The Use of Neutral Responses in Survey Questions: An Application of Multiple Correspondence Analysis

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This article explores whether neutral responses are substantive or nonsubstantive ones. Using data from the 1984 Canadian National Election Study, in the first of two examples, respondents were asked which political party would be best (worst) in dealing with issues such as controlling inflation. A large minority of respondents volunteered a neutral ''no difference'' response. The second example concerns a set of Likert items often used as measures of political trust and efficacy. Multiple correspondence analysis is used to help determine if respondents who frequently use neutral responses such as ''neither agree nor disagree'' or ''no difference'' do so to mask their nonopinionation or for substantive reasons. The results show that respondents using substantive answers differ from those using nonsubstantive answers such as ''don't know'' and ''no opinion'' and that both are different from those using neutral responses.

Key words: ''don't know'' and ''neither-nor'' responses; political opinions; properties of Likert-type scales; multiple correspondence analysis.

1.   Introduction

A major problem in the analysis of survey data is item nonresponse. Most studies on this topic focus on avoiding nonresponse and/or describing the attributes of those using nonsubstantive answers. Responses such as ''don't know'' and ''no opinion'' are traditionally treated as nonsubstantive. In contrast, neutral responses such as the middle category in odd numbered Likert-type scales (''neither agree nor disagree'') are usually treated as substantive responses although some authors question this practice (see, for example, Krosnick and Fabrigar 1997).

Nonsubstantive answers are dealt with either by using filter questions to exclude them or by explicitly offering response options such as ''don't know'' and ''no opinion.'' A dilemma emerges in this respect. On the one side, sizeable numbers of respondents select ''no opinion'' when this choice is made easily available, even if they have an opinion (see, for example, Bishop et al. 1980, Schuman and Presser 1981). Krosnick's (1991) interpretation was that some respondents use the opportunities presented by filter questions – as well as the ''don't know''/''no opinion'' response categories – to

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engage in ''satisficing'' behaviours. Substantive information is therefore lost, as well as there being a loss in the number of cases available for analysis on these topics.

On the other side, a substantial body of empirical evidence suggests that, due to compliant respondent behaviour, surveys elicit apparently substantive responses from many who actually have no point of view on the given topic. The Converse (1964) thesis postulates that respondents feel they are expected to hold opinions and therefore fabricate them rather than admit ignorance. That this may be a grave problem is underscored by empirical estimates that a majority of respondents typically do not have attitudes on various public policy issues (Brody 1986; Taylor 1983).

One possible strategy available to such respondents is the use of a neutral ''safe'' response. This article focuses on two possible safe responses: volunteering a ''no difference'' response to questions where respondents have to choose between several options, and using the middle category in Likert-type response formats. Assuming that some respondents use such responses to mask their lack of an opinion, it would be advantageous to know if certain characteristics describe this sub-population. Krosnick and Fabrigar (1997, p. 157) note that the correlates of the ''traditional'' nonsubstantive (''don't know''/''no opinion'') responses are consistent with the satisficing strategy interpretation. For example, such responses are more frequently used by less educated persons or – on political issues – by those with little political interest and/or political knowledge (see, for example, Converse 1976–77, Faulkenberry and Mason 1978). The fact that politics has traditionally been of greater interest to males also lends support to the finding that males use nonsubstantive responses less often than females in this domain (see, for example, Francis and Busch 1975). Evidence for an association of ''don't know'' responses with ''age'' is less consistent; some researchers found an association (see, for example, Francis and Busch 1975), others not (see, for example, Ferligoj et al. 1991).

The major aim of the article is to address the question: Are neutral responses substantive or nonsubstantive ones? In other words: Do neutral categories such as ''neither agree nor disagree'' and ''there is no difference'' represent a real opinion or do they encourage hidden nonresponses? A further aim is to identify subgroups of respondents who use substantive, nonsubstantive and neutral categories, respectively, relatively often/relatively seldom.

2.   Examples of the Problem

To exemplify the above-mentioned issues, we use two sets of items from the 1984 Canadian National Election Study (CNES). The study is based on a large ($N = 3,377$) multi-stage weighted probability sample; provinces with low populations are over-sampled. Face-to-face interviews were conducted following the 1984 federal election exploring a number of social and political issues.[3]

2.1.   Party competency

We first focus on questions concerning the perceived (in)competence of the Canadian federal political parties to deal with a number of issues: ''Now I'm going to ask you

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[3] The data are available through the Inter-University Consortium for Political and Social Research at the University of Michigan, Ann Arbor, U.S.A.

about a number of tasks that the federal government has to deal with. Forget for a moment the likelihood of each party getting elected to government. I'd like you to tell me which of the three major federal parties would probably do the best job and which would probably do the worst job on each task if it were the government.'' The tasks (together with the alphabetic character used to identify them in Figure 1) are: controlling inflation (i), dealing with the provincial governments (g), dealing with the U.S.A. (a), handling relations with Quebec (q), running the government competently (c), dealing with unemployment (u), providing social welfare measures (s), protecting the environment (e), limiting the size of government (l), dealing with women's issues (w), working for world peace (p), handling the deficit (d).

