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The Choice of a Response Format

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Abstract

Although left-right items are a standard tool of public opinion research, there remains some difference of opinion on the optimal response format. Two disputes can be identified in the literature: (a) whether to provide respondents with a small or large number of answer categories and (b) whether or not to administer the response scale including a midpoint. This study evaluates the performance of the 101-, 11- and 10-point left-right scales. These scales not only speak to the two disputed aspects of measuring the left-right dimension but are also common instruments in public opinion research. Drawing on data from a split ballot multi-trait multi-method experiment carried out in a methodological pretest to the German Socio-Economic Panel (*SOEP*), the analysis shows that the choice of a response format makes a difference in terms of data quality: The 101- and 10-point scales are plagued by method effects. Moreover, an application from electoral research illustrates that the choice of response formats affects substantive interpretations about the nature of the left-right dimension. Since all three scales perform about equally well in terms of the ease of administration, the findings suggest that the 11-point left-right scale should be used in survey research.

1. Introduction

Social cognition enables us to orient ourselves within a complex social environment. Categorizing information into concepts shared by members of social groups is crucial for our construction of social reality, for the formation of our identities, and in all of our social interactions (e.g., Kunda 1999). In a political context, the left-right dimension represents a typical form of social cognition: When people reflect on politics, they tag themselves and others (people, groups, institutions, etc.) as 'left' or 'right'. Acting on this understanding, they usually vote for parties and candidates which they perceive as being close to their own left-right placement and also usually take policy views in line with their left-right position. Many political systems share this conceptualization of politics. A functional equivalent to the left-right differentiation used in many European democracies is the differentiation between liberal and conservative, which is used, for instance, in the USA and Japan (cf. Przworski and Teune 1970).

The Left-Right Dimension in Public Opinion

The left-right dimension is a cognition of politics used by political elites, mass media and publics in many democracies around the world.[1] Panel data show high within-person stability in people's own left-right positioning over time, which suggests that the left-right cognition is part of individuals' political identity (e.g., Sears and Funk 1999; Zuckerman et al. 1998). There has been some debate on the exact meaning of this dimension. However, these debates concern the substantive, not the functional meaning of the left-right dimension.

The substantive meaning of the left-right dimension is traditionally associated with the socio-economic cleavage of equality (Lipset et al. 1954).[2] However, the interpretation of the left-right semantic is variable across individuals, countries and periods. It can be shown by way of open-ended survey questions that individuals in a given society at a given point in time comprehend the terms 'left' and 'right' in very different ways (e.g., Klingemann 1979; Van der Eijk and Niemöller 1983, 225-247; Fuchs and Klingemann 1990). Moreover, comparative research demonstrates variation in the substantive meaning of 'left' and 'right' depending on the political competition in single countries (e.g., Huber and Inglehart 1995; Knutsen 1998). Finally, longitudinal analyses of the left-right dimension provide evidence for the great "absorption capacity" of its substantive meaning (Mair 1997, 26): The left-right semantic successfully integrates new political values, movements and objects (Inglehart 1984; Fuchs and Klingemann 1990; Knutsen 1995).

The functional meaning of the left-right dimension lies in its importance in enabling people to orient themselves politically. Structuring one's own political views and making use of the currently available political possibilities in terms of the left-right dimension is an efficient way to reduce the complexity of political information (cf. Downs 1957; Butler and Stokes 1969; Inglehart and Klingemann 1976; Conover and Feldman 1981). This organizing element to the left-right dimension is shared by the individuals within a given society: Even if voters disagree on what 'left' exactly means, they all agree, for instance, on classifying a socialist

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[1] Inglehart and Klingemann (1976) also use the term super-issue. Following Downs' (1957) notion of ideologies as being generalizations of single issues, the left-right dimension may also be classified as an ideology. However, to avoid confusion with the use of the term in other instances ('ideology' as referring to '-isms' such as communism, liberalism, etc.) I refrain from the use of the term 'ideology'.

[2] Similarly, Downs (1957) describes the left-right dimension in terms of government intervention in the economy.

party as leftist[3] (Laponce 1970; Klingemann 1972; Van der Eijk 2001; Kroh 2003). Besides inter-person agreement on labeling certain political entities as 'left' or 'right', numerous studies demonstrate that people's left-right positioning uniformly affects all sorts of political attitudes and behaviors (e.g., Van der Eijk and Franklin 1996). This implies that for meaningful survey responses on the left-right dimension, it is not necessary that people utilize the same substantive factors for their answers but that they use them for the same purpose: in order to organize politics on a single dimension.[4]

The Left-Right Dimension in Survey-Based Research

For more than thirty years, left-right scales –the empirical operationalization of the left-right dimension– have been widely used survey instruments in pubic opinion research (e.g., Deutsch et al. 1966; Barnes 1971; Inglehart and Klingemann 1976).[5] Survey data on the left-right dimension and its functional equivalences have proven to be especially valuable sources for studying party competition (e.g., Robertson 1976; Budge and Farlie 1977), coalition formation (e.g., Laver and Budge 1992), policy representation (e.g., Huber and Powell 1994; Thomassen and Schmitt 1997), opinion change (e.g., Smith 1990; Noelle-Neumann 1998; Knutsen 1998) as well as electoral research in general and spatial models of voting in particular (e.g., Stokes 1963; Enelow and Hinich 1984; Iversen 1994). The notion that voters may reasonably use general heuristics instead of single political issues to orient themselves politically has further increased scholars' interest in the left-right dimension in recent years (e.g., Popkin 1991; Sniderman et al. 1991).

Although applied social science research often draws on left-right survey data, few studies examine the data quality of different instruments for surveying the left-right dimension. This is particularly surprising if one considers the variety of alternative instruments often used to measure it. While the wording of the survey question is very similar in many studies,[6] there are substantial differences in the response format used. Many of these differences cluster around two disputed aspects of questionnaire design: the number of response categories and the (non)existence of a midpoint of scales.

The number of answer categories with which the left-right dimension is surveyed ranges from three-point scales (Butler and Stokes 1969) to very detailed answer categories on a 101-point

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[3] This perceptual agreement between individuals is facilitated by the consistent use of the left-right dimension by political actors. Only if political competitors structure their policies in this dimension, too, can voters reliably use the left-right dimension to understand politics (Downs 1957). Dimensional analyses of party manifesto data for several countries show that this condition often is fulfilled: Many of the specific policies proposed by parties can be reduced to the left-right dimension (e.g., Laver and Budge 1992).

