Matching Voters to Parties: Voting Advice Applications and Models of Party Choice

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Abstract

Online voting advice applications (VAAs) have become very popular and may significantly influence voting behaviour. It is therefore important to ask what model of voter representation VAAs follow. We establish that VAAs conceive of voter representation largely as proximity-based issue congruence, with some elements of the directional and salience models. We then assess how well VAAs follow the proximity model by comparing policy positions extracted from thirteen VAAs in seven European countries with established policy measures from expert surveys and party manifestos. VAA positions show strong convergent validity with left-right and economic positions, but compare less favourably with immigration and environment measures. The voting advice given to users is also inherently limited: VAAs mostly disregard accountability, salience, competence and non-policy factors; they treat parties and not outcomes as paramount; and they can be subject to strategic manipulation by political parties. As recommended by their designers, voters should treat these applications as tools and guides rather than as stringent recommendations.

In this paper we investigate how voters are matched to parties by online voting advice applications (VAAs). The first such websites, which provide voting advice by matching user-entered policy views with parties' positions, were developed in Finland and the Netherlands in the mid-1990s, and the concept has since spread to most European countries as well as the USA and Canada. VAAs now have millions of users in many countries. For example, nearly 40 per cent of the electorate in the Netherlands and Finland used at least one VAA in the run-up to the parliamentary elections in 2006 and 2007, respectively (Ruusuvirta and Rosema, 2008; J. Mykkänen, personal communication, 2009). High user figures have also been reported in Germany, Belgium and Switzerland (Germany: 6.7 million VAA recommendations or 11 per cent of the electorate in 2009; Bundeszentrale fur politische Bildung, 2009; Belgium: a million users or 13 per cent of the electorate in 2004; Walgrave et al., 2008; Switzerland: over a million users or 21 per cent of the electorate in 2007; Ladner et al., 2008: 4). VAAs are clearly not just another passing internet gimmick.

Voting advice applications may also have important political consequences: considered against a backdrop of declining party loyalty and cleavage-based voting and an increase of issue voting (Barnes 1997), VAAs could potentially affect the electoral decision-making of many citizens. For example, they have become the most important source of election information for young voters in Finland (Strandberg, 2009: 78-83), while a large proportion of website users say that the VAAs help them to decide how to vote (for Germany, see Marschall, 2005: 45; for Switzerland, see Fivaz and Schwarz, 2007: 10; for Finland, see Bengtsson and Grönlund, 2005: 249). VAAs may also persuade a small number of voters to change their candidate or party choice. In the 2005 German federal elections six per cent of Wahl-O-Mat users surveyed said that they will change their vote choice as a result of VAA use (Marschall, 2005: 45) whereas the equivalent effect was approximately ten per cent in the 2006 Dutch elections (Kleinnijenhuis and van Hoof, 2008: 8). In the 2007 Finnish

parliamentary elections the conversion rate was just three per cent, but a surprisingly high 15 per cent of the surveyed VAA users said that they did not have a favourite candidate and voted for the candidate suggested by a VAA (Mykkänen et al., 2007: 5).

While such self-reported assessments of VAA influence are of course of uncertain validity, VAAs are clearly exceedingly popular online tools to help voters gain political information and make decisions. As such, they may have a non-trivial impact on voting behaviour. This means that it is important to understand what kinds of recommendations VAAs give. Taking a VAA test may influence the way voters 'think' about politics and their electoral choice. There are thus democratic implications to the design of VAAs: what notion of democracy do they represent, and what kind of voting do they encourage?

In this paper, we therefore examine the model of voting that underlies these online applications. Specifically, we consider when they treat the preferences entered by voters as matching those of parties. By understanding what VAAs treat as voter-party congruence, we also clarify which model of voter representation underlies these applications. In doing so, we concentrate on proximity, directional, salience and valence models of vote choice. We find that VAAs reflect a view of party competition and voting that is largely based on issue-based proximity models. This means that parties are seen as congruent with voters if their ideological distance to each other is low, so voter representation is along the lines suggested by the responsible party model (APSA, 1950).

Having established the dominant model of voting encoded in VAAs, we investigate whether the actual recommendations they give in fact follow the proximity logic as well. Specifically, we analyse 13 VAAs from Austria, Belgium, Finland, France, Germany, the Netherlands, and Switzerland and compare party positions extracted from these applications with expert survey and manifesto data. We find that in general terms VAAs reflect party positions well, but that accuracy depends on the number of questions asked. This means that

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party-voter matches on secondary issues, which are represented by fewer VAA questions, are less exact. While Finnish researchers have used candidate preferences recorded in VAAs to study the ideology of MPs and voter-representative congruence (Paloheimo et al., 2005; Kestilä-Kekkonen and Wass, 2008; Reunanen and Suhonen, 2009), this paper presents the first cross-national attempt to systematically study how voting advice applications match voters to parties.

After briefly describing how VAAs work, we consider the logic of voting and representation that underlies most VAAs, concentrating on proximity, directional, salience and valence models of issue voting. We then extract policy positions from VAAs and compare these to existing measures (expert surveys and party manifestos) to establish the accuracy of VAA party positions. The final section considers possible limitations in the way VAAs match voters to parties.

