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Constructivism, fuzzy sets and (very) small-*N*: Revisiting the conditions for communicative action

Frank M. Häge *

Department of Public Administration, Leiden University, P.O. Box 9555, 2300 RB Leiden, The Netherlands

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Abstract

Fuzzy set techniques, both as a methodological and theoretical tool, can engage in a fruitful liaison with constructivist research. Several important properties of fuzzy set analysis overlap with constructivist theorizing and research practice. In particular, fuzzy set methods are compatible with and support research based on a holistic ontology and on detailed qualitative comparisons of cases. To demonstrate the usefulness of the approach, a comparative case study [Niemann A. Between Communicative Action and Strategic Action: The Article 113 Committee and the Negotiations on the WTO Basic Telecommunications Services Agreement. J Eur Public Policy 2004;11(3):379–407.] investigating the conditions for communicative action using fuzzy sets is replicated and re-interpreted. The result of the replication is an improvement of the informational content, the precision, and the validity of the conclusions drawn from the empirical analysis. Furthermore, the re-interpretation points to theoretical and conceptual issues that need more consideration in future research. From a methodological point of view, the article shows that fuzzy set techniques are useful research tools even in instances where the number of studied cases is very small.

Keywords: Arguing; Bargaining; Communicative action; Comparative case studies; European Union; Fuzzy set analysis

1. Scope conditions and fuzzy sets

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 and European Union Politics literature (e.g. Beyers, 2005; Checkel, 2003; Checkel and Moravcsik, 2001; Christiansen, Jorgensen, and Wiener, 1999; Goldmann, 2005; Jupille, Caparaso, and Checkel, 2003; Moravcsik, 1999; Risse, 2000; Risse and Wiener, 1999; Zürn and Checkel, 2005) about how negotiations are conducted in international settings. Constructivists challenge the classic picture of states as unitary actors that aim to maximize their utility based on a given national interest, as drawn by many rational choice scholars. They claim that states are often not aware, at the outset of negotiations, of all options available to them and not even of what their national interest consists of. Complex and uncertain situations leave room for deliberation, arguing and persuasion among political actors (Checkel, 2003; Risse, 2000). According to this account, a search for the best solution to a common problem may replace the pursuit of pre-defined national interests (Joerges and Neyer, 1997).

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. Often, a mix of communicative and strategic action characterizes international negotiations 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 need filling for the occurrence and influence of a certain mode of action. Several studies conduct empirical investigations of scope conditions for the occurrence and the impact of arguing (Checkel, 2003; Niemann, 2004; Risse, 2000) and Jupille and colleagues (2003: 21) advance this "domain of application"-approach as a fruitful "model of theoretical dialogue" between rationalists and constructivists.

Constructivist research in general and especially the search for scope conditions is greatly facilitated and enhanced by the

* Tel.: +31 71 527 3707; fax: +31 71 527 3979.
E-mail address: fhaege@fsw.leidenuniv.nl.

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use of fuzzy set analysis. Fuzzy sets provide a powerful tool for such research in several respects: firstly, fuzzy sets allow for an easy, in the sense of little technical knowledge required, formalization of theory and qualitative research findings. The potential results are 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 (see Achen, 2002; Braumoeller, 2003; Signorino and 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 they cannot solve the problem of indeterminacy in principle, especially when the ratio of causal conditions to cases is very high, fuzzy set techniques can reduce configurations of conditions in a theoretically informed and transparent way (Ragin, 2003b). Finally, the fuzzy set approach looks at cases holistically as configurations of their features 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. Context-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 than 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 article illustrates the potential of fuzzy set techniques through a reassessment of a recent study (Niemann, 2004) that examines the conditions for communicative action empirically. The next section briefly presents the comparative case study selected for the replication and re-analysis and the reasoning for this particular choice. Then the replication of the original study follows. Here, fuzzy sets are purely used as a methodological tool. The subsequent section develops a theoretical model of the necessary and sufficient conditions for communicative action and uses it to re-interpret the original data in order to show the full potential of the fuzzy set approach. The article concludes with a summary of the results.

