Simulation of decision rules for Party Advice Websites

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ABSTRACT

Party Advice Websites infer guidance for party choice by way of comparing personal issue positions of internet users with the issue positions of various parties. Such guidance or advice is based on a specific built-in Multi-Attribute-Utility-Decision rule (MAUD).

In a large-scale simulation study the actual election outcomes of the 2006 elections in the Netherlands (12.3 million eligible voters, 10 parties in parliament, due to an electoral threshold of only 0.67%) served as a benchmark to evaluate possible decision rules for party advice websites. Various MAUD-specifications – e.g. compensatory vs. non-compensatory voting, directional vs. proximity based voting, high vs. low dimensional issue spaces – were computationally applied to the actual preferences regarding 36 issues of 1.6 million Dutch voters who filled out the questionnaire on the party advice website *Kieskompas* during the 2006 campaign.

The simulation results reveal that not a single MAUD hits the mark closely, but over-compensatory rather than non-compensatory rules, proximity-based rather than directionally oriented, and moderately dimensional rather than low or high dimensional rules perform relatively well. The results provide new insights in issue voting and cues for the improvement of Party Advice Websites.

INTRODUCTION

It is a truism to state that the internet has become an important medium in electoral campaigns. The web offers political parties new ways for interpersonal communication with their voters [1, 2] through channels such as email, blogs, discussion forums and social networking sites[3]. In the Netherlands, for example, parties started using the internet in the 1994 election campaign, but the breakthrough only came in 2002. In a country of twelve million eligible voters, and usually about ten parties strong enough to gain at least one seat in the 150-seats Parliament, more than half a million voters visited the website of the LPF in 2002, especially after its leader Pim Fortuyn had been assassinated [4]

Voters increasingly use websites that compare their personal issue preferences with issue positions of parties that were extracted from party manifestoes and other party documents (e.g. party websites). Here we will use the name *party advice websites* for such web-based tools. Such websites typically provide an advice or guidance as to which party best matches the voter's preferences. This advice may be presented as a simple discrete advice to vote for a specific party, or as a rank ordering

of parties along one dimension. Guidance may also be given by a graphical presentation of the position of the voter in a two- or higher dimensional political landscape defined by the issue positions of the various parties [5].

In recent years, millions of voters across many countries consulted a party advice website prior to casting their vote, especially in European multiparty systems. As an example, in The Netherlands, a multiparty system with an electoral threshold of only 0.67% only, roughly one out of three voters consulted a party advice website prior to the national elections of 2006. Receently, party advice website made their appearance also in two party systems (e.g. http://www.electoralcompass.com for the 2008 presidential elections in the USA).

Nevertheless, little is known about the *nature* of a party advice website, i.e. the precise decision rule to compute the similarity between parties and voters, based on the parties' policy profiles and the user's personal issue preferences. Here we question *whether the autonomous impact of decision rules incorporated in party advice website upon the advice presented can be determined*.

Potential impact

Potentially, an outcome from a party advice website has a strong persuasive appeal, resulting from the inclination to follow guidelines that reflect one's *personal preferences*. This motivation is rooted deeply in modern western culture, from the early writings of Adam Smith down to *rational choice* theory.[6] Voters may be susceptible for advice that seems to reflect their personal preferences, since a vast body of literature documents that voters are rational in the sense that they want to vote specifically for the party whose *issue positions* are similar to their personal issue preferences.[7]

Empirical evidence with regard to the actual influence of party advice websites based on subjective estimates of their influence by their users is, however, mixed.[8, 9] To verify the influence of party advice websites on voting behaviour beyond subjective personal estimates, we need to know the *actual advice* being given. Panel survey based research that takes into account one's previous party preference, and various types of campaign news about the parties, indicates a solid additional effect of the party which was advised by the party advice website on one's ultimate party choice.[10, 11] In short, outcomes of party advice websites matter for voters. Therefore their decision rules may matter as well.

METHOD

Studying the *nature* of advices given by party advice websites comes down to investigating their underlying decision advice

technology.[12] A number of different Multi Attribute Utility Decision (MAUD) making models, also known as Subjective Expected Utility (SEU) models, have been proposed to model this relationship. Basically our research question here is: which single MAUD specification is best appropriate for party advice websites? A broad variety of these models is incorporated in the Minkowski metric [13], which looks as follows:

$$
\begin{aligned}
A_o &= -[\,\Sigma_j \; W_j \mid P_{oj} - I_j \mid^r \,]^{1/r} \\
&= -[\,\Sigma_j \; W_j \; D_{oj}{}^r \,]^{1/r} \\
&\approx \;\;\; [\,\Sigma_j \; W_j \; L_{oj}{}^r \,]^{1/r} \qquad\qquad (1)
\end{aligned}
$$