The respondents were not provided with any response categories with respect to these questions. Rather, as the lead-in to the questions indicated, they were expected to name one of the three federal political parties of Canada, which at the time were the Progressive Conservative, the Liberal, and the New Democratic Party. Most respondents did indeed name exactly one party as the best/worst for a given task. However, sizeable numbers stated they did not know; another substantial group indicated they felt there was no difference between the three parties; and finally, a relatively small number of respondents felt that two of the three parties would be equally best/worst for the given task. The fact that no response alternatives were listed should minimize the likelihood of respondents using a satisficing strategy in which they have an opinion but fail to report it because a nonresponse has been explicitly given. The primary interest in this first example is in the two types of responses in which no political party was named, i.e., the ''don't know'' and the ''no difference'' responses.

From these responses, the following categories were constructed:

– differentiated (D): one of the three parties was named as best/worst;
– semi-differentiated (SD): two of the three parties were considered equally best/worst;
– no difference: (ND, abbreviated with ''N'' in Figure 1): the three parties were considered indistinguishable on this task;
– don't know (DK): the respondent did not know which party would do best/worst on this task.

It is clear that respondents who named a given party provided a substantive response – regardless of which of the three parties was mentioned. Likewise, respondents who considered precisely two parties to be equally best/worst in dealing with a specific issue are providing substantive responses. In contrast, a ''don't know'' is traditionally considered a nonsubstantive response.

The (neutral) ''no difference'' responses are of particular interest since it is unclear if they are substantive responses or hidden nonresponses. On the one hand, knowledgeable observers of the political scene may well arrive at the conclusion that the political parties do not differ in their abilities to handle an issue such as ''working for world peace.'' That is, a ''no difference'' would mean that all parties are considered equally competent to perform the specified task, and such an assessment could be made on the basis of an adequate understanding of the Canadian federal political parties. For them, a ''no difference'' response is substantive.

On the other hand, respondents with insufficient information or insufficient knowledge

to discriminate between the political parties' abilities to deal with a specific issue might prefer to mask their lack of an opinion. Instead of admitting they ''don't know,'' they simply make the safe and easy response that ''there is no difference between the parties.'' In such instances, ''no difference'' is a nonsubstantive response similar to ''don't know.''

In the analyses which follow, the main question will be which of the three interpretations of ''no difference'' is most defensible. Is it a form of nonresponse, is it a substantive answer, or is it both? If it is both, are there subgroups for which a ''no difference'' is mainly a nonresponse and other subgroups who use ''no difference'' mainly for substantive reasons?

2.2. Political efficacy

A parallel case to that described above occurs for Likert-type items: Do people mask their nonresponses behind the middle (the neutral) category or do they use this response for substantive reasons? If a large majority of respondents use neutral categories to hide nonresponses, these should be avoided when constructing questionnaires. If it is only a small minority of persons, a response alternative such as ''neither agree nor disagree'' would have substantive meaning and should be included to give respondents the opportunity to answer in that way. The CNES included nine Likert-type items on opinions people hold about the federal government (see Table 2 for the item wordings). Collectively, these items are referred to as political trust and efficacy (see, for example, Balch 1974, Craig et al. 1990).

For each statement, respondents were asked if they ''strongly agree,'' ''agree somewhat,'' ''disagree somewhat'' or ''strongly disagree;'' in addition they were given the opportunity to indicate that they had no opinion on the matter. The interviewers were instructed not to explicitly offer the neutral ''neither agree nor disagree'' response, but such responses were recorded as such if volunteered. This method of invoking the neutral category suggests that ''neither agree nor disagree'' would most often be used by respondents who really could not decide between ''agree'' and ''disagree.''

Although there is a different question format, the same issues as in the previous example arise: Do respondents use the middle category as substantive or as nonsubstantive responses? Do only certain subgroups relatively often use the ''neither agree nor disagree'' categories to hide nonresponses? If so, do such groups share attributes with those who tend to use ''don't know'' and/or ''no opinion'' responses?

3. Distributional Features of the Data

3.1. Party competency

Table 1 shows the levels of differentiation and opinionation on the relative (in)ability of the Canadian federal political parties to deal with various tasks ($N = 3,356$).[4] Overall, this table shows that the number of ''don't knows'' is higher than the number of ''no differences,'' and that both are higher than the number of ''semi-differences.'' The

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[4] Excluded are the 19 cases where the respondent either refused to answer these items or the interviewer inadvertently skipped the question. However, ''I don't know'' is treated as a valid answer.

