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Collecting Data for Models of Collective Decision Making

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1. Introduction

Since the 1980s several models of collective decision making have been developed within the rational choice approach in political science that provide far reaching insights into the dynamics of decision making processes (among others Bueno de Mesquita et al 1985; Coleman 1990; Laumann et al 1987; Stokman and Van den Bos 1992; Stokman and Van Oosten 1994; Torenvlied 1996; Pappi and Henning 1998). The main differences between the models concern the assumptions they make regarding the behaviour of the actors involved in the decision making process. This paper is not concerned with the differences between the models, but rather with the collection of the data required for them. A non technical introduction to the most important models within this tradition can be found in Stokman et al. (1999).

Each of the models within this research tradition requires the same input variables: quantitative estimates of actors' power and policy positions, and the saliency they attach to each of the issues to be analysed. The collection of these data is based on a specification of the problem to be analysed in terms of issues, and interviews with key informants. This paper aims to set out this data collection procedure and the problems that have been encountered in the past. It is based on several Dutch language texts (notably Baarda 1999), unpublished memorandums, and experience in the collection of these data.

The first two steps of the data collection consist of the specification of the issues and the selection of the key informants who will be interviewed. These initial steps are discussed in sections 2 and 3 of this paper. Subsequently, the procedure used to structure the interview and to obtain estimates of the variables required for the models will be discussed in section 4. Throughout this paper, an attempt is made to provide a frank assessment of the problems encountered when applying this data collection procedure. Nevertheless, it should be stressed that this procedure has proven to be a powerful and irreplaceable tool for collecting the data to test models of collective decision making, and for gaining insights into a wide range of decision making situations.

2 Defining Issues

The first step in the data collection involves a specification of the problem to be analysed in terms of a limited number of issues. This is often one of the most challenging stages in the data collection procedure. Many observers of political negotiations think of decision making situations in terms of "problems" that need to be solved. At the root of such problems is invariably the fact that the actors involved in the negotiations take different positions regarding the desired outcomes of the decisions. The specification of political problems in terms of a limited number of issues provides a conceptual structure in which these different positions can be represented. The specification of the issues should be comprehensive, in the sense that the decisions taken by the actors on these issues should determine the main contours of the solution to the political problem. The number of issues that are necessary varies from one decision making situation to another. Usually, one to five issues are sufficient, even in complicated situations, but incidentally up to twenty issues have been used in some applications. The requirement of the specification of a *limited* number of issues is in its own right a good exercise because it distinguishes the main points from subordinate ones. Ill-defined specification at this stage results in an analysis based on an incorrect representation of the political problem. Consequently, the model predictions will bear little relation to the political problem in question. A poor specification of the issues is one of the main causes of the failures in model predictions.

2.1 *What Criteria Must the Issue Specification Meet?*

Each of the issues specified must be unidimensional. This implies that each of the issues can be visualised as a continuum on which the various decision outcomes relating to that issue can be located. Sometimes issues are referred to as "issue dimensions", but here we will use the term "issue continua". Each actor involved in the decision making situation can be placed on a point on the issue continuum in order to represent its position on that issue. Points on the continuum that lie further away from an actor's position are evaluated more negatively by that actor. This is related to the assumption that actors have single peaked preference functions: this means that each actor attaches most value to its own position on the issue continuum and less to policy alternatives represented by points on the continuum further away from its own position. The two extreme positions on each issue continuum represent the most extreme positions taken by any of the actors. Intermediate positions represent more moderate positions and also possible compromise outcomes.

The criteria that an issue specification must meet can be summarised as follows:

- The most basic criterion is that at least some of the actors involved in the decision making must take different positions on each issue. If the actors take the same positions there is no political problem to be analysed.
- The points on the issue continuum must be defined in terms of the possible decision outcomes regarding the issue. These decision outcomes may be supported by one or more of the actors involved, or may be possible compromise outcomes.
- The issues must be defined as unidimensional continua, on which the actors can be placed in order to represent their preferences regarding the possible decision outcomes.