o the o'th party from the set of existing parties;
j the j'th issue from the set of 'issues' or attributes
A_o attitude of the voter towards party o;
P_{oj} the position of party o on issue j
I_j the voter's position on issue j;
W_j the saliency or 'weight' of issue j for the voter;
r the degree to which a large distance between a voter and a party on a given issue can be compensated by smaller distances regarding other issues, known as the Minkowski metric ($r > 0$)
       (r = 1 → full compensation, 'city block distances';
       r = 2 → partial compensation, 'Euclidean distances'
       r = ½ → overcompensation).
D_{oj} *distance* between the position of a party o and a voter on issue j. Thus, $D_{oj} = \mid P_{oj} - I_j \mid$
L_{oj} *likeability* of a party o on issue j.
     Likeability can be derived from 'distance' by a negative linear transformation. If Max(D_{oj}) denotes the maximum distance between a voter and a party, then $L_{oj} = [\,½\,\mathrm{Max}(D_{oj}) - D_{oj}\,]\,/\,[½\,\mathrm{Max}\,(D_{oj})\,]$ represents the likeability. 0 will represent a neutral position, –1 represents utter dislikeability and +1 represents utter likeability towards party o on issue j.
     Alternatively, L_{oj} is defined in the theory of directional issue voting [7, 14, 15] as the product $L_{oj} = P_{oj}\,I_j$ which presumes that both P_{oj} and I_j are rescaled to ratio scales, with 0 expressing a neutral position, –1 expressing an extreme con-position and +1 expressing an extreme pro-position of the party or the voter with respect to issue j.
     L_{oj} can be measured also directly, by asking voters whether they agree or disagree with the position of party o on issue j.
     The ≈ sign rather than the =-sign between distance and likeability reflects that such alternative operationalizations of likeability do not guarantee that likeability is simply a linear transformation of distance.

Whenever the attitude towards party o is less negative than the attitude towards the other parties, party o will be preferred.

By definition, the attitude towards a party is more negative when the distance between the issue positions of the voter and a party is larger, especially when the issues at hand are salient for the voter. The larger the value of the Minkowski metric r, the less 'compensatory' the model is. Values of r larger than 1 imply that a party will be preferred in the absence of large distances on any single issue, values of r smaller than 1 imply that a party will be preferred in the presence of a very small distance on a single issue.

The research literature on issue voting suggests that not a single MAUD specification is versatile enough to predict more than 65-75% of the votes correctly.[15] The literature lacks consensus with regard to a proper test of the appropriateness of divergent MAUD-specifications.[7]

MAUD-specifications in three existing party advice websites

Here, we discuss three specifications of the general MAUD model that were implemented in websites in the Netherlands (Stemwijzer and Kieskompas) and Belgium (Stemtest). The *Stemwijzer*[16], the most used Dutch party advice website, reduces the general model to the very 'simple act of voting'[17], to *likes minus dislikes*. This boils down to a straightforward subtraction of the number of issues on which you disagree with a party from the number of issues on which you agree with a party, under the assumption that all issues are equally important (*W* independent of issue *j*), that distances on different issues compensate each other fully (*r* = 1), and that distances between the issue positions of a party and a voter or either absent or present. Actually Kelley and Mirer's simple rule is not phrased in terms of counting binary distances, but as *subtracting dislikes from likes* [1].

Basis *Stemwijzer*: $A_o = \Sigma_j \; L_{oj}$ (2)

     $L_{oj} = -1$ → voter disagrees with / dislikes party o on issue j;
     $L_{oj} = +1$ → voter agrees with / likes party o on issue j;
     $L_{oj} = 0$ → voter is neutral, or issue j not salient for voter.

Whereas empirical research in various European countries indicates that only two dimensions appear in West European politics[18], Stemwijzer treats each of its 36 issues as a separate dimension. These 36 issues were not selected as parallel indicators of only two dimensions, but rather as orthogonal issues to distinguish each specific party from all other parties on at least five issues. This selection procedure implies that the Stemwijzer exaggerates the dimensionality of the political landscape.

The Belgian *Stemtest* includes in addition the saliency or weight of an issue, as measured by the amount of attention of a party for an issue in the party manifesto.[19]

Basis *Stemtest*: $A_o = \Sigma_j \; S_o L_{oj}$ (3)

A distinctive feature of the *Stemtest* is that the ultimate advice is not aggregated over all issues, but over three issue-dimensions: socio-economic issues (money, left versus right), moral issues (norms and values, orthodox versus libertarian, parochial versus cosmopolitan) and welfare issues (quality of life). The underlying idea of the *Stemtest* is that voters should think for themselves about the last step in the process: how to integrate their opinions regarding parties with respect to these three dimensions. Furthermore, party specific issue saliencies S_o are incorporated in the Stemtest. These saliencies are based on the amount of attention for a given issue in the party manifesto. The latter is consistent with empirical research results [20-22] indicating that parties emphasize different issues.