[4] Luttberg and Gant (1985) interpret respondents' inability to describe the substantive meaning of the liberal-conservative semantic as defined by experts as being indicative of the failure of the dimension as a cognitive structure. At the same time, they report that most respondents do vote in accordance with issues that relate closely to the liberal-conservative dimension (e.g., government spending, guaranteed jobs). These results tend to underpin rather than question the function of the liberal-conservative dimension in social cognition: Even though people are often unable to define the substantive meanings of 'liberal' and 'conservative' exactly, they do share the perception of certain political entities, such as parties and candidates, as being 'pro-government-spending' or 'anti-government-spending' and vote accordingly.

[5] Left-right party placements are often also measured by means of expert interviews (e.g., Castles and Mair 1984; Huber and Inglehart 1995) or by content analyses of party manifestos (e.g., Laver and Budge 1992; Volkens 2002). This paper focuses solely on the quality of public opinion survey data.

[6] Most versions of the measure contain wording like the following: "In politics people sometimes talk of 'left' and 'right'. Where would you place yourself [party *a*] on a scale from *n* to *m* where *n* means extreme left and *m* means extreme right?" Similarly the liberal-conservative scale is often surveyed by asking "We hear a lot of talk these days about 'liberals' and 'conservatives' Here is a *m*-point-scale on which people's political views are arranged from extremely liberal to extremely conservative. Where would you place yourself [party *b*] on this scale?"

scale (Converse and Pierce 1973). Magnitude scales of the left-right dimension and its functional equivalences demonstrate that respondents can even express their own views and perceived party positions in terms of 'left' and 'right' using a continuous scale (Lodge and Tursky 1981; Wegener 1982; see already Laponce 1970).

The issue of whether to administer the left-right scale with or without a midpoint is reflected in the distinction between the two most frequently applied response scales: The 10- and the 11-point left-right scales. An inspection of codebooks collected by data repositories like ICPSR, ZA and Steinmetz Archives reveals that the 10-point scale without a midpoint is used, for instance, in the Eurobarometer Studies, the European Election Studies, the World Value Surveys and the Dutch and other national election studies. The 11-point left-right scale, which provides a neutral point to respondents, is applied in the European Social Surveys and in national election studies such as the British or the Swedish ones.

In some cross-national surveys, one even finds a mixture of scales provided by national collaborators. For example, 10- and 11-point scales are included in the Comparative Study of Electoral Systems and 7- and 10-point scales in the International Social Science Program. Finally, even within single countries, researchers will encounter polling institutes using different instruments for surveying the left-right dimension and its functional equivalences (e.g., Robinson and Fleishman 1988).

The choice of particular response formats rests on assumptions about differences in data quality that are generated by these survey instruments (cf. Schumann and Presser 1981; Tourangeau et al. 2000; Presser et al. 2004).[7] The following section reviews and summarizes these assumed differences in data quality between response formats of left-right scales, concentrating on the number of response categories and the (non)existence of a midpoint. The section thereafter describes the multi-trait multi-method approach, which is used to test for differences in terms of validity and reliability between response formats, and the empirical data, which emanate from an experimental pretest to the German Socio-Economic Panel (*SOEP*). The empirical part of this paper reports differences between scales in terms of the estimated validity and reliability and in terms of their ease of data administration. Also, examples illustrate the consequences of different response formats for applied (electoral) research. The concluding section discusses implications of the empirical findings for survey research.

2. Hypotheses

Survey responses are usually assumed to represent revealed latent orientations held by respondents. Observed data on individuals' orientations often appear instable and incoherent, however (for an review see Sniderman 1993). In a classic debate, Converse (1964) suggested that instable and incoherent survey responses are the consequence of deficient latent orientations, i.e. many respondents do not hold meaningful attitudes, while Achen (1975) attributed low correlations primarily to ineffective survey measures. Following the notion that survey data on respondents' latent orientations are plagued by measurement error, the following paragraphs review arguments as to which response format can best minimize such avoidable methodological problems.[8] As indicated in the introductory section, debates about

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[7] In contrast to this –often implicit– assumption, comparative research that draws on left-right data from different response formats assumes –again, often implicitly– that the choice of the survey instrument does not systematically affect the quality of left-right data. Apart from minor calibration problems, which can be easily solved by rescaling variables, all data provide the same information.

[8] In contrast to the common view of survey responses as an expression of preexisting orientations, Zaller (1992) argues that survey responses are a function of internally conflicting information available at the time of the

alternative measures of the left-right dimension primarily focus on two controversial features: the issue of more or less detailed answer categories, and the issue of surveying midpoints (for a general discussion of these two points see e.g. Schumann and Presser 1981).[9]

The Number of Scale Points

Ideally, survey formats permit respondents to convert their latent answers one-to-one into a response category provided. Respondents may experience difficulties in mapping latent answers on response formats when, for example, response categories are too broad or too specific. Measurement error becomes a function of the mismatch between the gradation of latent answers and the gradation of answer categories provided.[10]

Too few answer categories may reduce the data quality. If, for instance, respondents are provided with a three-point response scale (left, center, right), those with a moderate leaning to one side of the scale are unable to accurately map their latent answer on the response scale and may randomly select the 'center' category, or one of the extreme categories, 'left' or 'right'. Moreover, too few scale points may impede respondents' discrimination between left-right positions of several political objects (Krosnick and Fabrigar 1997).[11]

Too many scale points may also reduce data quality: If, for instance, respondents' latent answers distinguish among five categories (left, moderate left, center, moderate right and right) but the provided response scale allows for a more detailed gradation, respondents may be uncertain about the difference in meaning between adjacent categories. Moreover, many answer categories will increase the cognitive burden of respondents and thus their tendency to shortcut answers by accepting the first response category that fits more or less well (Krosnick and Fabrigar 1997). Krosnick (1991) calls this survey behavior "satisficing".

Midpoints

The left-right dimension is bipolar with two opposing alternatives (completely left/right) and therefore with a theoretically defined midpoint (neither left/right, center). There has been a debate as to whether or not the midpoint of the scale should be represented by a response category, i.e. if the left-right scale should be administered with an unequal or equal number of scale points. Two opposing positions can be identified in the literature.

