

## Methodology for the Voting Advice / Matching

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### Introduction

*smartvote Australia* is a so-called Voting Advice Application (VAA). It allows voters to compare their own policy preferences with those of candidates and political parties based on a comprehensive questionnaire. After answering the questionnaire voters receive a list of candidates and/or political parties ranked according to their congruence with the voter's answers.

### Questionnaire

In Australia, the *smartvote* questionnaire includes 35 questions on a wide range of policy issues. It has been drafted by an Australian National University (ANU) team at the School of Politics and International Relations also responsible for the Australian National Study (which has been running a representative sample survey after all federal elections since 1987, see <https://australianelectionstudy.org>). The questions are primarily focused specific policy issues, only a few questions relate to more general ideological positions. Our hope with this is to help shift the focus of voters away from personal characteristics, media presence, and party affiliation and towards an issue-based discourse.

Since some policy issues may not be widely understood, a short text containing factual information on the issue is provided next to the question. Candidates and parties have the option of commenting on each of their answer to provide it more nuance or clarity.

There are two types of questions: Standard questions, which require approval or disapproval of a specific policy proposal (4 answer categories). Budget questions, which ask if one thinks a department's budget should be increased, decreased or kept at the same level (5 answer categories).

All candidates and parties running for the 2019 Federal election have been invited to participate to the tool. In order to be present on *smartvote Australia*, candidates and parties have to answer all questions. Voters on the other hand can decide to skip some questions. Those to which they did not respond will not be taken into account in their proximity results with candidates and parties. The tool thus allows voters to concentrate on some policy areas for instance but responding to more questions will provide more precise results.

The following table summarizes the answer options available to candidates/parties and voters as well as the numerical values assigned to these answer options:

*Table 1: Answer options and their numerical values*

Question/Answer options	Candidates/parties	Voters
<b>Standard questions</b>		
"Definitely yes"	100	100
"Mostly yes"	75	75
"Mostly no"	25	25
"Definitely no"	0	0
"No answer"		X
<b>Budget questions</b>		
"Much more (++)"	100	100
"Somewhat more (+)"	75	75
"Same (=)"	50	50
"Somewhat less (-)"	25	25
"Much less (--)"	0	0
"No answer"		X

In addition, voters have the possibility of weighting their answers.<sup>1</sup> Table 2 shows the available weighting options and their numerical values.

*Table 2: Weighting options and their numerical values*

Weighting options	Candidates/parties	Voters
"More important (+)"	X	2
"Normal weight / Default (=)"	X	1
"Less important (-)"	X	0.5

<sup>1</sup> Candidates and parties are also invited to weight the questions. That data is however only collected for further scientific publications and does not affect the matching score of voters.

## Calculating the matching

To calculate the congruence between a voter and a candidate or a party *smartvote Australia* uses the Euclidean distance (geometric distance in a multidimensional space) as a measure.

In a first step we calculate the total distance between a voter and candidate taking into account all questions answered by the voter:

$$Dist(v, c) = \sqrt{\sum_{i=1}^n (w_i(v_i - c_i))^2}$$

$Dist(v, c)$ : Total distance between a voter ( $v$ ) and a candidate ( $c$ ) over  $i$  questions.

$v_i$ : Voter's answer on question  $i$ .

$c_i$ : Candidate's answer on question  $i$ .

$w_i$ : Voter's weight for question  $i$ .

In a second step we calculate the (theoretically possible) maximum distance between the voter and the candidate as the sum of 100 multiplied with the specific weights per question over all questions answered by the voter.

$$MaxDist = \sum_{i=1}^n (100 * w_i)$$

$MaxDist$ : Maximum distance between a voter ( $v$ ) and a candidate ( $c$ ) over  $n$  questions.

$w_i$ : Voter's weight for question  $i$ .

Finally, we subtract the total distance normalized by the maximum distance from 1 in order to receive a congruence measure instead of a distance measure. This measure is multiplied by 100 and presented as a matching in percentage.

$$Matching(v, c) = 100 * (1 - (\frac{Dist(v, c)}{MaxDist}))$$

It is important to note that this value represents a measure of geometric correspondence. This value cannot therefore be considered as the proportion of the questionnaire proposals to which the users responded in the same way as the candidates. Thus, a 70% match between two profiles does not mean that a candidate has answered 70% of the questions in the same way as a user.

## Matching for parties

Parties are also invited to answer the *smartvote Australia* questionnaire. This allows to provide matchings between voters and parties based on parties' official answers for the Senate election. The same steps as for the calculation of the congruence with candidates are taken to produce the matching scores for parties.

For more information on the methodology, please contact: [smartvote@anu.edu.au](mailto:smartvote@anu.edu.au).