Growing a Global Issue Base:
An Issue-based Approach to Policy Deliberation

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Abstract

Current mechanisms for public policy deliberation are failing to cope with overwhelming amounts of information and legitimate, competing interpretations. Online discourse around complex and controversial topics supports neither broad participation nor deep exploration of the issues, options and arguments. Contributions to public deliberation in the popular media, such as speeches, debates, blogs, and op-ed pieces, tend to articulate a particular point of view, simplifying the counterarguments. We urgently need approaches that are designed from the start to illuminate the nature of disagreements, to broaden public understanding of complex debates, make it easier for stakeholders to contribute productively, and to provide analysts and decision makers with cognitive support. Building on two decades of work facilitating small scale, face-to-face deliberation over wicked problems using the IBIS language, this paper proposes that the essence of the approach, augmented by recent technical advances, could scale to support global, online deliberation. A semi-structured discourse scheme like IBIS, delivered via visual web tools, provides a powerful grammar for distilling and inter-connecting speeches, blogs, and other contributions. Just as Wikipedia and related tools have become the world's repository of consensual knowledge (representing the state of agreement), it is within reach to create robust representations of the knowledge in live controversies (the state of disagreement).

Introduction: The Limits of Unstructured Policy Deliberation

Current mechanisms for public policy deliberation are failing to cope with overwhelming amounts of information and legitimate, competing interpretations. Online discourse around complex and controversial topics supports neither broad participation nor deep exploration of the issues, options and arguments. Contributions to public deliberation in the popular media, such as speeches, debates, blogs, and op-ed pieces, tend to articulate one point of view and to oversimplify complex and controversial issues for the sake of ease of understanding or persuasion. More learned contributions invariably take the form of large prose documents with dense narratives, which are hard to critique—except through additional large documents.

Debate. The essence of persuasive debate, such as dominates on-line discussion spaces and email groups, is the exchange of arguments meant to establish the truth or plausibility of one position against another, normally mutually exclusive position, such as "Global warming is a real phenomenon with human causes" versus "Global warming is a hoax", or the truth or falsity of a single proposition, such as "Global temperature is increasing."

Done well, debate is an excellent mechanism for surfacing a lot of information quickly and energetically. Debates are relatively easy to follow, and at their best they elicit excitement, commitment, inspiration, and passion. However, debate (especially formal debate) is a win-lose language game that exploits the emotionally powerful logic of polarization: win-lose, right-wrong, good-bad, us versus them, fight-flight, etc. Debate focuses on a single question (or a single proposition), so it greatly oversimplifies the issues,

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and explores only a small subset of the issue space. However, complex problems rarely make sense as a binary choice between two options, and such simplifications often hobble efforts to craft effective policy.

What is needed is a framework that *augments* our collective intelligence (Engelbart, 1963), giving us the capacity to include the full range of stakeholders and perspectives, and to embrace the complexity of disagreement and controversy, rather than simplifying it away. Wicked problems (Rittel & Webber, 1973) have no fixed or stable problem definition, so stakeholders often do not even agree on what the relevant and important *questions* are, much less what the solution is. We urgently need approaches that are designed from the start to illuminate the nature of disagreements, to broaden public understanding of complex debates, make it easier for stakeholders to contribute productively, and to provide analysts and decision makers with cognitive support for exploring the full complexity of the situation. This paper proposes a research program for construction of an issue-based hypermedia system for the deep structure[2] of the issues, positions, and data on wicked problems such as global warming.

To be used and useful, such a system will need to make contact with existing forms of policy deliberation, such as speeches and debate. It must build on the strengths of such documents, reflecting the information and insight that they offer. And it must transcend their limitations by locating the document's information in the larger deliberation space, and by revealing connections to other points of view, conflicting information, counter arguments, and alternative interpretations.

The Promise of IBIS and Dialogue Mapping

Imagine a group of architects working on the design and layout of a building complex without any drawings, diagrams, sketches, or other visual aids, just talking to each other, perhaps using hand gestures to represent complex spatial relationships. It would seem very inefficient and ineffective, good material for a Monty Python skit. Architecture would still be a very primitive science without drawings and pictures, and the shared display of architectural diagrams is essential for architectural collaboration.

Now imagine a policy deliberation meeting of subject matter experts working on a proposal for dealing with communicable diseases in sub-Saharan Africa, but instead of engaging in speeches, presentations, and debates, they are looking at and intensely interacting with a wall-sized hypermedia display that contains a zoomable virtual map of the policy landscape. As they speculate about interactions between proposals or new ways to engage disenfranchised stakeholders the map grows with new nodes and links. Occasionally they examine alternative views that help the group understand the implications of the connections they are making.

Far from being a new idea, this builds on what Doug Engelbart, in his seminal paper, *A Conceptual Framework for the Augmentation of Man's Intellect*, (1963) described as a concept structure for augmenting the ability of individuals and groups to deal with abstract complexity. Seven years later Horst Rittel and colleagues proposed a concept structure "meant to support coordination and planning of political decision processes": an argumentation system called *IBIS* (Issue Based Information System) (Kunz & Rittel, 1970).