2. How VAAs match voters to parties

While VAAs in each country differ slightly, they all follow a basic model that is based on comparing parties' and voters' issue preferences. The central feature of every VAA is a multiple-choice questionnaire, usually containing 20 to 35 statements on current political issues or more general political questions. Users are asked to provide their opinions on each of these statements and after completing the questionnaire are shown how closely their views match with those of the parties. The general format of VAAs is thus not very different from questionnaires in popular magazines that, for example, claim to uncover your personality type.

Despite these significant similarities, VAAs nevertheless differ in key ways. This is best illustrated by presenting the sample of thirteen VAAs from seven countries for which we have collected detailed information and party placements (Table 1). These were online

between 2002 and 2009 and represent all the national-level VAAs from which we were able to encode party placements during the data collection period in March-April 2010. While we focus on national-level VAAs in order to ensure comparability with expert survey and manifesto data, there is also an increasing number of VAAs at the European level (e.g. the EU-Profiler, Trechsal and Mair 2011) and at the sub-national level (e.g. the Wahl-o-Mat in German and the Wahlkabine in Austrian *Länder*). The popularity of VAAs also means that more such applications are constantly being added. Since most new VAAs follow existing designs, this list is representative of these applications in general.

Table 1 about here

As Table 1 shows, VAAs differ in more ways than just the number of parties placed and the number of questions asked. First, the applications are set up by different organizations. VAA providers are usually either political education agencies, e.g. in Germany and the Netherlands, and media corporations, e.g. in Finland and Belgium. Other VAA providers include teams of political scientists (e.g. the EU Profiler (Trechsel and Mair 2011)), civil society organisations and interest groups.

Second, these providers differ in how they choose statements and how they established party positions on each of these statements. As with any survey, the choice of question items and their phrasing affect the final results (Walgrave et al., 2009). While providers could potentially skew the recommendations made by the application, most appear genuinely keen to produce balanced applications. During the statement selection process, VAA providers tend to study the public discourse as reflected in the media and consult the general public, academics or journalists. Statements used as basis of comparison usually cover the most important policy areas.

VAAs also differ in how they establish the positions taken by parties and candidates on the various statements. To enable comparison between users' and parties' preferences, the

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VAA provider must construct a party or candidate position database. Developers can either ask parties or their candidates to respond to a questionnaire or search party manifestos, party websites and press releases, newspaper reports and other material for parties' issue positions. To prevent parties from abusing the application by entering inaccurate or untrue responses, some VAA providers require parties to provide evidence for their chosen position while others simply give them the option of justifying a response.

There are of course dangers to direct party involvement in this process. In Finland, for example, some candidates placed themselves in the middle of the response scale on all statements, thus capturing voters from both sides of the political spectrum (O. Ainola, personal interview, 23 February 2009). Having been exposed and ridiculed in the media for having "no opinions", these candidates were later forced to change their responses to be more substantial. Again in Finland, there is evidence that parties and candidates to manipulate their response to ensure that their profile matches the maximum number of users (see Kauppinen, 2007: 141). In sum, there are inherent difficulties in how parties should be involved in the VAA design process.

Third, the applications differ in how voters can express their opinions on the statements they are presented with. Some VAAs (e.g. the Austrian and French VAAs and the Dutch Stemwijzer) just ask each user whether they agree or disagree with the statement. The German Wahl-O-Mat and the Swiss Politarena also give voters the option of saying that they are 'neutral' on the issue, while the Kieskompas in Belgium and the Netherlands and the Finnish YLE all provide full five-point Likert scales. For instance, the 2006 Belgian Kieskompas asked users to respond to the following statement: "The use of soft drugs should be legalised." The response options ranged on a 5-point scale from "completely agree" to "completely disagree", with an additional "no comment" option if the user wanted to ignore that particular question.

Finally, VAAs differ in whether they allow users and parties to express issue importance by weighting individual statements or themes consisting of several questions. Of our sample, only four do not include salience at all. Another five VAAs just let users select those statements or policy areas that are of particular importance to them, for example the Dutch Stemwijzer. The Austrian Wahlkabine and Politikkabine go furthest in allowing voters to assign personal salience to issues.

3. VAA recommendations and issue-based voter representation

The advice VAAs give is based overwhelmingly (and usually only) on the issue-based congruence between voters and parties.[1] In other words, the VAAs elicit the preferences of voters on a given set of issues and then based on these calculate a party recommendation. Yet there are various perspectives on how party policies can match those of voters: citizens can make use of issues in different ways in deciding how to vote.

The three best-known models are the proximity, directional and salience models. Thus, voters may prefer parties that are close to them ideologically (proximity model); parties that are on the same side as them on key issues and that hold these views intensely (directional model); or parties that focus on the issues they care about most (salience model). Each of these three models is a separate way in which a party may be 'congruent' with a voter, and we will examine the extent to which each is implemented in VAAs.

The recommendations of VAAs are calculated primarily by matching the policy *positions* of voters and parties. In doing so, VAAs could use either a proximity or a directional logic. A proximity logic would mean that recommendations are based on voter-party distances, usually measured on a continuous scale (Downs, 1957). In contrast, a directional logic would be indicated by three features: each issue has two 'sides', for and

against; it is possible to express intensity of preference; and parties are not generally punished for preferences more intense than those of voters (Rabinowitz and Macdonald, 1989).

