Constructivism, Fuzzy Sets and (Very) Small-N: Revisiting the Conditions for Communicative Action

Frank M. Häge[1]

May 2005

WORK IN PROGRESS

Abstract

In this paper, it is argued that the fuzzy set approach can engage in a fruitful liaison with constructivist research. There are several important properties of fuzzy set analysis that overlap with constructivist theorizing and research practice. To demonstrate the usefulness of the approach, Niemann's study on the conditions for communicative action is replicated and re-interpreted using fuzzy sets. The result is an improvement of the informational content, the precision and the validity of conclusions drawn from the empirical analysis. Furthermore, the re-interpretation points to theoretical and conceptual issues that need more consideration in future research.

Key Words

Arguing, Bargaining, Communicative Action, Fuzzy Set Analysis, Comparative Case Studies, Methodology, European Union.

[1] Ph.D. Student, Department of Public Administration, Leiden University, P.O. Box 9555, 2300 RB Leiden, The Netherlands, Email: fhaege@fsw.leidenuniv.nl.

Scope Conditions and Fuzzy Sets[2]

What drives the behavior of political actors? What motivates them in conducting negotiations? These questions lie at the core of an ongoing debate in the International Relations (e.g. Risse 2000; Checkel 2003) and European Union Politics literature (e.g. Joerges & Neyer 1997, 1998; Elgström & Jönsson 2000; Checkel & Moravcsik 2001; Neyer 2003) about how negotiations are conducted in international settings. The classic picture of states as individualist or even opportunistic utility-maximizers based on given interests as drawn by many rational choice scholars has been challenged by constructivists. They claim that often neither all options a state has for action nor even its interest is clear at the outset of negotiations. Complex and uncertain situations leave room for deliberation, arguing and persuasion among political actors. This is even more likely to take place when actors have acquired a shared set of norms and values through socialization in an international institution. In this account, the search for the best solution to a common problem replaces the pursuit of pre-defined national interests.

However, in the constructivist picture, these two concepts of political action, strategic and communicative, are not alternatives in the sense that one or the other is expected to fully explain behavior in all kinds of settings. Rather, they are ideal types which rarely occur in their pure form. International negotiations will often be characterized by a mix of communicative and strategic action, and the empirical question is not which mode is the 'true' one, but "which mode captures more of the action in a given situation" (Risse 2000: 18). The reference to 'a given situation' indicates the importance of specific conditions that have to be fulfilled for the occurrence and influence of a certain mode of action. Several empirical investigations of scope conditions for the occurrence and the impact of arguing have already been conducted (Risse 2000; Checkel 2003; Niemann 2004) and this 'domain of application'-approach has been advanced as a fruitful "model of theoretical dialogue" (Jupille et al. 2003: 21) between rationalists and constructivists.

In this paper, it is argued that constructivist research in general and especially the search for scope conditions can be greatly facilitated and enhanced by the use of fuzzy sets[3]. Fuzzy sets provide a powerful tool for such research in several respects: Firstly, they allow for an easy, in the sense of 'little technical knowledge required', formalization of constructivist theory and qualitative research findings. The potential results are a logically more consistent theory, more transparent research findings, and clearer and more precise conclusions. Secondly and related to the first point, unlike in orthodox political research, where formal models are often tested through statistical methods which are not tailored to the theory at hand (cf. Achen 2002; Braumoeller 2003; Signorino & Yilmaz 2003), fuzzy sets provide a very close connection between theory and data analysis. Indeed, models can be devised using abstract fuzzy set notation and, after values based on empirical measurement have been ascribed to all the elements of the formal expression, directly analyzed through fuzzy set operations. In more inductive research, this close connection between theory and data also facilitates the task of theory building and improvement (Ragin 2000: 4), since empirical findings can be directly translated and incorporated into theoretical statements.

Thirdly, fuzzy set methods can also be applied in studies based on a small number of cases as commonly found in constructivist research. Although it cannot solve the problem of indeterminacy in principle, especially when the ratio of causal conditions to cases is very high, there are means of reducing configurations of conditions in a theoretically informed and transparent way (cf. Ragin 2003b). Finally, the fuzzy set approach looks at cases as configurations of aspects of cases and thus takes into account the context of a hypothesized condition (Ragin 2000: 64). Such an approach seems particularly useful for conceptualizing and analyzing constructivist propositions with their stress on institutional effects and other influences of the specific situation in which actors find themselves. In fact, the proposed scope conditions for the occurrence and impact of communicative action is just one example of this kind of theorizing. Context-

---

[3] This paper relies mainly on the fuzzy set approach as recently advanced by Ragin (2000). For an introduction to fuzzy sets in a political science context, see Cioffi-Revilla (1981). For a recent example of empirical research employing the fuzzy set approach, see Pennings (2003). Smithson (1987) offers a more general but also slightly more technical treatment of the potential of fuzzy set analysis for the social sciences.

specificity is a major theme in constructivist reasoning, and the fuzzy set approach is privileged in its ability to take account of these situational circumstances.

Rather then continuing an abstract plea for the use of fuzzy set methods in the identification of scope conditions and constructivist research in general, the remainder of this paper will illustrate their potential through a reassessment of a recent study that aimed at shedding some more empirical light on the conditions for communicative action. The paper is structured in three main sections: The first one briefly presents the study selected for the replication and re-analysis and the reasoning for this particular choice. The theoretical and methodological parts of the analyzed study are also discussed in somewhat more detail. The second part presents the replication of the original study. It explains the coding of the qualitative categories of conditions into fuzzy set membership scores and discusses the differences in results and conclusions that result when using fuzzy set methods as compared to the original verbal interpretation. This exercise shows how the fuzzy set approach can improve the precision and validity of conclusions even when there are no substantial changes made to the original qualitative results. In other words, it demonstrates that fuzzy sets are useful even if they are solely used as a methodological tool.

After this simple replication of the original study, a theoretical model of the necessary and sufficient conditions for communicative action is developed in the third part. Besides some theoretical expectations, it will also incorporate some of the empirical findings of the original study. Thus, it constitutes an example of a "dialogue between ideas and evidence" (Ragin 2000: 4). In this case, it uses empirical findings of the initial study to improve theory. Furthermore, it uses the full potential of fuzzy sets by employing a more fine-grained measurement scale based on a careful reading of the original description of the cases and outcomes. The results of the fuzzy set analysis of this model point to further theoretical refinements. The goal of this second part of the paper is to illustrate how fuzzy set methods in combination with careful theoretical reasoning can produce more precise results and enhance the interpretation of the empirical evidence even where the number of cases as compared to causal conditions is low. It helps you to get the most out of your data!

Niemann's Case Study: "Between Communicative and Strategic Action"[4]

In a recent case study, Arne Niemann (2004) examines the formation of the negotiation offer of the European Union (EU) for the negotiations producing the WTO Agreement on Basic Telecommunications Services. In his judgment (379)[5], the offer was very liberal with regard to market access and foreign investment, despite the substantially different initial positions of many member states. This constitutes the main puzzle motivating Niemann's study. The question becomes especially intriguing since, as he contends (379-380), neither strategic bargaining approaches nor other typically employed alternative explanations, like the influence of domestic factors, can fully account for this outcome.