Table 1.   Level of differentiation and opinion among Canadian federal parties on their ability to deal with various issues (N = 3,356)

	Best				Worst			
	D	SD	ND	DK	D	SD	ND	DK
Inflation	66.2	4.9	12.1	16.3	63.4	2.8	11.3	22.1
Provincial govts.	71.6	2.9	7.7	17.4	63.9	3.2	8.0	24.5
U.S.	71.1	3.0	6.7	18.9	61.2	2.5	6.8	29.1
Quebec	74.2	2.5	6.8	16.0	62.6	2.8	7.1	27.1
Competent	68.8	3.1	9.1	17.7	60.2	3.6	9.7	26.1
Unemployment	69.8	2.6	10.5	16.7	59.9	3.9	10.1	25.6
Social welfare	70.4	2.9	8.0	18.2	55.4	3.5	8.6	32.0
Environment	52.5	2.2	17.1	27.8	42.0	3.2	16.3	38.1
Limit govt.	60.8	1.5	10.5	26.8	55.3	2.5	10.3	31.5
Women's issues	62.5	2.3	11.4	23.4	48.5	4.0	11.7	35.4
World peace	65.8	2.5	14.1	17.2	42.3	3.7	15.1	38.5
Deficit	66.4	1.9	10.3	21.0	59.0	2.8	9.9	27.9

D = Differentiated, SD = Semi-Differentiated, ND = No Difference, DK = Don't Know.

relative frequencies with which ''differentiated'' (D), ''don't know'' (DK) and ''no difference'' (ND) were used for the ''handled best'' are proportional to those used for ''handled worst.'' Although the rank order of usage is similar, the levels are quite different: DK responses are more prevalent on which party would do worst. In the extreme, for the item ''working for world peace'' 17.2 percent of the respondents chose ''DK'' for which party would do best, whereas 38.5 percent gave this response for which party would do worst. This finding does not hold for ''ND''; as is to be expected, those who cannot differentiate which party would handle a task best would also not be able to differentiate which party would do worst.

3.2.   Political efficacy

Table 2 provides the distribution of the nine political trust and efficacy items measured on a five-point Likert-type scale supplemented by a volunteered ''no opinion'' (N = 3,355). In general, each row shows high variations with relatively low frequencies in the middle categories. Furthermore, the coincidence between the middle categories and the ''no opinions'' is high: the lowest frequencies (item ''e''; so many other people vote in federal elections that it doesn't matter very much whether I vote or not) as well as the highest frequencies (item ''f''; many people in the government are dishonest) belong to the same items. Please note, the last two are phrased in a direction opposite to that of the others; that is, in seven items a ''strongly agree'' reflects a critical stance towards the federal government, while in the remaining two the same value denotes a favourable view of the federal government.

4.   Multiple Correspondence Analysis

Our aim is to differentiate neutral responses from substantive and nonsubstantive answers in two sets of items. To do this requires that we treat all variables as nominal.

Table 2.   Political efficacy and political alienation items

	Strongly agree	Agree somewhat	Neither agree nor disagree	Disagree somewhat	Strongly disagree	No opinion
a) Generally, those elected to parliament soon lose touch with the people	26.5	44.6	3.5	16.1	4.8	4.5
b) I don't think the federal government cares much about what people like me think	27.0	32.9	3.8	24.2	9.0	3.2
c) Sometimes, federal politics and government seem so complicated that a person like me can't really understand what's going on	31.0	33.1	2.4	19.0	12.6	1.9
d) People like me don't have any say about what the government in Ottawa does	33.4	28.4	2.2	20.0	14.0	2.0
e) So many other people vote in federal elections that it doesn't matter very much whether I vote or not	7.8	9.8	1.8	16.1	62.9	1.6
f) Many people in the federal government are dishonest	10.5	25.0	10.1	24.6	18.3	11.5
g) People in the federal government waste a lot of the money we pay in taxes	46.4	33.1	3.9	9.0	3.6	4.0
h) Most of the time we can trust people in the federal government to do what is right	10.4	46.1	6.2	23.4	9.7	4.2
i) Most of the people running the federal government are smart people who usually know what they are doing	16.0	45.4	5.9	21.0	8.2	3.5

Furthermore, we would like to assign respondent attributes to the three types of responses without them having an impact on the response structure. Multiple correspondence analysis (MCA) is a nonlinear multivariate method which permits us to do these things. The method was developed in France (Benzécri et col. 1973), and the first English textbooks are by Greenacre (1984) and Lebart et al. (1984).[5]

MCA captures all first-order interaction effects in the model, much like principal components analysis (PCA) does for metric data. In general, (multiple) correspondence analysis is a powerful instrument for converting rows and columns of any data table with nonnegative entries into graphical displays, called ''maps'' (for the statistical background, see Greenacre 1984; for the algorithm, see Blasius and Greenacre 1994).

MCA produces a latent space in which each response category of every item in the analysis can be located. The distances between the variable categories can be interpreted as (dis)similarities of answers. Response structures emerge when a significant number of respondents perpetually agree (or disagree) with a number of items or they consistently respond with ''don't know'' or consistently use the middle category in Likert-type items. These categories will be close to each other in the latent space, whereas response categories that are relatively infrequently used by the same respondents are distant from each other.

As in PCA, the first axis is chosen so as to explain maximum variation in the data; the second axis captures a maximum of the remaining variation, and so on. And again analogous to PCA, it is possible to interpret the variable categories in relation to the axes which can be considered the latent variables.

MCA employs the concept of inertia: the farther the categories are from the centroid along a given axis (squared distances) and the higher their masses (their marginals), the more the categories determine the geometric orientation of that axis. In the graphical solution, the locations of all categories can be compared to each other: short distances imply high similarities and long distances high dissimilarities (for more details in interpreting MCA solutions, see, for example, Greenacre 1991, Le Roux and Rouanet 1998).