2. The case study: "between communicative and strategic action"

A recent comparative case study by Arne Niemann (2004) examines the formation of the negotiation offer of the European Union (EU) for the negotiations producing the World Trade Organization (WTO) Agreement on Basic Telecommunications Services. For the sake of brevity, the study is referred to in the following as AN and by page numbers without any further reference. AN (379) judges the offer as having been very liberal with regard to market access and foreign investment, despite the substantially different initial positions of many member states. This observation constitutes the puzzle motivating the study. The question becomes especially intriguing since, as AN (379–380) contends, 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, AN 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). AN (380) claims that this concept is operationalizable and therefore particularly useful in bringing constructivist theorizing down from meta-theoretical clouds to empirically testable propositions. The study builds on Risse's (2000) work by "adding to and refining" (380) conditions under which communicative behavior is expected to occur and exert influence on the negotiation outcome. AN (387) does not intend to test hypotheses, but to probe the plausibility of the proposed conditions; its main aim is theory development through exploratory research.

AN (380) aims to "show that communicative action can matter in EU negotiations". The Article 113 Committee plays a crucial role in the formation of collective negotiation positions of the EU with regard to trade. This committee consists of representatives of the member states and assists the Commission, which represents the EU in external trade matters, in its task to negotiate international trade agreements. The committee acts as a "clearing house" (388) for the Commission, although formally it is only equipped with a consultative function. "It communicates member states' views to the Commission and indicates what sort of agreement would be acceptable for conclusion in the Council" (388). The Article 133 Committee consists of two levels: the Full Members consist of senior officials from national trade ministries and discuss the politically more salient issues, while the Deputies below deal with the more detailed technical matters. Furthermore, several sub-committees are established for specialized topics by the Article 113 Committee. 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.

AN (386) 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. The study (387) distinguishes three main sub-cases in the empirical analysis: 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 regards the finalization of the offer through bilateral negotiations between the Commission and Spain on the latter's remaining restrictions.

Theoretically, AN distinguishes communicative action from strategic action such as bargaining (381) and rhetorical action (384). Whereas strategic action focuses on maximizing individual utility, communicative action aims at reaching "a reasoned understanding about valid behavior" (382–383). Preferences are fixed in the former and highly amenable to change in the latter (383). 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 (384).

AN is chosen for a re-analysis with fuzzy set methods for two reasons. Firstly, it presents a very structured and systematic inquiry. Only such a transparent analysis allows for an easy reformulation in fuzzy set terms. Secondly, it was 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 this field, assuring that the following re-analysis does not discuss irrelevant or outdated problems.

3. Replication using fuzzy set methods

This section replicates the analysis in AN using fuzzy sets as a methodological tool. For the moment, neither the original theoretical reasoning nor the verbal coding of the empirical evidence is questioned. Thus, the goal is to stay as close as possible to the original theoretical setup and to map the qualitative assessment of conditions in AN into fuzzy set scores. A comparison of the conclusions of the original analysis with those derived from applying fuzzy set methodology allows then for an identification of the comparative advantages of using fuzzy sets.

3.1. The conditions for communicative action

AN (385–386) postulates six conditions for the occurrence and impact of communicative action. The following conditions and the explanatory remarks are to a large extent direct citations from AN, but quotation marks are omitted to ease readability:

1. The existence of a strongly shared lifeworld (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).

AN 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*. Together with their new fuzzy set membership scores, the original labels from AN's table (389) are reproduced in Table 1.

Before discussing the content of the table, a brief note on fuzzy set membership scores and their measurement is in order. While classic sets allow for only qualitative distinctions, that is something or somebody is either a member of a certain set or not, fuzzy sets allow for a scaling of membership scores. Thus, whereas classic 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 scale as an example, then 1.00 stands for *fully in*, 0.67 for *more or less in*, 0.33 for *more or less out*, and 0.00 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). Particularly important in the definition of fuzzy sets and the measurement of their membership scores is to assure that they correspond to the theoretical concepts they are supposed to represent (Ragin, 2000: 160). In the present case, the theoretical concepts are the original six conditions for the occurrence and impact of communicative action. Considering these conditions as fuzzy sets, a translation of AN's verbal coding into numerical values generates membership scores.