To arrive at a sufficiently complete explanation, Niemann draws on Habermas' concept of communicative action. This mode of action is distinct from strategic action in that behavior is not steered towards individual utility maximization, but "…towards a *reasoned* understanding about valid behavior" (380, italics in original). Niemann (380) claims that this concept is operationalizable and thus particularly useful in bringing Constructivist theorizing down from meta-theoretical clouds to empirically testable propositions. He builds on Risse's (2000) work by "adding to and refining" (380) conditions under which communicative behavior can be expected to occur and exert influence on the negotiation outcome. As Niemann (387) acknowledges, his study does not aim at testing hypotheses, but should rather be considered as a plausibility probe for the proposed conditions; its main aim is theory development through exploratory research.

As mentioned earlier, Niemann sets out to explain how EU positions were adopted for the negotiations on the WTO Basic Telecommunications Services Agreement. A crucial role in the formation of collective negotiation positions with regard to trade is played by the Article 113 Committee. This committee consists of representatives of the member states and assists the Commission, which represents the

---

[4] The full reference for the article reads as follows: Arne Niemann (2004): Between Communicative Action and Strategic Action: The Article 113 Committee and the Negotiations on the WTO Basic Telecommunications Services Agreement. Journal of European Public Policy 11, 3: 379-407.
[5] Citations showing only page numbers refer to Niemann (2004).

EU in external trade matters, in its task to negotiate international trade agreements. Although formally only equipped with a consultative function, according to Niemann (388), the committee acts "as a clearing house for the Commission. It communicates member states' views to the Commission and indicates what sort of agreement would be acceptable for conclusion in the Council". The Article 133 Committee consists of two levels; the Full Members are made up of senior officials from national trade ministries, while the Deputies below deal more with detailed technical issues. Furthermore, the Article 113 Committee established several sub-committees for different issues. Only the committee of Full Members and one of the sub-committees, the Services Committee, played a role in the formation of the offers for the negotiations on basic telecommunication services, which began on 30 April 1994 and were concluded in February 1997.

Niemann reconstructs the negotiation process leading to common EU positions through process tracing, triangulating empirical evidence from structured interviews, participant observation, confidential and public documentation as well as from media publications. He divides his case into three main sub-cases (387): The first sub-case represents the pre-negotiations, consisting of informal debates that started more than a year before any formal discussion of the EU position but which almost completely determined the first offer. The second sub-case consists of the revision of the first offer with regard to restrictions on non-EU investment held by several member states, and the third sub-case constitutes the finalization of the offer through bilateral negotiations between the Commission and Spain on the latter's remaining restrictions.

Niemann distinguishes communicative action from strategic action such as bargaining and rhetorical arguing. Whereas bargaining is based on individual utility maximization, communicative action relies on arguing in order to reach a common understanding about valid behavior. According to him, preferences are fixed in the former and highly amenable to change in the latter. In the mode of communicative action, agents truly belief in the validity of their arguments but are nevertheless prepared to revise their positions in the light of more convincing reasoning, while in the mode of rhetorical action, agents use norm-based arguments in a strategic manner to bolster their

interest-based position and to de-legitimize those of others. In the latter case, agents are also not ready to change their own position in view of a better argument.

Niemann's study was chosen for a re-analysis with fuzzy set methods for two reasons. Firstly, and most importantly, it presents a very structured and systematic inquiry, which is all too often not found in qualitative works. Only a structured and hence transparent analysis allows for an easy reformulation in fuzzy set terms (as well as for any replication by fellow researchers in general). Secondly, it was very recently published in one of the leading international journals dealing with issues of European integration and EU politics. Thus, it constitutes the current cutting edge of research in the field, assuring that the following re-analysis does not discuss irrelevant or outdated problems. The preceding two points should have made clear that the study by Niemann was not chosen because of some obvious weaknesses. Quite to the contrary, it stands out for its rigor which only makes such a reassessment possible and worthwhile.

Replication Using Fuzzy Set Methods

The last section described the main research question of Niemann's work, his object of inquiry, as well as the methods and the setup of his analysis. Furthermore, a justification was given for why exactly Niemann's case study was selected for a re-examination in this paper. In this section, his analysis is simply replicated using fuzzy sets as a methodological tool. For the moment, neither the original theoretical reasoning is questioned nor the qualitative coding of the empirical evidence. Thus, the goal is to stay as close as possible to Niemann's original theoretical setup and to map his qualitative assessment of conditions into fuzzy set scores. Although the results of the following analysis are not substantially different from Niemann's original findings, the conclusions are. The analysis shows how the use of fuzzy set methods helps to achieve more informative, more precise and more valid conclusions.

The Conditions for Communicative Action

As a first step in this replication, the original qualitative coding of conditions is mapped into fuzzy set membership scores. Drawing on related work and on his own earlier

research, Niemann (385-386) postulates six conditions for the occurrence and impact of communicative action[6]:

1. The existence of a strongly shared lifeworld[7]

   (provides a common system of norms and values as crucial reference points)

2. Lack of knowledge, uncertain situations and new problems

   (provides the motivation to analyze new information, consider different views, and learn)

3. Cognitively complex issues

   (provides the need for validity claims about what constitutes the right basis for appropriate action)

4. The possibility for lengthy discussions

   (provides the time necessary for an argumentative discussion and for reaching a reasoned consensus)

5. Persuasive individuals

   (provides for easier impact of arguments on preferences)

6. Weak/only moderate countervailing pressures – low levels of politicization

   (provides for an unobstructed argumentative process and a search for a reasoned agreement)

Given the empirical evidence gathered through the methods mentioned above, Niemann codes the presence and variation of these conditions across the three cases in a verbal manner, ranging from *present* over *slightly diminished* and *diminished* to *significantly diminished*. His original table (389) is reproduced below as table 1. Only the columns and rows are reversed, in order to allow for an easier comparison of the original assessment of conditions with the re-coding into fuzzy set membership scores as represented in table 2.

Before discussing the content of these tables, a brief note on fuzzy set membership scores and their measurement is in order[8]. While classic crisp sets allow for

---

[6] Note that Niemann (385) argues that a clear-cut distinction between conditions for the occurrence of communicative action and its impact, respectively, is not possible. I will return to this point later in the paper.

[7] The conditions are direct citations from Niemann's (385-386) text; the explanatory remarks in brackets also use mainly Niemann's own words. Quotation marks are just omitted to ease readability.

only qualitative distinctions, i.e. something or somebody is either a member of a certain set or not, fuzzy sets allow for a scaling of membership scores. Thus, whereas crisp set membership is coded qualitatively as either 1 (*fully in*) or 0 (*fully out*), the membership scores of fuzzy sets can, in addition, take on any value in the interval between these two extremes. Take a five-value fuzzy set as an example: 1 stands for *fully in*, 0.67 for *more or less in*, 0.33 for *more or less out*, and 0 for *fully out* of the fuzzy set. Including information on full and non-membership as well as the degree of membership, "fuzzy sets are simultaneously qualitative and quantitative" (Ragin 2000: 154). This double-property of fuzzy sets is of particular advantage for empirical social science research, where theoretical concepts are often of a qualitative nature but social reality seldom fits neatly into categories.