Finally, MCA permits a distinction between active and passive (or supplementary) variables (or variable categories).[6] The former determine the geometric orientation of the axes in the latent space, while the latter are used for supplementary information only, having no impact on the geometric orientation of the axes. This feature allows one to project sociodemographic or other characteristics of the respondents into the predetermined space. We will, for example, construct the latent space on the basis of the political trust and efficacy items and then project other respondent attributes into that given space. This permits us to identify the characteristics of respondents who have a certain response structure.

Note that input are all first order interactions between all variables. Since we have 3,356 cases and all variables have only a few categories, we do not need to discuss small cell frequencies as we would have when applying methods based on higher-order interaction effects such as loglinear modelling or latent class analysis.

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[5] MCA is the mathematical equivalent to ''homogeneity analysis'' (Gifi 1990) and included in SPSS in the module CATEGORIES under the name HOMALS (SPSS Inc. 1990). The method is also known under the names ''dual scaling'' (see, for example, Nishisato 1994) and ''quantification of qualitative data III'' (see, for example, Hayashi 1980).
[6] This feature is not available in SPSS HOMALS.

4.1. Party competency

All party competency variables have four categories: ''differentiated,'' ''semi-differen-tiated,'' ''no difference,'' and ''don't know.'' Response structures emerge when a tendency exists to respond to the two times twelve items in primarily one of the four ways: D, SD, DK or ND. If this occurs, a map of the first two dimensions of the latent space should reveal four clusters reflecting the four categories. The location of the clusters with respect to each other and with respect to the main axes is used to infer whether – and if so to what extent – the ''no difference'' responses are best considered as nonsubstantive. The more individuals fluctuate between DK and ND responses within the set of items, the closer these two clusters should be to each other. If ND and DK are used as interchangeable (nonsubstantive) responses by the respondents, a common cluster of DK and ND responses would result.

Assuming that the contrasts between substantive and nonsubstantive responses are the strongest ones, the first axis – which might be labelled ''degree of differentiation'' – should distinguish between these kinds of responses. The NDs are genuinely substan-tive responses if they are located either on the same part of the first axis as the other substantive responses (indicating that respondents fluctuate between these two kinds of substantive responses) or in a higher dimension, negatively associated with the DKs (if respondents did not alternate between the different kinds of substantive responses). In the latter case, the NDs must also be located opposite the nonsubstantive responses in the latent space. The NDs are genuinely nonsubstantive responses if they are located on the same part of the first axis as the other nonsubstantive responses (again indicating that respondents fluctuate between the different kinds of nonsubstantive responses) or on a higher dimension negatively associated with the substantive responses (if respondents did not alternate between the different parts of nonsubstantive responses).

If ''no difference'' responses were used both as substantive and as nonsubstantive ones, they should be uncorrelated with the first dimension (''degree of differentiation'') and be located at their ''correct positions'' on dimension one: close to the centroid between ''differentiated/semi-differentiated'' and ''don't know.'' If there is no tendency to respond to questions in any one of the four ways (D, SD, ND, DK), then no clusters will be constituted by the respective categories.

In the case that a ''no difference'' cluster emerges, the use of supplementary variables for projecting respondent attributes into the given space permits us to describe those who use these responses above average. Furthermore, we are able to test the findings in the literature which assert that political interest, education, and gender are related to propensity to give substantive responses. To confirm these previous results, the politically less interested, the less educated, and females must be located relatively close to the expected ''don't know'' cluster.

4.2. Political efficacy

The items in this example consist of a combination of a five-point scale from ''strongly agree'' to ''strongly disagree'' and a ''no opinion'' response. To include the latter cate-gory, we will treat them all at the categorical level. The first dimension should reflect the main substantive content of the set of variables, e.g., the level of political trust and

efficacy. On the one side there should be the ''strongly agree'' (items h and i: ''strongly disagree'') categories, which indicate high political trust and efficacy; on the other side the ''strongly disagree'' (''strongly agree'') categories which indicate low political trust and efficacy. Between these extreme values of the individual items should be the other categories in their respective order. The nonsubstantive responses ''no opinion'' should load on the second (or a higher) dimension and be negatively associated with the substantive responses.

If the neutral responses ''neither agree nor disagree'' are nonsubstantive and if respondents fluctuate between neutral and DK responses, then the respective variable categories should be located close to each other, loading opposite to the substantive responses in the latent space. In a situation where the neutral responses are essentially nonresponses but respondents consistently choose either DK or the middle category of the items, both groups of variable categories should be clearly separated in the latent space, be uncorrelated with each other (with, say, one group of categories determined by the second and the other one by the third or fourth axis), and both should be negatively associated with the substantive responses.

When the middle categories are substantive responses, they should be located in the middle of the scale (first dimension) between ''agreement'' and ''disagreement.'' In the event that the neutral responses represent both substantive and nonsubstantive responses, they should load only moderately on the first dimension (''degree of political trust and efficacy'') but should also be located between ''agree somewhat'' and ''disagree somewhat.'' Furthermore, they should have loadings on the second (or higher) dimension, either positively associated with the other nonresponses (fluctuating use of the middle categories and the DKs) or uncorrelated with them (consistent use of either the ''don't know'' or the neutral response).