The precise translation of AN's verbal coding into membership scores is not purely based on the labels in Table 1, but takes also the case descriptions and discussions in the text into account. Although AN does not code the outcome, that is the degree of communicative action, explicitly, scores are easily derived from the conclusion of the study. In the conclusion, AN states that conditions 2, 3, and 6 are corroborated since they "…vary according to expected [sic!] levels of communicative action" (400). Therefore, the membership scores of these conditions can be used for coding the outcome variable. If this link between outcome scores and condition scores is acknowledged, the actual values allocated as membership scores are irrelevant for this replication. Because the analysis preserves the original qualitative ranking between categories, its results are robust to changes in the coding of membership scores.

3.2. Comparison of the conclusions

AN acknowledges that the research design faces a problem of indeterminacy (387) and is careful to point out the

Table 1
Variation of the presence of conditions and the outcome: original labels and 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	Minimum/maximum score of conditions		Occurrence and impact of communicative action
1: Pre-negotiations	Present	Present	Present	Present	Present	Present			
	1.0	1.0	1.0	1.0	1.0	1.0	1.0/1.0	1.0	
2: Revision of first EU offer	Slightly diminished	Diminished	Diminished	Slightly diminished	(Slightly) diminished	Diminished			
	0.6	0.4	0.4	0.6	0.6	0.4	0.4/0.6	0.4	
3: Finalizing the revised EU offer	Significantly diminished	Significantly diminished	Significantly diminished	Present	(Significantly) diminished	Significantly diminished			
	0.0	0.0	0.0	1.0	0.4	0.0	0.0/1.0	0.0	
Necessary?	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Sufficient?	No	Maybe	Maybe	No	No	Maybe	Yes		

Note: Original labels are taken from Table 1 in AN (389), where it is noted that "brackets signify that the information is somewhat ambiguous and only allows for tentative conclusions". The precise fuzzy set scores of condition 5 are based on AN's (398–400) evaluation of the presence or absence of condition 5.

tentativeness of any conclusions drawn from the analysis (401). Indeed, although AN increases the number of observations through the division of the case into three sub-cases (King et al., 1994: 217–28), it is still logically impossible to assert the individual impact of any of the six conditions. To clarify this point, even if the conditions had a dichotomous scale (presence versus absence), the result would still be $2^6=64$ possible combinations of conditions (Ragin, 2000: 182–83). Of course, it is highly unlikely that all these combinations of conditions are actually found in reality, even in a very large sample of cases, due to the "limited diversity" (Ragin, 1987: 104, 2003b) of social phenomena. However, this example illuminates the seriousness of the problem for the comparative case study, which poses severe difficulties even to methods explicitly designed to handle a large number of conditions with a limited set of cases, such as Qualitative Comparative Analysis (Ragin, 1987) and Fuzzy Set Techniques (Ragin, 2000).

Nevertheless, the application of fuzzy set methods is still fruitful for refining the conclusions drawn from the analysis in such circumstances. As limited as these conclusions might be in terms of generalizability and uncovering causal conditions, they improve in terms of informational content, precision, and validity. With regard to informational content, AN (401) recognizes the need to investigate whether conditions are necessary or sufficient, but suggests this task as a topic for future research. Instead, AN (400) interprets the results implicitly according to the logic of statistical correlation when discussing most of the results in terms of co-variation between the conditions and the level of communicative action (see column 2 in Table 2). Using fuzzy set methodology, no practical reason exists for not examining the necessity or sufficiency of conditions.

In general, an analysis of fuzzy subset relations allows for assessing the necessity and sufficiency of conditions (Ragin, 2000: 203–60). 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 $i=1,\ldots, N$; where N is the number of cases, x a condition and y the outcome). 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 $i=1,\ldots, N$). Based on the coding of conditions in Table 1, 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, that is treating them as independent of each other, conditions 2, 3, and 6 also qualify as sufficient. None of their membership scores is higher than the corresponding score on communicative action. The other conditions do not meet the requirements for sufficiency. Table 2 gives the results of the analysis (column 3), together with the original conclusions in AN (column 2). When comparing column 2 and 3, it becomes apparent that those conditions which AN (400) regards as "(firmly) confirmed" due to their co-variation with the outcome are necessary and sufficient, whereas the remaining only conform to the notion of necessity. This first simple analysis shows that without considerable more work, fuzzy set methods enrich the content of the conclusions considerably and thus make them more useful as a reference point for future research.

