Structuring E-Participation in Policy Making through Argumentation

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An important feature of democracies is that citizens can engage their Governments in dialogues about policies. They tend to do so in one of three ways: they may seek a justification of some policy or action; they may object to all or some aspects of a policy; or they may make policy proposals of their own.

For the first, the reply need only to state a justification. For the second, having offered the justification, the respondent needs first to understand what the citizen objects to, and then to give an answer to the specific points. For the third, first a well formulated proposal must be elicited from the citizen, and then that proposal can then be critiqued from the standpoint of the government's own beliefs and values. Current e-participation systems too often lack structure. Most commonly they take the form of petitions or threaded discussions. Petitions allow the expression of general feelings, but they are unable to express objections with precision. Too often they are ill expressed and conflate a variety of different arguments, so that it is not clear what people are subscribing too. Threaded discussions allow people to feel that they have expressed their views, but they lack structure. Thus arguments are typically ill-formed, and the lack of structure also makes comparison, aggregation and assimilation difficult. In consequence Government replies are often general, bland and superficial and do not address the particular objections of the citizens. To address these issues, we need tools that are firrmly grounded on a well defined model of argument.

Common to all three scenarios is the notion of justifying an action. Justifying actions is a form of practical reasoning, and has traditionally made use of the practical syllogism of Aristotle. For the purposes of computational modelling, the traditional syllogism has been re-expressed in the form of an argumentation scheme. As stated in [1], the scheme brings together knowledge of the current circumstances, the effects of actions, the goals being pursued and the values which will be promoted if the goals are attained:

– In the current circumstances (R), action ac should be performed by agent ag, since this will bring about a new set of circumstances (S), which will realise a goal (G). Realising G in R will promote social value (V).

Following the notion of argumentation schemes in [3], an argument made using an argumentation scheme can be challenged using characteristic *critical questions*. Seventeen such critical questions are given in [1], covering the formulation of the

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problem (what is considered relevant, the causal relations in the domain etc), current beliefs (what is true now, how will other agents respond if ag does ac) and the evaluation of the actions (does realising G promote V, is there a better way to promote V, etc). This scheme and the critical questions can be used to structure justification of policy, and critiques of such justifications.

Note that this scheme requires knowledge of several sorts: knowledge of what can be considered relevant to the question, knowledge of what actions are available, knowledge of what is the case, knowledge of the consequences of these actions, knowledge of other agents who can influence the results of the actions, knowledge of what is desirable, and knowledge of preferences between values. Such knowledge can be captured in the form of an Action-based Alternating Transition System (AATS) [4], augmented to label the transitions with the values promoted and demoted. The scheme and the critical questions are given in terms of an AATS extended with such labels in [1].

This scheme, and its underlying AATS model, can be used as the basis of tools to support e-participation. First the domain is modelled as an AATS. An example of such a model can be found in [7], where the domain related to the formulation of policy on the introduction of speed cameras to reduce traffic accidents was modelled. Such a model can then be used to support several policy related tasks. The task of selecting a policy from among the several available is considered in [7]. We have also developed two interactive web tools to support the second and third tasks mentioned above.

For the second task, where the policy-maker presents a policy to citizens and solicits their points of agreement and disagreement, we provide the *Structured Consultation Tool* (SCT), written in PhP and accessing a MySQL database. The user is presented with five screens, one each for an introduction, circumstances, consequences, values, and a summary page. These screens explore the various elements of the argumentation scheme of [1], and ask the user a series of yes/no questions, the responses to which can be interpreted by someone familiar with the scheme as posing particular critical questions relating to the AATS model. This structures the interaction in terms of the model and the scheme, but does not require the user to be aware of this, and so the tool remains simple to use. In this way a fine grained response can be obtained, and assimilated with other responses: this is not possible with free text as found in threaded discussions, which lack the required unifying structure. More details can be found in [5].

The third task is supported by the *Critique Tool* (CT), based on the same database, argumentation scheme, and also implemented using MySQL and PHP. Rather than the policy-maker presenting a policy for critique, the user is able to create her own policy proposal interactively by selecting from a menu of choices relating to circumstances, actions, consequences and values. Internally this is structured using the argumentation scheme and then critiqued from the basis of the AATS model and preferences of the Government. The justification is again structured using the argumentation scheme, and the critique again takes the form of a range of appropriate critical questions, which are generated automatically from the model. Thus, the citizen can proactively engage with with

policy-making rather than simply reacting to a given policy proposal. Again the structure is exploited without requiring the user to be aware of the structure, allowing the arguments and the criticisms to be well formed and precise without compromising usability. More details of this tool can be found in [6].

Both tools also provide access to additional supporting information through links to other web sites, including external sites. These may offer independent support for the views of the Government, or may set out the pros and cons for the citizen to consider. The tools are (June 2013) available at

- http://impact.uid.com:8080/impact/ and
- http://cgi.csc.liv.ac.uk/ maya/ACT/

A major problem with current e-participation systems is organising the replies for comparison, aggregation and assimilation. One answer to this is to make use of a well defined argumentation structure to organise policy justifications and critiques of these justifications. I have described:

- An argumentation scheme to structure justification and critiques;
- A semantical structure for models to underpin this scheme
- A tool to facilitate a precise critique of the scheme
- A tool to elicit a well frormed justification and generate an automatic critique.

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