Again, using the feature of supplementary variables, we can show whether the first and second dimensions are correlated with the respondent attributes. For example, we can determine whether politically interested and/or well-educated persons are concentrated among the politically efficacious. Likewise, we can describe those groups who use nonsubstantive responses and/or middle categories on five-point scales relatively often/relatively seldom.

5. Results

5.1. Party competency

Starting with the government tasks handled best and handled worst, there are a total of 96 categories (two times 12 tasks with four response categories, each answered by 3,356 respondents having ascertained responses on all of the tasks). In addition, we project several supplementary variables into the space of the solution given by the 24 variables. The passive variables included in the model are sex (abbreviated by ''F,'' ''M''), age (subdivided into six categories, ''18 to 24'' – A1, ''25 to 34'' – A2, ''35 to 44'' – A3, ''45 to 54'' – A4, ''55 to 64'' – A5, ''65 and older'' – A6), education (four categories, from ''grade school or less'' – E1, to ''university degree'' – E4), political knowledge (constructed by counting how many of the ten Canadian provincial premiers a respondent

could name; four categories, from ''none or one premier'' – K1, to ''five and more premiers'' – K4), and political interest (from ''least interested'' – I1, to ''most interested'' – 14).

Applying MCA to the political competency data permits a maximum of 72 dimensions (number of active categories minus number of active variables). The principal inertia for the first axis is 0.48, which captures 16.2 percent of the total variation; the corresponding values for the second axis are 0.39 and 13.1 percent.[7] These values are almost as high as those found in separate analyses of ''best'' and ''worst'' items (Thiessen and Blasius 1998), indicating a high similarity in response structure between the two sets of items.

Figure 1 displays the locations of the 96 party competency categories and the 20 categories of the passive variables. Focusing on the active variables, four distinct clusters of response categories are portrayed, indicating four patterns of response behaviour. This means that with respect to the DK, D, ND, and SD clusters, differences between the ''best'' (indicated by a cross) and the ''worst'' (indicated by a solid circle) items are small.

Projecting the categories onto the axes, the DK responses are found on the left, or negative, side of the first axis (*x*-axis). Negatively correlated with these categories are the items of the cluster ''differentiated'' and, to a lesser degree, the items of the cluster ''semi-differentiated.'' Projecting the centroids (not shown in Figure 1) of the four clusters onto the *x*-axis provides an order from DK through ND and SD to D. This supports an interpretation of the *x*-axis as reflecting the ''degree of differentiation,'' with ''differentiated'' at the one extreme and ''don't know'' at the other. It can be inferred that the higher the value on the *x*-axis, the more substantive the response.

The second axis (*y*-axis) is determined mainly by the ND responses, which are located in the upper part. The order of these categories is item-specific – if one felt the three parties would handle a particular task equally well, then it should be a foregone conclusion that one saw ''no difference'' in how poorly the three parties would handle that task. The fact that the NDs are located in the middle of the scale on the first dimension and that they are highly associated with the second dimension suggests that NDs are used as substantive as well as nonsubstantive responses.

In addition to the reported differences along the *x*-axis, the long distances in the two-dimensional space between DK and ND responses imply that respondents who frequently employ the ND responses are rather distinct from those answering DK relatively often. Regardless of whether NDs were used substantively or not, they are not interchangeable with DKs. Furthermore, respondents who differentiated between the (in)competencies of the three parties are distinct from those who responded with ND. Between these two clusters are those responses classified as SD.

As mentioned before, the distances of the categories from the centroid are associated with their masses: the more often a category such as ''no difference'' was chosen, the closer that category is to the centroid. This means, for example, that a response of ND