First, concerns have been voiced as to whether respondents who select the midpoint of a scale provide an accurate report of their latent orientation or whether they hide the absence of attitudes by not taking sides (Deutsch et al. 1966; Inglehart and Klingemann 1976; Schumann

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interview. From both perspectives on survey responses, one may argue that measurement error affects the observation of answers. Zaller's (1992) approach takes the contextual influence of the survey situation even more explicitly into account.

[9] The issue of including or omitting a midpoint represents a special case of the gradation of answer categories. However, since the center of the left-right dimension has a distinct function for political competition, the issue of midpoints receives particular attention.

[10] Alwin and Krosnick (1991) suggest a curvilinear relationship between the number of scale points and the reliability of survey data with a maximum reliability around 7 to 9 answer categories.

[11] This does not imply, however, that the number scale points of the left-right scale ought to be a function of the number of parties in a political system (i.e., few response categories suffice for two-party systems and many categories are required for multi-party systems). Political objects to be located on the left-right scale may be parties (Republicans, Democrats), but may also be political candidates (George W. Bush, John Kerry, Ralph Nader), interest groups (churches, labor unions, environmental organizations and weapons associations), media outlets (Washington Post, CNN and Fox News), public figures or even family members and friends. The optimal number of scale points is thus not defined by a set of political objects (which may be infinite) but by respondents' ability to use the left-right dimension categorically or continuously.

and Presser 1981, 162).[12] Indicative of such a conjecture, Deutsch et al. (1966) show that non-response increases if no neutral point is provided and that particularly respondents with low levels of political sophistication use the midpoint of the left-right scale.[13]

The counter argument in favor of a middle category is that it provides an additional –and possibly crucial– gradation of opinions. This may be of particular relevance in case of the left-right dimension: Single parties or candidates often portray themselves as being completely independent, open to voters and coalition partners on both sides of the left-right spectrum.[14] Not surprisingly, several political systems have parties that define themselves explicitly as the 'center party', such as Denmark (*Centrumdemokraterne*), Norway (*Senterpartiet*) and Spain (*Centro Democratico y Social*). Hence, omitting the middle category in left-right scales may force respondents to use scale values for describing their own position or their perception of parties' and candidates' positions that do not accurately reflect their latent opinion.[15]

3. Analysis and Data

The 11- and 10-point scales are used most frequently to measure the left-right dimension. Their key difference speaks to the issue of midpoints. The 11-point scale explicitly provides a neutral point, whereas the 10-point scale forces respondents to take sides on the left-right scale. Both scales are, however, limited in their number of answer categories. They do not permit the respondent to precisely translate possibly continuous latent answers into survey responses. Among the traditional categorical scales easily administrable in survey research, the 101-point scale allows for the most detailed gradation of expressing opinions (Converse and Pierce 1973).[16]

The following analysis focuses on the 101-point, 11-point and the 10-point scale to determine whether the highest data quality of surveying the left-right dimension can be achieved (a) with a small number or a large number of response options and (b) with or without midpoints. In survey research, there are various criteria available for evaluating survey instruments (cf. Presser et al. 2004). This paper investigates two aspects: measurement error, i.e. validity and reliability of survey responses, and problems of data administration, i.e. non-response, the elapsed time of interviews, respondents' willingness to provide answers and respondents' comprehension of their task.

A Split-Ballot Multi-Trait Multi-Method Experiment

For the estimation of measurement error, Saris et al. (2003) suggest a design that combines two of the classic approaches: an experimental design and statistical modeling. The multi-trait

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[12] This behavior, too, falls into the category of survey responses, Krosnick (1991) calls satisficing.

[13] Schumann and Presser (1981) show, with regard to liberal-conservative scales, that the availability of a neutral point only moderately affects the marginal distribution in other response categories or associations between the variable and other covariates.

[14] As the median voter in many party systems coincides with the theoretical midpoint of the left-right dimension (e.g., Dalton 2002), taking a central position in left-right terms may be a dominant strategy for political parties and candidates (Downs 1957).

[15] Moreover, a midpoint may serve as an anchor for respondents' answers that may increase the derived data quality (Saris 1988).

[16] Magnitude scales that do permit continuous responses (cf. Lodge and Tursky 1981; Wegener 1982) are more difficult to administer than traditional categorical scales and often generate lower levels of data quality (for an overview see Krosnick and Fabrigar 1997). A magnitude estimation of the left-right dimension seems therefore a less practical alternative to the 101-, 11-, and 10-point scales in common day survey research.

multi-method (MTMM) approach was suggested first by Campbell and Fiske in 1959 and has since then attracted much attention in survey research (for an overview, see Wothke 1996). The basic idea of the MTMM approach is that by repeatedly observing single traits using different methods, the analyst can identify the amount of measurement error in different survey instruments.[17] Figure 1 provides a simplified illustration of how data quality, i.e. validity and reliability, is defined in the MTMM context.

Suppose data are collected on respondents' position on the left-right dimension using a 101- and a 11-point scale. Respondents' observed answers (in bounded boxes) are a function of (a) the 'true score' given the response format and (b) measurement error. The share of variance in the observed data that is attributable to the variance of the underlying 'true score' defines the reliability of the measurement instrument (e.g., Bohrnstedt 1983). Put differently, if one would repeat the same question using the same response format, one would expect exactly the same answers if reliability equals 1.

<Figure 1>

The 'true score' of respondents' left-right position given a particular survey method is a function of (a) the underlying 'left-right factor', i.e. the latent answer, and (b) the method used, i.e. the 101- and the 11-point scales. Validity means the importance of the 'left-right factor' in the 'true scores'.[18] For each response format, a unique method effect can be estimated, which is interpreted as a systematic error due to the response format.[19]

The identification of validity and reliability parameters in the classical MTMM approach requires observations on at least three traits which have to be measured with three different methods (Saris and Andrews 1991). In other words, respondents would have to provide answers to the same set of three items (e.g., left-right position of political objects *a*, *b* and *c*) with some variation in the response format only (e.g., using a 101-, 11- and 10 point scale).

The repeated surveying of the same items in the classical MTMM context means not only a burden for respondents but also bears the risk of memory and order effects. The combination of the MTMM approach with a split-ballot design reduces the number of necessary repetitions. The advantage of randomly splitting the sample into groups which are presented with different formats of the questionnaire is that variation in response patterns between experimental groups is attributable to systematic differences between measurement instruments and random variation only (cf. Schumann and Presser 1981). Since each of the randomly drawn groups is presented with a different combination of two response formats as illustrated in Table 1, one requires only one instead of two repetitions of traits. For instance, the first group locates parties *a*, *b*, and *c* using the 101-point scale at the beginning of the interview and does the same using the 11-point scale at the end of the interview. Even though not all combinations of traits and methods are observed for all respondents, validity and reliability parameters can nonetheless be identified by normal theory maximum likelihood in multiple groups, assuming a common model, i.e. with equality constraints of all parameters across random groups (for a discussion of the estimation technique see Saris et al. 2003).

