 23 Greek-Cypriot and 21 Turkish-Cypriot participants fell into by virtue of demonstrating similar understandings on the topic under investigation. These similar understandings are preliminarily manifested through the correlation between the Q-sorts. I treat, hence, centroids (or factors) as 'natural complexes, manifestations of actual thinking defined operationally in terms of concrete human behaviour' (Brown 1980, 208).³

² 23 people of the Greek-Cypriot P-Set multiplied by 48 statements as well as 21 people of the Turkish-Cypriot P-Set multiplied by 48 statements

³ Within the context of Q-methodology, the correlation between Q-sorts provides a kind of measure about the nature and extent of the relationship between any two Q-sorts (Watts and Stenner 2012, 96-97). The calculation of the correlation among all respective Q-sorts (on both sides) resulted in a 23 x 23 matrix for the Greek-Cypriot sorts and a 21 x 21 matrix for the Turkish-Cypriot sorts. These matrices uncover the numerical nature and extent of relationships that pertain to all the 23 Greek-Cypriot and the 21 Turkish-Cypriot Q-sorts. The proportion of the meaning and variability in every Q-sort that is held in common by a group is generally called common variance (Kline 1994). In my case, the latter explains as much as possible about the existing relationships among the 23 and among the 21 Q-sorts in the group by reference to any sizeable portions of meanings present in the data. The basic task of centroid analysis is to account for as much of this common variance as possible.

Using the PQ Method,⁴ I adopted QCENT Horst's centroid method and varimax rotation (van Eijk, Steen and Verschuere 2017, 64, Abdi 2003). Principal Components analysis would have been an *alternative* option for extracting (unrotated) factors. However, I decided to follow Peter Schmolck's- the person who established the PQ Method software- suggestion: 'centroid analysis, the method of choice for Stephenson and his followers, is not much used outside the Q-community nowadays, whereas Principal Components analysis is the default method of factor extraction in statistical packages like SPSS' (Schmolck 2014). Q-methodologists consider centroid-method the most suitable factor extraction technique 'due to the permissiveness it enables in relation to data exploration' (Watts and Stenner 2012, 99-100). Through centroid analysis I could 'identify the number of natural groupings of Q-sorts by virtue of being similar or dissimilar to one another; that is, to examine how many basically different Q-sorts are in evidence' (van Exel and de Graaf 2005).

5.4.1 Factor loadings

After identifying the patterns of similarity in the Q-sort configurations, a number of centroids had to be extracted. The extraction option, in Q-methodology, leaves many possible solutions open to legitimately defer a decision about the best criteria for making such a decision (Watts and Stenner 2012, 107). Drawing on Brown's dictum (1980, 220), a prominent figure in the Q-community, the number of factor loadings that each centroid has is the most important criterion in the extraction of the centroids. The centroid to be extracted needs to involve at least two significant *factor loadings*. Factor loading 'measures' the degree to which each individual Q-sort loads in a potential factor and is expressed in the form of a correlation coefficient between each Q-sort and each factor⁵. A respondent is closer to the factor with which they have the highest loading (Zabala and Pascual 2016)⁶. All respondents loading significantly on a factor seemingly embrace similar viewpoints on this topic.

Through PQMethod, I manually 'flagged' the most representative Q-sorts (associated respondents) loading to each factor (Karakasis, 2019, 464). Through 'flagging', I pinpointed which Q-sorts would be used for subsequent calculations; I measured their idealized score for each statement and for each respective factor (ibid). The purpose of flagging is to obtain as many distinguishable perspectives as possible (ibid). The 'flagging' is based on a number of criteria (ibid). The first criterion is that the loading should be significantly high⁷ and much larger than

⁴ Downloaded from <http://schmolck.userweb.mwn.de/qmethod/> (Retrieved at 22.6.2017)

⁵ The range of values for the correlation coefficient is -1.0 (perfect negative correlation) to 1.0 (perfect positive correlation).

⁶ For a loading to be statistically significant at the 0.01 level, its correlation coefficient to a factor must exceed $2.58 \times (\text{standard error})$. The correlation coefficient per factor should equal or exceed a value of 0.38.