The VAA algorithm, which establishes the degree of opinion congruence between the user and parties, reveals which model of issue voting the application follows. Many VAA providers do not publicise the exact algorithm used to compare user and party or candidate positions, but nevertheless it is clear that VAAs follow the assumptions of the proximity model. Thus, the closeness of the match between a party or candidate and the user is determined by the degree of agreement across all the statements. The algorithm of the Swiss smartvote, for instance, gives points to candidates according to the distance between the responses of the candidates and the user. The candidate receives the most points when the user selects the same response alternative as the candidate and the least when the options selected are the furthest apart. The same logic is also apparent in the algorithm used by the Dutch Stemwijzer and the many other VAAs inspired by it. In other words, what matters is the distance, or degree of agreement, between the preferences of the voter and those of the party or candidate.

This differs from the directional approach in two important respects. First, parties are not rewarded if they are more extreme (or hold their views more intensely) than the voter. Under the directional logic a voter would not generally penalise a party for holding more intense preferences than him or her unless the party is outside the 'region of acceptability' (Rabinowitz et al., 1991). However, VAAs tend to assign fewer points to a party as soon as the agreement on an issue is not perfect, no matter in which direction the disagreement exists. Second, in VAAs that offer more than just 'yes' and 'no' as response options, there is no 'side' to issues. This means that being on the same side of an issue as the user does not yield a better rating for a party than being on the other side of the issue. For example, using a 4-point Likert scale a user might say that she 'agrees somewhat' with a certain statement. By these

VAAs, she is seen as equally distant from a party that 'agrees completely' and one that 'disagrees somewhat'. Each party then receives the same amount of points towards the final matching score.[4]

There is thus undeniably a strong proximity-based logic underlying the way that VAAs match voters to parties. However, the fact that the response alternatives are generally very limited in number, with a maximum of five choices available, means that voter preferences are not measured on a true 'interval-level' scale. Indeed, as we have seen many VAAs even restrict the choices to simple binary options. Here, VAAs may be closer to the directional approach, under which simple Euclidean distances are in any case not the key to understanding a voter's decision-making process (Rabinowitz and Macdonald, 1989). Instead, it is argued that most of the time voters do not even have clear issue positions but rather have diffuse preferences and tend to simply side with one camp of a policy debate. Expressing such preferences is generally possible in VAAs: in all applications we examine users can choose one side of the debate. Some VAAs (e.g. the German Wahl-O-Mat) also offer a 'neither agree nor disagree' option, which fits the directional logic by providing a position of no preference. The proximity logic would include the median position between the extremes of preference instead. However, while VAAs do not perfectly fit either the proximity or the directional model, the underlying logic of these applications is nevertheless closer to Downsian proximity model as it is fundamentally the degree of agreement, i.e. issue proximity, that determines the outcome of the matching process and thus the recommendation given to voters.

Do VAAs also take into account the importance a party accords to an issue? Salience theory suggests that parties compete not by taking different positions on the same issues but by stressing those issues on which they have a positional advantage (Budge and Farlie, 1983). Similarly, congruence can also be conceived of as the extent to which the priorities and agendas of voters and parties align (Jones and Baumgartner 2004). Accordingly, voters might

be expected to choose parties partly because they address the issues that concern them, for example the environment or immigration, regardless of the specific positions the party holds. A second possibility is that voters weight positional distances based on the personal salience of each issue, so issue importance can also form part of the standard proximity model.

As noted above, most VAAs, for example the Dutch Stemwijzer and applications related to it (e.g. Wahlkabine in Austria and the German Wahl-o-Mat), allow voters to increase the weight of topics and statements that they consider to be of special importance to them. The weighting is incorporated into the distance calculation, for instance by doubling the effect of a statement marked as important and halving it for those selected as not important. Nevertheless, issue salience is not part of all VAAs. Moreover, the applications generally ask users to assign salience in one of the last screens shown to the user (e.g. Stemwijzer, Wahl-O-Mat). Users may pay less attention to assigning salience in that case. In interviews, VAA providers also report that the many users do not use the weighting option when it is available. Moreover, VAAs do not allow parties and candidates to concentrate only on issues on which they take popular positions and de-emphasise those issues where they take positions with less public approval. Thus, while VAAs do not disregard salience altogether, it is an aspect of issues that clearly plays a subordinate role to positions, and in therefore VAAs cannot be said to follow a salience logic of vote choice. Instead, it is more accurate to say that the applications allow for issue distances to be weighted in a way compatible with the proximity model.

In sum, VAAs primarily follow a proximity logic of voter representation: parties are seen as matching voters if their policy positions are relatively close to one another. Other ways in which issues can be used to match voters to parties – the directional and salience models – are either secondary or disregarded completely. Given that VAAs thus follow a

proximity logic, we now consider the accuracy of the recommendations provided by the online applications as compared to other established measures.

4. The convergent validity of VAA party placements

If VAAs are to provide useful guides to such a representation process, then the party positions encoded in VAAs need to be relatively accurate. In this section, we thus examine whether the positions of parties in VAAs match those recorded by other established measures, specifically expert survey and party manifestos. Comparing VAA measures with other existing assessments of party positions is possible as all approaches follow a proximity logic. Of course, even if there is such a thing as a 'true' and 'objective' party placement, discovering this is essentially impossible, and the assessment of the location of political parties will always be approximate (Benoit and Laver, 2006). When estimating the 'accuracy' of VAA positioning, an appropriate approach is to decide whether the recorded placements are plausible, convincing and accord with existing assessments. In the absence of a 'true' measure of party positions, we examine the convergent validity of VAA party placements by comparing them with other established measures (Adcock and Collier, 2001; Ray, 2007). The measures used are the expert surveys of Benoit and Laver (2006) and Hooghe et al. (2010) as well as party manifestos as coded by the Comparative Manifesto Project (CMP) (Budge et al., 2001; Klingemann et al., 2007). We coded the placements from the thirteen VAAs in seven countries listed in Table 1 and compared these with the general left-right measures as well as more specific policy scales.