An example of such an issue specification is given in the appendix to this paper. The example originates in a project carried out by a transition manager from the Dutch company W&S Transition and Interim Management. W&S was asked to reorganize a company in the Amsterdam harbor that was facing serious economic problems. The company, given the acronym ABC, had a strong ideological orientation and had to accept more projects on economic grounds in order to survive. Maintaining the present ideological orientation was highly controversial. Some stakeholders wanted it to be reduced, whereas others wanted its continuation or even strengthening. We specified the central issue of the ideological orientation as the percentage of projects that the company would be allowed to accept on ideological grounds after the reorganization. Note that this specification provides a substantive meaning to each point on the issue dimension. In some issue specification this is not possible. If we, for example, aim to analyze the merger of two companies, typical issues include the desired degree of integration of the two companies, the initial number of representatives of each company in the integrated board, and which of the two presidents will be nominated as the president of the merged company. The last issue is an example of a dichotomous issue without intermediate outcomes.

2.2 In Practice, How are the Issues Specified?

In practice, the issues are specified on the basis of a combination of content analysis of documentation and interviews with key informants (also referred to as "subject area specialists" or "experts"). During this initial phase the aim is to obtain enough knowledge to specify the issues. In addition, information on the context of the issues enables the researcher to evaluate the information received during interviews later on in the data collection, and to interpret the results of the analyses in substantive terms. It is, however, not necessary or even possible for the researchers to become experts on the policy domains they collect data on. The researcher's expertise lies in the field of decision analysis that can be applied in a range of policy domains and decision situations.

The first task is to identify the aspects of the political decision that are controversial. The final evaluation of how controversial an issue is can only be made after the collection of data on actors' policy positions and salience with respect to each of the issues. Nevertheless, a preliminary indication can be obtained from newspaper reports and policy documents published prior to the decision making process under consideration. In addition, interviews with key informants may provide insights into which aspects of the decision are considered controversial, and therefore may be defined as issues.

It is common practice that the researcher makes an initial specification of the issues, and then presents this to a key informant for comment and amendment. An initial specification by the researcher is often necessary because the specification must adhere to the criterion of unidimensionality. This is often a difficult concept for subject area specialists who have had no experience in the collection of such data. An important aid in the specification of issues during this initial stage is the requirement that at least the two extreme positions on each issue should be identified. The initial specification of the issues usually also requires at least a provisional specification of the main actors or stakeholders. Without such a specification it will be difficult to specify extreme and intermediate positions on the continua. Stakeholders, as will be

explained in more detail below, can be individuals or organizations. Individuals usually represent organizations or hold important positions in organizations.

In order to arrive at a definitive specification of the issues, interviews with key informants are necessary. This is particularly apparent when the outcomes of the decisions concerned cannot be expressed directly in numerical form. For example, decisions on the allocation of money or the timing of a particular policy measure can be expressed directly in numerical terms. An example of a decision that is more qualitative in nature was given earlier: when analyzing the merger of two companies, one of the issues concerns the desired degree of integration of the two companies. This issue may be reformulated as the following question: "which activities should be included in the merged company?" Various policy alternatives, ranging from "none" to "all current activities of the two separate companies" constitute answers to this question. These policy alternatives should be placed on the issue continuum ranging from "0" for "none" to "100" for "all current activities". The exact position on the issue continuum on which each of these policy alternatives should be placed depends on the political distances between these alternatives. This enables the spatial relations between the stakeholders to be defined. Estimation of the positioning of the various policy alternatives on the issue continua requires expertise in the subject matter. It is therefore necessary that the researchers consult an expert at this stage.

The consultation of key informants is also recommended when the decisions can be expressed directly in quantitative terms. Beware of naive translations of quantitative decisions into numerical values on issue continua. The distances between the points on the issue continua should correspond with the political distances between the policy alternatives represented by these points. These political distances may or may not correspond with the numerical differences between the policy alternatives. It is important to check this with an expert.

When extracting information from key informants, the researcher should be aware of the way in which most people think about decision making situations. Thinking about spatial relations between abstract policy alternatives can be a difficult task. It is more common to think of spatial relations in terms of distances between actors or stakeholders. Therefore, a useful aid when asking experts to specify the points on an issue continuum is to ask which actors take a particular position, and then to ask where the actors should be placed on the continuum.

