
VBAA: A Method for Surfacing Values in Distributed Online Collaboration

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Abstract

This paper describes Values-Based Appeals Analysis (VBAA), a language-based approach to understanding the values in practice within decision-oriented online discussions. We briefly describe our development of the method through a critical instance case study on Wikipedia. We address perceived advantages and challenges, and propose VBAA as a method for identifying and eliciting stakeholder values in a Values-Sensitive Design context.

Keywords

Design, Values-Sensitive Design, Content Analysis, Online Collaboration, Decision-Making

General Terms

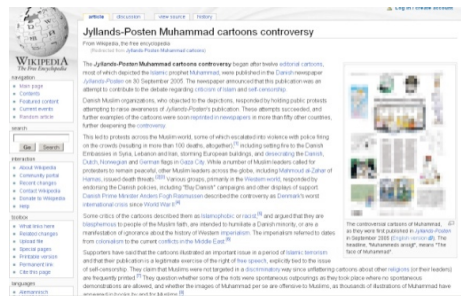
Design, Human Factors

Introduction

The proliferation of social software, social networking applications and online collaboration and communication technologies in the first decade of the 21st century, coupled with an increase in the number of people from different countries and cultures who use the web, has increased the likelihood that people with widely different sociocultural values will interact online. Although in many spaces on the web individuals still interact primarily with others of like mind, participants in large online peer-production environments such as Wikipedia may find themselves in situations where they must not only communicate with unknown others who do not share their values, but also collaborate with them in creating common goods.

These online collaborative communities also tend to develop their own local norms, practices, priorities and values over time that have antecedents in the national culture, religious and political ideology, professional norms and personal goals of the system's users and designers. However, although these values play significant roles in shaping the process and product of collaborative work, as well as the sociotechnical environment in which that work takes place, they are often invisible to outsiders and newcomers.

Supporting these complex social systems through design requires a nuanced understanding of the full repertoire of participant values: what they are, what relative



Appeal Type	Definition	% of total appeals
Impact	cartoons should be retained or removed based on their potential impact.	20%
Precedent	cartoons should be retained or removed based on previous decisions or the consequences of previous, analogous situations.	18%
Relevance	cartoons should be retained or removed based on their relevance to the article	18%
Wikipedia's Identity	cartoons should be retained or removed based on the stated or implied identity, mission or purpose of Wikipedia.	11%
Abstract Values	cartoons should be retained or removed based on some set of basic social values.	8%
Consensus	cartoons should be retained or removed based on editorial consensus.	8%
Policy	cartoons should be retained or removed based on the explicit policies of Wikipedia.	8%
Other	cartoons should be retained or removed based on a type of rhetorical appeal not classifiable according to this scheme.	4%
Legal	cartoons should be retained or removed based on specific legal considerations.	4%
Authority Figure	cartoons should be retained or removed based on the opinion or ruling of an authority figure.	1%

Figure 1a. (top) The Wikipedia article *Jyllands-Posten Muhammad Cartoon Controversy* in March 2009. **Figure 1b.** (bottom) A typology of rhetorical appeals used to analyze the editorial discussion, and their relative frequency.

priority they are assigned, whether they are universally held or contested, and the contexts in which they are brought to bear.

Alignment among participant values is necessary to assure that the system meets the needs of all stakeholders (i.e. readers/consumers, core participants, peripheral participants, and site owners). Values-Sensitive Design[2] has been shown to be an effective method for eliciting and identifying stakeholder values in similar system-design contexts. However, VSD has also been criticized[3] for applying external values categories rather than arriving at values categories inductively and for providing insufficient guidance for how to deploy empirical instruments to engage and identify local values.

We present our own methodology, Values-Based Appeals Analysis (VBAA), as a complement to VSD. We believe that VBAA, a theoretically-grounded empirical method for identifying stakeholder values in group decision-making scenarios, can provide a more nuanced understanding of the values-in-practice of online collaborating groups. We believe that VBAA can help designers identify motivating and de-motivating factors among participants, understand and address tensions and conflict, and design technology to more effectively support the work being done.