Table 2
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 based on fuzzy set analysis	
		Each condition individually [a]	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	
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	Individually necessary and jointly sufficient
4: (Possibility of) lengthy discussion	Does not constitute a necessary condition, at best a conducive condition [b]	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 [c]	
6: Weak counter-pressures/ low politicization	(Firmly) confirmed, varies according to level of communicative action	Necessary and sufficient	

[a] See text for a discussion of the validity of these conclusions.
[b] The exact meaning of a conducive condition (400) is not apparent from the original text.
[c] Whether this condition is individually sufficient or not depends on the precise coding for the ambiguous cases 2 and 3.

However, fuzzy set methods are also helpful in improving the precision and validity of conclusions. The fuzzy set approach explores causality by treating cases as configurations of conditions. Thus, in many instances, the results of the analysis show not the individual impact of a condition, but the impact of a combination of several conditions (Ragin, 2000: 99). The very assumption that conditions can be treated as independent of each other is highly questionable. Usually, interactions and interdependencies among them can be expected. Treating conditions configurationally, the current data does not tell us that conditions 2, 3, and 6 are individually sufficient, the data only suggests that all of the conditions are individually necessary and that they are jointly sufficient.

To understand this assertion, consider how fuzzy set analysis conducts tests for necessity and sufficiency for combinations of conditions: To map a constellation of conditions, the conditions are connected with the logical AND-operator to produce the intersection of the fuzzy sets. In effect, this procedure means 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, that is if all of them are individually necessary, then their overall minimum is automatically also above the outcome score (Ragin, 2000: 100). Thus, the conclusion regarding individual necessity does not change when the focus shifts from conditions taken individually to combinations of conditions. Based on the available data, all conditions are necessary and therefore have to be retained in the sufficiency analysis.

In contrast to necessity, sufficiency of a combination of conditions does not imply that all the conditions included in the combination 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 a larger number of cases, the procedure 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 from the data in this respect is that the conditions are jointly sufficient. Also, the analysis shows that conditions 1, 4, and 5 are definitely not sufficient on an individual basis, since at least one of their membership scores is higher than the respective outcome score. However, this finding 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 improves the precision of conclusions and helps to assure their validity by pointing out that conditions cannot be treated as if they were independent of each other when in fact the data is insufficient to identify their individual effects.

4. Theory guided re-analysis

Up to this point, the study is limited to a replication of AN's results employing fuzzy set methods. Neither the choice and conceptualization of conditions and the outcome variable was questioned, nor the atheoretical treatment of the conditions in terms of necessity and sufficiency. The following part of the article shows that stronger theory combined with some of AN's empirical findings improves both concept formation and the interpretation of the cases. In addition, a more fine-grained coding of the revised conditions shows more of the potential that the fuzzy set approach offers for empirical research, even for very small-*N* analyses.

4.1. The occurrence of communicative action and its impact

Regarding the outcome variable, AN (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 different question. Confusing the occurrence of communicative action with its effect distorts the analysis, especially when theoretical arguments indicate, as discussed below, that some of the conditions only apply to the concept of communicative action while others apply only to its effectiveness. Thus, in the following, the distinction is made between two outcome variables, the occurrence of communicative action on the one hand, and its impact on the negotiation outcome on the other hand. The occurrence of communicative action is a trivial necessary condition for communicative action to have an impact on negotiation outcomes.

4.2. The necessity and sufficiency of conditions

With regard to condition 1, AN (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). AN seems to imply that these norms and values include supranational allegiances, thick trust, perspective-taking, and honesty, which are brought about by high levels of interaction among officials (390). Although lifeworlds are imaginable that do not privilege communicative action as the 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 the occurrence of communicative action. But as AN (385) points out, such a shared lifeworld can only be a necessary and not a sufficient condition. Note that, since communicative action is a necessary condition for its effectiveness, all necessary conditions for the occurrence of communicative action are at the same time indirectly also necessary conditions for its success.