[7] Without discussing statistical details, it can be shown that the amount of explained variances attributable to the first several axes has been underestimated (see Greenacre, 1988). However, we will forego recomputing the explained variances since the decreasing order of the axes including the variable categories belonging to them is retained; differences between the maps using several adjustments are so small that they can be ignored when interpreting the data.
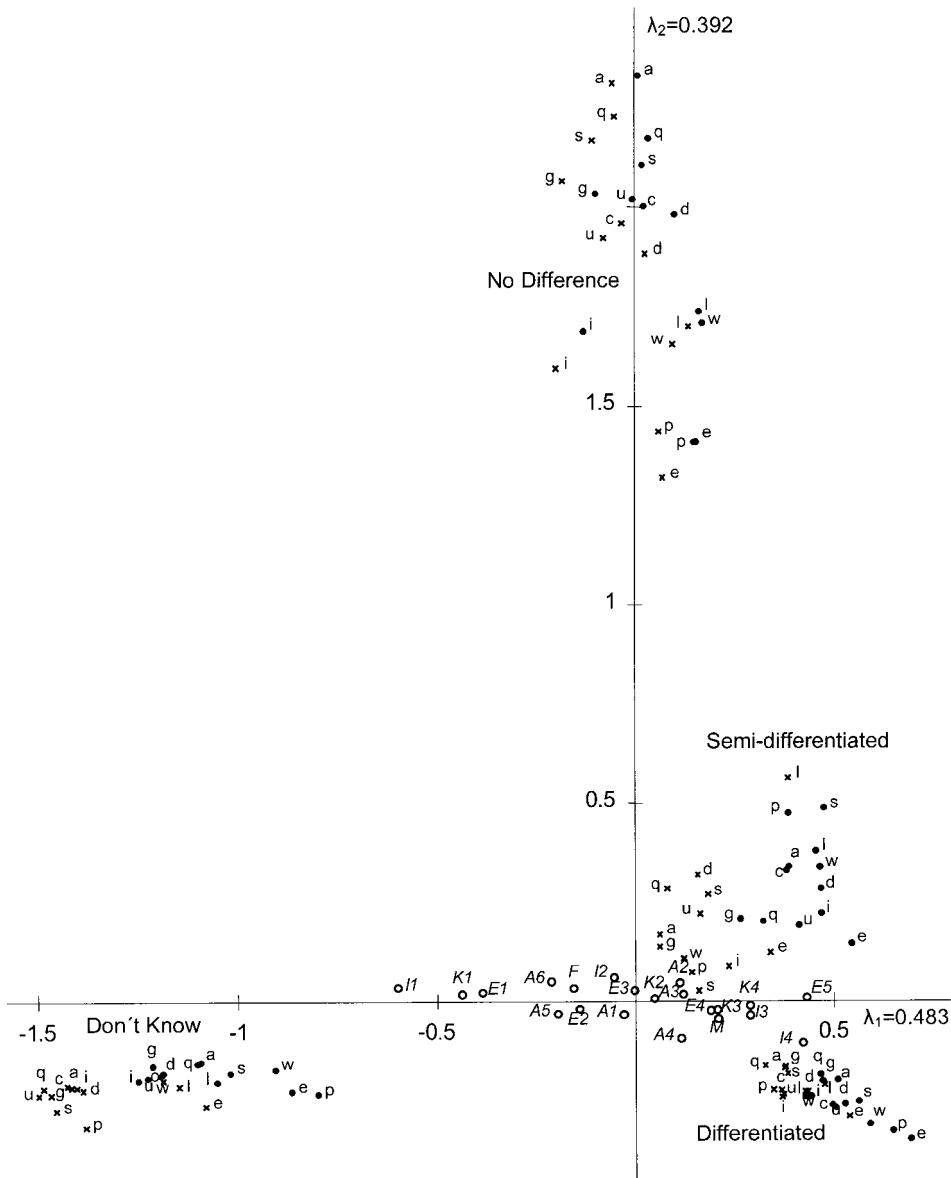
Fig. 1. *MCA of government tasks with supplementary variables*

was most likely on the task "protecting the environment" (e; best and worst), followed by "working for world peace" (p), and least likely on "dealing with the U.S.A." (a). The frequency distributions of the NDs confirm this order of the data (see Table 1). This finding indicates an increasing "difficulty" in differentiating between the three parties on those issues that are closer to the centroid. The same holds for DK: for the "handle worst" items the three solid circles somewhat outside of their cluster belong to the three variables with the highest frequencies in that category – "protecting the environment" (e), "dealing with women's issues" (w) and "working for world peace" (p).

Since the axes are orthogonal, it can be concluded that the ''no difference'' responses are given both as substantive responses and as hidden nonresponses. In other words, these categories are used by respondents who really believe there is ''no difference'' between the parties' abilities to handle various tasks as well as by those who ''don't know'' which party could handle a given task best or worst.

To visualize how the four clusters relate to the socio-demographic characteristics of the respondents, we turn to the supplementary variables (indicated by an empty circle). This reveals that all 20 categories are either strongly connected with the x-axis or are located close to the centroid of the map; they are not correlated with the y-axis. Therefore, ''sex,'' ''age,'' ''education,'' ''political knowledge'' and ''political interest'' are not predictors of ''no difference'' responses but these variables fruitfully distinguish ''don't know'' from ''differentiated'' and, to a lesser degree, ''semi-differentiated'' responses.

The variable category that seems best for describing the ''don't know'' responses is ''least political interest'' (I1), which has the shortest distance to this cluster. Additional relatively good predictors are ''low political knowledge'' (''knowing none or one premier only'' [K1]) and ''low formal education'' (''grade school or less'' [E1]). Two age categories are somewhat poorer indicators: individuals 55 years and older (A5, A6) answered relatively often that they did not know which parties would handle the selected tasks ''best'' or ''worst,'' respectively. On the other side, especially individuals with high political interest (14) differentiated relatively often between the parties. Furthermore, high formal education (''university graduates'' [E4]) and high political knowledge (naming ''five or more premiers'' [K4]) are relatively good predictors for both D and SD responses.

The location of the categories of the supplementary variables along the x-axis confirms the ordinality of education, political knowledge, and political interest with regard to the 24 items used in the analysis. Projecting them onto the x-axis, all categories belonging to these supplementary variables form a line from ''high'' to ''low.'' Therefore, it can be concluded that the lower the political interest or the lower the political knowledge or the lower the education, the higher the probability of a DK response.