We begin by comparing left-right scores extracted from VAAs with the three established measures. This broad comparison is appropriate because left-right summary dimensions exist in all countries where parties compete on policies (McDonald and Budge, 2005). Moreover, extracting left-right scores allows us to make use of all the available

questions in VAAs.[5] The left-right scores were calculated from the thirteen VAAs using multidimensional scaling (MDS). This procedure was chosen due to the low number of items in most of the VAAs and the low number of response alternatives (between two and five). Using MDS also means that no assumptions need to be made concerning the policy content and direction of the questions included in the VAA: instead, the procedure provides an estimate of the overall relative party positions across all topics based only on the party answers to the VAA questions.

The precise steps used to extract left-right positions were as follows. The party positions on each question were coded numerically, with the specific coding depending on the response alternatives available in each VAA.[6] Then, metric multidimensional scaling was run on these coded positions.[7] Two dimensions were extracted using random starting points and fifty iterations. Scores were then recorded for the first dimension extracted; this is assumed to be the dimension that best summarises the positional relationships in party responses and should be most similar to a left-right summary dimension. Finally, the scores were standardised in order to make them more comparable cross-nationally; they were also reversed where necessary so that well-known left-wing parties are to the left on all extracted scales.

First, we present broad cross-national patterns of similarity between VAA-extracted and other measures of left-right position, following the approach used by Benoit and Laver (2007).[8] Figure 1 plots the left-right scores from the VAAs and those from the two expert surveys and the manifestos.[9] Each point is identified by its country and party name. A fitted regression line and a 95% confidence interval are also shown. Vertical and horizontal lines are inserted at 0 for the VAA scores, at the midpoints of the expert surveys (10.5 and 5, respectively) and the mean of the CMP 'vanilla' scores (-.56).

Figure 1 about here

The first noticeable pattern is that the fit of the VAA left-right positions with the other measures is very close. In all three cases, the predicted regression line intersects with the midpoint of the two scales. In addition, the linear fit of the regression line is very good.[10] Moreover, the party placements are overwhelmingly very close to predicted regression line, with the manifesto scores showing the most 'noise'. Finally, the VAA scores classify parties as 'left' and 'right' in the same way as the other measures, as can be seen by the fact the top left and bottom right quadrants are overwhelmingly empty. Only the Dutch Christian Union (CU) is placed differently compared to the expert surveys. The VAA measure and the manifesto scores vary a little more in this regard, with the VAA coding a small number of parties as left that are on the right according to the manifesto data (top left quadrant). No clear pattern is, however, visible from the parties that are placed differently, and the parties in question differ from measure to measure. The overall impression from this first comparison is thus that the left-right placements of parties in VAAs are very similar to other, established measures of party positions.[11]

Second, beyond this broad cross-national approach it is possible to compare the VAA scores with the established measures in each country separately. It is worth doing so because scores are not necessarily comparable across countries and because it is important that VAA placements are accurate for each country and not just cross-nationally. Here, we again follow the approach used by Benoit and Laver (2007) to evaluate expert survey and CMP scores: in each country, the ranking of parties (rather than their scores) is compared. In this way, any artificial 'accuracy' of numerical left-right scores is abandoned in favour of a simpler comparison.

The details of this ordinal comparison are presented in Table 2. The left-right placements for each country are shown along with the results for two measures of association for ordinal-level data, Kendall's tau and Spearman's rho. Both range from -1 to 1. Parties that differ in their placement in the three established measures (compared to the VAA rank) are highlighted in bold. Looking first at the actual rankings extracted from the VAAs, these have quite strong face validity.[12] The German left-right rank of PDS-Green-SPD-FDP-CDU, for example, would accord with most observers' left-right placement of parties. This does not mean that there are not some obviously odd ranks: the Austrian Greens might be surprised to learn that they are to the left of the Austrian Communists, while the liberal Swiss FDP has probably rarely been placed to the left of the PdA, the workers' party (as occurs in the Politarena VAA). Overall, the level of agreement between the VAA ranks and the other measures is nevertheless high. The Spearman's rho is above .8 for almost all expert survey comparisons, with only the Finnish YLE VAA falling a little below that. The VAA ranks match a little less well with the CMP ranks, with four VAAs falling below .8 in agreement measured by Spearman's rho, one each in Belgium and Finland and two in Switzerland. Given the close fit between VAA and expert survey party placements, it is not surprising that VAA scores and ranks match less well with manifesto estimates of party positions: it is well-established that CMP and expert survey left-right scores are highly but by no means perfectly correlated (McDonald, 2004; Benoit and Laver, 2007; Ray, 2007).[13]

Table 2 about here

So far, the comparison with established measures has been made only on the broad left-right measure, with scores extracted from all VAA questions available. It is worth considering how well VAA placements compare with other measures on specific issue areas.