A problem that sometimes occurs during the specification of the issues is that the researcher has not identified the correct number of issues. If too few issues have been specified, there are two possible reasons. First, an important (controversial) aspect of the decision has been neglected. This should become apparent during the interviews with the key informants. Second, one of the issue continua contains two or more underlying issues. If this is the case, it will not be possible to order the extreme and possible intermediate positions on the continuum. In such cases it is recommended to go one step deeper and to identify the underlying dimensions. Conversely, the specification of too many issues may be due to the inclusion of an unimportant (non controversial) aspect of the decision, or a failure to identify the fact that two or more of the issues in fact refer to exactly the same underlying dimension. If the latter is the case, then the positions and saliences of the actors on these issues will correlate highly. Another indication that the most important dimensions of the decision have

not been identified is when few positions are defined on many of the issue continua. It may be that there are many issues defined dichotomously or have only three defined points.

3. Key Informants

As became clear during the above discussion of the specification of the issue continua, interviews with key informants are essential in the collection of data for models of collective decision making. How are these individuals generally selected and what are the general rules of conduct for the researcher when conducting interviews with these individuals?

3.1 Criteria for the Selection of Key Informants

The key informants are selected on the basis of their ability to provide the necessary qualitative and quantitative data. During the interviews, the informants are asked to provide the following information: a list of all stakeholders involved in the decision, numerical estimates of the power of each of these stakeholders, the policy positions of the stakeholders on each of the issues in question, and numerical estimates of the salience that each of the stakeholders attaches to each of the issues. As such, the informants need to have knowledge of the policy area concerned and the specific issues in question. A key informant should ideally be an independent observer of the decision making process, rather than a participant in that process. If informants are selected who are participants in the decision making, there is the danger that they will base their estimates on their own roles within that process. This could lead to biases in the estimates given by the informant. In some cases there is a trade off between the independence of the informants and their knowledge of the decision situation. Participants in decision making sometimes have most knowledge regarding the key variables on which data are required.

The knowledge and independence of the key informants is screened by the researcher in three main ways. First of all, individuals are selected who, on the basis of their professional position, are expected to have the required knowledge. In the past, researchers have consulted journalists who specialise in a particular policy area, other researchers from subject-specific research institutes, bureaucrats from relevant government departments, political advisors, and members of the negotiating teams representing the stakeholders that participate in the decision making. Second, during the first contact with a candidate key informant (usually by telephone), the researcher makes an initial estimation of the substantive knowledge of the individual. In addition, the ability and willingness of the informants to make quantitative estimates is gauged by observing their reaction to a brief introduction to the quantitative methodology.

However, it is only during the interview itself (the third stage of the screening) that the researcher can make a final evaluation of the information provided by the informants. This evaluation is based on the way in which the informants are able to support their quantitative estimates by providing convincing arguments. Consequently, the interviewer should consistently ask the informants to support their arguments by asking *why* they make the particular estimates they do. This qualitative information allows the researcher to evaluate the validity of the quantitative estimates.

In addition, it provides additional information that is often useful when interpreting the results of the analysis in substantive terms.

3.2 The Practice of Selecting Informants

The interview technique used to collect these data is time consuming. This has implications for the selection of key informants. One of the reasons why the interviews are time consuming is that individuals who are experts in a particular subject area typically have little or no experience in thinking about decision making processes in quantitative terms. Such individuals are inclined to think of political negotiations as highly complex and idiosyncratic processes. The data collection procedure described here extracts the key elements of the decision situation. The informants therefore have only a limited number of variables (stakeholders, power, policy positions and salience) in which they can represent a huge amount of qualitative information. The informants are asked to translate their qualitative insights into numerical estimates. If the data collection is to be successful, it is necessary that the informants are able, and also willing, to make this translation.

The exact time required for each interview of course depends on the ability of the informant. After the issues have been defined and the stakeholders listed, the informants are presented with a separate form for each issue, on which they can write down their estimates. The informant is then asked to make estimates of the power and policy positions of each of the stakeholders with regard to each issue, and the salience of each issue for each stakeholder. Typical decision situations involve 20 to 30 stakeholders. An average of three hours is required to complete the forms for two or three issues.

