

Perspectives for Argunet in eParticipation

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PART I

The aim of the Argunet project is to provide software tools for the reconstruction and visualisation of complex debates in philosophical, political and many other contexts. Arguments are reconstructed as premiss-conclusion structures and mapped as a directed graph according to their dialectical relations. Complex argumentations are visualised as colour-coded maps in which green and red arrows indicate support and attack relations between arguments. It is important to note that, while Argunet imposes a premiss-conclusion structure on arguments, the software does not impose any restrictions on the inference patterns leading from the premisses to the conclusions. Thus the argument reconstruction does not necessarily have to be based on classical formal logic.

In the first part of this talk we will present and demonstrate two software components of Argunet. Firstly, the comprehensive argument editor, with which debates can be reconstructed in varying degrees of detail and which can be used as a collaborative learning and research environment, and secondly Argunet Navigator, a browser-oriented presentation tool with which reconstructions of debates can be made accessible to the public. As the Navigator seems particularly suited to eParticipation contexts, the following parts of the talk will focus on this browser-oriented tool.

Extending the employment of Argunet from the academic environment towards eParticipation contexts poses several challenges, which will also be mentioned in this first part of the talk. In brief, they can be characterised as follows:

- (1) Although the Navigator is not intended as a full editing tool, users will probably benefit from being able to add their own arguments to an existing argument map. The reconstruction of arguments as premiss-conclusion structures, however, requires knowledge and skills which cannot be presupposed in non-expert users. A possible solution for this problem, namely simple argument schemes or templates which guide the user during the reconstruction of an argument, is discussed in part II of the paper.
- (2) Because argument maps present a multitude of arguments for and against particular theses, they are in themselves neutral tools for the evaluation of debates. However, many users would like to test their own actual beliefs, which will usually only be a subset of the set of premisses and conclusions, for consistency and coherence. Thus, part III discusses a supplementary evaluation algorithm for argument maps.

PART II

In complex debates the opponents not only disagree about explicit propositions, but often enough they also disagree about what should count as a reason at all. To translate such inferential disagreements into disagreements about explicit propositions, it has to be ensured that only commonly accepted inference rules are used and that all premisses which are necessary for the application of these inference rules are explicitly stated.

The challenge is thus to let Argunet Navigator only accept arguments which meet these standards and at the same time to enable non-expert users to contribute their own arguments easily and intuitively.

By letting the user enter her arguments through an argument template both requirements can

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be met. Firstly, researchers in the field of argumentation theory can create argument templates which satisfy the constraints mentioned above, secondly, every user can easily fill in the blank input fields in such templates, representing the substitutable variables of the scheme. For example, one template for political arguments could look like this (a variable in an input field is symbolized as text in brackets, and for every variable only one value can be entered):

Please fill in the blanks to reconstruct your argument as a **measure-end argument**:

1. It ought to be the case that [the desired end].
2. That [agent] does [measure] is the best viable way to bring it about that [the desired end] unless [exception].
3. It is not the case that [exception].
4. *Principle of practical reason.*
5. **[Agent] should [measure].**

For example, a completed template could be:

1. It ought to be the case that [CO₂ emissions are reduced].
2. That [the EU commission] does [impose strict emission standards on the car industry] is the best viable way to bring it about that [CO₂ emissions are reduced] unless [the European economy would suffer severely from that legislation].
3. It is not the case that [the European economy would suffer severely from that legislation].
4. *Principle of practical reason.*
5. **[EU commission] should [impose strict emission standards on the car industry].**

In our talk we will present and discuss some examples of such schemes for the reconstruction of political debates. Among the questions we would like to discuss are the following: Which argument schemes are common in political debates? Is it possible to keep the number of available schemes small without restricting the users' reconstruction possibilities? Is there an intuitively understandable taxonomy of arguments by which the user could be guided towards a specific argument scheme?

Part III

Argunet Navigator aims at helping non-expert users who are not thoroughly acquainted with a complex debate to form rational beliefs regarding the issue at stake. Our experience (gained during the presentation of Argunet Navigator to non-expert users) has shown that the argument maps depicted with Argunet Navigator are not easily understood. It is thence questionable in how far the mere presentation of these maps really serves as a guide to developing a rational position in a debate against the background of the reasons put forward.

A first and, at least from a theoretical point of view, rather unproblematic extension of the mere argument presentation consists in the addition of an interactive sentence evaluator which enables users to attribute (binary) truth-values to those sentences of a debate which are neither analytic truths nor empirically well-established facts. As the inferential relations encoded in a dialectical structure represent constraints on any such sentence evaluation, the software could computationally verify whether the user's evaluation is consistent and, if that were not the case, suggest different re-evaluations in order to reach a coherent position. In spite of being a step in the right direction, this method, as a disadvantage, forces the user to say that each sentence is either true or false without leaving the alternative to say that, e.g., the sentence is more likely to be true than false, that she doesn't know, or that she believes it to be true as likely as false. Political debates in particular, with their abundance of measure-ends arguments, seem to require that the user be able to weigh the different reasons put forward without fully rejecting them as false. What is required is a many-value debate evaluation that

enables the user to assign shades of grey to the key sentences involved.

In part III of our talk, we will present preliminary results on interpreting a dialectical structure as a set of constraints on rational degrees of belief. Based on the premiss that rational degrees of belief realise the axioms of probability theory (as typically justified with Dutch Book arguments), the logical constraints of a debate are translated into constraints C on the user's subjective probabilities. A major and problematic assumption involved in this translation is the independence of parallel arguments' premisses. Regarding the application to eParticipation contexts, the user will simply be required to assign imprecise probabilities, i.e. probability intervals, to the key sentences, and the software will verify whether the probability constraints C are satisfied. We will exemplify this procedure using a very simple debate.