After all, voters may want their policy preferences represented on particular topics rather than an aggregate left-right dimension. Here, economic policy, immigration and the environmental issues are chosen for comparison. Economic policy is central to both voters and parties in most elections and this is reflected in the large number of questions on this area. Immigration and environment questions on the other hand, while still important, are perhaps not as central to most voters, and VAAs reflect this by including fewer questions on these policy areas. This topic selection should allow us to assess the VAAs' ability to capture party positions in policy areas with large and small number of questions.

The policy positions on these specific issue areas were calculated using a simpler method than for the left-right scores. For each VAA, we first decided which questions had clear economic or fiscal policy, immigration or environmental content. Then, the direction of the question was coded in order to establish whether answering 'yes' indicates a 'left-wing' or 'right-wing' position. For example, on the German VAA, on the question 'It should be easier to fire employees' a 'yes' is a right-wing response, whereas on the question 'Higher taxes for higher earners?' a 'yes' is a left-wing response. The positions were coded independently by two coders. There was agreement on 130 out of the 134 total economic policy items coded in this way; agreement on immigration policy was present on 34 out of 36 items and on 40 out of 41 items on environment policy. The few questions on which the coders disagreed were dropped from the country-specific scale. Then, the overall policy position was calculated as Right minus Left responses.

Since the scores extracted from the VAAs have little direct meaning and are limited by the small number of questions available in some cases, we restrict ourselves here to a comparison of the ranks within countries. The results for economic policy are presented in Table 3, following the approach for the ordinal comparison of left-right ranks. Even with this issue-specific measure, agreement between the VAAs and the expert surveys is high.

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Compared with the Benoit and Laver ranks, only two of the thirteen VAAs fall below .87 using Spearman's rho, whereas three fall below .87 compared with the Hooghe et al. ranks. Generally, then, the measure of economic policy in VAAs is very similar to established measures. However, the VAAs with fewer than ten questions on economic policy matters tend to exhibit less impressive rank order correlations. The fewer the questions, the harder it appears to be to identify party ranks, at least if we take expert surveys as a credible benchmark. Table 3 also compares the VAA economic policy ranks with CMP-extracted ranks.[14] The differences between the CMP and the VAA ranks are again greater than in the comparison with expert surveys. Spearman's rho is still higher than .8 for seven of the thirteen VAAs and over .68 for eleven VAAs. The lowest agreements between the two ranks are for 2006 Austrian Wahlkabine and the Finnish YLE VAA. Overall, the association between numbers of questions asked and similarity of placements with CMP ranks is less strong: the Finnish YLE VAA with 15 economic questions does badly while the French VAA with just 6 such questions has the highest convergent validity compared with CMP ranks. Still, the fact that the Swiss smartvote and the Belgian and Dutch Kieskompas, which each have a large number of relevant questions, match CMP ranks particularly well further underlines our finding that the VAAs with more economic policy questions tend to place parties more convincingly on this issue area.

Table 3 about here

We also compared immigration and environment policy ranks with the two expert surveys. The detailed results are available from the authors; here, we restrict ourselves to a brief description of the key findings. Most importantly, we find that the ranks of several parties are often identical, so that in many countries the VAAs fail to distinguish the positions

of different parties. On the immigration issue, the clearest such example is the 2008 Austrian Politikkabine, where all parties apart from the FPÖ are seen as having the identical policy position. In France, the PS and the PCF as well as the UMP and the MoDem are also seen as indistinguishable. The only VAA that really manages to separate parties on immigration policy is the Swiss smartvote, which asks 11 questions on this topic. Very similar findings also apply to the environment ranks extracted from the VAAs. In terms of guidance on secondary issue areas, VAAs are therefore relatively limited.

We can therefore conclude that VAA-extracted positions are more likely to be similar to established measures if a relatively large number of questions are asked on that topic. If expert surveys and manifesto data are accepted as a benchmark, the party positions encoded in VAAs are largely accurate in terms of overall left-right and economic policy terms, but on secondary issues the relative limitations of the VAA design become apparent. Overall, though, it appears that VAAs do quite well at providing guidance on general issue-based congruence between parties and voters based on proximity assumptions.

5. Discussion and conclusion

VAAs match voters to parties mostly according to the proximity logic, the dominant issue-voting paradigm. While there are elements of the directional and salience models, recommendations are primarily structured around the degree of policy agreement between a party or candidate and the user. In this sense, VAAs can be said to reflect the responsible party model (APSA, 1950), as they help voters connect their policy preferences to those of internally cohesive parties.[15] VAAs therefore conceive of citizen representation as voter-party congruence on key policies.

Moreover, we find that VAAs encode party placements in accordance with the measures of policy positions commonly used by political scientists. This means that VAAs

fulfil their aim of matching voters to parties well, especially if we focus on left-right congruence between voter and party positions. As a side benefit, the convergent validity of the VAA scores means that these could be used to provide election-specific party placement information, especially if the VAA is created by a trustworthy provider (for a similar argument, see Trechsel and Mair, 2011).

However, VAAs are less able to establish clear party positions on issues that are less central to the political debate, as the detail and thus accuracy of party placements at least partly depends on the number of questions asked on each topic. This provides important recommendations for designers of VAAS. It is thus useful to provide as many questions as possible on the key policy areas of concern to voters. If voter-party congruence on the environment or immigration, for example, is a key factor, then more than one or two questions need to be asked. Obviously, VAAs are limited in how many questions they can include, but maybe users can be offered short and long versions, as has been done in the Swiss smartvote. Moreover, the number of questions should be larger when more parties need to be placed. In large party systems, more questions will be needed to effectively distinguish parties from each other.