Very senior officials are often unable to devote the required amount of time. Therefore, many researchers use a "top down" strategy when seeking out suitable key informants. First, contact is made with a senior official in an organisation in which a suitable informant may be found. The aims of the study are then explained to this individual and s/he is asked to provide the names of individuals whom s/he considers could provide the required data. These individuals are then contacted and asked to participate in the study. Despite the time and effort asked of key informants, the application of this methodology has shown that experts are generally willing to participate.

3.3 The Practice of Interviewing Informants

As mentioned above, the candidate informant is contacted by the researcher before the interview in order to obtain an initial evaluation of the individual's suitability. After this initial contact, usually by telephone, the researcher sends the informant some information in preparation for the interview. This information contains a short description of the issues that will be discussed during the interview and of the method of data collection. In the short description of the method of data collection, the definitions of the variables are outlined. Box 1 contains an example of part of a letter sent to a key informant in preparation for an interview.

Box 1 Example of an Extract of a Letter Sent to a Key Informant in Preparation for an Interview. Adapted from Baarda (1999: 89-90).

"... With regard to these issues we first need a list of the *stakeholders* that may influence the decision making either directly or indirectly.

A *stakeholder* may be as small as an influential individual or as large as a whole organisation or even a government. A stakeholder has the following characteristics:

- if a stakeholder is a group, then the members of that group must agree on the desired outcome of the decision on that issue;
- if a stakeholder is a group, then the members of that group must share the same willingness to exert influence with regard to the issue (they must attach the same level of importance to the issue);
- a stakeholder must have power resources (a large or small amount) that can be used to exert influence in the decision making process (a stakeholder must have some potential power).

After listing the stakeholders that are relevant to each issue, it is necessary to estimate the power of each stakeholder, each stakeholders' current policy position regarding each of the issues, and the level of salience each stakeholder attaches to each of the issues. In this research, these variables are defined in the following way.

Potential Power

The power of a stakeholder is defined as its ability to change the behaviour of others in a way that is advantageous for it. In other words, the ability of a stakeholder to make another stakeholder do something the latter would not otherwise do. This ability is based on a number of different "resources": for example, the formal authority to take decisions, financial resources, information, access to other important stakeholders, leadership of a large number of individuals etc.. The value of these resources may vary according to the issues in question. Here we are concerned with the potential power in relation to the issues mentioned above.

Policy Position

A stakeholder's policy position indicates the position supported by that stakeholder in relation to the issue in question. A stakeholder's position is the policy alternative it advocates during the negotiations at this moment in time. A stakeholder's position might differ from its ideally preferred position and its realistic expectation of the outcome of the negotiations.

Salience

This variable measures the extent to which a stakeholder attaches importance to an issue in comparison with other issues in which it is involved. Salience indicates the extent to which a stakeholder is willing to mobilise its potential power to exert influence on others and the decision outcome."

The interviews with the key informants generally consist of three parts:

1) In the first part, qualitative questions are posed regarding the main developments in connection with the issues in question. In this first part, the specification of the issues is discussed. Once the researcher has gained confidence in the specification of the issues, for example on the basis of previous interviews with other experts, this part of

the interview may become shorter. Nevertheless, it should be checked that the informants agree with and understand the specification of the issues they are presented with. This introduction allows the researcher to evaluate the general perspective that the informant holds with respect to the decision making situation. A question that should always be asked of the informant is what his or her expectation is, if any, of the outcome of the decision on each issue. This not only allows the researcher to evaluate the informants general perspective, but also facilitates a comparison of the models' predictions with "experts' predictions".

2) The second part of the interview focuses on the list of stakeholders. As will be explained in section 4 of this paper, it is often possible for the researcher to formulate a provisional list of stakeholders before the interview in order to save time. Nevertheless, it is important that the informants are able to make such a list independently, and that they are able to modify, if necessary, the provisional list supplied by the researcher.

3) The third part of the interview consists of the estimation of the three variables - power, policy position and salience - for each of the stakeholders in relation to each of the issues. This is generally the most time consuming part of the interview. Section 4 of this paper discusses the ways in which the researcher can support the informants in making these estimates.