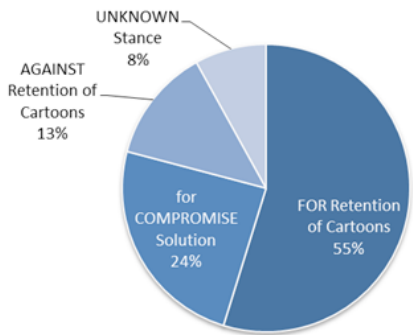
Values, Hierarchies and Controversies

A basic tenet of rhetorical theory holds that successful persuasion requires the speaker to craft arguments that appeal to values within an audience’s value set (those values that members personally ascribe to or acknowledge as valid), focusing on the values that the audience members view as most salient to the current circumstances. This concept, *values hierarchies*[6] is similar to Abraham Maslow’s “Hierarchy of Human

Needs”. It provides a framework for understanding not only which values are in circulation, but the relative priority they are assigned, often unconsciously, in the minds of individuals and communities. Outside of rhetoric, the concept has been used by legal scholars to explain the influence of personal values on judicial decision-making, such as in cases where different jurists or judges have come to dramatically different legal decisions.

A members of a collaborative community will often find herself in the role of a persuasive speaker when arguing for the priority or legitimacy of particular goals, choices or courses of actions. This speaker’s ability to successfully align herself with shared social or organizational values—for instance, by using shared vocabulary or by appealing to shared ideals or experience—will be a key factor in her ability to persuade others to adopt her beliefs or follow her recommendation. These *rhetorical appeals* provide a valuable linguistic cue to participant values because while they take regular forms across communities and media, but are also locally situated and tied to specific socio-cultural and organizational values within a community.

Case Study. We developed VBAA over the course of a case study[4] of a collaborative decision-making context on Wikipedia: the editorial debate surrounding the inclusion of a set of culturally controversial cartoons in the Wikipedia article *Jyllands-Posten Muhammad Cartoon Controversy* (**Figure 1a**). This community discussion, which involved hundreds of participants and thousands of messages in dozens of threaded discussions, was oriented around the question of how to address the controversial images: *should they be prominently displayed in the article, or removed*



completely from Wikipedia, or was a broadly acceptable compromise solution possible?

Through an initial analysis of the arguments of debate participants on these questions, we developed a set of appeal types which were situated within the specific context but based on broadly recognized argument types developed by argumentation scholars (Figure 1b). Multiple coders applied this instrument to the entire discussion log, identifying which messages contained appeals, as well as each message author's stance in the debate (Figure 2a). We found that while editors on different sides of this debate employed the same basic set of rhetorical appeals, the frequency with which different appeals were used varied according to both the author's stance in the debate and their centrality within the community. Representing the relative appeal frequencies of each side as distinct values hierarchies (Figure 2b) revealed a fundamental values tension: some participants prioritized particular community values (such as Wikipedia's mission statement, or the site's many user-generated content policies and core ideals), while others appealed more frequently to broader sociocultural values, such as cultural sensitivity and inclusivity, human decency, and readers' expectations, to argue their case. Even among universally recognized local values, we found fundamental disagreements over which of those values should take precedence in this circumstance.

Our analysis also exposed tensions between the values that the Wikipedia community articulates publically and the values in practice of the community, and how the values embedded in the technology and community norms can be used strategically to block participation by members who hold minority values[5].

Figures 2a. (Top) The debate stance expressed in posts which contained appeals. **Figure 2b.** (Bottom) Values hierarchies of participants on different sides of the debate.

Position	For Inclusion (FOR)	Against Inclusion (AG)	For Compromise (COM)
1	Relevance	Impact	Impact
2	Precedent	Precedent	Precedent
3	Wikipedia's Identity	Abstract Values	Relevance
4	Impact	Relevance	Wikipedia's Identity

Advantages of VBAA

We acknowledge that VBAA must be applied beyond a single case study in order to further assess its utility as a method for surfacing values in other contexts. However, several features of VBAA suggest potential for broader applicability.

Categories are theoretically-based, but sensitive to context. Categories in our case study were closely tied to explicit ideological reference points of the editorial community such as Wikipedia's official policies, its mission statement, and the logs of previous editorial discussions. However, the structure of appeals is based on common categories described in the argumentation literature (such as appeals to *authority*, *precedents* or *consequences*), which occur across a wide variety of contexts. A VBAA analysis therefore allows for the particular argument types that are prevalent in a particular discussion to be identified according to existing categories but also expressed in the participants' own terms (for instance, an appeal to the community's Founder as an authority vs. an appeal to the authority of an external legal entity such as the U.S. Supreme Court).

