University of Dundee

ADD-up

Plüss, Brian; El-Assady, Mennatallah; Sperrle, Fabian; Gold, Valentin; Budzynska, Katarzyna; Hautli-Janisz, Annette

ADD-up: Visual Analytics for Augmented Deliberative Democracy

Brian PLÜSS [a], Mennatallah EL-ASSADY [b], Fabian SPERRLE [b], Valentin GOLD [c],
Katarzyna BUDZYNSKA [d,a], Annette HAUTLI-JANISZ [b] and Chris REED [a]

[a] *Centre for Argument Technology, University of Dundee, UK*
[b] *University of Konstanz, Germany*
[c] *University of Goettingen, Germany*
[d] *Centre for Argument Technology, Polish Academy of Sciences, Poland*

Abstract. We demonstrate the first prototype of the ADD-up visual analytics system. The Augmented Deliberative Democracy (ADD-up) project aims to enhance public deliberations by providing argument analytics in real time. The system will ultimately take a stenographic feed of a public deliberation meeting, automatically extract the arguments therein and project visual analytics intended to improve the deliberative quality of the event.

Keywords. Argument Analytics, Public Deliberations, Deliberative Democracy

The inclusion of citizens in political processes has gained attention in recent times, mainly due to an increased demand by citizens to *have a say and get heard* in political decisions. Consequently, new methods have been proposed to put citizens and public stakeholders in (partial) decision-making authority. One such method is public deliberation, in which citizens and politicians come together to discuss and find consensus on controversial issues. Currently, there is a lack of argumentation and visual analytics systems that can be applied to such face-to-face public events. While existing systems can only be applied to computer-mediated online debates [1,2], research suggests that problem-solving abilities increase when using argumentation mapping software [3]. The goal of the ADD-up project is to transfer the advantages of deliberation support systems to face-to-face dialogic deliberations.

We aim is to build an visual intervention system to improve the quality of deliberative communication. Due to the spontaneous nature of face-to-face deliberations, the visual support must be as simple as possible while effectively guiding participants through their tasks. Simplicity is a key design requirement, to ensure that citizens can instantly grasp and interpret the information conveyed by the visualisations. Another challenge is designing the algorithms to balance between visual updates and deliberation coherence. The visual system must, on the one hand, carefully incorporate recent actions in the debate to incrementally process the argumentation and new content and, on the other hand, at any time reflect the current state of the deliberation. In the paper, we discuss the implementation of these two challenges.

The ADD-up system proposes an architecture that adds sophisticated argumentation and content analytics [4] to public deliberations, and supports participants in reaching consensus. Based on streamed argument annotations of a deliberation, the system pro-
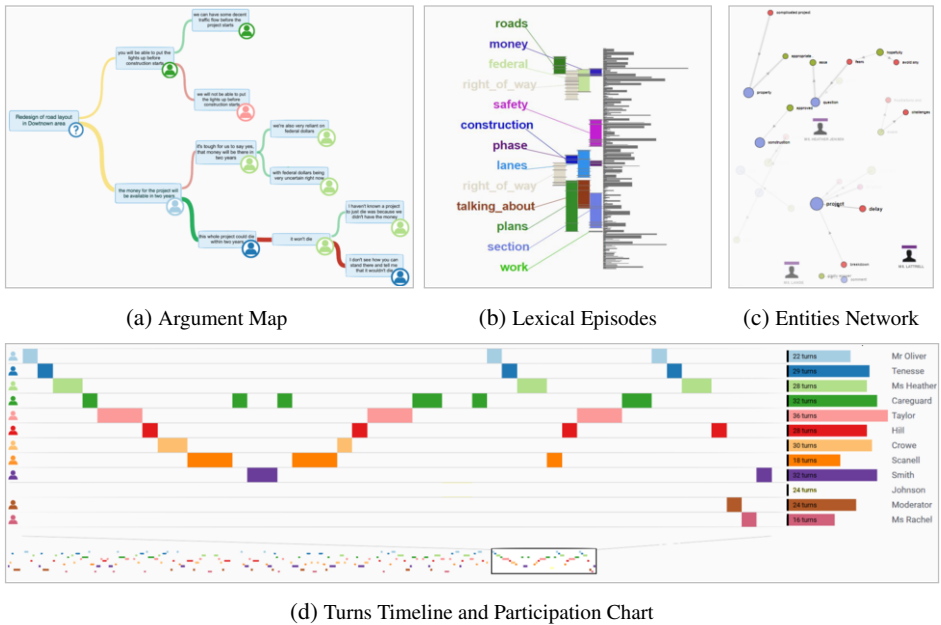
(a) Argument Map   (b) Lexical Episodes   (c) Entities Network

(d) Turns Timeline and Participation Chart

Figure 1. Some of the visual analytics in the ADD-up system

duces real-time, incremental visual analytics (see Figure 1) that focus on each of the four dimensions of deliberative communication, i.e. participation, respect, justification, and accommodation [5]. For instance, the argument map in Figure 1a aims to enhance problem-solving abilities and to support finding a common ground by revealing the participants' stance towards divisive issues. Overall, we aim for a large menu of different visualisations: then visual analytics can be selected to fit specific deliberative events.

In building ADD-up, we draw support from recent advances in computational models of argument and visual analytics, and present transformative technology to the rapidly expanding domain of deliberative communication. This demonstration showcases our first insights into the challenges and opportunities of bringing real-time visual analytics to face-to-face public deliberations.

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