Although the interview is clearly structured, an important feature of the interview is that it is open. As mentioned above, one of the tasks of the interviewer is to challenge the numerical estimates made by the informant. This means that substantive arguments must be given by the informants for the estimates they make. In addition, the consistency of the set of estimates made by the informant must be challenged. This requires a comparison on the estimates with each other. It is essential that the informants are given the opportunity to return to the estimates they made, and that they can revise their estimates during the course of the interview. The fact that the interviews are conducted face-to-face facilitates this process of checking and re-checking the estimates given. In face-to-face interviews the researcher is better able to evaluate the attention and effort that the informant devotes to the task.

Two important questions are how many informants should be interviewed in any given interview session, and how many informants should be interviewed independently for any given decision situation. With regard to the first question, experience with interviewing a panel of informants in a single session has generally been positive. These panels usually consist of two or three individuals. The advantage of interviewing a small group of individuals is that the informants are able to challenge each other's estimates on the basis of substantive arguments, in a way that the researcher would be unable to do. Furthermore, the members of the panel may be able to supplement the gaps in each other's knowledge of the decision situation. The main problem with such group interviews is that they are difficult to organise. The informants generally have to travel to the same location and the interview is often even more time consuming than the interview of a single informant.

In scientific projects, it is more common that a number of informants are interviewed separately. It is difficult to give a general criterion for how many informants should be interviewed. The guideline is that as long as there is not sufficient confidence in the validity of the estimates, more interviews should be held. Two or three key informants are generally considered to be the absolute minimum.

Key informants' estimates will always differ from each other in some respects, regardless of whether they are interviewed in a panel or individually. It is the task of the researcher to interpret these differences. There are three main reasons for the occurrence of differences in estimates:

1) A lack of expertise on the part of the informant. A lack of expertise leads to estimates that deviate strongly from those of other informants. A lack of expertise can be detected during the interview. This is evident in the substantive arguments given by the informants for the estimates they make. If the researcher is not satisfied that the informant has sufficient expertise, the data supplied by the informant are not analysed. It may also be the case that the informant is very knowledgeable about the decision situation, but is unable or unwilling to translate this knowledge into quantitative estimates. In that case, the information obtained from the informant may be used as background information, or as input for subsequent interviews with other individuals.

2) Differences between the general perspectives of individuals, their position in relation to the decision making situation, can also lead to differences between their estimates of the variables. This problem is particularly pronounced when "participants" rather than "independent observers" are selected as key informants. Experience with the collection of these data suggests that differences in perspective tend to be a cause of differences in the estimation of the variable "power", more often than in the estimation of the variables "policy position" or "salience". If the differences are due to such general perspectives, it will be difficult for the researcher to select one of the data sets on the basis of the arguments provided by the informants. Furthermore, in such cases averaging or weighting the estimates provided by different informants is generally inappropriate. The researcher does not usually have any convincing reason to weight one estimate more than the other, and a simple averaging would be arbitrary. Differences in estimates are not necessarily problematic, because the each data set is analysed separately. Problems of interpretation do arise when the analyses produce different results. In order to prevent such interpretation problems, additional informants can be interviewed in order to obtain more confidence in the data.

3) Differences between the estimates provided by different experts may also be due to measurement errors. That is to say, two informants who are equally expert and are equally willing and able to translate their qualitative knowledge into quantitative estimates will still provide somewhat different numbers. The way in which this methodological problem should be dealt with is the same as that used for tackling different estimates that result from different perspectives (see point two). Here, the relevant question is: "what is the effect of marginal differences in the data on the expected developments in the decision making process according to the model being applied?" In general, the robustness of the models' conclusions is high.

The necessity of interviewing more informants in order to resolve differences between informants' estimates can lead to problems. The first problem is that the number of good available informants is small in many situations. Second, the fact that all research is subject to time constraints limits the numbers of informants who can be approached and interviewed.

4 Extracting the Data

This section provides researchers with guidelines that can be used to support key informants when providing the required information.