Generally, the question of how to calibrate fuzzy membership scores must be answered by the analyst in the light of theoretical considerations as well as the data available in a specific research situation. But of particular importance in the definition of fuzzy sets and the measurement of their membership scores is to assure the correspondence with the theoretical concepts they are supposed to represent (Ragin 2000: 160). In the present case, the theoretical concepts are Niemann's six conditions for the occurrence and impact of communicative action, as reproduced above. Considering these conditions as fuzzy sets, membership scores are calibrated through a 'translation' of Niemann's verbal coding into numerical values.

Niemann finds that all his hypothesized conditions were present during the pre-negotiations. Thus, this case receives a 1.0 as a membership score on all conditions. Case 1 is *fully in* the set of negotiation situations characterized by a shared lifeworld of participants (condition 1), a lack of knowledge and uncertainty (condition 2), cognitively complex issues (condition 3), the possibility for lengthy discussions (condition 4), the presence of persuasive individuals (condition 5), and low politicization (condition 6). Almost the opposite is true for the third case, the bilateral negotiations with Spain to

---

[8] This very brief description of fuzzy sets and their membership scores intentionally sidesteps some important issues that are not of direct relevance for this study. For a more detailed discussion, see Ragin (2000: 153-171).

finalize the revised EU offer. With the exception of condition 4 and 5[9], all conditions are *significantly diminished*. In Niemann's (399) discussion of this case, it becomes clear that the label *significantly diminished* corresponds to the virtual absence of these conditions. Hence, a zero is assigned as a membership score to all of them, signifying that case 3 is *fully out* of the set of instances exhibiting conditions 1, 2, 3 and 6.

So far, Niemann's qualitative labels *present* and *significantly diminished* have been translated into the two qualitative anchors for assessing fuzzy set membership, i.e. full membership and full non-membership, respectively (cf. Ragin 2000: 166)[10]. The coding of the two intermediate categories of *slightly diminished* and *diminished* is somewhat more difficult. Given Niemann's (397-400) discussion of his findings for cases 2 and 3, it can quite unambiguously be inferred that *slightly diminished* refers to cases that are *more in than out* of the set in question. Hence, their membership score should definitely be greater than 0.5 but smaller than 1.0. More intriguing is the question of how *diminished* should be translated into a membership score. Although Niemann's (397-400) case descriptions give the impression that cases are *more out than in* of the respective set in this instance, he evaluates these *diminished* conditions as being only "partly absent" in the conclusion (400). The latter wording favors a value above 0.5, but still lower than the value for *slightly diminished*. However, since more instances in the text hint towards the relative absence rather than the relative presence of *diminished* conditions, the cases concerned are assigned a value below 0.5 but larger than 0.0 as a membership score for the set in question. Overall, it seems justified to translate *slightly diminished* into a membership score of 0.6 and *diminished* into a score of 0.4.

---

[9] As can be seen in table 1, Niemann's categorization of cases with respect to condition 5 is ambiguous. However, based on his tentative interpretation of the presence or absence of condition 5 (398-400), it seems justifiable to treat condition 5 as *slightly diminished* in case 2 and as *diminished* in case 3.

[10] There is one more qualitative anchor, the cross-over point at 0.5, where a case is *neither in nor out* of a certain set. While the cross-over point is useful as a point of orientation in assigning membership scores below or above it, assigning membership scores of 0.5 to cases is problematic unless there is a clear interpretation for such a value.

Table 1: Overview of the presence and variation of conditions among cases

Cases/Conditions	1: Existence of a strongly shared lifeworld	2: Lack of knowledge and uncertainty	3: Cognitively complex issues	4: (Possibility of) lengthy discussion	5: Persuasive individuals	6: Weak counter-pressures/low politicization
1: Pre-negotiations	Present	Present	Present	Present	Present	Present
2: Revision of first EU offer	Slightly diminished	Diminished	Diminished	Slightly diminished	(Slightly)* diminished	Diminished
3: Finalizing the revised EU offer	Significantly diminished	Significantly diminished	Significantly diminished	Present	(Significantly)* diminished	Significantly diminished

* Brackets signify that information is somewhat ambiguous and only allows for tentative conclusions (note in original).

Table 2: Variation in presence of conditions and outcome recoded as fuzzy set membership scores

Cases/Conditions and outcome	1: Existence of a strongly shared lifeworld	2: Lack of knowledge and uncertainty	3: Cognitively complex issues	4: (Possibility of) lengthy discussion	5: Persuasive individuals	6: Weak counter-pressures/low politicization	Occurrence and impact of communicative action
1: Pre-negotiations	1.0	1.0	1.0	1.0	1.0	1.0	1.0
2: Revision of first EU offer	0.6	0.4	0.4	0.6	0.6	0.4	0.4
3: Finalizing the revised EU offer	0.0	0.0	0.0	1.0	0.4	0.0	0.0

Although Niemann does not code the outcome, that is communicative action, explicitly, scores can easily be derived from his conclusion. He states there that conditions 2, 3, and 6 are corroborated since they "…vary according to expected [sic!] levels of communicative action" (400). Hence, the membership scores of these conditions can also be used for coding the outcome of the analysis. If this link between outcome scores and condition scores is acknowledged, the actual values allocated as membership scores are irrelevant for this replication. As long as the original qualitative ranking between categories is preserved, the following analysis of conditions for communicative action is robust to changes in the coding of membership scores. For example, there would be no change in the results if the values 0.6, 0.7, 0.8, and 0.9 were used in the analysis instead of 0.0, 0.4, 0.6, and 1.0. The fuzzy set operations applied for this replication are insensitive to this kind of transformations. Nevertheless, the selected values are useful for descriptive purposes, since they correspond closely to Niemann's verbal interpretation of the degree of presence of conditions. The final results of this translation of qualitative categories into fuzzy set scores can be examined in table 2. In the next step, fuzzy set operations will be used to re-examine the conclusions drawn by Niemann.

Conclusions of the Analysis

As Niemann (387) acknowledges, his research design faces a problem of indeterminacy and he is careful to point out the tentativeness of any conclusions drawn from the analysis (401). Indeed, although he increases the number of observations through the division of the case into three sub-cases (cf. King et al. 1994: 217-228), it is still logically impossible to assert the individual impact of any of the six conditions. To clarify this point, even if the scaling of the conditions was assumed to be dichotomous (presence versus absence), there would still be $2^6 = 64$ possible combinations of conditions (cf. Ragin 2000: 182-183). Of course, it is highly unlikely that all these combinations of conditions would actually be found in reality, even in a very large sample of cases, due to the "limited diversity" (Ragin 1987: 104; Ragin 2003b) of social phenomena. However, it illuminates the seriousness of the problem for the current analysis which poses severe difficulties even to methods explicitly designed to handle a large number of conditions with a limited

11

set of cases, such as Ragin's (1987) Qualitative Comparative Analysis and Fuzzy Set techniques. This will become apparent in the following discussion.

