Dialogues on the Argument Web: Mixed Initiative Argumentation with Arvina

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Abstract. ...

Keywords.

1. Introduction

Direct and real-time discussion between two or more people on the web takes place not just via email and instant messaging but also on forums and message boards. These technologies offer only the most basic of structural tools: the discussion is rendered in linear way and most structure is often brought in by the participants themselves, e.g. by putting '@Bob' in front of their message when they reply to a point made by Bob. The structure of the arguments that are formed in a discussion is thus easily lost.

Our web-based discussion software Arvina [3]. allows participants to debate a range of topics in real-time in a way that is structured but at the same time unobtrusive. Arvina uses dialogue protocols to structure the discussion between participants. Such protocols determine which types of moves can be made (e.g. questioning, claiming) and when these moves can be made (e.g. a dialogue starts with a claim, questions can only be moved after a claim has been made). Protocols facilitate a good and rational debate because they, for example, ensure that each participant's opinion is fairly represented and they provide structure to the dialogue itself as well as to the opinions expressed in this dialogue [2]. Figure 1 shows the debate interface. Notice that a (small) part of the Argument Web is displayed as a live discussion map on the right. The argumentative 'moves' the user can make in this particular dialogue are represented in the drop-down menu at the bottom.

In Arvina, reasons for and against opinions are linked to the already available arguments on the Argument Web [1]. Furthermore, Arvina can also use the arguments already on the Argument Web in real-time debate. Arvina takes a multi-agent system populated by agents representing (the arguments of) specific authors who have previously added their opinion to the Argument Web in some way. So, for example, say that Wilma has constructed a complex, multi-layered argument using OVA [**?**] concerning the use of nuclear weapons. An agent representing Wilma can then be added to an Arvina discussion and questioned about

these opinions and the agent will answer by giving Wilma's opinions. Thus, Arvina cannot just be used to express arguments but also to explore them and to use arguments made by others in one's own reasoning.

Figure 1. The Arvina Interface

2. Interface to the Argument Web

The Argument Web resources with which Arvina interacts are stored in AIFdb, a database specification of AIF. As well as offering a range of web service interfaces to lower level argument components such as nodes, edges and schemes, AIFdb also features a 'middle layer' which groups these queries giving a simple interface for more complex interactions. For example, a single query to the AIFdb middle layer is performed by Arvina when a user asks a question. This query is then interpreted and the relevant low level argument components are queried in order to provide the agent with an answer. Similarly when a user submits their own claims in Arvina, these are posted as a single query which is then expanded to add the relevant argument components to the database. In this way Arvina is separated from the low level details of argument storage and is unaffected by changes to the underlying database structure.

3. Conclusion

Arvina moves online discussion away from the linear, unstructured conversations currently seen online by allowing the user to direct the discussion and pursue specifically the areas which interest them most. Additionally, the user is able to offer their own responses to any claim which are then added to the Argument Web allowing for them to be interacted with in a structured way by a wide variety of other software.

References

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