4.1 *Stakeholders*

Before the informants are asked to make estimates of the variables, a complete list of the stakeholders involved in the decision making process must be drawn up. Stakeholders are defined as individuals or groups that have power resources (a large or a small amount) that can be used to exert influence in the decision making process. If a stakeholder is a group, then the members of that group agree on the desired outcome of the decision and on the importance of the issue. Furthermore, the members of that group are seen to act collectively. Any organisation, such as a political party, may contain a number of stakeholders if there are distinguishable factions within that organisation. The informants are asked to name the stakeholders that play a role in the decision making process. Here, it is important to make a distinction between stakeholders that have the authority to take the final decision, and those that may exert influence indirectly. Stakeholders with formal authority may include government departments, political parties, or individual politicians. Stakeholders without formal decision making authority, that may nevertheless influence the final decision outcomes indirectly, may include interest groups, and bureaucrats responsible for implementing the final decisions.

Although it is assumed that the informants are well aware of the stakeholders involved in the decision making process, it is common practice for the researcher, if possible, to make a provisional list of the stakeholders. Such a list can be constructed on the basis of documentation relevant to the decision situation. In many cases it is clear which stakeholders should be included in such a list. For example, if the study focuses on EU decision making, the stakeholders should include at least the Commission, the Member States, and the European Parliament. After the informant has constructed the list, the provisional list made by the researcher may be given as a support for the informant during the rest of the interview. Of course, the informant may revise the list provided by the researcher, either by adding or subtracting stakeholders, by dividing single stakeholders into more than one faction, or by merging separate stakeholders into single stakeholders.

The number of relevant stakeholders varies between policy domains. Typically, the list of stakeholders does not exceed 30. The informant should be encouraged to include a stakeholder if there is any doubt. Later on in the interview, when estimates must be made of the variables, it will become clear whether or not a particular actor should be considered a stakeholder. The researcher should be wary of informants who list a small number of stakeholders. This may indicate that the informant includes only those actors with formal decision making authority, and neglects those with informal sources of power.

The list of stakeholders forms the basis for the subsequent discussion of each issue. For each issue, a selection is made of the stakeholders that attempt to exert influence the decision making process. Therefore, an actor that features as a stakeholder with respect to one issue need not feature as an actor with respect to another issue.

4.2 Power

The first variable that the informants are asked to estimate is the power of each of the stakeholders. As indicated in Box 1, power is defined as the potential a stakeholder has to change the behaviour of others in a way that is advantageous for it. This ability is based on the power resources available to each stakeholder. The informant is reminded that these resources can vary widely in nature: from very formal resources such as the votes held by a stakeholder in decision making bodies, to informal resources such as financial resources, access to other stakeholders, the leadership of a large number of individuals etc. The resources attributed to a stakeholder should refer only to those resources held by that stakeholder, independently of the resources it derives from other stakeholders that share similar views. It is important to emphasise that power refers to a potential. Depending on the extent to which a stakeholder finds an issue important or salient, this potential will be put into effect.

The relative power of the stakeholders is the variable that many informants find most difficult to estimate. This is because it involves a comparison, weighting and quantification of many different types of power resources. Power is defined in terms of a scale from 0 to 100. First of all, the most powerful stakeholder is identified. The score of 100 is then assigned to that stakeholder. Note that more than one stakeholder may receive the score of 100, or any other score for that matter. The power of the other stakeholders is related to this score of 100. During the informants' estimation of the power scores, the researcher should pose challenging questions. This should be done in two ways. First, the researcher should ask for examples of the resources on which the power of a stakeholder is based. Second, comparisons should be made between the power scores of groups of stakeholders. This is done by adding up and comparing the power scores of groups of stakeholders, and asking what would happen if there was a conflict between these groups. This is essential because models of collective decision making assume that power is additive. Additivity implies that a stalemate would occur if a coalition of two actors, each with power scores of 50, would challenge another stakeholder with a power score of 100. In order to obtain a set of estimates that are as accurate as possible, a large number of these types of comparisons are made during the interview. When making such comparisons, it is important that the informant envisages a hypothetical or real situation in which the two groups of stakeholders being compared attach a similar level of salience to the issue in question. It is advisable to continue to make such comparisons and to revise the estimates until the informants are satisfied that the quantitative estimates reflect their knowledge and intuitions concerning the power relations between the stakeholders.