<Table 1>

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[17] For a detailed as well as formal description of the MTMM approach, see Saris and Andrews (1991).
[18] Bohrnstedt (1983) specifies the validity in the MTMM context as construct validity.
[19] Note that the squared (standardized) validity coefficient v^2 represents the validity of the measure and the squared (standardized) method coefficient m^2 represents the method effect. Since $m^2 = 1 - v^2$, the method effect is equal to the invalidity due to the method used.

Drawing on the split-ballot MTMM design reduces problems of repeated observations as compared to the classical MTMM approach. Memory effects are less likely to occur since a considerable time elapses between both observations of the same traits. In the empirical data analyzed in this paper, traits were repeated on average 50 minutes after the first round of left-right placements. In about 5% of the interviews, respondents repeated their answers less than 25 minutes later. Van Meurs and Saris (1990) show that 20 minutes are sufficient to obtain independent measures. Moreover, the design makes it possible to control for order effects by placing each method once at the beginning and once at the end of the interview.

A Methodological Pretest to the German Socio-Economic Panel (SOEP)

In the methodological pretest to *SOEP*,[20] respondents were asked to report their own views and the positions of all major German parties by placing them along the left-right dimension.[21] The parties included the Christian democratic *CDU* and its Bavarian counterpart, the *CSU*; the social democratic *SPD*; the liberal party, the *FDP*; the environmentalist party, *B90/Die Grünen*; the reincarnated former single party of East Germany, the *PDS*; and the right-wing party, the *Republikaner*.[22]

In order to fully investigate the performance of different response formats, the *SOEP* pretest provides four indicators of problems during the administration of interviews. A first indicator is the refusal to give left-right answers. Non-response is defined here as the failure of the interviewed persons to provide all eight placements (own views and seven party positions) on the left-right scale. This occurs in 8% of all cases.

The time necessary to conduct all eight questions on the left-right scale operates as a second indicator for the ease of administration.[23] On average, administering all eight left-right items takes about 77 seconds.[24] The elapsed time between the introduction to the left-right scale and respondents' positioning of the last party is not normally distributed. Analyzing the logarithm of the elapsed time in seconds instead of the raw data accounts for the skewed distribution.

Immediately after the administration of the left-right scale, interviewers are asked to grade respondents' participation using a six-point school grading system. The third indicator of the ease of administration is interviewers' grade of respondents' willingness to provide answers on the left-right scale and the fourth indicator is the interviewers' perception of respondents' comprehension of their task.

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[20] The population underlying the in-person household survey are persons above the age of 16 living in Germany. The response rate of the survey is 50% (response rate 1, see AAPOR standard definitions). All 772 realized interviews were conducted by way of computer-assisted personal interviewing (CAPI) in April and May 2004.

[21] Note that the extreme ends of the scales are labeled 'completely left' and 'completely right'. We used the term 'completely' instead of 'extreme(ly)', which is often used to label the ends of left-right dimension. This was done because the terms 'leftwing extremism' and 'rightwing extremism' have a penologic meaning in German. In order not to further discourage respondents to use the full range of the scale, we used the less politically loaded terms 'completely left/right' (cf. Poulton 1989).

[22] The dominant parties of the German political arena are the *CDU/CSU* and the *SPD*. The *FDP*, *B90/Die Grünen* and the *PDS* each receive about five to ten percent of the votes in national parliamentary elections; the *Republikaner* never passed the electoral threshold of five percent.

[23] Time measures originate from CAPI protocols

[24] In about 3% of all cases, administering these eight questions took more than five minutes. Since it appears likely that this indicates an interruption of the interview, these cases were excluded from the analysis.

4. Findings

The primary criterion by which survey instruments are evaluated is their ability to measure respondents' views without random or even systematic error. This section reports the validity and reliability estimated by the MTMM experiment described above. Moreover, the section illustrates that the choice of a response format affects substantive interpretations about the nature of the left-right dimension. A secondary criterion for the evaluation of survey instruments are problems of survey administration. A subsequent empirical section reports the performance of the 101-, 11- and 10 point left-right scales in terms of non-response, elapsed time of administration, respondents' motivation and comprehension.

Validity and Reliability

Given the split ballot design of the methodological pretest to *SOEP* (see Table 1), one obtains all correlations between the eight traits (respondents' self placement and all seven party placements on the left-right scale) measured with three alternative instruments (101-point scale, 11-point scale and 10-point scale). Since the scales investigated differ in terms of the number of response categories, polychoric correlations are estimated. Whereas ordinary correlations assume continuous data, polychoric correlations are suited for data with different levels of measurement (Olsson 1979). All correlation matrices are reported in Appendix 1.
<Table 2>
Standardized parameters of Table 2 vary between 0 and 1. The results indicate, in line with previous research, that all left-right measures produce rather high data quality as compared to other attitude questions. This can be inferred from the validity and reliability parameters, most of which are above .75. Alwin and Krosnick (1991, 172) likewise report "that the measurement of sociopolitical orientations that are more ideological in content, for example, 'ideological' self-placements, party identification and candidate preferences are estimated to be the most reliable."
In terms of reliability, the 101-point scale performs slightly better than the shorter 11- and 10-point scales. On average, reliability equals .90 for the 101-point scale, .84 for the 11-point scale and .88 for the 10-point scale. There is also some variation between traits: The reliability of *SPD* placements, for instance, is comparatively low across formats. Respondents appear to have a somewhat ambiguous idea where on left-right scales to locate the Social Democrats than is true for other parties or respondents' own views.
In terms of validity, differences across response formats are more pronounced: The 11-point left-right scale outperforms the 101-point scale and the 10-point scale. Validity is quite stable across traits and hovers around .97 for the 11-point scale, .93 for the 10-point scale and .76 for the 101-point scale. In other words, answers on the 101-point left-right scale in particular comprise systematic bias generated by the specific response format.

