Building a Standpoints Web to Support Decision-Making in Wikipedia

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Abstract

Although the Web enables large-scale collaboration, its potential to support group decision-making has not been fully exploited. My research aims to analyze, extract, and represent disagreement in purposeful social web conversations. This supports decision-making in distributed groups by representing individuals' claims and their justifications in a "Standpoints Web", a hypertext web interlinking the claims and justifications made throughout the social web. The two main contributions of my dissertation are an architecture for the Standpoints Web and a case study implementing the Standpoints Web for Wikipedia's deletion discussions.

Keywords

Online argumentation, Collaboration, Wikipedia, Decision Rationale, Deliberation, Sensemaking

ACM Classification Keywords

H5.3. Group and Organization Interfaces: Computer-supported cooperative work

General Terms

Human Factors, Design, Experimentation

Research Question

Group collaboration and decision-making increasingly take place online or in mixed online/offline environments, and a single group may have conversations in diverse online social media (wikis, blogs, microblogs, email, listservs, etc.). While various approaches have been taken to add structure to decision-making (e.g. [2]) or to structurally integrate online conversations (e.g. [1]), further work is needed to synthesize these conversations. In particular, although divergent opinions and claims are made throughout the social web, it is difficult to determine the overall perspective of a group, and in particular to understand the justifications given for possibly contradictory claims. Yet this is key to making decisions based on the input of a large group.

My research aims to analyze, extract, and represent disagreement in purposeful social web conversations. It is desirable to find all the relevant points of view on a topic, and especially to focus attention on those that bring the most new information — such as arguments

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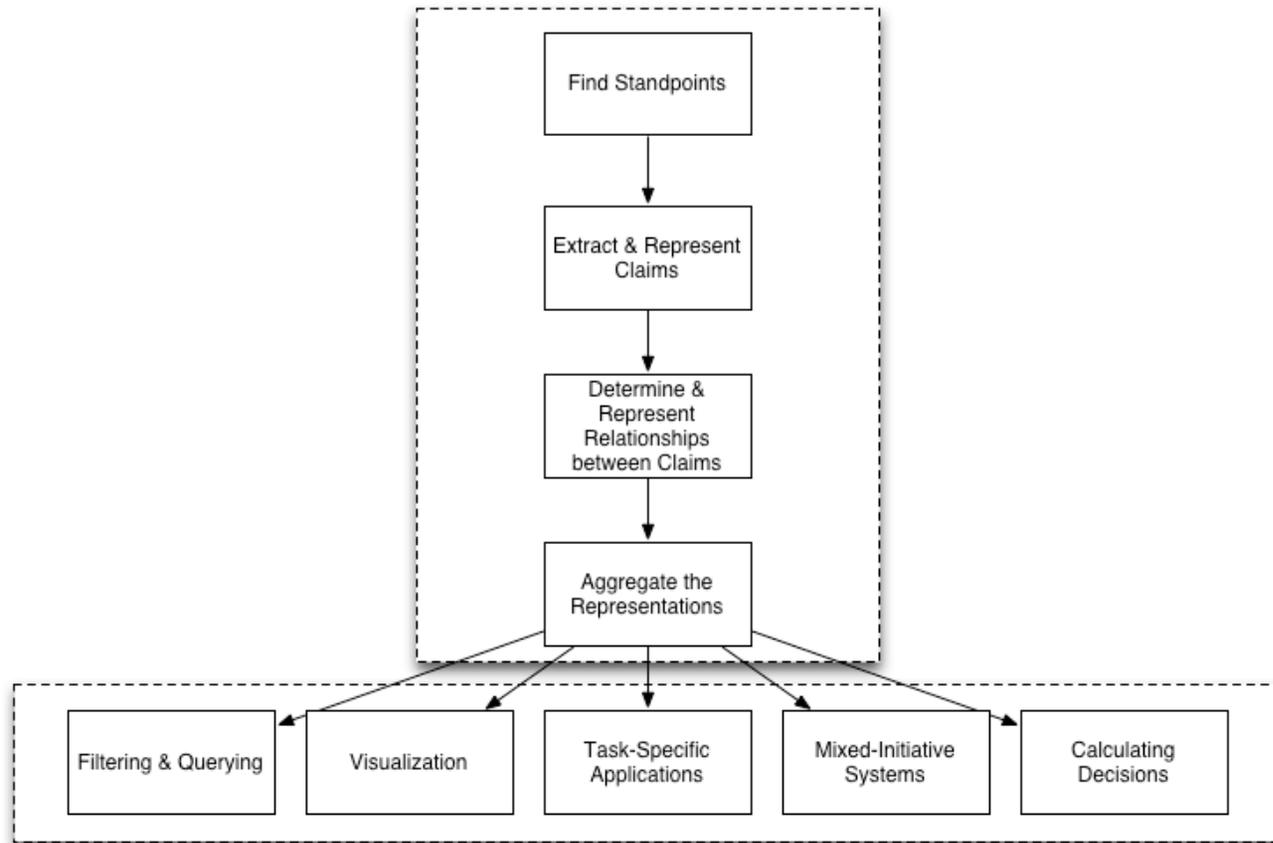
Figure 1: The overall process of building (top) and using (bottom) a Standpoints Web.

Boxes in bottom dashed region: Filtering & Querying, Visualization, Task-Specific Applications, Mixed-Initiative Systems, Calculating Decisions

one hasn't heard before, or arguments that counter one's own. To address this, the claims people make, and their justifications, are aggregated in order to build a web of claims (i.e. the Standpoints Web). The "Standpoints Web" is a hypertext web interlinking the claims and justifications made throughout the social web.