Nevertheless, the application of fuzzy set methods can still be fruitful for refining the original conclusions drawn from the analysis. They are reproduced in column 2 of table 3. As limited as these conclusions might be in terms of generalizability and uncovering causal conditions, they can be improved in terms of informational content, precision, and validity. With regard to informational content, Niemann (401) recognizes the need to investigate whether conditions are necessary or sufficient, but suggests this as a task for further research[11]. But would it not be interesting in itself as well as helpful for future research to know what the empirical results tell us about the conditions in this respect? There is no reason why such an investigation can or should not be undertaken. However, in Niemann's study, the results are implicitly interpreted according to the logic of statistical correlation instead. This is best illustrated when Niemann (400, brackets in original, italics added) argues in the conclusion that conditions 2, 3, and 6 are "(firmly) corroborated … as they *vary according to* expected [sic] levels of communicative action", whereas the evidence for the relevance of condition 1 is "slightly less clear-cut, as the turn towards rhetorical action in case 2 was accompanied by *only a small* adverse change in the shared lifeworld". Similarly, although Niemann is careful to point out that the available information is ambiguous, it seems to him that condition 5 is confirmed. This is because it varies in the same direction as the degree of communicative action. Thus, the "relevance" (400) of five out of the six conditions is interpreted in terms of co-variation instead of sufficiency and necessity.

---

[11] Besides necessary and sufficient, Niemann (401) also distinguishes conducive conditions. In the following discussion the focus lies on the former two, since it is not exactly clear what the term 'conducive' means. For example, it could be an 'important necessary' (Goertz 2003: 8) or a 'usually sufficient' condition (Ragin 2000: 249), or something else.

Table 3: Niemann's original conclusions vs. conclusions based on fuzzy set analysis

Conditions	Niemann's (400) conclusions regarding the relevance of conditions	Conclusions with regard to necessity and sufficiency of individual conditions[1]	Conclusions with regard to necessity and sufficiency of combinations of conditions
1: Existence of a strongly shared lifeworld	Largely confirmed, but change from case 1 to case 2 does not correspond to change in communicative action	Necessary but not sufficient	Individually necessary and jointly sufficient
2: Lack of knowledge and uncertainty	(Firmly) confirmed, varies according to level of communicative action	Necessary and sufficient	
3: Cognitively complex issues	(Firmly) confirmed, varies according to level of communicative action	Necessary and sufficient	
4: (Possibility of) lengthy discussion	Does not constitute a necessary condition, at best a conducive condition	Necessary but not sufficient	
5: Persuasive individuals	Available information seems to confirm relevance of condition, diminishes in accordance with decrease in communicative action	Necessary but not sufficient[2]	
6: Weak counter-pressures/low politicization	(Firmly) confirmed, varies according to level of communicative action	Necessary and sufficient	

[1] See text for a discussion of the validity of these conclusions.
[2] Whether this condition is individually sufficient or not depends on its precise coding for cases 2 and 3, see discussion in text.

Somewhat surprisingly then comes the assertion that condition 4 "did not constitute a necessary condition" (400). First of all, this is surprising because the necessity and sufficiency of the other conditions is not discussed, but also because this statement seems, at least at first sight, to be wrong. As discussed more thoroughly below, a condition is corroborated as necessary in the fuzzy set approach if its degree of presence is higher than the degree of presence of the outcome in all of the examined cases. Considering Niemann's (389-400) summary table of the presence of conditions and his case description, the 'possibility for lengthy discussions' is in all cases *more present* than the

outcome. Only in the conclusion is it stated that there was more time for negotiations available in the third than in the first case, "… while the outcome further slid into bargaining mode" (400). If this version of the relative time available for negotiations is correct, condition 4 really does not represent a necessary condition and the apparent contradiction is just a result of an inconsistency of the statements in the conclusion with the preceding descriptions.

With this caveat in mind, the following analysis will nevertheless be based on the qualitative assessment of condition 4 in Niemann's (389) table and as recoded into fuzzy set values in table 2. The coding is not only kept for the sake of consistency, but also for a good theoretical reason: 'time for lengthy discussions' is a qualitative concept. One should expect that "more than a year" (390) of pre-negotiations is just as sufficient for lengthy discussions as the time available for the bilateral negotiations in case 3. After a certain threshold has been reached with regard to time needed for lengthy discussions, any additional time unit represents irrelevant variation (cf. Ragin 2000: 161-163). Assuming that one year of deliberations is long enough to reach a reasoned understanding among actors; it does not matter whether there was more time available in other instances. All of the cases with at least one year time available for deliberation are fully in the set of negotiation situations allowing for lengthy discussions.

The necessity and sufficiency of conditions can be assessed through fuzzy set analysis by the examination of fuzzy subset relations (cf. Ragin 2000: 203-260). For a condition to be considered as necessary, its fuzzy set score has to be at least as large as the outcome score across all cases ($x_i \geq y_i$ for all $i = 1,…,N$; where N is the number of cases)[12]. In order to speak of a sufficient condition, its fuzzy set score must not be larger than the score on the outcome for any case ($x_i \leq y_i$ for all $i = 1,…,N$). Based on the coding of conditions in table 2, all of them pass the test for necessity, since none of their fuzzy set scores is lower than the respective outcome score. Looking at the conditions individually, i.e. treating them as independent of each other, conditions 2, 3, and 6 also qualify as sufficient (see column 3 in table 3). None of their membership scores is higher than the corresponding score on communicative action. The other conditions do not meet

---

[12] For an alternative operation to represent necessary conditions in fuzzy set terms see Goertz (2004: 24).

the requirements for sufficiency. When comparing column 2 and 3, it becomes apparent that those conditions which Niemann (400) sees as "(firmly) confirmed" due to their co-variation with the outcome seem to be necessary and sufficient, whereas the remaining only conform to the notion of necessity. This first simple analysis showed that without considerable more work, the content of the conclusions can be considerably enriched by using fuzzy set methods and thus made more useful as a starting point for further research.

However, fuzzy set methods are also helpful in improving the precision and validity of conclusions. In the fuzzy set approach, causality is explored by treating cases as configurations of conditions. Thus, in many instances, the results of the analysis will not show the individual impact of a condition, but the impact of a combination of several conditions (cf. Ragin 2000: 99). The very assumption that conditions could or should be treated independently of each other is highly questionable, because there are good reasons to expect interactions among them. When conditions are treated in a configurational way, the current data does not tell us that conditions 2, 3, and 6 are individually sufficient, it only suggests that all of the conditions are individually necessary and that they are jointly sufficient.

To see this more clearly, consider how tests for necessity and sufficiency are conducted in fuzzy set analysis for combinations of conditions: The test for necessity of combinations of conditions should generally be conducted before the sufficiency test, since important necessary conditions could be dropped by the latter procedure (cf. Ragin 2000: 104-107). Interestingly, to find out whether a combination of conditions is jointly necessary, each single condition is tested for necessity individually. Each individually necessary condition is automatically a subset of jointly necessary conditions. To map a constellation of conditions, they are connected with logical 'AND'. For fuzzy sets, this corresponds to taking the minimum of the membership scores for all conditions included in the constellation of a specific case. If all the conditions have membership scores above the outcome score, i.e. if all of them are individually necessary, then their minimum is automatically also above the value of the outcome (cf. Ragin 2000: 100). Thus, the conclusion regarding individual necessity does not change when the focus shifts from an individual to a constellation of conditions. All conditions seem to be necessary. This also

implies that all of them have to be retained in the sufficiency analysis. The causal expression cannot be reduced further.