The validity parameters suggest that left-right scales with many scale points, such as the 101-point scale tested here, may be too detailed for many respondents. Respondents' frequent choice of exposed values confirms this view: 86% of all respondents who report their own position on the 101-point scale use integers which are multiplies of 10 (for problems of rounding, cf. Tourangeau et al. 2000, 232ff). The consequence of this behavior is a strong method effect of the 101-point scale that reduces the validity of responses on the left-right scale.
The difference between the 10-point scale and the 11-point scale lies in the exclusion/inclusion of a midpoint. Supportive of the hypothesis that a midpoint on the left-right scale is an important gradation of opinions, the 10-point scale without a midpoint is

plagued by a method effect. The absence of such a neutral point appears to force respondents to systematically deviate from their latent answer, which becomes particularly evident when the positioning of the *FDP* is considered. In the German party system, the Liberals are close to the political center. They were part of center-left governments from 1972 to 1983 as well as center-right governments from 1983 to 1998. The location of the *FDP* around the midpoint of the left-right dimension is also acknowledged by experts (Huber and Inglehart 1995) and respondents (see Appendix 1; Dalton 2002, 202). While the mapping of the *FDP* on scales with a midpoint (101-point scale and 11-point scale) leads to an average or even weaker method effects for the *FDP* (101-point scale .64; 11-point scale .23) as compared to the method effect of the same scales for other parties (101-point scale around .64; 11-point scale around .25), the location of the Liberals on a scale without midpoint (10-point scale) leads to a higher method effect for *FDP* (.39) as compared to method effects of the same scale for other parties (around .36). The same is true for reliability estimates for the *FDP* placement across response formats.

Consequences for Applied Research

Left-right scales perform differently well in terms of their data quality. As a practitioner in the social sciences one may nonetheless ask whether the choice of a response format makes a notable difference for applied research. To better understand the costs of different left-right scales, consider the following example. Respondents' vote intentions are regressed on their left-right self placements using different scales. This application shows that, depending upon the response format, one can come to significantly different substantive conclusions about the relationship between left-right items and other variables.

A multinomial logit model of vote choice reported in Table 3 shows that voters take their left-right position into consideration when casting a ballot. Note that all left-right scales are rescaled to the same length to permit comparisons of parameter estimates.

<Table 3>

As one would expect, the odds of choosing *SPD* rather than the reference category, i.e. the Christian Democratic Party, decrease, the more to the right of the scale a person is ($b = -.29$). This relationship is even stronger for the Green Party ($b = -.46$) and the *PDS* ($b = -.61$). However, the odds of voting *Republikaner* versus *CDU/CSU* increase with political views at the right end of the scale ($b = .65$). These estimates pertain to the 101-point scale. As indicated by the interaction terms, the effects of voters' left-right position on vote choice for the 11- and 10 point scale significantly deviate from the ones derived for the 101-point scale. For instance, the estimated effect of respondents' left-right position on the odds of voting *SPD* rather than *CDU/CSU* is $b_{101} = -.29$ for the 101-point scale, $b_{11} = -.29 + (-.26) = -.55$ for the 11-point scale and $b_{10} = -.29 + (-.22) = -.51$ for the 10-point scale. Figure 2 illustrates these differences in the effect magnitude between different response formats for the (predicted) probability of vote choice for the *SPD* depending upon respondents' left-right position. The curves for the 11- and 10-point scales are much steeper than the curve for the 101-point scale. Moreover, the maximum probability of voting for the Social Democrats is somewhat more to the center of the left-right dimension if the 11-point scale is used instead of the 101- and the 10-point scales.

<Figure 2>

Different response formats produce notably different predictions about the nature of respondents' left-right positioning (see also Van Doorn et al. 1984). One can of course not judge from Table 3 or Figure 2 which scale reveals the 'true' relationship between the left-

right dimension and vote choice. However, the higher validity of the 11-point scale as compared to the 101- and the 10-point scale documented in Table 2 may be interpreted indicative of the presumption that the 11-point scale produces the more valid picture of the relationship between left-right self placement and vote choice.

Problems of Survey Administration

The methodological pretest of the *SOEP* provides four indicators to problems of data administration: Non-response, the elapsed time of surveying all left-right items, interviewers' perception of respondents' willingness to provide answers and interviewers' perception of respondents' comprehension of their task.
Each of these measures is available twice for each respondent, since respondents received the left-right items repeatedly during the interview. This leads to a hierarchical data structure across three levels: 142 interviewers administered the left-right scales 1,544 times in 772 personal interviews. Variation in indicators of problems during data administration may be due to all three levels: to characteristics of particular interview situations, to characteristics of respondents, and to characteristics of interviewers. The hierarchical data structure necessitates error terms for regression models at each level, which can be achieved by multilevel modeling (e.g., Snijders and Bosker 1999).

The hierarchical regression models reported in Table 4 test the effect of the response format on indicators of problems of administration. In case of non-response, a binary probit model is used, in case of the log-transformed elapsed time in seconds a least squares regression is applied and in case of grading by interviewers, Models 4 and 5 draw on ordinal probit. Previous analyses show that respondents' level of sophistication often moderates the performance of survey instruments (Converse 1964, 1975; Inglehart and Klingemann 1976; Fuchs and Klingemann 1990). To control for such intervening factors, the regression models in Table 4 stratify the effect of response formats according to respondents' political involvement, political media attentiveness[25] and age. The inclusion of age as an intervening factor rests on the assumption that the poorer memory of older people may affect the administration of interviews. Previous studies, however, show mixed results in this respect (cf. Alwin and Krosnick 1991).

<Table 4>

In contrast to Deutsch et al. (1966), who find that non-response increases if no neutral point is provided, Model 2 does not show that the 10-point scale significantly inflates non-response. Respondent characteristics, however, do impact on the likelihood of refusals: Younger respondents and those involved in politics and attentive to political news in mass media are more likely to provide all placements on the left-right scales. Indicators of respondents' sophistication do not interact with scale formats in their effect on non-response.

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[25] Political involvement is measured as an additive index of four dichotomous items: the reported probability of turnout (1: likely or very likely), partisanship (1: identification with some party), civic engagement (1: active participation in voluntary associations) and political participation (1: active participation in parties, local governments and new social movements). Attentiveness to mass media is an additive index of three dichotomous items: political interest (1: at least moderate interest in politics), watching TV news (1: almost on a daily basis), reading news in daily newspapers (1: almost on a daily basis). The scalability of both indices is tested by means of Mokken scaling, a stochastic cumulative scaling model (Mokken 1971). Unidimensional scalability is estimated as H=0.42 respectively H=0.46. This indicates medium scalability of the political involvement and political attentiveness scales.