Also in line with the literature is the response tendency of males and females: men more often differentiated or partially differentiated; women answered relatively often with ''don't know.'' In contrast, the age groups are not ordinally ordered on the x-axis: the youngest and the oldest age groups (A1, A5, A6) are relatively close to the DK cluster, the remaining groups are close to each other on the positive part of the x-axis. This indicates that the relationship between ''age'' and ''response behaviour'' is not ordinal, which explains the conflicting findings in the literature.

Since all respondent attributes are uncorrelated with the second dimension, there is no attribute which can be used for characterising the NDs. This means that NDs have been equally given from all parts of the population but for different reasons. Considering the solution for the Ds and DKs, it follows that there is a subgroup of politically less interested (less formally educated, ...) individuals who use the NDs as hidden nonresponses. The members of a second subgroup who are politically interested (better educated, ...) use the NDs as substantive answers: they cannot see any difference in the competence of the parties to handle certain tasks.

5.2. *Political efficacy*

In the second example the nine five-point Likert-type items plus their ''no opinion'' categories, with a total of 54 categories (nine items with six response alternatives each), are used to determine the geometric orientation of the axes in the latent space. The same respondent attributes as in the case of party competencies are included as passive variables to assess their association with this structure. The whole set of nine Likert-type items supplemented by five respondent attribute variables (with a total of 20 categories) serves as input data for the second MCA, whose solution is given in Figure 2.

The *x*-axis in Figure 2 mirrors the extent to which the federal government is held in favour. Projecting the values of the nine Likert-type items on this axis (''1'' stands for ''strongly agree,'' ''3'' for ''neither agree nor disagree,'' ''5'' for ''strongly disagree,'' and ''9'' for ''no opinion''), the left part is determined by ''strongly agree'' (except for items ''h'' and ''i'' whose polarity is reversed), the right part mainly by ''disagree somewhat'' and, still further to the right, ''strongly disagree.'' The reflected overall ordinality of the variable categories on the first axis suggests that the *x*-axis measures ''support for the federal government'' quite well.[8]

The middle categories are at their expected locations on the *x*-axis, but they are also determined by the positive part of the *y*-axis; on this axis they are located opposite the substantive values ''strongly agree,'' ''agree somewhat,'' ''disagree somewhat,'' and
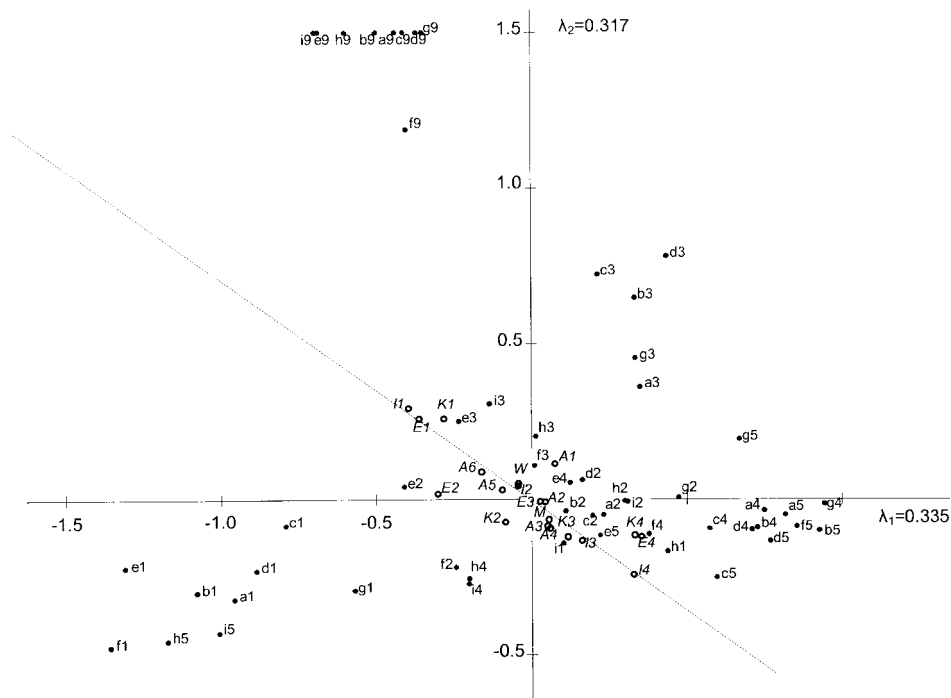

Fig. 2. *MCA of political alienation with supplementary variables*

[8] There are some minor mistakes in the ordering. It can be shown that these ''incorrect'' locations are caused by misunderstandings of the items (Blasius and Thiessen 2001).

"strongly disagree." Furthermore, the "no opinion" responses are also located on the positive part of the *y*-axis.[9] The common loadings of the neutral categories and the "don't knows" on the *y*-axis indicate some alternating between using "no opinion" and "neither agree nor disagree." Considering both associations, it seems that there are two overlapping effects: the use of the middle categories as real opinions and as a way of hiding nonresponses.