Expected Contributions

My dissertation research offers two contributions: the first is an architecture for the Standpoints Web, shown in Figure 1. The second contribution is a case study implementing the Standpoints Web for Wikipedia's deletion discussions.

Wikipedia deletion discussions, an important space in their own right [3,4,16], are a fruitful space to study disagreement and decision-making on the social web. The planned case study has two parts: first, understanding the socio-technological system, based on interviews, observation, and content analysis. Second, in a planned intervention-based study, the Standpoints Web architecture will be implemented on Wikipedia deletion discussions, and tested with community input.

Three task-based representations for Wikipedia deletion discussions are planned; they focus on participating in decision-making conversations, deciding on the outcomes, and reviewing archives of the discussions.

Three sets of users are targeted: the first interface aims to provide real-time feedback for novices participating in discussions; the second serves experienced Wikipedians who determine consensus and decide cases; and the third is for readers who wish to understand the decision rationale of past decisions.

These three interfaces will rely on a single lightweight model of argumentation, in which an argument consists of a claim and its justification. Three aspects of these arguments are then key: contradictory claims, contradictory justifications, and the relationship between a justification and the claim it is intended to support. By developing an appropriate domain model, arguments across Web media can be pulled together, thus enabling browsing arguments on the social web. This representation can then support various interfaces, such as those planned for Wikipedia.

Work in Progress

My earlier dissertation research addressed both domain representations and the Wikipedia environment, and laid the groundwork for developing the focal topics of my expected contributions. It proceeded along similar divides, in two tracks: understanding possibilities for representing and formalizing disagreements in online conversations [7,10] and understanding Wikipedia discussion spaces. Following from a content analysis [12] and user interviews, we completed a small-scale intervention [11], synthesized as a prototype study of Wikipedia [9].

More recently my research has focused more narrowly on envisioning the Standpoints Web [6] and on planning the deletion case study. An overview of plans for one aspect of the case study, supporting novices,

appears in [8]. In current work on my case study, I am conducting interviews in order to understand the context in which deletion decisions are made. I am also analyzing discussions, in particular by annotating a corpus of Wikipedia deletion discussions in multiple ways, using both Walton's argument schemes [15] and Wikipedia-specific decision criteria, and collecting statistics on the usage of these schemes.

Further ahead, I am forming ideas for the task-based representations based on interviews with Wikipedia users and administrators. This will also inform the domain model, which I am also preparing. To move from text to a classification, I anticipate the use of language technologies, hence I am also working on text mining approaches to automate argument extraction [5].

Relation to CSCW

I believe that CSCW is the core area underlying community-oriented Wikipedia research, especially when viewed as a task-based artifact-production environment. Further, the interventions I intend to make are intended to improve the productivity of the community, making this research firmly in the CSCW realm.

My institute's strengths are in the domain models (ontologies and the Semantic Web) and while our research group focuses on the social web, there is relatively less expertise in collaboration and collaborative software.

Thus, as I enter the third year of my doctoral research program, I will greatly benefit from the advice of senior researchers in CSCW. I anticipate two major benefits

from interacting with senior researchers: first, a critical review of my research procedures (to ensure that I am following best practices), and second, additional exposure to the CSCW literature. Among the most influential papers in my literature review was Shipman & Marshall's "Formality Considered Harmful" [13], which, following my own experiments [11] persuaded me that text mining, rather than classification by my system's users, would be the most promising approach to annotating arguments.

Since CSCW will be a core area of my research program as I begin my professional career, I also look forward to networking with other doctoral students and participating in the conference as a whole.

Acknowledgements

References

[1]   Breslin, J.G. et al. Towards Semantically-Interlinked Online Communities, *ESWC* (2005).

[2]   Farnham S. et al. Structured online interactions. *CSCW* (2000).

[3]   Lam, S.K. and Riedl, J. Is Wikipedia growing a longer tail? *GROUP* (2009).

[4]   Lam, S.K. et al. The effects of group composition on decision quality in a social production community. *GROUP* (2010).

[5]   Schneider, J. et al. Claims extraction from microblog posts using cue phrases. *LREC* (2012) (under review).

[6]   Schneider, J. Designing the Standpoints Web, a knowledge representation for collective decision-making and argumentation. *Collective Intelligence* (2012) (under review).

[7]   Schneider, J. et al. A review of argumentation for the Social Semantic Web. *Semantic Web – Interoperability, Usability,* Applicability, to appear (accepted pending major revisions).

[8]   Schneider, J. and Passant A., Arguments about deletion: Guiding new users in making good arguments. *WebSci* (2011).

[9]   Schneider, J. et al., Understanding and improving Wikipedia article discussion spaces. *SAC* (2011).

[10] Schneider, J. et al., Argumentation 3.0: How Semantic Web technologies can improve argumentation modeling in Web 2.0 environments. *COMMA* (2010).

[11] Schneider, J. et al., Enhancing MediaWiki Talk pages with semantics for better coordination - A proposal." *SemWiki at ESWC* (2010).

[12] Schneider, J. et al., April 26 & 27 2010. A content analysis: How Wikipedia Talk pages are used. *WebSci* (2010).

[13] Shipman, F. and Marshall, C. Formality considered harmful: Experiences, emerging themes, and directions on the use of formal representations in interactive systems. *CSCW*. 8(4). (Fall 1999).

[14] Taraborelli D. and Ciampaglia, G.L. Beyond Notability. Collective deliberation on content inclusion in Wikipedia. *SASOW* (2010).

[15] Walton, D. et al. *Argumentation Schemes*. Cambridge (2008).