The elapsed time of administrating all eight left-right items depends on respondents' involvement and attentiveness to mass media only. Note, however, the sign of the effect parameters: the more politically involved and attentive, the more time respondents need to locate all parties on the left-right scale. This suggests that the duration of the interview may often be indicative of the accuracy with which respondents provide information and not necessarily of problems during interviews. Note that respondents' grading of interviewers' willingness to provide answers and their comprehension of their survey tasks is generally very high: about half of all respondents receive the highest grade possible. Respondents' age, involvement and attentiveness positively affect interviewer ratings of respondents' willingness to provide information and their understanding of the survey task.

In general, Models 2 through 5 show only minor differences in terms of problems of administering the left-right items between response formats. The 11-point scale produces slightly more non-response but positively affects respondents motivation to map their own views and party placements on left-right scales. Respondents' characteristics do affect the ease of administration, but they do not significantly moderate the effect of response formats.

5. Conclusions

The analysis presented in this paper underscores the role of the left-right dimension for individuals' ability to orient themselves in the realm of politics: Almost all individuals interviewed are able to locate their own views as well as all relevant parties of the German party system on left-right scales. Very few interviewers report problems when surveying left-right placements. The estimated reliability and validity of respondents' left-right placements is high as compared to other survey items (cf. Scherpenzeel and Saris 1997). This holds for the self-identification in left-right terms as well as the perception of party positions. This all indicates that most individuals are skilled at using their social cognition of the left-right dimension.

Although the left-right dimension is a standard tool in survey research, so far no agreement has been reached on the choice of a specific response format. As a consequence, applied research is faced with a mixture of different scale formats, particularly in cross-national data sets. In pooled analyses of these data, researchers have to assume equivalence of different scales. The analysis presented in this paper suggests that such an assumption does not hold empirically: The most common response scales to the left-right dimension (101- ,11- and 10 point scale) produce notably different data. An example from electoral research shows that different response scales affect substantive interpretations about the nature of the left-right dimension.
This does not imply that one should not engage in comparative research because of the fact that the national data sets are based on different scales, but that one should make an effort to control for the biasing effects of different survey instruments. To facilitate comparative research, differences between response formats should be avoided in the future by agreeing on a single left-right survey instrument.

All things considered, this paper's findings point to the conclusion that the 11-point scale should be used for surveying the left-right dimension. All tested scales perform equally well in terms of the ease of administration. Although the 101- and the 10-point scale produce somewhat more reliable data than the 11-point scale, they are plagued by invalidity. The strong method effect of the 101-point scale affects all left-right placements and the method effect of the 10-point scale increases for political objects close to the center of the dimension.

As such systematic bias is considered more relevant than moderate differences in terms of reliability, the 11-point scale appears the superior choice.

This paper attributes invalidity in case of the 10-point scale to the lack of a midpoint. In case of the 101-point scale it is likely that ambiguity in the meaning of adjacent scale points reduces the validity of respondents' answers. Does the invalidity of the 101-point scale imply that people do not reflect upon the left-right cognition as a continuous dimension but as a rough ordinal differentiation? Previous research lends support for an alternative hypothesis: Survey instruments drawing on numbers eventually reach the abilities of respondents' to express their opinions accurately. However, if ones uses lines instead as response scales, the problem of rounding does not exist (Presser et al. 2004). In other words, it is respondents' inability to ascribe meaning to more than a certain number of integers that diminishes the data quality of very detailed response scales but not necessarily their inability to reflect upon the left-right cognition as a continuous dimension.

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Figure 1 Conceptual Diagram of MTMM Experiment

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Table 1   Design of the 3-Group Split-Ballot MTMM Experiment

	Beginning of Interview	End of Interview
Group 1	101 Point Scale	11 Point Scale
Group 2	11 Point Scale	10 Point Scale
Group 3	10 Point Scale	101 Point Scale

Table 2   Split Ballot Multi-Trait Multi-Method Experiment of Left-Right Placements.

		Validity								Method Effect			Reliability
		Ego	CDU	SPD	FDP	Green	CSU	PDS	Reps	101-point scale	11-point scale	10-point scale	
Ego	101	0.76								0.65			0.89
CDU	101		0.75							0.67			0.90
SPD	101			0.73						0.68			0.83
FDP	101				0.77					0.64			0.92
Green	101					0.76				0.65			0.90
CSU	101						0.76			0.65			0.92
PDS	101							0.78		0.63			0.87
Reps	101								0.80	0.60			0.94
Ego	11	0.97									0.25		0.85
CDU	11		0.97								0.25		0.85
SPD	11			0.96							0.29		0.73
FDP	11				0.97						0.23		0.93
Green	11					0.97					0.25		0.86
CSU	11						0.97				0.24		0.88
PDS	11							0.97			0.26		0.82
Reps	11								0.97		0.26		0.82
Ego	10	0.94										0.35	0.90
CDU	10		0.93									0.36	0.89
SPD	10			0.93								0.36	0.88
FDP	10				0.92							0.39	0.82
Green	10					0.93						0.37	0.86
CSU	10						0.94					0.35	0.92
PDS	10							0.93				0.36	0.88
Reps	10								0.93			0.37	0.86

Note. All estimates significant at p < 0.01. $\chi^2 = 1054.84$; df = 821. *Data Source.* SOEP-Pretest 2004.

Table 3 Multinomial Logit Model of Vote Intention (Model 1).

	SPD		*FDP*		*B90/Die Grünen*		*PDS*		*Republikaner*	
					(Reference *CDU/CSU*)					
Intercept	0.67*	(0.40)	- 1.67**	(0.66)	0.54	(0.43)	0.20	(0.50)	- 9.98***	(2.77)
Response Format										
101 Point Scale	-		-		-		-		-	
11 Point Scale	1.54**	(0.72)	0.21	(0.97)	1.78**	(0.74)	2.34***	(0.88)	1.96*	(1.80)
10 Point Scale	1.21*	(0.66)	0.20	(0.92)	1.84**	(0.71)	1.20	(0.89)	- 2.32	(2.90)
Left-Right										
Self Placement	- 0.29***	(0.08)	- 0.17	(0.13)	- 0.46***	(0.09)	- 0.61***	(0.12)	0.65***	(0.13)
x 101 Point Scale	-		-		-		-		-	
x11 Point Scale	- 0.26*	(0.17)	0.06	(0.18)	- 0.30**	(0.15)	- 0.51**	(0.22)	- 0.26*	(0.16)
x10 Point Scale	- 0.22*	(0.13)	0.04	(0.17)	- 0.29**	(0.15)	- 0.18	(0.20)	0.27	(0.34)
Model Fit										
Pseudo R^2									0.09	
Log Likelihood									-1185.83	
N									489	

Note. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$; standard errors in parentheses. *Data Source.* SOEP-Pretest 2004.