Finally, VAAs focus on a specific type of voter-party link, namely through policies and opinions. This means that other forms of representation are disregarded: voters may have other concerns and other objectives in determining their vote choice than simple policy congruence. First, VAAs do not capture the extent to which voters want the party or candidate they vote for to be competent, yet this is important to citizens' electoral decision making (Stokes, 1963; Fiorina, 1981; Clarke et al., 2009).[16] VAAs require their users to pass judgement on the desirability of a policy proposal, not assess whether a party is doing or would do a 'good job' in a specific area. Parties' competence on issues is not part of how voter representation is conceived of in VAAs. Yet accountability for past behaviour and the

alternation of governments are also frequent and legitimate democratic concerns (Schumpeter, 1942; Manin et al., 1999). Moreover, VAAs are not easily able to take into account non-policy attributes of parties and politicians, such as their trustworthiness and their public spiritedness, which may be important considerations in selecting representatives and governments (Mansbridge, 2009). When understanding how VAAs match voters to parties, we need to be aware that their purely issue-based perspective focuses on a specific reason for liking and disliking political parties.

Second, voters may not care about parties themselves but rather be outcome-oriented (Kedar, 2009). For example, as Stokes (1963) notes, voters do not make their decisions based solely on positional issues but also consider which party is most likely and most able to bring about their desired state of affairs. In parliamentary democracies, it is often coalitions and not single parties that primarily decide about outcomes (Kedar, 2009). Simple party-voter distance may therefore not be the congruence that voters are really interested in if what they actually care about are policy outcomes.

Of course, VAAs are limited in the extent to which they are able to include past performance, party competence and potential coalition agreements in their design. The fact that VAAs focus on ideological proximity is thus not a criticism of the role and impact of VAAs, which after all only claim to provide guidance on how well policy positions match those of voters. Yet, it is worth pointing out the difficulty of capturing complicated decision processes in relatively simple applications.

VAAs reflect a proximity-based logic of matching voters to parties and candidates, and based on our evidence they fulfil this logic well. By emphasising the role of policy agreement in vote choice, these relatively new applications may have an important effect on how voters think about politics and how they evaluate parties. For example, using VAAs may lead voters to depend more on policy positions and relative proximities when making vote

decisions. As such a widely-used resource, VAAs may be able to provide an important insight into the complicated decision-making process of voting. Future research should make use of these opportunities.

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Figure 1: Across-country scatterplot of VAA-extracted left-right scores and expert survey and manifesto estimates
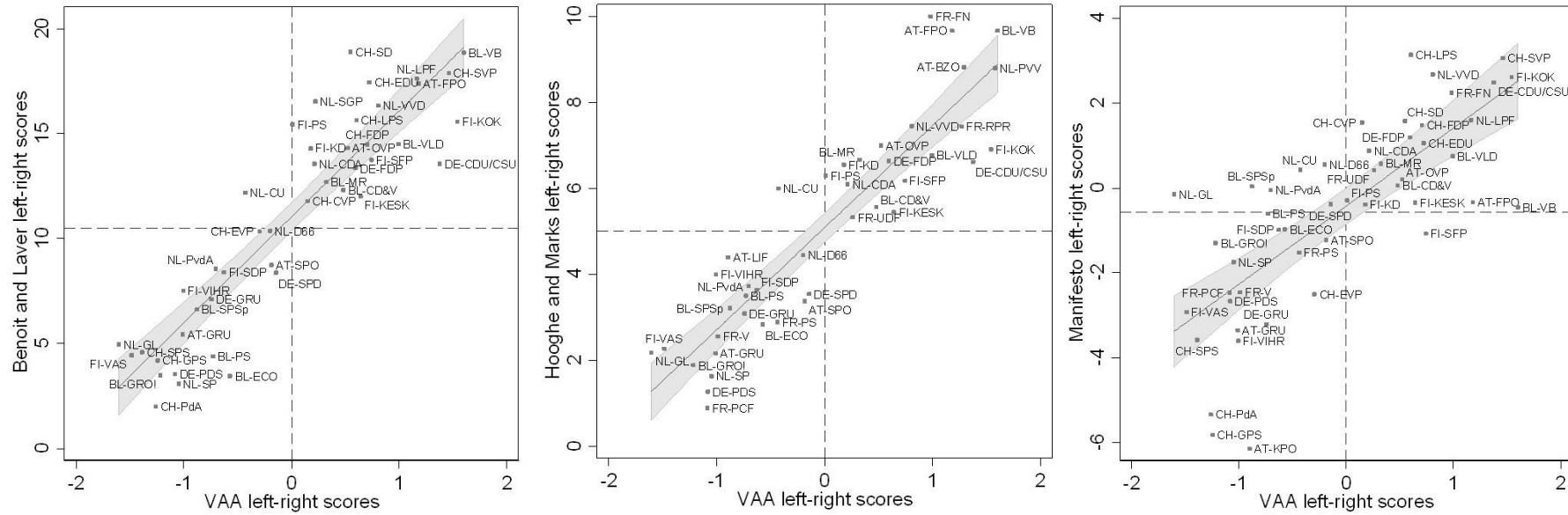
Note: For sources of VAA data, see Table 1. Benoit and Laver data from Benoit and Laver (2006); 'Hooghe and Marks' data from Hooghe et al. (2010); CMP data from Klingemann et al. (2007). See text for details on how positions were extracted from the VAAs and the CMP data.