In contrast to a necessary combination of conditions, a sufficient one does not imply that all the conditions included in the constellation are also individually sufficient. For joint sufficiency, the minimum score of the conditions in each case constellation must not be larger than the outcome score. Each condition with a membership score equal or lower as the outcome could be sufficient on its own, but without the possibility of any reduction of conditions, as is the case here, we cannot ascertain which one is the crucial one or whether its impact depends on one or more other conditions with membership scores that are maybe even higher than the outcome. The only valid conclusion we can draw from the data in this respect is that the conditions are jointly sufficient. We can also assert that conditions 1, 4, and 5 are definitely not sufficient on an individual base, since at least one of their membership scores is higher than the respective outcome score. However, this does not necessarily mean that they are redundant in the combination of conditions with regard to joint sufficiency.

To sum up, the investigation of necessity and sufficiency using fuzzy set methods does not only increase the informational content of the conclusions, but also leads to the distinction between assertions that can be prudently made for the causal effect of individual conditions, on the one hand, and statements about causal effects that can only be ascertained for constellations of conditions on the case level, on the other hand. Strictly speaking, the original interpretation of the results by Niemann, implicitly treating conditions as independent of each other, was not warranted. Employing fuzzy set methods improves the precision of conclusions and helps to assure their validity by avoiding such pitfalls.

Theory-Guided Reinterpretation

Up to this point, the paper was limited to a simple replication of Niemann's results employing fuzzy set methods. It showed that it is relatively easy to translate the qualitative results of a systematically conducted study into fuzzy set notation and improve the conclusions in several respects. The goal was to reproduce Niemann's study as closely as possible. To achieve this aim, neither the choice and conceptualization of

16

conditions and outcome was questioned, nor the atheoretical treatment of the conditions in terms of necessity and sufficiency. Fuzzy set analysis was applied rather mechanically, echoing the exploratory nature of Niemann's study. In the following, it is argued that theory combined with some of his empirical findings can improve both, concept formation and the interpretation of the cases. In addition, a more fine-grained coding of the revised conditions will show more of the potential that the fuzzy set approach offers for empirical research, even for very small-N analyses. This section will tackle each of Niemann's conditions in turn, discussing their underlying concepts, their theoretical status in terms of sufficiency and necessity, their causal relations among each other, and their coding. Changes will be made to any of these components when deemed appropriate.

A Model for Communicative Action and Its Impact

The goal of this subsection is not to develop a 'general' model of communicative action and its effectiveness in influencing decision-making outcomes. Rather, the aim is to give an impression of the potential that the fuzzy set approach offers for such an endeavor. Thus, the theoretical discussion will still be mainly confined to an internal critique of Niemann's study. For example, it is not questioned whether all potentially related conditions were incorporated in the original analysis or whether some of the included conditions are irrelevant. The resulting model is only used to derive a theoretically informed alternative interpretation of the empirical evidence presented by Niemann.

Regarding the outcome, Niemann (385) claims that a "clear-cut separation between the two levels – conditions for the occurrence of communicative action and conditions for its impact on outcomes – is not possible". But an incidence of communicative action does not automatically imply an impact on the result of negotiations. Communicative action is based on a certain state of mind, a specific logic that demands certain kinds of behavior and rules out others. Whether this mode of action is effective in influencing the outcome of negotiations is a completely different question. As Niemann (383) states himself, different modes of action may compete for impact on actors' positions. Confusing the occurrence of communicative action with its effect distorts the analysis. In particular, as will be discussed below, since there are theoretical

reasons to expect that some of the conditions only apply to the concept of communicative action and others only to its effectiveness. Thus, in the following, the distinction will be made between two outcomes, the occurrence of communicative action on the one hand, and its impact on the negotiation outcome on the other hand. It is hypothesized that communicative action itself is only a trivial necessary condition for its impact on negotiation results.

Niemann (385) considers "the existence of a strongly shared lifeworld … as fundamental" in that it provides a shared set of norms and values. This system of beliefs provides "crucial reference points for communicative action" (385). Niemann does not explicate exactly what kind of norms and values he has in mind, but he seems to imply that they include supranational allegiances, thick trust, perspective-taking, and honesty, which are brought about by high levels of interaction among officials (390). Although there are lifeworlds imaginable that would not privilege arguing as an adequate mode of action, a lifeworld supplying collective interpretations of the world and of the actors themselves, as provided by shared experiences, common history and culture (Risse 2000: 10) is indeed likely to be a prerequisite for communicative action. As Niemann (385) points out, such a shared lifeworld can only be a necessary but not a sufficient condition. Of course, as all necessary conditions for the occurrence of communicative action, a shared lifeworld is indirectly also a necessary condition for the success of arguing.

The second condition refers to a "lack of knowledge, uncertain situations and new problems" (385). The lack of knowledge refers mainly to the further developments in the respective policy field (here: telecoms services), which produces uncertainty among actors about the outcomes of different courses of action so that they cannot identify which one of them resembles their best interest. Although this concept is rather ambiguous, from the discussion in Niemann's (391, 398, 399) text it seems like it corresponds closely to the absence of significant prior beliefs, since it is often equated with the lack of clearly formed preferences and positions. Thus, in the remaining part of this paper the condition will be referred to under this label. The absence of significant prior beliefs is unlikely to be a necessary condition for the occurrence of communicative action. It is a perfectly plausible scenario to imagine people with strong divergent beliefs about a certain issue to engage in sincere argumentation. What becomes unlikely in such

a situation, however, is that one actor can convince the other that his or her point is more beneficial to both of them. Hence, the absence of significant prior beliefs is not hypothesized to be a necessary condition for communicative action to occur, but rather for its success.

Niemann's (385) third condition is strongly related to the second condition and states that the issue negotiated should be cognitively complex, that is highly technical. As Niemann (400) concludes from his interpretation of the cases, complexity of the issue on its own can never produce communicative action if the actors do not dispose of the relevant expert knowledge to lead a meaningful discussion. However, rather than widening condition 3 to also incorporate the notion that actors should possess the relevant expertise to evaluate each other's validity claims, as Niemann (400) does, an additional condition is introduced to capture this feature of actors separately. Indeed, it is argued that it is the identity of experts (condition 7) which is necessary and also, at least in the presence of certain prerequisites, sufficient for communicative action to occur.

As for the remaining three conditions, it is contended that they do not constitute conditions for communicative action to take place, but for arguing to have an impact on the results of negotiations. Sufficient time available (condition 4) and the presence of persuasive individuals (condition 5) clearly have no impact on the occurrence of arguing. It is hard to see why the time available for negotiations should be connected to communicative action in one way or the other. Either actors perceive arguing as the appropriate or 'right' mode of action in a given situation or not. A limited time frame poses obstacles to other modes of action as well, be it rhetorical action or bargaining. In all instances, limited time is a hindrance for reaching a more encompassing or consensual agreement through further negotiations. Sufficient time available is a necessary condition for the success of all modes of action in negotiations.

In the case of condition 5, actors have to engage in persuasion first before persuasive individuals can benefit from their advantage in intellectual capacity and personal reputation. Persuasive individuals can argue as long as they want without any effect if bargaining mode dominates negotiations. It is a condition under which preference change through persuasion is hypothesized to be especially likely (Checkel 2001: 212). Hence, it is a condition for the effectiveness of argumentative action, not its

very occurrence. Furthermore, intellectual capacity and reputation is also or even more so an asset in rhetoric arguing, since it may help in deceiving the audience about the very fact that the argument only serves to bolster strategic interests. Thus, persuasiveness is not only a necessary condition for the success of communicative action, but also for the success of rhetorical arguing.