Figure 2   The Predicted Probability of Voting *SPD* as a Function of Respondents' Left-Right Position.

Note. Post estimation results of Model 1 reported in Table 3. *Data Source.* SOEP-Pretest 2004.

Table 4 Hierarchical Regression Models of Problems During Data Administration.

	Model 2 Non-Response		Model 3 Elapsed Time		Model 4 Reluctance		Model 5 Misunderstanding	
Intercept 1	- 10.93***	(3.28)	4.00***	(0.09)	- 0.33	(0.33)	- 0.04	(0.32)
Intercept 2	-		-		1.27***	(0.33)	1.56***	(0.33)
Intercept 3	-		-		2.36***	(0.34)	2.70***	(0.34)
Intercept 4	-		-		2.91***	(0.34)	3.51***	(0.35)
Intercept 5	-		-		3.43***	(0.35)	4.13***	(0.36)
Response Format								
101-Point Scale	-		-		-		-	
11-Point Scale	2.79*	(1.49)	- 0.07	(0.11)	- 0.60**	(0.30)	- 0.02	(0.30)
10-Point Scale	0.50	(1.21)	- 0.13	(0.11)	- 0.28	(0.29)	0.18	(0.29)
Respondent Characteristics								
Age	0.05*	(0.03)	0.00	(0.00)	0.01***	(0.00)	0.02***	(0.00)
Involvement in Politics	- 1.00**	(0.50)	0.05**	(0.02)	- 0.21***	(0.08)	- 0.28***	(0.08)
Attentiveness to Mass Media	- 1.71**	(0.80)	0.06*	(0.03)	- 0.48***	(0.12)	- 0.29**	(0.12)
Respondent Characteristics x Response Format								
Age x *101-Point Scale*	-		-		-		-	
x 11-Point Scale	- 0.03	(0.03)	0.00	(0.00)	0.00	(0.01)	- 0.00	(0.01)
x 10-Point Scale	- 0.01	(0.03)	0.00	(0.00)	0.00	(0.01)	- 0.00	(0.00)
Involvement x *101-Point Scale*	-		-		-		-	
x 11-Point Scale	- 0.20	(0.39)	0.00	(0.03)	0.02	(0.08)	0.03	(0.08)
x 10-Point Scale	0.18	(0.39)	- 0.04	(0.03)	- 0.01	(0.08)	0.01	(0.08)
Attentiveness x *101-Point Scale*	-		-		-		-	
x 11-Point Scale	- 0.50	(0.63)	- 0.04	(0.05)	0.14	(0.13)	0.04	(0.12)
x 10-Point Scale	- 0.15	(0.56)	- 0.02	(0.05)	0.10	(0.12)	0.00	(0.12)
Random Effects								
Variances								
Level 1, Observation	1.00		0.29***	(0.02)	1.00		1.00	
Level 2, Respondent	9.01*	(5.08)	0.00	(0.01)	1.52***	(0.23)	1.45***	(0.21)
Level 3, Interviewer	51.93*	(30.24)	0.13***	(0.02)	3.01***	(0.56)	3.14***	(0.57)
Model Fit								
− Log Likelihood	- 175.59		- 1278.74		- 1550.77		- 1576.53	
N								
Level 1, Administration	1510		1449		1510		1510	
Level 2, Respondent	755		746		755		755	
Level 3, Interviewer	142		142		142		142	

Note. *** p < 0.01; ** p < 0.05; * p < 0.10; standard errors in parentheses. *Data Source.* SOEP-Pretest 2004.

Table A1   Polychoric Correlations of Left-Right Placements, First Subsample (*N*=230)

	q1m1	q2m1	q3m1	q4m1	q5m1	q6m1	q7m1	q8m1	q1m2	q2m2	q3m2	q4m2	q5m2	q6m2	q7m2	q8m2	q1m3	q2m3	q3m3	q4m3	q5m3	q6m3	q7m3	q8m3
q1m1	1.00																							
q2m1	0.26	1.00																						
q3m1	0.23	0.21	1.00																					
q4m1	0.16	0.69	0.30	1.00																				
q5m1	0.15	0.29	0.37	0.39	1.00																			
q6m1	0.24	0.82	0.20	0.70	0.32	1.00																		
q7m1	0.02	0.07	0.16	0.17	0.37	0.04	1.00																	
q8m1	0.12	0.50	0.08	0.59	0.14	0.61	0.10	1.00																
q1m2	0.59	-0.02	0.13	-0.16	-0.06	-0.08	-0.13	-0.12	1.00															
q2m2	-0.00	0.62	0.08	0.40	0.05	0.54	-0.14	0.29	0.01	1.00														
q3m2	-0.03	0.09	0.43	0.15	0.21	0.01	0.21	0.09	0.09	0.09	1.00													
q4m2	-0.05	0.44	0.13	0.67	0.14	0.43	-0.10	0.48	-0.02	0.56	0.30	1.00												
q5m2	-0.05	0.05	0.20	0.14	0.59	0.09	0.16	0.07	0.03	0.10	0.44	0.31	1.00											
q6m2	-0.03	0.54	0.03	0.47	0.07	0.64	-0.16	0.46	0.02	0.69	0.12	0.67	0.18	1.00										
q7m2	-0.08	-0.19	0.05	-0.16	0.17	-0.23	0.57	-0.09	0.05	-0.23	0.15	-0.16	0.28	-0.16	1.00									
q8m2	-0.07	0.28	-0.03	0.36	-0.05	0.31	-0.03	0.66	-0.02	0.28	0.07	0.48	0.02	0.47	0.03	1.00								
q1m3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00							
q2m3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00						
q3m3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00					
q4m3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00				
q5m3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00			
q6m3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00		
q7m3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	
q8m3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
mean	46.89	58.46	38.08	47.46	32.42	62.51	21.78	68.28	4.83	6.02	4.03	4.95	3.43	6.37	2.46	7.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
stdev	20.61	22.99	18.11	21.67	19.31	25.65	21.79	38.43	1.92	1.98	1.60	1.89	1.77	2.30	2.30	3.51	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Note. q1=position own views, q2=*CDU* position, q3=*SPD* position, q4=*FDP* position, q5=*B90/Die Grünen* position; q6=*CSU* position ; q7=*PDS* position, q8=*Repbublikaner* position. m1=101-point scale, m2=11-point scale, m3=10-point scale. *Data Source*. SOEP Pretest 2004.