Table 1: VAAs used in positional comparison with expert surveys and party manifestos

Table 2: Within-country comparisons of VAA left-right rankings and rankings by the three other established measures

Country	Name of VAA	Benoit and Laver		Hooghe et al.		CMP		VAA-extracted ranks
		k tau	s rho	k tau	s rho	k tau	s rho	
	Wahlkabine 2002	1	1	1	1	0.67	0.80	GRU SPO OVP FPO
Austria	Wahlkabine 2006	1	1	0.80	0.90	0.60	0.80	GRU KPO SPO OVP FPO BZO
	Wahlkabine 2008	1	1	0.73	0.89	0.60	0.80	GRU KPO LIF SPO OVP FPO BZO
	Politikkabine 2008	1	1	0.87	0.94	0.60	0.80	GRU KPO LIF SPO OVP BZO FPO
Belgium	Kieskompas 2007	0.64	0.81	0.79	0.90	0.43	0.60	GRO! SPSp PS ECO MR CD&V VLD VB
Finland	YLE 2007	0.64	0.79	0.64	0.79	0.50	0.67	VAS VIHR SDP PS KD KESK SFP KOK
France	Mon vote a moi 2008	0.87	0.94	0.87	0.94	1	1	PCF V PS UDF FN UMP
Germany	Wahl-O-Mat 2005	1	1	0.80	0.90	0.80	0.90	PDS GRU SPD FDP CDU/CSU
	Wahl-O-Mat 2009	1	1	0.80	0.90	0.80	0.90	PDS GRU SPD FDP CDU/CSU
Netherlands	Kieskompas 2006	0.83	0.95	0.86	0.95	0.86	0.95	GL SP PvdA CU D66 CDA SGP VVD LPF PVV
	Stemwijzer 2006	0.71	0.88	0.79	0.90	0.86	0.93	GL PvdA SP CU D66 CDA LPF VVD PVV
Switzerland	Smartvote 2007	0.69	0.83	-	-	0.51	0.72	SPS PdA GPS EVP CVP SD LPS FDP EDU SVP
	Politarena 2007	0.64	0.82	-	-	0.56	0.72	SPS GPS FDP PdA EVP CVP LPS SD EDU SVP

Note: for France, economic policy (taxes versus spending) used from Benoit and Laver (2006); CMP scores are 'vanilla' scores, see footnote 7; order of ranks reversed for Belgium, the Netherlands (Stemwijzer), Austria (Politikkabine) and Switzerland (Politarena).

Table 3: Within-country comparisons of VAA economic policy rankings and rankings by the three other established measures

Country	VAA and year	No. of questions	Benoit/Laver		Hooghe et al.		CMP		VAA-extracted ranks
			k tau	s rho	k tau	s rho	k tau	s rho	
Austria	Wahlkabine 2002	8	0.67	0.89	0.67	0.89	0.67	0.89	SPO/GRU OVP/FPO
	Wahlkabine 2006	7	0.83	0.95	0.80	0.95	0.40	0.53	SPO/GRU FPO OVP/BZO
	Wahlkabine 2008	9	1	1	0.47	0.53	0.60	0.70	GRU SPO/LIF FPO OVP/BZO
	Politikkabine 2008	8	0.83	0.95	0.13	0.23	0.60	0.82	GRU LIF BZO SPO/FPO OVP
Belgium	Kieskompas 2007	16	0.75	0.90	0.96	0.99	0.90	0.97	GRO! SPSp ECO/PS CD&V VB MR VLD
Finland	YLE 2007	15	0.93	0.98	0.89	0.97	0.52	0.68	VAS VIHR SDP KD PS KESK SFP KOK
France	Mon vote a moi 2008	6	0.40	0.64	0.53	0.75	0.93	0.99	PS PCF V UMP/FN UDF
Germany	Wahl-O-Mat 2005	10	0.80	0.90	0.80	0.90	0.60	0.70	SPD PDS GRU CDU/CSU FDP
	Wahl-O-Mat 2009	13	0.74	0.87	0.74	0.87	0.95	0.97	Linke GRU SPD FDP/ CDU/CSU
Netherlands	Kieskompas 2006	11	0.75	0.90	0.82	0.93	0.75	0.89	GL SP/PvdA CU CDA SGP D66 LPF VVD PVV
	Stemwijzer 2006	10	0.67	0.90	0.71	0.91	0.61	0.78	GL/CU/SP/PvdA CDA D66/SGP LPF PVV
Switzerland	Smartvote 2007	23	0.91	0.98	-	-	0.82	0.94	PdA SPS GPS EVP CVP SD EDU LPS FDP SVP
	Politarena 2007	7	0.40	0.54	-	-	0.44	0.59	PdA SD FDP/GPS/SPS EVP/EDU LPS/SVP/CVP

Note: CMP economic scores calculated as detailed in footnote 12; manifestos used are from 2002 for Austria, Germany and France and from 2003 for Belgium, Finland, the Netherlands and Switzerland.