The Dutch profiling website *Kieskompas* – developed by the second author -- is based on a similar type of reasoning as the *Stemtest* with regard to a limited number of issue dimensions. In addition, voters are able to assign saliency by decide for themselves which issues they want to include or exclude in the final result. Whereas the Stemtest will not aggregate preferences

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[1] The precise Stemtest-procedure for dealing with neutral positions of voters and/or parties will not be discussed here. The correction for agreement with a party by pure chance - as applied in the 2006 version of the *Stemwijzer* - will not be discussed here either.

per dimension, Kieskompas is based on a Euclidean distance model to combine preferences on its two dimensions. The two dimensions, a socio-economic left-right dimension and a progressive-conservative (cosmopolitan-parochial, orthodox-permissive) dimension, are roughly identical to the socio-economic dimension and the moral dimension in the Flemish *Stemtest*. Dating back to the 16th century, the oldest political cleavage in the Netherlands is between conservatives (orthodox Calvinists) and progressives (libertarian urban citizenry), while recent studies that took the saliency of issue positions for individual parties into account, also unearthed an orthodox/permissive dimension in addition to the socioeconomic left-right cleavage.[23] In a study of Austria, Britain, France, The Netherlands, Germany and Switzerland, from the seventies until the early 2000s, Hanspeter Kriesi and colleagues [18] also found these two dimensions:

> *"In all the countries compared, the traditional economic conflict remains very salient. The vertical dimension can be interpreted as a cultural opposition in each and every country. The nature of this opposition varies slightly between countries, but by the 1990s, the cultural conflict is typically expressed by the strong opposition between support for cultural liberalism, on the one hand, and support for a more restrictive immigration policy, on the other."* [18]

Following Hooghe and Marks[24], the progressive-conservative dimension is operationalized further in Kieskompas as the GALTAN-distinction between Green, Alternative, Libertarian-permissive ideas and Traditional, Authoritarian and Nationalistic ideas, indicating the many faces of this moral dimension. Whereas in Stemwijzer and Stemtest a distance between the voter and each of the parties is computed for each issue included in the test, a distinctive feature of *Kieskompas* is that averaged, or equivalently, summated positions $\Sigma_k \, P_{ojk}$ of each party o and averaged positions of the voter $\Sigma_k \, I_{jk}$ on the two dimensions j_1 and j_2 are computed, before distances along each of the axes will be computed. The averaged positions of the parties and the user along the two dimensions are presented on the flat computer screen, thus giving rise to Euclidean distances (Minkowski metric $r = 2$) between a voter and a party.

$$A_o = \; -\,[\, \Sigma_j \;\; | \;\; \Sigma_k \, P_{ojk} - \Sigma_k \, I_{jk} \;\; |^2 \,]^{\, \frac{1}{2}} \qquad (4)$$

Note that the computation of averaged, or summated positions on the two axes depends on a priori considerations, both with respect to the question to which dimension an issue belongs, and with respect to which side of a dimension a specific issue positions belongs. The reduction of the political hyperspace to two dimensions allows the voter to plot him- or herself on any combination of issues. Both the position of the voter and the position of parties are presented to the viewer as points in a two-dimensional space, in which the standard deviations of the voter on each of the two dimensions are used to plot the uncertainty region of the voter as an ellipse (cf. Figure 1).

Kieskompas does not take the saliency W of separate issues into account. Unlike the Stemtest, there is no party-specific weighting of the issues for each of the parties. To enable parties and voters to express their ambiguity or indecision with regard to issues, Kieskompas allows parties and voters to have moderate pro-positions $(+ \frac{1}{2})$, moderately con-positions $(- \frac{1}{2})$, and even neutral positions (0), thus striving for a ratio-level of measurement of issue positions.

Towards five variations of the general MAUD model
In the simulation study to follow we focus on four variations:
1. The dimensionality of the political space: either assuming that all issues represent separate dimensions (Stemwijzer)

or assuming that issues belong to a few overarching dimensions, e.g. left-right, GAL-TAN, socio-economic, moral or welfare (Kieskompas and Stemtest)
2. the curvature of the political space, or the nature of aggregation when more than one dimensions is involved (city block distances, r=1, Stemwijzer), Euclidean distances which can be visualized using the flat plane (r=2, Kieskompas) or even lower values for the Minkowski metric (r= ½ which would indicate that a party with similar issue positions as a voter on most issues remains high on a voter's list in spite of huge disagreement on a single issue), or no attempt at all to compute distances when different dimensions are involved (Stemtest).
3. the nature of a best match to a party: either a directional or a proximity approach.[7]
4. either a simple act of voting (Stemwijzer) or not (Stemtest, Kieskompas): either dichotomous issue positions (Stemwijzer) or pro-con issue positions at a ratio level of measurement (Stemtest and Kieskompas).
5. equal weights for all issues (Stemwijzer and Kieskompas), or issue weights depending on the salience of issues for specific parties (Stemtest), or in the campaign as a whole.
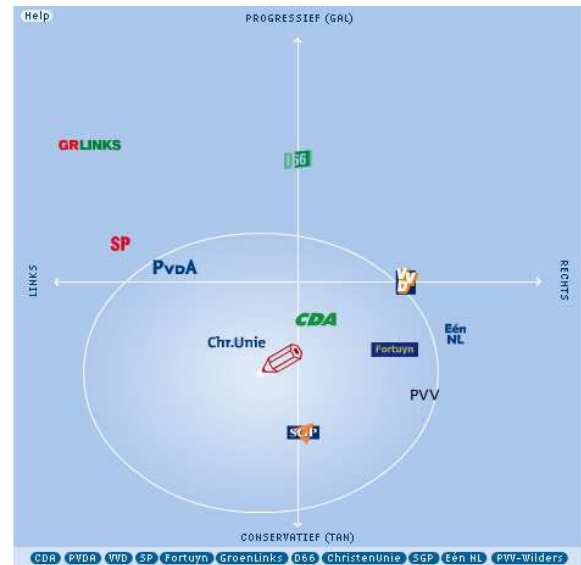