The case for the last condition is less obvious. Niemann argues that a low level of politicization is a condition for communicative action. But his results also show that even where arguing took place, and the participating officials were persuaded, they had problems convincing their colleagues in the home ministries. Thus, a distinction between political pressures to defend national positions before/during negotiations and domestic resistance/vetoes after a negotiation settlement has been reached should be made. The former can hinder the development of communicative action, whereas the latter obstructs its success in changing positions of member states. Whereas the lack of prior political pressure is a necessary condition for arguing to occur, the absence of veto possibilities (condition 8) is necessary for implementing preference changes of officials into position changes of member states, and thus for the success of communicative action. Figure 1 summarizes the theoretical expectations. Capital letters denote the presence and small letters the absence of the condition in question.

Note that these expectations specify only the hypothesized causal relations in terms of necessity of individual conditions. Not much has been said about the expectations regarding individual or joint sufficiency. There is not much reason to expect that any one condition is sufficient on its own to assure the occurrence or the impact of communicative action; and theorizing about the influence of constellations of conditions becomes complex rather quickly. In the absence of strong theory, the impact of combinations of conditions is more fruitfully investigated by an empirical analysis. But before we turn to this analysis, the coding of membership scores is re-considered next.

Figure 1: The Conditions for Communicative Action and its Impact[13]
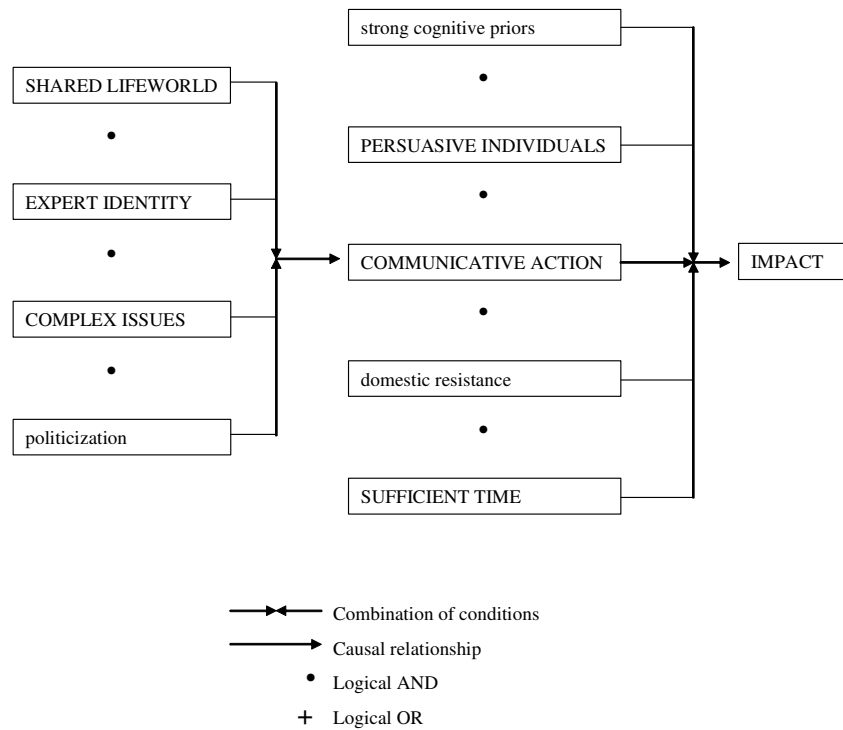
Fuzzy Set Membership Scores

The re-coding of membership scores is justified for two reasons: Firstly, Niemann did not assess the degree of communicative action and its impact on preferences separately. Thus, no independent coding for the impact of arguing does exist, and the coding for communicative action is likely to be confounded with its degree of effectiveness. The same holds for condition 3 and 6, which were both split resulting in the two additional conditions 7 and 8 (see table 5). Secondly, Niemann did not have a fuzzy set analysis in mind when judging the degree of presence of conditions. With fuzzy set membership scores, however, a more fine-grained differentiation than the fourfold qualitative

---

[13] In drawing the figure, the causal models presented in Goertz and Mahoney (2004) were taken as examples.

distinction becomes possible. For the following analysis, a six-value fuzzy set scale is employed (Ragin 2003a: 3, table 1):

1.0 = fully in
0.8 = mostly but not fully in
0.6 = more or less in
0.4 = more or less out
0.2 = mostly but not fully out
0.0 = fully out

Starting with condition 1, the shared lifeworld was "particularly strong" (391) during pre-negotiations of the services committee, thus condition 1 remains coded as 1.0 in case 1. A common system of norms and values was also present in the meetings of the Full Members' committee, but it "was not quite as tightly knit" (398). Therefore, condition 1 receives a 0.8 in case 2. In case 3, the mainly bilateral negotiations between Spain and the Commission, the representative of the latter "hardly new his Spanish counterparts" (note 22), suggesting a value of 0.0 for the absence of a shared lifeworld, at least if the "level of socialization and interaction" (note 22) is the standard on which to judge.

Although there was "still considerable uncertainty and a substantial lack of knowledge" (391) left in case 1, "positions and preferences had already been formed to some extent" (391). That means, case 1 is not fully, but mostly in the set of cases characterized by an absence of significant prior beliefs (condition 2), justifying a score of 0.8. In contrast, "everyone had formed a firm opinion" (398) already when formal negotiations started, allowing at most for a 0.2 on the membership score. "Uncertainty had further waned" (399) and positions were "particularly clear-cut" (399) in case 3, which clearly indicates that significant prior beliefs were not absent in this instance (0.0)

Niemann widened condition 3 ad hoc to include not only cognitively complex issues, but also the expertise necessary to discuss them in an informed way. However, when the original definition of the condition is retained, a very different coding results. Since the issues "remained cognitively complex" (398, 399) throughout the three cases, there is no variation among them in terms of membership scores and all receive a score of 1.0. Considering now the presence of an expert identity (condition 7) among officials separately, it is clearly present (1.0) only in the specialized sub-committee on services of case 1. Participants in the Full Members committee are "usually the highest senior civil servants responsible for trade policy in national administrations" (388) and they

"sometimes lacked the necessary expertise" (398). Although the competences and responsibilities attached to their high positions in the hierarchy of the home ministries induce them with a more generalist viewpoint, the Full Members are still specialists in general trade policy. Thus, there are more in than out of the set of experts, which yields a 0.6 on the membership score. The main negotiators in the third case consisted of politicians "which often lacked … fundamental expertise" (399), hence case 3 was assigned a 0.0.

The coding for case 1 of condition 4 is somewhat ambiguous, owing to the inconsistency in Niemann's description as discussed already above. Although he notes that there was "a lot of time available for … debate" (391) during pre-negotiations, he points out in the conclusion that it was less than in case 3. Niemann (400) stresses that 'sufficient' time should be available in order to reach a reasoned consensus, and it seems this was the case during pre-negotiations. Thus, just as case 3, case 1 is completely in (1.0) the set of cases with enough time available, although bargaining in the former took even longer if measured in days or months. Since there was "less time available" (398) in case 2, because of "very tight meeting agendas" (398) in the Full Members committee, it receives a score of 0.6.