⁷ The significance threshold for a p-value < .05 is given by equation 1, where N is the number of statements (Brown 1980, Watts and Stenner 2012).

the loadings of the same Q-sort for other factors. The second criterion is that the square loading for a factor is higher than the sum of the square loadings for all other factors (Zabala and Pascual 2016). It goes without saying that Q-sorts with higher factor loadings will contribute proportionally more to each of the centroid estimates than Q-sorts with relatively lower factor loadings (*ibid*). After ‘flagging’ the individual Q-sorts that define the factors, I produced ‘idealized’ Q-sorts by aggregating across the flagged Q-sorts and weighing the loadings for each factor (*ibid*). I inspected the meanings of these aggregated Q-sorts and interpreted them by comparing and contrasting them, through the additional help of participants’ reflections on statements during and after sorting (Uluğ and Cohrs, 2017; Brown 1993; Watts and Stenner 2012). Finally, drawing on the work of other Q-methodologists like Uluğ and Cohrs (2017, 156) and Webler et. al (2009), I employed two additional criteria before deciding on the final number of centroids (factors) for each side. One criterion is clarity: the more sorts loading highly and uniquely on one factor, the better. The other criterion is distinctness: the lower the correlations between the idealized Q-sorts representing the factors, the better.

Conforming to these criteria, I extracted three distinct centroids (factors) as the most significant from the Greek-Cypriot P-Set and two from the Turkish-Cypriot P-Set. I proceeded with a varimax rotation of these five factors for each P-Set. The rotation, in general, ‘changes their positions along with their viewpoints relative to the Q-sorts. During the rotation, the factor loadings are placed under a series of carefully trained microscopes’ (Watts and Stenner 2012, 129) allowing for the re-examining of the nature of the correlations among the Greek-Cypriot and the Turkish-Cypriot Q-sorts. After the rotation, I identified any Q-sorts that closely approximated with the viewpoint of each of the three factors from the Greek-Cypriot side and each of the two from the Turkish-Cypriot side. As the outcome of this procedure, Appendix 9a displays the factor loadings for each of the 23 Greek-Cypriot Q-sorts, while Appendix 9b shows the factor loadings for each of the 21 Turkish-Cypriot Q-sorts.

5.4.2 Factor arrays

I focus now on the total weighted scores of the 48 statements in relation to each of the three factors for the Greek-Cypriots and to each of the two factors for the Turkish-Cypriots. This process forms the ideal-model Q-sort for each factor and demonstrates how an ‘ideal’ participant with a 100% score on that factor would have sorted all the statements (van Eijk et. al 2017). In order to facilitate cross-factor comparisons among the five factors, the scores were converted into *z* (or standard) scores (Watts and Stenner 2012, 139, van Exel and de Graaf 2005).⁸ In turn, these *z*-scores for each individual item were converted into factor arrays. These are Q-sorts configured to represent the viewpoint of a particular factor and conform to the same distribution used in the original data collection. Ultimately, these rank-orders reveal

⁸ A *z*-score is a measure of how many standard deviations below or above the population-mean a raw score is.

the extent to which each of the items (statements) is representative of each of the three factors, and thus, becomes crucial to the interpretation of our results (Brown 1993). Appendix 11a outlines the three factor arrays for the Greek-Cypriots and Appendix 11b, the two factor arrays for the Turkish-Cypriots.⁹

After conducting these steps, I had three factor-centroids from the Greek-Cypriot P-Set and two factor-centroids from the Turkish-Cypriot P-Set. These centroids illuminate the central meanings that Greek-Cypriot and Turkish-Cypriot opinion-leaders ascribe to the recently discovered gas reserves and their importance for the future of the divided island. These meanings come in the form of discourses and lay out the incompatible objectives that the contending parties pursue as regards the future exploitation of the gas reserves. These discourses are analysed in Chapter 6.

5.5 CONCLUSIONS

The introduction of Q-methodology in the study of resource-related conflicts facilitated further the implementation of a micro-level and discursive analysis of my project. It provided me with a systematic and rigorously quantitative means for examining ‘human subjectivity’, which comes under the spotlight here. Q-methodology is located in a rich stream of philosophical thinking about the formation and interpretation of discourses and chimes with my position on social constructionism while dealing with such convoluted topics. The exploratory logic governing Q-methodology rendered such a design a more suitable strategy to examine the stakes that the Greek-Cypriot and Turkish-Cypriot elites ascribe to the recently discovered gas reserves and the linkages they forge with the trajectory of the Cyprus conflict.

Through this procedure I identified five discourses in total: three discourses from the Greek-Cypriot opinion-leaders and two discourses from the Turkish-Cypriot ones. Through the identifying statements characterizing each discourse as well as the qualitative arguments that the P-Sets used to justify their ranking, I lay out the linkages that the contending parties forge between the discovery of the gas reserves and the development of the conflict.

⁹ Both appendixes point to the Q-sort values assigned to each of the three factors, along with their respective item numbers, wordings, the z-scores reached per factor and the ranking position acquainted per factor. The asterisk (*) attached to some of the z-scores displays significance at $P < .01$, which makes them significant solely for one of the factors extracted and not for any of the other two.