Whereas the ordinality of "educational level," "political interest," and "political knowledge" with respect to a latent dimension ranging from nonsubstantive to substantive responses is mirrored along the *x*-axis, "age" is not. The middle age groups have the highest political knowledge and the highest political interest (see the closeness of the respective categories in the two-dimensional space). This supports the results from the "party competency example."

The respondents' attributes included in the model as supplementary variables are located across both axes. We included a dashed line to visualize the relationships of these variables in the space determined by the political trust and efficacy items. Projecting the 54 active categories in a right angle onto the dashed line produces an order ranging from "no opinion" via "strongly agree" and "neither agree nor disagree" to "strongly disagree." The strong associations in the latent space of "political interest," "political knowledge," and "educational level" with the response structure reinforce the conclusion that the use of "no opinion" and of "neither agree nor disagree" as well as the amount of "support for the federal government" is influenced by these individual characteristics. The greater use of nonsubstantive responses from politically less interested respondents as well as their more critical stance towards the federal government confirms the previous findings that such respondents have less political trust and efficacy (see, for example, Parry et al. 1992). Furthermore, males used the nonsubstantive answers less often than females, which also confirms previous findings (see, for example, Francis and Busch 1975). Finally, "age" is connected with the use of "don't know" in a nonlinear fashion, which accounts for the contradictory evidence found when treating "age" on the one hand as an ordinal, on the other hand as a metric variable.

Whereas the "no opinion" responses clearly belong to the less politically interested respondents (see their projections onto the dashed line), the "neither agree nor disagree" categories are located in the middle of the ordered attributes, for example between "I2" and "I3". Furthermore, the distances between the "neither nors" and the attributes are all similar. As in the political competency example, it follows that there are two groups of respondents who use the "neither nors" for different reasons. The politically interested respondents make substantive use of the neutral categories; the politically less interested respondents mask their nonopinionation by responding with "neither agree nor disagree."

6.   Conclusion

One of the most important analysis decisions concerns which response categories can be treated as nonsubstantive and which as substantive. In cases such as "don't know"

[9] To improve the readability of Figure 2, the "no opinion" locations for eight of the nine items have been moved towards the centre.

and ''no opinion'' it is easy to decide. In contrast, one usually does not know how to interpret neutral categories such as ''neither agree nor disagree'' and ''no difference,'' although in practice they are usually treated as substantive.

Our two analyses had a common concern: to determine whether nonresponses appear in the guise of apparently substantive responses. It might be that respondents feel under some pressure to utter opinions on topics on which they have none (see, for example, Krosnick and Fabrigar 1997). To the extent that this is so, one would expect them to choose easily defended positions. In the party competencies example, the ''no difference'' response would serve this function. In the political trust and efficacy context, the ''neither agree nor disagree'' response is sufficiently noncommittal to be a safe mask for hiding nonresponses.

In the example concerning party competencies, the MCA results show a clear distinction between traditional nonsubstantive and substantive responses on the *x*-axis. Furthermore, the ''no difference'' as well as the ''don't know'' categories form relatively homogeneous clusters which are located on different orthogonal axes. In the second example, the *x*-axis measures ''support for the federal government,'' while the *y*-axis captures the distinction between substantive and nonsubstantive responses.

In both examples, some of the respondents use the neutral categories as substantive answers, others as hidden nonresponses. In the case of party competencies, the ''no difference dimension'' is uncorrelated with the latent variable ''substantive versus nonsubstantive answers'' – the responses are given for substantive reasons and in order to hide nonresponse. In the case of political efficacy, the neutral responses are at the middle of the latent scale ranging from ''support'' to ''nonsupport'' of the federal government, but they are also associated with the *y*-axis which reflects the distinction between substantive and nonsubstantive responses. From both cases one can conclude that neutral responses are given for different reasons.

The use of supplementary variables in correspondence analysis permits one to characterize those respondents prone to using substantive, nonsubstantive and neutral answers. With this feature, in both examples we could confirm previous findings that politically less interested and less educated individuals as well as respondents with relatively low political knowledge are above average in their use of nonsubstantive answers such as ''don't know'' and ''no opinion.'' Furthermore, individuals with high political interest, individuals with high levels of education, males, and individuals in the middle age groups, gave above average substantive responses. Whereas the respondents using the ''classical'' nonsubstantive answers and the respondents using substantive answers are relatively easy to differentiate, there are no common characteristics which can be assigned to the third group using neutral responses.

Answers such as ''neither agree nor disagree'' or ''no difference'' are given for different reasons and ''equally distributed'' over all parts of the population. First, there is a subgroup of respondents with low education and low political interest who use these categories for hiding their nonsubstantive answers. Then there is another subgroup of individuals, mainly well educated and with high political interest, who think in terms of neutral categories for instance, they do not see any difference when comparing political parties with regard to handling several matters such as ''controlling inflation'' or ''protecting the environment.''

In the introduction we described a dilemma with respect to using filter questions and nonsubstantive answer categories, such as an explicit ''don't know.'' The dilemma is even worse since neutral categories such as ''no difference'' and ''neither agree nor disagree'' are used as both substantive and nonsubstantive responses. With respect to those respondents using neutral responses, we were not able to find any common attributes which can be assigned to that group – neutral responses are used for different reasons by all parts of the population.

7.   References

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