Although the estimates of the relative power of the stakeholders is based on the comparison of both formal and informal power resources, it is important to identify the stakeholders that have to formal authority to take the decision. During the decision making process, a series of negotiations takes place between the stakeholders, as a result of which there will be shifts in the stakeholders' positions. At the end of this process, the positions of the stakeholders with formal decision making authority will be crucial in determining the final decision outcomes. It is therefore essential to know which stakeholders these are.

Many informants who have had no experience in making such estimates find this a difficult exercise to begin with. The assumption of additivity is often experienced by informants as problematic. For example, they may say: "stakeholders A and B both have 50, but together they are not as powerful as stakeholder C that has a power score of 100". The simplest way to overcome such objections is to state that if stakeholders A and B are together less powerful than stakeholder C, then the power scores of A and B cannot add up to 100. Experience has shown that with some perseverance, key informants are able to estimate a set of power scores that reflect their own insights about the power relations between the stakeholders in question.

The potential power a stakeholder has may vary from issue to issue. This is due to the fact that a resource that could be used very effectively in the context of one issue cannot be used effectively in the context of another issue. Nevertheless, it is usually the case that when the issues being investigated are closely related to each other substantively, the same set of power estimates are applicable. If the informant states that the power scores differ between issues, the researcher should be sure to obtain a sound argument to support these differences. The researcher must be satisfied that differences in power scores between issues are not due to a misunderstanding of the variables on the part of the informant. For example, if the informant assigns a lower power score to a stakeholder in relation to a certain issue "because the actor attaches less importance to that issue", the researcher should challenge this estimate. This argument indicates that the respondent has not grasped that power should be conceptualised of as a potential, rather than a behaviour in relation to a particular issue.

4.3 Policy Positions

The estimation of the policy positions of each of the stakeholders depends on the specification of the issues as described above. Recall that issues are defined as continua or scales that run from 0 to 100. Points on these continua refer to possible outcomes of the decision. First of all, the stakeholders that take the most extreme policy positions are identified. These are placed at points 0 and 100 of the issue continuum. It is important to obtain a verbal description of the policy position of each stakeholder.

As indicated in the above discussion of issue continua, there are particular decision situations in which not all positions on a continuum have a substantive meaning. There are, for example, some issues for which there are only two or three alternative decision outcomes. It is usually the case that stakeholders will be placed on a point on the scale that has been assigned a substantive meaning. However, it may also be the case that a stakeholder is seen to be undecided between two alternative decision outcomes. In such cases, the informant may place a stakeholder on the issue continuum somewhere between these two outcomes to indicate this.

Note that the position of a stakeholder on any one of a set of issues may be dependent on its positions on other issues within that set. A stakeholder's positions on a set of related issues taken together represent the decision outcome that accords with that stakeholder's expressed preference.

Due to the fact that we are interested in modelling the decision making process, and the way in which stakeholders may exert influence on each other, we are interested primarily in the policy positions that stakeholders reveal to other actors. In some cases, these policy positions may differ from the genuine preferences of a stakeholder. Even if we were interested in these genuine preferences rather than the policy positions, it is unlikely that even the best informed observer would be able to identify these genuine preferences if they differed from the expressed policy positions. Note that the policy positions may also be distinct from what a stakeholder expects from the decision outcome. Therefore, the presence of differences between the variable in which we are interested - policy positions (expressed preferences) - and genuine preferences or realistic expectations, does not constitute a problem. However, a problem may arise when a stakeholder is inconsistent in its expression of its policy position. If there is an inconsistency over time, this may indicate that the stakeholder's position is shifting. Then the researcher needs to specify the exact time point in which he or she is interested: usually, that time point is the present. It may also be the case that a stakeholder says one thing to one actor and another thing to another actor. In the absence of arguments to place such a stakeholder on a particular point on the issue continuum, it may be necessary to conduct the analysis on the basis of two or more variants, each corresponding to a particular specification of the policy position of that stakeholder.