Niemann's original condition 6 is also split into two separate ones: the absence of political pressure before and during negotiations (revised condition 6), and the absence of post hoc resistance against the agreements reached (new condition 8). Pre-negotiations took place in the "absence of political attention" (391) and were "characterized by a lack of pressure" (391), which is a clear indication of the absence of condition 6. The modified positions of delegations at the end of pre-negotiations considerably reflected the provisions of the final EU offer (392), pointing also to the absence (1.0) of external resistance to changing positions. In contrast, officials started to feel the "pressure from within their national bureaucracies" (397) and experienced "difficulties in convincing their colleagues in capitals" (397) during formal negotiations. Whereas case 2 can still be considered to be more or less in (0.6) the set of un-politicized cases, "a number of delegations … failed to carry their capitals along" (379). This is interpreted as being more or less out (0.4) of the set of cases experiencing no domestic resistance. In case 3, no domestic resistance against negotiation outcomes is apparent. However, the negotiations

"had become substantially politicized in Spain" (399), with the Spanish telecommunications operator lobbying its government for the maintenance of the status quo. This is evaluated as being fully out of the set of un-politicized cases (0.0).

Table 5: Conditions for the Occurrence of Communicative Action

Cases/ Conditions and outcomes	1: SHARED LIVE-WORLD	3: COMPLEX ISSUES	6: politici-zation	7: EXPERT IDENTITY[1]	I: COMMU-NICATIVE ACTION
1: Pre-negotiations	1.0 (1.0)	1.0 (1.0)	1.0 (1.0)	1.0 (1.0)	1.0 (1.0)
2: Revision of first EU offer	0.8 (0.6)	1.0 (0.4)	0.6 (0.4)	0.6 (0.4)	0.6 (0.4)
3: Finalizing the revised EU offer	0.0 (0.0)	1.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)

Notes: Capital letters denote the presence of a condition, small letters its absence (e.g. COMPLEX ISSUE = presence of complex issue; politicization = absence of politicization). Figures in brackets are initial membership scores as presented in table 2.
[1] Original scores refer to condition 3.

Table 6: Conditions for the Impact of Communicative Action

Cases/ Conditions and outcomes	I: COMMU-NICATIVE ACTION	2: strong cognitive priors	4: SUFFI-CIENT TIME	5: PERSU-ASIVE INDIVI-DUALS	8: domestic resistance[1]	II: IMPACT[2]
1: Pre-negotiations	1.0 (1.0)	0.8 (1.0)	1.0 (1.0)	1.0 (1.0)	1.0 (1.0)	1.0 (1.0)
2: Revision of first EU offer	0.6 (0.4)	0.2 (0.4)	0.6 (0.6)	0.6 (0.6)	0.4 (0.4)	0.4 (0.4)
3: Finalizing the revised EU offer	0.0 (0.0)	0.0 (0.0)	1.0 (1.0)	0.2 (0.0)	1.0 (0.0)	0.0 (0.0)

Notes: See table 5.
[1] Original scores refer to condition 6.
[2] Original scores refer to the outcome.

Finally, the outcomes have to be mapped into fuzzy set scores. Regarding the occurrence of communicative action, "negotiators used a mix of genuinely communicative as well as strategic arguments" (392) during pre-negotiations. However, "communicative rationality prevailed" (392) and case 1 was "dominated by communicative rather than strategic action" (390), resulting in a membership score of 1.0. During the following formal negotiations, "rhetorical action occurred more frequently and became widespread" (398). Nevertheless, it was still a "mix of rhetorical and discursive arguments" (398) that characterized the negotiations. Thus, this case is still more in than out, with a value of 0.6, of the set of cases exhibiting communicative action. Completely out of this set (0.0) is only case 3, the bilateral negotiations between Spain and the Commission, where "argumentative debate was largely absent" (399).

Communicative action was not only present in case 1, but also "enabled a change in preferences" (390) of delegations, whose stance was rather skeptical towards liberalization. Furthermore, Niemann (392-397) discusses extensively the claim that the resulting "nearly liberal consensus was brought about largely through argumentative and not strategic (including rhetorical) action" (392). Thus, the pre-negotiation are clearly fully in (1.0) the set of cases where communicative action had an impact on outcomes. In contrast, case 3 is completely out (0.0) of this set, since "the concept of communicative action cannot explain how and why Spain decided to drop all market access and foreign ownership restrictions". Changes of member state positions during formal negotiations were due to "a mix of argumentative and *especially* rhetorical action" (399, italics added). This indicates that the outcome of case 2 was slightly more influenced by rhetorical rather than discursive arguments, resulting in a code of 0.4. Tables 5 and 6 summarize the preceding discussion. To make the changes in membership scores more transparent, the former values are given in brackets.

Results of the Re-Analysis

Evaluating the necessity and sufficiency of conditions for communicative action to take place (see table 5), it turns out that again all conditions hypothesized seem to be necessary for the occurrence of a discursive argumentation. Hence, the available empirical evidence does not lend itself to a reduction of the causal expression. Regarding

sufficiency, the best we can infer from this limited data base is that the combination of all four conditions was jointly sufficient. However, what we can conclude is that a shared lifeworld and complex issues are definitely not individually sufficient. This is completely consistent with the theoretical expectations outlined above. It cannot be ruled out in principle that conditions 6 and 7 are both individually sufficient, but would we really expect them to be it? It is hard to imagine that the absence of politicization (condition 6) is sufficient for the occurrence of a communicative action orientation among actors. This would only be the case if such an orientation could be regarded as the rule, rather than the exception. In this case, actors would naturally act in genuine arguing mode and only engage in strategic behavior when an issue becomes particularly politicized. At least in the realm of politics, such an assumption is not very plausible.

The case of expert identity (condition 7) is not so obvious, it seems likely that experts "tend to engage in problem-solving behavior by challenging each other's rival claims and elucidating cause-effect relationships" (394). Although communicative action could be regarded as the 'default' behavior of knowledge-based experts, political pressure (condition 6), a plain and simple issue to decide, maybe even with clearly apparent distributional effects (condition 3), or the absence of mutual trust and a shared framework of norms and values, especially with regard to standards for evaluation truth claims (condition 1), could severely impede this motivation. Thus, taking theory into account, it seems plausible that expert identity is only sufficient to produce a discursive argumentation under the requirements of a shared lifeworld, a complex issue, and a lack of political intervention. But this is just theoretically informed speculation, the formal analysis only tells us that all four conditions were individually necessary and jointly sufficient and that condition 1 and 3 can be ruled out as individually sufficient conditions.