Appendix: Web addresses of the VAAs studied

Country	VAA name	Year	Web address
AT	Wahlkabine	2002	http://wahlkabine.at/nrw2002/standpunkte
AT	Wahlkabine	2006	http://wahlkabine.at/nrw2006/standpunkte
AT	Wahlkabine	2008	http://wahlkabine.at/nrw2008/standpunkte
AT	Politikkabine	2008	http://www.politikkabine.at/nrw/parties.php
BE	Kieskompas	2007	http://english.kieskompas.nl/
FI	YLE	2007	data obtained from Finnish Social Science data archive
FR	Mon vote à moi	2007	http://www.sitoyen.fr/mon-vote-a-moi/ mon-vote-a-moi.php
GE	Wahl-o-Mat	2005	http://www.bpb.de/methodik/ 7X84ST,0,Download_WahlOMat.html
GE	Wahl-o-Mat	2009	http://www.wahl-o-mat.de
NL	Kieskompas	2006	http://tweedekamer.kieskompas.nl/
NL	Stemwijzer	2006	http://www.stemwijzer.nl/votematch2k2006/app.html
CH	Smartvote	2007	http://www.smartvote.ch/
CH	Politarena	2007	http://www.politarena.ch/fr/index.php

Endnotes

[1] While some VAAs ask users to rate party leaders and performance of the incumbent government, these questions are not included in the calculation of the voting advice.

[4] The only known exception to this rule is the Swiss smartvote. It also takes the direction of preference into account in the user-party matching calculation.

[5] In most cases, the data were collected directly from the VAA websites. The Finnish data was kindly provided by the Finnish Social Science Data Archive (Yleisradio, 2008). We would like to thank Jan Fivaz for sharing the Swiss smartvote data with us.

[6] In the two candidate-level VAAs (the Swiss smartvote and Finnish's YLE VAA), the scores used were the average party response across all candidates surveyed.

[7] For binary positions, the 'matching' distance measure was used; for positions with three to five alternatives, the Euclidean 'L2' measure was chosen. The necessary assumption of the latter method is that the party rankings are equivalent to geometrical distances.

[8] VAA scores are compared with Benoit and Laver's left-right scores, but in France the economic policy scale (taxes versus spending) is used as no left-right score is available; VAA scores are compared with Hooghe et al.'s left-right scores, but they do not have party positions for Switzerland; VAA scores are finally compared with CMP 'vanilla' scores (Gabel and Huber, 2000), which are here calculated by running a principal components analysis on parties in all OECD member countries in elections since 1990 using Klingemann et al.'s (2007) dataset and extracting scores for the first dimension. The simpler, CMP-provided right-left measure ('rile') was also examined; the comparison with 'vanilla' scores is shown, as these are slightly more similar to VAA scores.

[9] Only one VAA was chosen from each country; we chose the VAAs that are either more established or more detailed, include a broad range of parties and took place close to the date of the expert surveys. For the Netherlands, the scores are from the 2006 Kieskompas VAA; for Austria, from the 2008 Wahlkabine VAA; for Switzerland, from the 2007 smartvote VAA; for Germany, from the 2005 Wahl-o-Mat.

[10] For the comparison with the Benoit and Laver scores, the OLS regression gives the following results: R^2=.82, VAA coefficient=5.04, constant=11.03, n=44; for the Hooghe et al. scores: R^2=.82, VAA coefficient=2.73, constant=5.09, n=41; for the manifesto scores: R^2=.57, VAA coefficient=1.84, constant=-.43, n=49.

[11] In the case of the expert survey, this is perhaps not surprising: the providers of VAAs are in many ways themselves experts, so we would expect this similarity to exist. Moreover, some VAA providers explicitly make use of expert to help them place parties.

[12] Interestingly, in countries where we used parallel VAAs (Austria, Switzerland and the Netherlands), the ranks of the two different applications are very similar.

[13] The VAA ranks are least similar to established measures in Belgium, Finland and Switzerland. There are at least three potential explanations for this. First, the Swiss smartvote and the Finnish YLE VAA are both candidate-based applications. Some inaccuracy may stem from the need to take the average responses across all candidates in each party. Second, the inaccuracy of the Belgian VAA could reflect the fact that Belgium de facto has two party systems. The detailed party orderings in Table 3 show that many of the errors in the ranking stem from inversions across regional boundaries that will be of little importance to voters. Finally, the inaccuracy of left-right placements may be due to the fact that the left-right dimension as a whole is less able to summarize party competition in Belgium and Switzerland, due to, for example, issues of regionalism and federalism.

[14] The CMP ranks were calculated as follows. Using the manifesto closest to the VAA studied, the percentage of left-wing economic statements was subtracted from the percentage of right-wing economic statements. Based on these scores, the parties were than ranked from left to right. Left-wing economic categories are: per403 (market regulation: positive), per404 (economic planning: positive), per406 (protectionism: positive), per409 (Keynesian demand management: positive), per412 (controlled economy: positive), per413 (nationalisation: positive), per503 (social justice: positive), per504 (welfare state expansion: positive), per701 (labour groups: positive). Right-wing economic categories are: per401 (free enterprise: positive), per402 (incentives: positive), per407 (protectionism: negative), per414 (economic orthodoxy: positive), per702 (labour groups: negative).

[15] Candidate-centred VAAs (such as in Finland or Switzerland) are an exception to this.

[16] Some Finnish VAAs form an exception to this general trend. They have included questions that ask the users to evaluate, for instance, how successful the incumbent president has been in carrying out her duties and which parties should form the next governing coalition. These

VAAs were not included in this study because their response options are not comparable to

other European VAAs.

Word count: 7319