Figure 1: Presentation of party profiles and personal preferences to a Kieskompas user

Data: we use the real world data that were obtained from the 1.6 million voters who used *Kieskompas*. An advantage of these relatively rich data is that they are also useful to test the appropriateness of the somewhat less rich Stemwijzer-data (no five-point measurement scales, but agree-disagree-don't know-trichotomies, for example).

Simulating the full Stemtest-procedure requires additional data about the salience of issues for individual parties in their party programmes also. We do not yet dispose of these data. Therefore we will, in line with previous and comparable research, resort to data about the salience of issues for individual parties from the press.[10, 11, 18, 23] To a certain degree, the press reflects an open society's debate about party manifestoes.

Electoral outcomes as benchmark: Party advice websites aim to guide voters with incomplete knowledge of issue positions of parties to the party for which a 'rational' voter, with identical issue preferences and complete knowledge of the issue

positions of parties, would have voted. The rationale of party advice websites is to help voters to overcome their incomplete awareness of the issue positions of parties. Since erroneous perceptions tend to cancel each other out, aggregate perceptions at the level of the population as a whole will often be fairly accurate, in spite of the poor political knowledge of most individual citizens.[25, 26] It is to be expected that the aggregate election outcome will usually reflect the issue preferences of the population as a whole, despite most voters' limited or erroneous knowledge of party positions on issues. To put it differently, aggregation of issue preferences regarding separate issues of voters according to the MAUD-logic of the voters themselves will by and large result in the election outcome, despite a poor political knowledge of individual voters.

Conversely, it is fair to use the aggregate distribution of votes over parties at the elections as a benchmark to evaluate the appropriateness of a particular (MAUD specification of a) decision rule. To evaluate various decision rules against the benchmark of the election outcome, they should be fuelled alike with the issue preferences of the voters. In this simulation study, we could apply the various hypothetical decision rules to the actual issue preferences on 36 issues of 1,624,362 voters who completely filled out the Dutch party advice website *Kieskompas* to obtain guidance with their party choice prior to the national elections of November 22nd, 2006. Such a vast body of empirical data provides a sound basis for the simulation, provided that users of Kieskompas can be considered as a random sample of Dutch voters. Actually, users of Kieskompas – and of other party advice websites such as the Stemwijzer – exhibit a relatively high internet use, high education, and a relatively low percentage of elderly.[27] It is nevertheless safe to use the issue preferences of the 1,6 million Kieskompas users as a substitute for the issue preferences of the entire electorate, since differences in education and age explain only a small percentage of party choice.[2]

RESULTS

1. The dimensionality of politics

Kieskompas and Stemtest rest on a-priori assumptions regarding the dimensionality of politics. Kieskompas assumes a bipolar left-right dimension and an orthogonal bipolar progressive-conservative GAL-TAN dimension. The GAL-TAN dimension is usually interpreted as the resultant of three highly correlated oblique dimensions (Green versus Graditional, Alternative versus Authoritarian, Libertarianism versus Nationalism), rather than as a set of three orthogonal dimensions. Such assumptions can be tested by factor analysis. If the Kieskompas assumptions hold, then factor analysis would deliver *four* rather than two dimensions: left issues, right issues, conservative issues and progressive issues, since factor analysis will consistently consider the two poles of a single bipolar underlying continuum as two separate factors.[28]

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[2] The upper limit of distortion due to selective sampling on the basis of education and age can be estimated with the maximum percentage of votes that can be explained by education and age. Starting from a multi-wave panel study, with n=751 voters for these 10 parties in the post-election wave of the survey, conducted by NetPanel Research, the maximum distortion on the basis of education and age is 16% (discriminant analysis) to 24% (multinomial logistic regression). These percentages reflect the percentage of votes for each of the ten parties that obtained votes in parliament that could be classified correctly on the basis of age and education.