Given the occurrence of communicative action, which conditions have to be satisfied for it to be successful, i.e. to be able to change people's minds and thus have an impact on negotiation outcomes? In this analysis, communicative action itself is clearly a trivial necessary condition. Without communicative action having taken place, it cannot have an impact on the negotiation outcome. However, it is claimed that the occurrence of communicative action is by its own not a sufficient condition for its success. Hence, in order to investigate which other conditions have to be present to assure its full impact, it

also has to be included in the analysis. Besides communicative action, sufficient time available (condition 4), the presence of persuasive individuals (condition 5), and the absence of domestic resistance (condition 8) turn out to be necessary for a successful discursive argumentation (see table 6). Considered individually, all three conditions are definitely not sufficient. This also makes theoretical sense. The occurrence of communicative action might not assure an impact on negotiation outcomes by itself, but it nevertheless has to be part of any combination of conditions that is jointly sufficient for persuasion to take place. The only condition that is not necessary is the absence of strong cognitive priors (condition 2). Under the simplifying and counterfactual assumption that communicative action would also have an impact on negotiation outcomes when, besides the necessary conditions, strong cognitive prior beliefs were *present*, this condition could even be discarded from the causal expression.

As outlined before, there is a strong case to make that such strong cognitive priors are a severe hindrance to finding a reasoned consensus, even under otherwise favorable circumstances. It is very hard to convince somebody who has a strong belief in the desirability of his policy position; but these strong cognitive priors could be neutralized by a particularly strong ability of the negotiation counterparts to persuade people. As a result, it might be more appropriate to consider conditions 2 and 5 as substitutable causes. This would mean that it is either the absence of cognitive priors or the presence of persuasive individuals which is necessary for communicative action to have an impact on negotiation outcomes. Although this interpretation seems plausible, without further empirical evidence, it remains rather speculative. Here again, what can be concluded with certainty based on the available data is that the combination of all five conditions is sufficient for communicative action to have an impact on negotiation outcomes. Furthermore, with the exception of condition 2, all of them are necessary but definitely not individually sufficient.

Which of the necessary conditions was crucial in curtailing the impact of discursive arguing in case 2? As Niemann lines out, quite a few officials which were persuaded in the Article 113 committee "faced difficulties in convincing their colleagues in capitals" (397). "If argumentative processes fail to trickle through capitals, national officials may not be carried along in the process" and "progress towards a mutual

understanding … can be obstructed" (398). Although communicative action partially occurred and was also successful in changing the preferences of a considerable number of delegations, these delegations were not able to convince the colleagues in their home ministries (condition 8). Hence, also preference change occurred on the individual level, the position of the member states did not change and communicative action had less than its potential impact on the negotiation outcome.

Conclusion

This paper made a case for using the fuzzy set approach in constructivist research and particularly for the identification of scope conditions for different modes of action. It was argued that a fuzzy set approach has several properties that correspond well with constructivist reasoning and its typical research methodology: It allows for easy formalization of qualitative research, it provides a very close link between theory and data analysis, it is applicable in research where the number of cases is limited, and it recognizes the importance of context and possible interdependencies among conditions. In order to illustrate the usefulness of the approach, Niemann's recent study on the conditions for communicative action was reanalyzed using fuzzy set methods. At first, his analysis was simply replicated by coding his qualitative assessments of conditions into fuzzy set membership scores and identifying subset relationships for necessary and sufficient conditions. This led to more informative, precise, and valid conclusions.

In the remaining part of the paper, a model of the conditions for the occurrence and impact of communicative action was developed based on theoretical considerations and some of Niemann's empirical findings. It was argued that this model is both, theoretically and in the light of the empirical evidence, more plausible than Niemann's original interpretation of the cases. Of course, many of the decisions made in developing this model and in the re-coding of membership scores are highly contestable. But the primary aim of this exercise was not to make a contribution to the theoretical literature on political action or submit this model to a hard empirical test. The goal was simply to illustrate the potential of the fuzzy set approach for constructivist research through a slightly more complicated analysis. As should have become clear in the discussions throughout the paper, even just the coding of fuzzy set membership scores, the simple

testing for necessity and sufficiency, as well as the thinking in configurations of conditions, forces the researcher to give more attention to issues like causal relations among conditions and outcomes, concept formation, and measurement. To sum up, the fuzzy set approach makes also a positive difference for studies where the ratio of conditions to cases is so unfavorable that the more sophisticated methods for the reduction of causal expressions can hardly be employed.

References

Achen, Christopher A. (2002): Toward a New Political Methodology: Microfoundations and ART. Annual Review of Political Science 5: 423-450.

Braumoeller, Bear F. (2003): Causal Complexity and the Study of Politics. Political Analysis 11: 209-233.

Checkel, Jeffrey T. (2001): Why Comply? Social Learning and European Identity Change. International Organization 55, 3: 553-588.

Checkel, Jeffrey T. (2003): "Going Native" in Europe? Theorizing Social Interaction in European Institutions. Comparative Political Studies 36, 1/2: 209-231.

Checkel, Jeffrey T. and Andrew Moravcsik (2001): A Constructivist Research Program in EU Studies? European Union Politics 2, 2: 219-249.

Cioffi-Revilla, Claudio A. (1981): Fuzzy-Sets and Models of International Relations. American Journal of Political Science 25, 1: 129-159.

Elgström, Ole and Christer Jönsson (2000): Negotiation in the European Union: Bargaining or Problem-Solving? Journal of European Public Policy 7, 5: 684-704.

Goertz, Gary (2003): Assessing the Importance of Necessary and Sufficient Conditions in Fuzzy-Set Social Science. Unpublished manuscript, University of Arizona, Tucson.

Goertz, Gary (2004): Constraints, Compromises, and Decision Making. Journal of Conflict Resolution 48, 1: 14-37.

Goertz, Gary and James Mahoney (2004): Two-Level Theories and Fuzzy Sets. Unpublished Manuscript, University of Arizona, Tucson.

Joerges, Christian and Jürgen Neyer (1997): Transforming Strategic Interaction into Deliberative Problem-Solving. European Law Review Journal 3: 273-299.

Jupille, Joseph, James A. Caporaso and Jeffrey T. Checkel (2003): Integrating Institutions. Rationalism, Constructivism, and the Study of the European Union. Comparative Political Studies 36, 1/2: 7-41.

King, Gary, Robert O. Keohane and Sidney Verba (1994): Designing Social Inquiry. Scientific Inference in Qualitative Research. Princeton: Princeton University Press.

Neyer, Jürgen (2003): Discourse and Order in the EU: A Deliberative Approach to Multi-Level Governance. Journal of Common Market Studies 41, 4: 687-706.

Niemann, Arne (2004): Between Communicative Action and Strategic Action: The Article 133 Committee and the Negotiations on the WTO Basic Telecommunications Services Agreement. Journal of European Public Policy 11, 3: 379-407.

Pennings, Paul (2003): Beyond Dichotomous Explanations: Explaining Constitutional Control of the Executive with Fuzzy-Sets. European Journal of Political Research 42: 541-567.

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

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

Ragin, Charles C. (2003): Fuzzy Sets and Qualitative Comparative Analysis. Unpublished manuscript, University of Arizona, Tucson.

Ragin, Charles C. (2003b): Recent Advances in Fuzzy-Set Methods and Their Application to Policy Questions. Unpublished manuscript, University of Arizona, Tucson.

Risse, Thomas (2000): "Let's Argue!": Communicative Action in World Politics. International Organization 54, 1: 1-39.

Signorino, Curtis S. and Kuzey Yilmaz (2003): Strategic Misspecification in Regression Models. American Journal of Political Science 47, 3: 551-566.

Smithson, Michael (1987): Fuzzy Set Analysis for Behavioral and Social Sciences. New York: Springer.