4.4 *Saliency*

The last variable that the informant is asked to estimate for each stakeholder is the level of saliency that each stakeholder attaches to each of the issues. Note that a given issue may be more important for one stakeholder than for another, and that an issue may be more important for a stakeholder than another issue. The variable saliency is used to measure the extent to which a stakeholder is *willing* to put into effect its potential power if the issue is brought up during interaction with other stakeholders. Stakeholders that attach more saliency to an issue will put more effort into advocating and defending their own policy positions. The interviewer may explain that saliency is interpreted as the fraction of potential power that a stakeholder is willing to mobilise to effectuate its position in the outcome of the decision on the issue concerned. Taken together, the potential power and the saliency of a stakeholder determine its effective power with regard to a certain issue.

The level of saliency each stakeholder attaches to each issue should be expressed on a scale from 0 to 100. A score of 0 indicates that the issue is of no interest whatsoever to the actor. In fact, if an actor attaches zero saliency to an issue, it is not considered to be a stakeholder. A score of 100 indicates that an actor will devote all of its potential power to this issue if the issue is brought up during the course of interaction with other stakeholders. A score of 50 indicates that the issue is neither important nor unimportant. Although this scale may appear difficult to specify, good informants generally have little difficulty estimating these scores. This is because the saliency scores are given meaning by making comparisons between the scores assigned to different stakeholders and the scores assigned to the same stakeholders across different issues. Some researchers advocate the use of verbal descriptions of the meaning of many specific saliency scores: for example that a score of 20 might mean that "if asked, a stakeholder would take perfunctory actions (phoning, writing a letter)", while a score of 40 might indicate that a stakeholder would "make a public

declaration of commitment". Some researchers may find these to be useful heuristic devices. However, such verbal descriptions are somewhat arbitrary, and may not be applicable to particular decision situations. Therefore, researchers are advised to limit themselves to providing the general definition of salience, and to making comparisons between scores in order to develop these estimates.

The researcher should ensure that the informant understands the difference between the concepts of policy position and salience. It may be said that the "interests" of a stakeholder are represented by the combination of its policy position and the salience it attaches to an issue. However, the concepts of salience and policy position are independent. Regardless of the positions they take on an issue, some stakeholders may attach a high level of salience to an issue, while others attach a low level of salience. Some informants find the distinction between these two concepts difficult to maintain in the case of dichotomous issues (issues with only two alternative decision outcomes) and for stakeholders whose policy positions are located somewhere between two alternative decision outcomes. In the case of dichotomous issues, some informants tend to assign low salience scores to stakeholders located around the middle of the issue continuum: stakeholders that have not yet taken a clear position, but nevertheless exert influence in the decision making process. If this occurs, the interviewer should stress that an undecided stakeholder may attach a high level of salience to an issue, in the sense that it would put into effect a considerable amount of its power resources if the issue came up during interaction with other stakeholders.

5. Conclusion

The collection of data for models of collective decision making requires certain skills that researchers can acquire through training and practice. Using the procedure described in this paper, the researchers guide the informants through the translation of the informants' qualitative knowledge of the decision making situation into numerical estimates. During this data collection procedure, the researchers should constantly be aware of the problems that may arise. Nevertheless, the application of this procedure in research on thousands of issues has proven that it enables the identification of the key elements of decision situations in relatively short periods of time.

Appendix
Example of a Specification of an Issue and the Capabilities, Positions and
Saliences of the Stakeholders

ABC

Issue: Ideological Orientation

<i>Capabilities</i>	<i>Position</i>	<i>Salience</i>
0.15	70	0.2 Ideological faction in the Supervisory Board
0.15	10	0.3 Economically oriented faction in the Supervisory Board
0.30	40	0.3 Managing director
0.30	80	0.4 Deputy director
0.15	80	0.2 Administrator
0.15	90	0.3 Project leaders
0.30	30	0.3 Managers of commercially oriented departments
0.20	70	0.4 Managers of ideologically oriented departments
0.70	100	0.1 Trade unions
0.40	80	0.1 Municipality of Amsterdam
0.60	50	0.4 Employee Board
0.80	10	0.9 Transition manager
0.10	50	0.2 Accountant
1.00	10	0.9 Chairman of the Supervisory Board
0.10	0	0.2 Competitors

Position: Percentage of projects with an ideological orientation

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