

# PARMENIDES: Using Argumentation for Gathering and Analysing Public Opinions Online

Katie Atkinson\*

## Abstract

The PARMENIDES system is a tool used to provide computer support for the collection and analysis of public opinions regarding the justification of policies. The system is designed to encourage public participation and debate regarding proposed Government policies, whilst aiding the analysis of the opinions submitted to the system.

Numerous tools for e-democracy exist that are based on the use of web-based discussion boards, see, e.g. [3]. Although such discussion boards can indeed encourage participation and debate, they generally provide no structure to the information gathered. PARMENIDES addresses this issue as it is implemented upon a firm model of argument, which is transparent to the user, but provides structure to the responses submitted. This model of argument is based upon a theory of presumptive justification, effected through the use of argument schemes and associated critical questions, as described by Walton in [4]. His account views an instantiation of an argument scheme as providing a presumption in favour of the conclusion, where presumptions are tested by posing critical questions associated with the scheme. In order for the presumption to stand, satisfactory answers must be given to any such questions that are posed in the given situation. In [1] Atkinson et al. have described such an argument scheme and critical questions for use in practical reasoning — reasoning about the best course of action to take in a given situation. Their argument scheme, called AS1, is an extension to Walton's *sufficient condition scheme for practical reasoning* and it is given below:

AS1 In the current circumstances R  
we should perform action A  
to achieve new circumstances S  
which will realise some goal G  
which will promote some value V.

In this scheme Walton's notion of a goal has been separated into three distinct elements: states of affairs (the effects of actions), goals (the desired features in those states of affairs) and values (the reasons why those features are desirable).

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\*Department of Computer Science, University of Liverpool, Liverpool, L69 3BX, UK.  
katie@csc.liv.ac.uk

Associated with this scheme are sixteen different critical questions that challenge the presumptions in instantiations of AS1. The critical questions allow challenges to be made upon the validity of the various elements of the argument scheme and the connections between them, and additionally there may be alternative possible actions, and side effects of the proposed action. Each critical question can be seen as an attack on the argument it is posed against and examples of such critical questions are: “Are the circumstances as described?”, “Does the goal promote the value?”, “Are there alternative actions that need to be considered?”. The full list can be found in [1].

Given this argument scheme and critical questions, debates can then take place between dialogue participants whereby one party attempts to justify a particular action, and another party attempts to present persuasive reasons as to why elements of the justification may not hold or could be improved. In the prototypical version of the PARMENIDES system the subject dealt with is the 2003 war in Iraq, with the particular question under scrutiny being: “Is invasion of Iraq justified?”. On entering the system users are provided with a justification upholding the action of invading Iraq, presented in the form of AS1. Users are then led in a structured fashion through a series of web pages that pose the appropriate critical questions to determine which parts of the justification they agree or disagree with. Once a critique of the initial justification has been given, users can then state their own full justification of any action they believe should be proposed. Users are not aware (and have no need to be aware) of the underlying structure for argument representation, but it is imposed on the information they submit, and no specialist knowledge is required in order to use the system. All responses submitted are written to a back-end database to gather information as to which points of the argument are more strongly supported than others. The Government can then analyse this unambiguous information to review public support of its case and perhaps revise or change its justification to make the policy more amenable to public support.

Extensions are currently being made to the system to test it out with a different debate (concerning the use of speed cameras on UK roads) and also to link it with other structures of argument analysis that enable the merits of arguments to be compared.

The PARMENIDES system is described in more detail in [2] and it can be used at: <http://www.csc.liv.ac.uk/~katie/Parmenides.html>.

## References

- [1] K. Atkinson, T. Bench-Capon, and P. McBurney. Computational representation of practical argument. *Synthese*, 152(2):157–206, 2006.
- [2] K. Atkinson, T. Bench-Capon, and P. McBurney. PARMENIDES: Facilitating deliberation in democracies. *Artificial Intelligence and Law*, 2007. Available online.
- [3] Ø. Sæbø and H. Nilsen. The support for different democracy models by the use of a web-based discussion board. In R. Traummüller, editor, *EGOV*, LNCS 3183, pages 23–26. Springer, 2004.
- [4] D. N. Walton. *Argument Schemes for Presumptive Reasoning*. Lawrence Erlbaum Associates, Mahwah, NJ, USA, 1996.