Appeals can be counted and ranked. Appeals can be treated as quantitative data, allowing for interval rankings of values within the community, as well as statistical analysis of variance in the priority of particular values among groups. The degree to which a particular topic (for instance, a discussion thread) is "values-laden" or evokes values conflict can also be represented visually. (Figure 3a)

Appeals are connected to user roles and goals. VBAA captures a participant's position on the issue under discussion as well as the arguments they use to justify that position, allowing for the creation of bi-

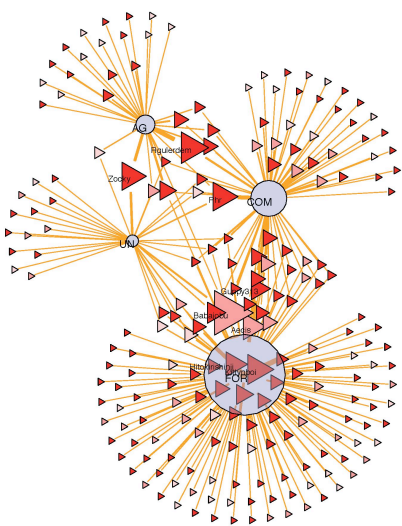
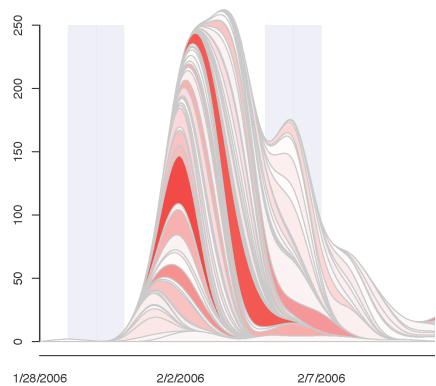


Figure 3a. (Top) Visualization of threads over time, representing appeal density. Red indicates a high proportion of posts that contain appeals. **Figure 3b.** (Bottom) Bipartite network showing relationship between discussion participants (triangles) and stances (circles).

partite network diagrams to visualize participant/participant and participant/stance relationships (**Figure 3b**). Other individual characteristics (such as a participant's official role within the community) can also be included in the representations, allowing social phenomena such as power dynamics to be visualized.

Challenges

Translating appeals to values. In VBAA, the interpretive task of linking particular appeals to organizational or broad social values is performed by the researcher. This leaves open possibility of values categorizations that the participants themselves would not relate to. VBAA may also not be equally useful for identifying values that are not generally appealed to in a decision-making context such as personal autonomy.

Generalizability. Although related work[1] has demonstrated that it is feasible to reliably classify similar discursive phenomena across a variety of Wikipedia discussions as well as other social media[8], we do not know how well VBAA will translate to other online environments. The phenomena that can be measured using VBAA may more difficult to identify in contexts where there are few attempts to persuade, or where there is not an explicit focus on decision-making.

Future Work

In addition to performing additional log-based analyses, we would like to explore whether VBAA could be used for formative, rather than retrospective, studies. Related work on requirements engineering methods[7] points to the importance of identifying potential conflicts among stakeholders in groupware design. VBAA's focus on quantifying and ranking participant values could make it easier to assign relative priority to different values during the RE. For instance, a VBAA

analysis could be applied to the transcripts of discussions in which members of a focus group were prompted to brainstorm solutions to potential design problems couched in realistic scenarios of use.

References

- [1] Bender, E. M., Morgan, J. T., Oxley, M., Zachry, M., Hutchinson, B., Marin, A., Zhang, B., et al. (2011). Annotating Social Acts: Authority Claims and Alignment Moves in Wikipedia Talk Pages. Proc. 1st Annual Workshop on Language in Social Media (LSM 2011) (pp. 48-57). Portland, Oregon.
- [2] B. Friedman, P. H. K. Jr., and A. Borning. Value Sensitive Design and Information Systems. In Human-Computer Interaction in Management Information Systems: Foundations, chapter 16. M.E. Sharpe, Inc, 2006.
- [3] Le Dantec, C. A., Poole, E. S., & Wyche, S. P. (2009). Values as lived experience: Evolving value sensitive design in support of value discovery. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '09)*, Boston, MA.
- [4] Morgan, J. T., Mason, R. M., & Nahon, K. (2011). Lifting the veil: The expression of values in online communities. *Proceedings of the 2011 iConference*, Seattle, WA.
- [5] Morgan, J. T., Mason, R. M., Nahon, K. (2012) Negotiating Cultural Values in Social Media: A Case Study from Wikipedia. (2012) HICSS 45: 45th Hawaiian International Conference on System Sciences, 2012, Hawaii.
- [6] Perelman, C., & Olbrechts-Tyteca, L. (1969). *The new rhetoric*: University of Notre Dame Press Notre Dame, Ind.
- [7] Sutcliffe, A. (2011). Analysing social computing requirements with small group theory. 2011 First International Workshop on Requirements Engineering for Social Computing.
- [8] Templeton, T. C., & Fleischmann, K. R. (2011). Classifying Values in Informal Communication: Adapting the Meta-Inventory of Human Values for Tweets. ASIS&T Proc. 74th Annual Meeting, New Orleans, LA.