Table 1: Prinicpal Components, varimax rotation, 36 issues

Issue	Right, natio-nalism RIGHT +N)	leftist, against rich (LEFT)	ec liberal-ism (L)	leftist popul-ism, (VOX-POP)	green and alter-native (GA)	tradi-tional, author-itarian (TA)
1 more selective immigration	0,57	-0,08	0,08	0,03	-0,09	0,11
2 no educ children asylum seekers	0,63	-0,07	0,22	-0,05	-0,08	0,01
3 stricter expulsion policies	0,69	-0,11	0,16	0,02	-0,13	0,06
4 free schoolbooks	0,02	0,06	-0,11	0,56	0,10	0,06
5 islamic education bad for integration	0,60	-0,03	0,06	0,00	0,01	0,07
6 better universities can ask higher fees	0,15	0,01	0,54	-0,02	-0,02	0,07
7 Rich elderly pay more for pension	-0,15	0,75	-0,07	0,12	0,04	-0,03
8 Higher health care fees for rich	-0,11	0,79	-0,10	0,10	0,03	0,01
9 legal ban on smoking	-0,21	-0,02	0,15	-0,10	0,24	0,68
10 simplification of firing-policies	-0,04	-0,19	0,60	-0,10	-0,04	0,03
11 general tax-break	0,42	-0,20	0,06	0,45	0,04	0,01
12 higher govt benefits	-0,19	0,26	-0,27	0,35	0,07	0,07
13 no tax reduction mortgages	-0,07	0,72	-0,09	-0,03	0,20	0,04
14 liberalisation of house rental market	0,11	-0,24	0,47	0,08	-0,10	0,03
15 govt support buying 1st house	-0,08	0,15	-0,16	0,49	-0,12	0,07
16 Eu accession Turkey (pro)	-0,58	0,05	0,10	0,12	0,03	-0,07
17 No further competencies to EU	0,47	0,06	-0,13	0,06	0,18	0,04
18 stop agricultural subsidies EU	-0,03	0,11	0,45	-0,21	0,37	-0,01
19 no more roads but public transport	-0,24	0,21	-0,27	0,06	0,39	0,11
20 eliminate bioindustry	-0,16	0,12	-0,10	-0,02	0,53	0,06
21 new nuclear plants	0,10	0,04	0,57	-0,07	-0,28	0,01
22 close all coffeeshops	0,28	-0,02	0,06	0,02	-0,02	0,64
23 higher prison sentencing (pro)	0,61	-0,10	-0,04	0,24	-0,13	0,20
24 fight terrorism expense civil liberty	0,29	-0,01	0,18	0,05	-0,30	0,34
25 pro referendum	0,29	0,08	-0,09	0,40	0,31	-0,07
26 pro directly elected mayor	0,25	-0,01	0,11	0,48	0,31	-0,13
27 smaller no. of MP's in parliament	0,37	0,02	0,19	0,20	0,29	0,02
28 withdraw from JSF programme	-0,04	0,19	-0,25	0,03	0,62	-0,10
29 reduce development aid	0,64	-0,04	0,27	0,02	0,03	-0,07
30 redemption debt poor countries	-0,43	0,18	-0,04	0,21	0,24	0,10
31 free childcare	-0,20	-0,04	0,04	0,65	-0,04	-0,09
32 Rich les child benefits	-0,01	0,69	0,01	-0,01	0,16	-0,04
33 gays can nota adopt children	0,28	0,06	0,18	-0,06	-0,18	0,38
34 reduce porn and violence on internet	0,04	-0,02	-0,29	0,11	0,11	0,53
35 expenditure on art and culture	-0,44	0,06	0,01	0,15	0,22	0,02
36 no commercials on public TV	-0,02	0,07	0,07	0,24	0,40	0,18
Explained variance	11.4%	8.0%	5.9%	5.4%	5.5%	5.2%

Testing the dimensionality underlying the 36 issue preferences of 1.6 million Dutch voters reveals a pattern of factor loadings that largely confirms the assumptions underlying Kieskompas, yet not in all respects. The first two orthogonal dimensions represent the dominant left-right-axis indeed. GAL-TAN, however, does not show up with a GAL group of issues, and a TAN group of issues. Instead we see a GA group, a TA group, and a separate L group, whereas the N(ationalism)-group is suffocated with traditional right-wing issues in the first factor. After the rise of the immigrant issue from the 1990s onwards, further reinforced by 9/11, cluttering of nationalism and rightist policies is also observed in other countries. While the extracted factors from the Kieskompas data do not entirely confirm the existence of a bipolar left-right dimension and a bipolar GAL-TAN dimension, they do indicate a pattern of factors largely coherent with the two main dimensions of political competition in other West European countries.[18] This clustering of nationalism and right-wing issues is less surprising when one bears in mind that the Christian Democrats - still the strongest political force in the Netherlands - represented both rightist and nationalistic (e.g. colonial) policies in the fifties. The Christian policy mix from the fifties turned out to be modern again during the last decade.