Table A2   Polychoric Correlations of Left-Right Placements, Second Subsample (*N*=229)

	q1m1	q2m1	q3m1	q4m1	q5m1	q6m1	q7m1	q8m1	q1m2	q2m2	q3m2	q4m2	q5m2	q6m2	q7m2	q8m2	q1m3	q2m3	q3m3	q4m3	q5m3	q6m3	q7m3	q8m3
q1m1	1.00																							
q2m1	0.00	1.00																						
q3m1	0.00	0.00	1.00																					
q4m1	0.00	0.00	0.00	1.00																				
q5m1	0.00	0.00	0.00	0.00	1.00																			
q6m1	0.00	0.00	0.00	0.00	0.00	1.00																		
q7m1	0.00	0.00	0.00	0.00	0.00	0.00	1.00																	
q8m1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00																
q1m2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00															
q2m2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	1.00														
q3m2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.07	1.00													
q4m2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.50	0.30	1.00												
q5m2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.03	0.12	0.40	0.17	1.00											
q6m2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.04	0.72	-0.07	0.53	0.10	1.00										
q7m2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.04	-0.10	0.14	0.05	0.30	-0.15	1.00									
q8m2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.10	0.37	-0.09	0.43	-0.06	0.52	-0.09	1.00								
q1m3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	0.19	-0.02	0.01	-0.10	0.04	-0.13	-0.02	1.00							
q2m3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.70	0.04	0.38	0.11	0.59	-0.13	0.30	0.31	1.00						
q3m3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.00	0.09	0.56	0.24	0.25	-0.05	0.12	0.02	0.20	0.10	1.00					
q4m3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.11	0.44	0.17	0.70	0.17	0.51	0.09	0.41	0.02	0.56	0.34	1.00				
q5m3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.11	0.03	0.32	0.15	0.68	0.02	0.23	0.02	-0.06	0.11	0.38	0.33	1.00			
q6m3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.63	0.01	0.49	0.03	0.73	-0.19	0.51	0.18	0.78	0.10	0.62	0.12	1.00		
q7m3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.08	-0.19	0.11	-0.05	0.19	-0.22	0.68	-0.10	-0.05	-0.16	0.28	0.04	0.29	-0.15	1.00	
q8m3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.14	0.28	-0.00	0.45	-0.02	0.44	-0.06	0.71	0.00	0.32	0.13	0.46	0.12	0.53	0.03	1.00
mean	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.99	6.01	3.99	5.14	3.58	6.55	2.61	7.65	4.74	5.88	3.73	4.91	3.39	6.18	2.42	7.01
stdev	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.61	1.75	1.68	1.70	1.69	2.04	2.11	3.09	1.61	1.70	1.48	1.69	1.59	2.10	1.97	2.90

Note. q1=position own views, q2=*CDU* position, q3=*SPD* position, q4=*FDP* position, q5=*B90/Die Grünen* position; q6=*CSU* position ; q7=*PDS* position, q8=*Repbublikaner* position.
    m1=101-point scale, m2=11-point scale, m3=10-point scale. *Data Source*. SOEP Pretest 2004.

Table A3   Polychoric Correlations of Left-Right Placements, Third Subsample (*N*=239)

	q1m1	q2m1	q3m1	q4m1	q5m1	q6m1	q7m1	q8m1	q1m2	q2m2	q3m2	q4m2	q5m2	q6m2	q7m2	q8m2	q1m3	q2m3	q3m3	q4m3	q5m3	q6m3	q7m3	q8m3
q1m1	1.00																							
q2m1	0.48	1.00																						
q3m1	0.40	0.42	1.00																					
q4m1	0.36	0.69	0.50	1.00																				
q5m1	0.41	0.40	0.71	0.52	1.00																			
q6m1	0.42	0.90	0.40	0.75	0.41	1.00																		
q7m1	0.16	0.14	0.44	0.25	0.52	0.15	1.00																	
q8m1	0.28	0.61	0.39	0.69	0.39	0.70	0.23	1.00																
q1m2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00															
q2m2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00														
q3m2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00													
q4m2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00												
q5m2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00											
q6m2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00										
q7m2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00									
q8m2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00								
q1m3	0.47	-0.06	-0.05	-0.12	-0.02	-0.08	-0.08	-0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00							
q2m3	-0.07	0.37	-0.12	0.26	-0.01	0.35	-0.19	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	1.00						
q3m3	-0.03	0.01	0.51	0.15	0.38	0.00	0.24	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.19	1.00					
q4m3	-0.15	0.18	0.07	0.37	0.10	0.23	-0.02	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.49	0.35	1.00				
q5m3	0.04	-0.08	0.27	0.07	0.52	-0.11	0.25	-0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.11	0.44	0.18	1.00			
q6m3	-0.11	0.32	-0.19	0.27	-0.11	0.40	-0.22	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.82	0.09	0.53	0.03	1.00		
q7m3	-0.09	-0.07	0.19	-0.05	0.26	-0.09	0.65	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.07	-0.12	0.28	0.12	0.35	-0.10	1.00	
q8m3	-0.07	0.28	0.08	0.34	0.06	0.37	-0.05	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.10	0.40	-0.01	0.46	0.08	1.00
mean	42.31	54.33	37.08	45.39	32.25	58.31	23.93	69.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.37	5.69	3.89	5.03	3.43	6.26	2.69	7.06
stdev	20.35	24.31	20.00	21.34	18.10	27.06	23.80	37.26	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.72	1.88	1.56	1.72	1.71	2.12	2.37	2.89

Note. q1=position own views, q2=*CDU* position, q3=*SPD* position, q4=*FDP* position, q5=*B90/Die Grünen* position; q6=*CSU* position ; q7=*PDS* position, q8=*Repbublikaner* position.
m1=101-point scale, m2=11-point scale, m3=10-point scale. *Data Source*. SOEP Pretest 2004.