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 (391), 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 AN (391, 398, 399) it seems to correspond closely to the absence of significant cognitive priors, since it is often equated with the lack of clearly formed preferences and positions. Thus, in the remaining part of this article, the condition is referred to under this label. The absence of significant cognitive priors 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 cognitive priors is not a necessary condition for communicative action to occur, but rather for its success.

AN's (385) third condition strongly relates to the second condition and states that the issue under negotiation should be cognitively complex, that is highly technical. As AN (400) concludes from the 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 in AN (400), an additional new condition captures this feature of actors separately. Then it is the expert identity (condition 7) which is necessary and also, at least in the presence of other necessary conditions, sufficient for communicative action to occur.

As for the remaining three conditions, they do not constitute conditions for communicative action to take place, but for it to have an impact on the results of negotiations. Sufficient time available (condition 4) and the presence of persuasive individuals (condition 5) are theoretically not connected to the occurrence of communicative action. No obvious reason occurs as to why the time available for negotiations relates to communicative action in one way or the other. Either actors perceive communicative action 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 deliberations.

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 (386). Persuasive individuals can argue as long as they want without any effect if the bargaining mode dominates negotiations. Following Checkel (2001: 212), the presence of persuasive individuals is a condition under which preference change is deemed to be especially likely. Hence, the presence of persuasive individuals is a necessary condition for the effectiveness of communicative action, not its very occurrence.

The case for the last condition is more ambiguous. AN argues that a low level of politicization is a condition for communicative action. But the study's 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 is drawn between political pressures to defend national positions before or during negotiations and domestic resistance or vetoes after a negotiation settlement has been reached. 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. Fig. 1 summarizes the

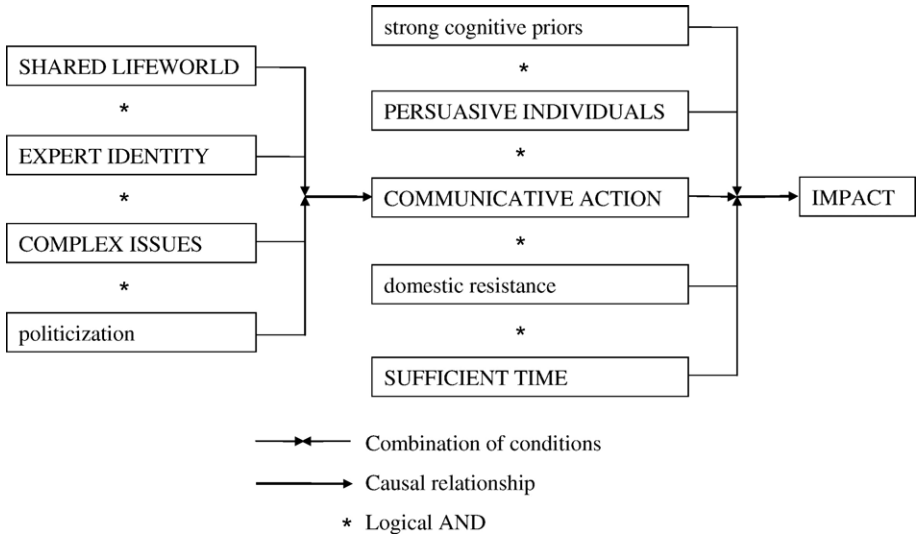

Fig. 1. Theoretical expectations regarding the conditions for the occurrence of communicative action and its impact. Note: the figure is inspired by the causal models presented in Goertz and Mahoney (2005).

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. None of the conditions is likely to be sufficient on its own to assure the occurrence or an impact of communicative action; and theorizing about the influence of constellations of conditions becomes complex rather quickly. In the absence of stronger theory, the decision about the impact of combinations of conditions is left to the empirical analysis.