Quite unexpectedly the data show in addition the existence of a leftist populism dimension (VOXPOP), completely orthogonal to the classic leftist side of the left-right-axis, which boiled down to support for transfers by the government of wealth from the rich to the poor. The VOXPOP dimension consists of viewpoints that *everything* should be for free for *everybody* (e.g. housing, school books, day care centers, social benefits), whereas *everybody* should also have the right to say anything, to cast a vote on everything (e.g. referenda, elected mayor), without paying taxes.

Yet, another result from the factor analysis poses a graver violation of the dimensional assumptions underlying Kieskompas. Together the six factors explain *only 41% of the total variance* in issue preferences. The variation in preferences is largely unique for each separate issue. This implies that averaging issue positions per dimension as Kieskompas does will result in centrist advices (since adding unique components comes down to adding noise from a statistical point of view, and adding noise will tend to result in the grand mean). Hence, Kieskompas as presented in the 2006 election campaign is expected to bully parties with extreme views and tends to favour more centrist parties. However, the logic of Kieskompas allows voters to select those issues that they deem important, which theoretically could reduces some of the bias. Also, users may end up right between two parties with only marginal differences in distance, thus taking the party with the least distance as the preferred party does not do total justice to the more complex end result of the test. However, If we would base the advice from Kieskompas only on the six dimensions from Table 1, then other advices will result, not primarily because of the difference between the six dimensions and the two theoretically hypothesized dimensions, but because of the neglect of 100-41=59% of the variation in preferences per issue.

Table 2 compares the election outcome of November 22nd with the distribution of advices from Kieskompas based on the two theoretically assumed dimensions (Euclidean distances, r=2), advices based on the empirically found dimensions (Euclidean distances, r=2), and advices based on the assumption that each issue is its own dimension (Euclidean distances).

A quick overview of the distance between the outcomes of a hypothetical decision rules and the actual outcomes of the elections can be obtained from the last row, which displays the total deviation from the election outcome. This measure is

defined analogous to electoral *volatility*, thus as the percentage sum of percentages of votes gained by 'winning' parties according to the hypothetical decision rule as compared to the percentage of votes in the 2006 elections (by definition this measure is equal to its opposite: the percentage sum of percentages of votes lost by the loosing parties).

Table 2: Simulation of advices based on different assumptions about dimensionality [3]

	election outcomes (% of seats)	2 a priori dimensions Kies-kompas r=2	6 factors Table 3 r=2	36 factors (as Stem-wijzer) r=2
CDA	27	36	22	11
CU	4	26	1	10
D66	2	5	4	8
EenNL	1	0	0	3
GL	5	1	1	1
LVF	0	4	7	16
PvdA	22	19	25	20
PVV	6	1	0	2
SGP	2	4	30	6
SP	17	2	3	21
VVD	15	2	7	2
	100	100	100	100
% deviation elections	0	40	40	39

The Kieskompas column with 2 a priori factors shows that not only the Christian Democrats (CDA), but especially the much smaller ChristianUnion (CU) benefitted from the Kieskompas decision rule (36% as compared to 27%, 26% as compared to 4%). This is the centripetal end result of averaging issue preferences per dimension, with noise components in preferences per issue included.

If the advice would be based only on the six factors that more or less represent the left-right dimension and the GAL-TAN dimension (see Table 3), then the SGP – the party with the most extreme TAN-position - would receive the bulk of voters with strong TAN position, rather than the CU. Since adding up randomly distributed issue preferences results in centrist advices, leaving out the random part of the issue preferences in the six factors rule will result in more advices for extreme parties.

Considering each issue as a separate dimension would even more increase the role of extreme parties, because of the lack of built-in trade-offs between various issues. This is the case indeed. Using the Stemwijzer-decision rule, with each of the 36 items as a separate dimension, results in far more votes for relatively extreme parties such as the LVF, the SGP and the SP and relatively low scores for the centrist election-winner CDA. A look at the bottom row of Table 3 shows that the surplus of

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[3] Percentages in Tables 2 to 5 are displayed without decimals. Therefore, summations may appear to be false. The Animal Rights Party (Partij van de Dieren) which gained two out of 150 seats in Parliament is excluded from the percentages and the percentage base since this new party was not included in the empirical data on party preferences in Kieskompas.

advices for centrist parties in Kieskompas results in a slightly larger deviation from the actual election outcomes (namely 39%) than the surplus of advices for extreme parties in Stemwijzer (38% deviation). The Stemwijzer's use of a Minkowski-metric of 1 – city block, simple addition – rather than 2 – Euclidean as in Kieskompas, distances humans observe when looking at a plane - diminishes the surplus advices for small parties further, as the next section will show.

2. Curvature 1 (city-block), 2 (Euclidean), or ½ (forgive)
The question about the nature of political distances, or more precisely, about the nature of the *curvature* of the political hyperspace in which (the distances between) parties and voters are located, as indicated by Minkowski-metric r, is less intuitive than the question regarding the hyperspace's *dimensionality*. If r>1, then the issues on which a party *differs* most from a voter will matter most; if r<1 then the issues on which a voter and a party *resemble* each other most will matter most. If r=1, than the variation of distances between a party and a voter across various issues will not affect the total distance, Thus, r=1 means that it is simply average distance what counts, as can be seen from equation (1).

Table 3: Simulation of advices based on different curvatures

	% seats elections	r=2 (Euclidean) (as Kieskompas, but 36 dimensions)	r=1 (city block) (as Stemwijzer, Stemtest)	r= ½ (forgive friends)
CDA	27	11	13	18
CU	4	10	9	9
D66	2	8	7	6
EenNL	1	3	3	3
GL	5	1	2	4
LVF	0	16	17	14
PvdA	22	20	16	15
PVV	6	2	3	5
SGP	2	6	8	8
SP	17	21	21	15
VVD	15	2	2	3
	100	100	100	100
deviation elections	0	39	37	31

The total deviation from the election outcomes as expressed by the deviation scores of these three curvatures in the bottom row of the table clearly show that advices from party advice websites would come closest to actual party choices of voters if they were based on a value for the Minkowski-metric of less than one (30% deviation from the election outcomes). Table 3 shows that the curvature of political space is clearly non-Euclidean (clearly, r<2): voters will not punish, but rather forgive beloved parties who express a few disagreeable issue positions.

This finding is consistent with the observation that beloved, charismatic leaders – with whom their followers completely agree on most issues – will remain beloved in spite of radical policy changes on specific issues.

3. Simulation of proximity voting versus directional voting
Although none of the party advice websites being considered here assumes directional voting, it is worthwhile to present a simulation of directional voting because of its centrality in the political science literature.[7] Since directional voting is mathematically related to a Euclidean curvature (r=2) of the political space[7], we will not only present the usual city-block specification (r=1), but also the Euclidean (r=2) specification from Table 3 as a basis for comparison.

Table 4: Simulation of directional versus proximity voting

	% seats elections	proximity model		directional model
		r=1	r=2	
CDA	27	13	11	1
CU	4	9	10	10
D66	2	7	8	2
EenNL	1	3	3	6
GL	5	2	1	20
LVF	0	17	16	15
PvdA	22	16	20	8
PVV	6	3	2	15
SGP	2	8	6	5
SP	17	21	21	17
VVD	15	2	2	3
	100	100	100	100
deviation elections	0	37	39	52

The deviations from the actual outcomes of the elections show that the directional model performs poorly at the job of predicting the outcome (52% deviation from the election outcome). This is consistent with the somewhat disappointing results for the Euclidean proximity model (r=2) as compared to the city-block model (r=1).

This finding is remarkable, as the directional model performs well in National Election Studies, in which typically less than ten dimensions/issues are involved. It is tempting to interpret our findings as an indication that probably not all issues matter. The directional model may hold for important issues, but apparently voters dislike parties who take also extreme views on a multitude of unimportant issues.

4. Simulation advices from sliding or binary issue positions
The rationale of a sliding pro-con ratio scale is that it allows parties and voters to express moderate opinions. Starting from the ratio scales in Kieskompas, absolute pro- and con-positions as in the Stemwijzer are easily computed. As the basis for the comparison we use a Minkowski-metric of r=1 (as in the Stemwijzer).

The deviation from the election outcome increases significantly if we neglect the possibility to express moderate issue positions (from 37% to 48%). The assumption that issue positions are binary resembles the assumption that only the direction of issue positions of parties matter for voters. The result that binary issue positions are poor predictors of the election outcome is therefore consistent with the earlier outcome that the directional model was a poor predictor of the election outcome (cf. Table 4). Or to put it differently, by assuming binary issue positions the Stemwijzer introduced implicitly a directional model as the basis for its advice.

Table 5: **Simulation of a sliding versus a binary scale to express issue positions**

	elections	ratio scale (sliding as Kies-kompas)	binary (pro-con as Stemwijzer)
CDA	27	13	3
CU	4	9	10
D66	2	7	3
EenNL	1	3	5
GL	5	2	6
LVF	0	17	19
PvdA	22	16	11
PVV	6	3	9
SGP	2	8	9
SP	17	21	25
VVD	15	2	2
	100	100	100
deviation elections	0	37	48

5. Simulating of advices based on varying issue saliency

Our last simulation concerns the impact of the salience of issues. Emphasis of parties on issues can be derived from the relative attention for issues in party manifestoes, as in the Stemtest procedure. Here we will not use statements from party manifestoes, but statements in the media about the issue positions of parties as our point of departure.