4.3. Fuzzy set membership scores

Two reasons justify the re-coding of membership scores: firstly, AN does not assess the degree of communicative action and its impact on preferences separately. Thus, no independent coding for the impact of communicative action exists, and the coding for communicative action is likely to be confounded with its degree of effectiveness. A similar problem exists with regard to condition 3 and 6, which were both split resulting in the two additional conditions 7 and 8 (see Tables 3 and 4, respectively). Secondly, AN does not have a fuzzy set analysis in mind when judging the degree of presence of conditions. With fuzzy set membership scores, a more fine-grained differentiation than the fourfold qualitative distinction is possible. Thus, the following analysis employs a six-value fuzzy set scale (Ragin, 2003a: 3):

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

Table 3
The conditions for the occurrence of communicative action

Cases/conditions and outcomes	1: SHARED LIFEWORLD	3: COMPLEX ISSUES	6: politicization	7: EXPERT IDENTITY[a]	Minimum/maximum score of conditions	I: COMMUNICATIVE ACTION
1: Pre-negotiations	1.0 (1.0)	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)	0.6/1.0	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)	0.0/1.0	0.0 (0.0)
Necessary?	Yes	Yes	Yes	Yes	Yes	
Sufficient?	No	No	Maybe	Maybe	Yes	

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 1.

[a] Initial scores refer to original condition 3.

Table 4
The conditions for the impact of communicative action

Cases/conditions and outcomes	I: COMMUNICATIVE ACTION	2: strong cognitive priors	4: SUFFICIENT TIME	5: PERSUASIVE INDIVIDUALS	8: domestic resistance [a]	Minimum/maximum score of conditions	II: IMPACT [b]
1: Pre-negotiations	1.0	0.8	1.0	1.0	1.0	0.8/1.0	1.0
	(1.0)	(1.0)	(1.0)	(1.0)	(1.0)		(1.0)
2: Revision of first	0.6	0.2	0.6	0.6	0.4	0.2/0.6	0.4
EU offer	(0.4)	(0.4)	(0.6)	(0.6)	(0.4)		(0.4)
3: Finalizing the	0.0	0.0	1.0	0.2	1.0	0.0/1.0	0.0
revised EU offer	(0.0)	(0.0)	(1.0)	(0.0)	(0.0)		(0.0)
Necessary?	Yes	No	Yes	Yes	Yes	Yes	
Sufficient?	No	Maybe	No	No	No	Yes	

Notes: See notes in Table 3.
[a] Initial scores refer to original condition 6.
[b] Initial scores refer to the outcome.

"hardly knew 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 "considerable uncertainty and a substantial lack of knowledge" (391) was still 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 cognitive priors (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 membership score of 0.2. "Uncertainty had further waned" (399) and positions were "particularly clear-cut" (399) in case 3, which clearly indicates that significant cognitive priors are not absent in this instance (0.0).

AN widens condition 3 ad hoc to include not only cognitively complex issues, but also the expertise necessary to discuss them in an informed way. However, retaining the original definition of the condition, the result is a very different coding. Since the issues "remained cognitively complex" (398, 399) throughout the three cases, no variation can be discerned 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 as a separate condition, this condition 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, they 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 a 0.0 is assigned to case 3.

Pre-negotiations had "a lot of time available" (391) and hence allowed for lengthy discussions (condition 4). Thus, case 1 is completely in (1.0) the set of cases with enough time available, just like case 3, although bargaining in the latter took even longer if measured in days or months. Case 2 had "less time available" (398) because of "very tight meeting agendas" (398) in the Full Members committee, therefore this case receives a score of 0.6.

AN'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 reflected to a considerable extent 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. Thus, case 2 is still more or less in (0.6) the set of un-politicized cases. But as "a number of delegations … failed to carry their capitals along" (397), case 2 is more or less out (0.4) of the set of cases experiencing no domestic resistance. Case 3 did not show signs of domestic resistance against negotiation outcomes. 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. Thus, this situation is fully out of the set of un-politicized cases (0.0).

Finally, the outcomes are mapped into fuzzy set scores. Regarding the occurrence of communicative action, the "negotiators used a mix of genuinely communicative as well as strategic arguments" (392) during pre-negotiations. However, "communicative rationality prevailed" (392) and case 1 is "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, a "mix of rhetorical and discursive arguments" (398) still characterized the negotiations. Thus, this case is still more in than out (0.6) of the set of cases exhibiting communicative action. Only case 3 is completely out of this set (0.0), 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, AN claims 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". The changes of the member state positions during formal negotiations were due to "a mix of argumentative and *especially* rhetorical action" (399, italics added). This description indicates that the outcome of case 2 was slightly more influenced by rhetorical rather than principled arguments, resulting in a code of 0.4. Tables 3 and 4 summarize the preceding discussion. To make the changes in membership scores more transparent, the initial values are given in brackets.

4.4. Results of the re-analysis

Evaluating the necessity and sufficiency of conditions for communicative action to take place (see Table 3), the result is that again all hypothesized conditions are necessary. Regarding sufficiency, the best that is inferable from this limited data base is that the combination of all four conditions is jointly sufficient. A shared lifeworld and complex issues are definitely not individually sufficient. This result is consistent with the theoretical expectations. The individual sufficiency of conditions 6 and 7 cannot be ruled out in principle, but that the absence of politicization (condition 6) is individually sufficient for the occurrence of communicative action is hard to imagine. This relationship holds if the occurrence of communicative action was the rule, rather than the exception. Then, actors would naturally act in genuine arguing mode and would only engage in strategic behavior when an issue became particularly politicized. In the realm of politics, such an assumption is not very plausible.

The influence of actors having an 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 might be the default behavior of knowledge-based experts, political pressure (condition 6), a plain and simple issue to decide 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 the evaluation of truth claims (condition 1), can severely impede this motivation. Thus, taking theory into account, it is plausible that an expert identity is only sufficient to produce communicative action 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 demonstrates that all four conditions are individually necessary and jointly sufficient and that condition 1 and 3 are not individually sufficient.

Given the occurrence of communicative action, which conditions have to be satisfied for it to be successful, that is to be able to change people's minds and therefore to have an impact on negotiation outcomes? Table 4 indicates that, besides the occurrence of communicative action, sufficient time available (condition 4), the presence of persuasive individuals (condition 5), and the absence of domestic resistance (condition 8) are necessary conditions for communicative action to be successful (see Table 4). Considered individually, all four conditions are definitely not sufficient. This result makes theoretical sense. The occurrence of communicative action does by itself not guarantee an impact on negotiation outcomes, but it nevertheless has to be part of any set of conditions that are 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 together with the other necessary conditions would also have an impact on negotiation outcomes even when strong cognitive priors were present, this condition could even be discarded as irrelevant.

A case can be made 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 or her policy position. But strong cognitive priors of some actors could be neutralized by a particularly strong ability of their counterparts to persuade people. As a result, it might be more appropriate to consider conditions 2 and 5 as substitutable causes. Substitutability 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 is plausible, it remains a speculation without further empirical evidence. However, a certain conclusion that follows from 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 individually not sufficient.

Which of the necessary conditions was crucial in curtailing the impact of communicative action in case 2? As AN outlines, 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, although 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.

5. Conclusion

This study makes a case for using the fuzzy set approach in constructivist research and particularly for the identification of scope conditions for different modes of action. The fuzzy set approach has several properties that correspond well with constructivist reasoning and its typical research methodology. The fuzzy set approach allows for an easy formalization of qualitative research, it provides a very close link between theory and data analysis. The fuzzy set approach is applicable in research situations where the number of cases is limited, and it recognizes the importance of the situational context and possible interdependencies among conditions. In order to illustrate the usefulness of the approach, a recently published comparative case study (Niemann, 2004) on the conditions for communicative action was re-analyzed using fuzzy set methods. At first, the study replicated the original analysis by translating the verbal assessments of conditions into fuzzy set membership scores and by identifying subset relationships for necessary and sufficient conditions. This procedure led to more informative, precise, and valid conclusions.

The remaining part of the article developed a model of the conditions for the occurrence and impact of communicative action based on theoretical considerations and some of AN's empirical findings. This model is theoretically more sophisticated and led to a more insightful interpretation of the original empirical evidence. Of course, many of the decisions made in developing this model and in the re-coding of membership scores are highly contestable. The primary aim of this exercise was not to make a contribution to the theoretical literature on political action or to submit this model to a hard empirical test. The goal was to illustrate the potential of the fuzzy set approach for constructivist research by describing a slightly more complicated analysis based on stronger theory. As should have become clear from the discussions throughout the article, 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.

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