Table 6: **Simulation of issue salience per party and in the campaign as a whole**

	elections	unweighted	weighted per party by emphasis in party statements (as Stemwijzer)	weighted by emphasis in the campaign as a whole (as Stemtest)
CDA	27	13	5	9
CU	4	9	17	15
D66	2	7	7	6
EenNL	1	3	4	4
GL	5	2	2	3
LVF	0	17	11	13
PvdA	22	16	16	21
PVV	6	3	18	4
SGP	2	8	7	10
SP	17	21	12	12
VVD	15	2	2	2
	100	100	100	100
deviation elections	0	37	49	40

In order to give each party a fair chance, issue saliencies per party were rescaled to a sum of 100%, precisely as prescribed by Deschouwer and Nuytemans.[19] As an alternative, one may consider the possibility that an issue is equally important for all parties, but that the importance of each issue is dependent upon its saliency in the campaign as a whole, as represented by the debate in the media. The simulations in Table 6 clearly reveal that weighting issues per party according to a specific party's emphasis on a specific issue, as in the Stemtest, will actually increase the deviation of the distribution of advices from the election outcome.

Our interpretation of this unexpected result is that party specific weights for issues will improve the simulation only, if it is guaranteed that owned issues of every single party are included in the questions. A closer look reveals that this was not the case. As an example, we may consider the CDA. This party performed a very successful campaign with the recovery of the Dutch economy as a recurring theme. Not the economy itself, but how parties manage to present the economy is what matters.[29] Yet, the philosophy of party advice websites thus far has been to include only *position issues*, thereby leaving *valence issues* such as the economy aside. Users of Kieskompas were asked whether they thought that the recovery of the economy could be attributed to government policy, but answers to this question were not included in the computation of distances between a user and the various parties. As a result, the Christian Democrats will be punished by party specific weighting of issues (from 13% down to 5%), since this would actually imply that other parties can weight their 'own' issues heavy, whereas the CDA can not because the economy issue which was owned by the CDA in this campaign was not included in the MAUD-core of Kieskompas.

Weighting by the saliency of issues in the campaign as a whole, as measured by issue attention in the media, is a much better predictor of election outcomes that party specific issue attention (40% rather dan 49% deviation), as was revealed already in the first agenda setting study by McCombs & Shaw.[30]

However, this variety of weighting is also outperformed by not weighting (37%). Exclusion of issues owned by specific parties may also be the reason why weighting with general media attention for issues fares not as well as could have been expected. Parties will only benefit from weighting issues in party advice websites by issue saliency if the owned issues on which voters agree with them are included in these party advice website. In case of the VVD this was not the case due to the recent victory of cosmopolitan liberals over parochial conservatives during the summer of 2006 when the pamphlet that served as its manifesto was written. Issues that were owned by the VVD according to voters – against the entrance of Turkey to the EU, tough on immigrants - were not included in the VVD party manifesto, and therefore neither in party advice websites. Weighting issues with their saliency in the campaign appears may only improve the prediction of the election outcomes if parties choose to stick to their own issues that voters expect from them, and if designers of party websites include all the issues that are owned by the various parties.

DISCUSSION

Our research question whether the specification of the precise decision rule that undergirds party advice websites matters much for the provided advice must be answered with a clear 'yes'.

A simulation study was performed to reveal the impact of possible MAUD-specification (multi-attribute-utility decision making rules) of decision rules for party profiling websites. We based a simulation study on data about policy preferences regarding 36 issues of 1.62 million users of Kieskompas, a party profiling website. The simulation study asked which MAUD-

specification would generate the closest approximation of the distribution of votes at the 2006 elections in the Netherlands. The simulation results show that MAUD-specifications make a tremendous difference:

1. aggregation per issue dimension as in the Stemtest and Kieskompas does not outperform aggregation per issue as in the Stemwijzer. This is due to the huge unique variance in issue preferences, despite the existence of the expected Left-Right and GAL-TAN dimensions in Dutch politics, and an additional leftist-populist (VOXPOP) dimension.

2. users will turn a blind eye on their disagreement with a party on a few issues when they agree completely with that party on most issues.

3. directional voting is the exception rather than the rule, at least when a large variety of 36 issues is included. Presumably voters distrust parties with extreme issue positions on issues which are not very important for them personally.

4. Ratio issue position scales which enable parties and voters to express moderate issue positions (as Kieskompas does) clearly outperform binary scales.

5. weighting issues according to party specific issue saliency patterns (as in Stemtest) or according to saliency in the campaign as a whole did not improve the predictions, presumably because the issues in Party Advice Websites did not reflect owned issues of parties sufficiently well.

These findings can be helpful for the design of future party advice websites. The sensitivity of advice for the precise MAUD-specification, for example, suggests that party advice websites should not pretend to point towards a single party that would match the preferences of the voter perfectly.

Future research on party advice websites should not only focus on their decision rules, but also on other aspects. More attention is needed for the impartial presentation of questions. Careful attention is warranted also for the impartial construction of items in party advice websites.

The simulation results also shed a new light on the study of issue voting, which is deadlocked ever since researchers realized that the standard NES battery of issue questions was insufficient to distinguish between directional and proximity voting.[7] Simulation studies based on issue preferences as presented here provide a wealth of new data to study issue voting, but also new evidence that it is hard to find a single decision rule that predicts the vote sufficiently well.

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