Over many years of application across all sectors, our experience is that IBIS provides an elegant combination of three simple, familiar elements – questions, ideas (possible answers), and arguments (pros and cons) – which can be combined to represent and organize arguments of any size on issues of any complexity. At the heart of our work has been an evolving language to articulate what makes *effective*

[2] The term "deep structure" is borrowed from linguistics, where the term is used to indicate the meaning or logic of a sentence, as distinct from the words and syntax, which are indicated by the surface structure.

Dialogue and Issue mapping, central to which is the art of framing open, generative questions. With insightful questions as the building blocks one can craft a network of related questions (each with its own ideas and arguments) that grows in any direction needed to accommodate the concerns of the stakeholders.

A simple scenario of the process of growing IBIS maps. Imagine a group of climate and policy experts assembled by the UN to discuss and map out the issue of dealing with global warming. The root question in the issue map is "What should we do to stop global warming?" The group has agreed that all efforts must focus on keeping atmospheric CO2 levels below 450 ppm, and they are exploring high-level approaches to achieving this goal (see Figure 1). A participant who has been quiet so far says, "Both of those courses will be ruinous to the global economy. Besides, we don't even know if there *is* global warming!" Other participants start objecting, but the dialogue mapper intervenes and asks the group to consider expanding the map to include this new concern. First the mapper adds the objecting economic argument to the right side of the map, then the mapper proposes to the group a new question on the left side of the map[3], and asks the group how they would like to address the "No" position (see Figure 2).

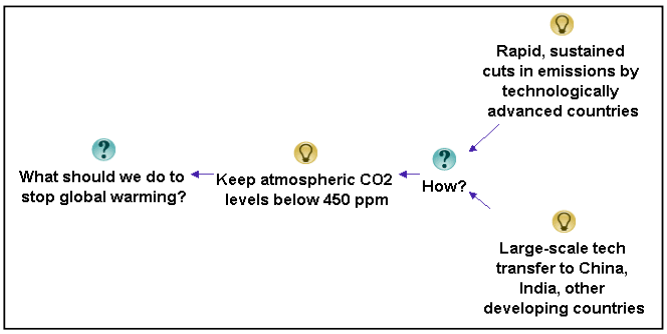

Figure 1

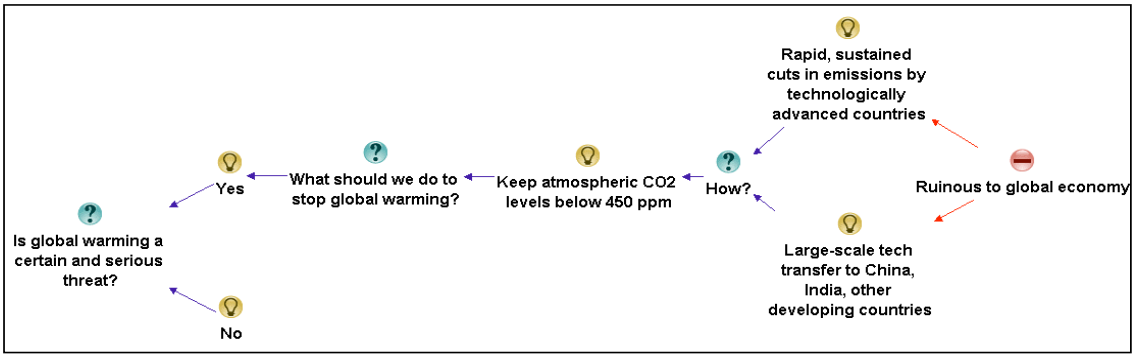

Figure 2

This very brief example illustrates both a simple IBIS structure and the dialogue mapping process by which IBIS maps are constructed[4]. Debate about a position gets mapped as pros and cons to the idea; disagreement about the validity of a claim gets mapped as a challenging question, e.g. "Is this true?" or "What is known about this claim?". Differences in values, interests, or objectives get mapped via corresponding questions, e.g. "What are our interests in this issue?". Thus the map grows primarily by the introduction of new *questions* by the mapper to create coherent structure for new positions and concerns as they arise.

While an IBIS representation of a discussion is clearly not objective or neutral a priori, those who have participated in the construction process, and in the negotiation of its elements and their meaning, are

[3] Referred to dialogue mapping as a "Left Hand Move". This example blurs the distinction between issue mapping, a process for constructing *great maps*, and dialogue mapping, a process for having a *great dialogue*.

[4] A larger and more complete illustration can be found at http://www.cognexus.org/maps/carbon/top.html

usually willing to accept it as a neutral, transitional representation of the state of their understanding of an issue, since it includes all positions that have surfaced thus far. Conducting a debate in which verbal rhetoric is translated into IBIS does not necessarily lead more rapidly to agreement in negotiations, but rather to clarity about the precise nature of the disagreement. Often this opens the door to creating new choices beyond the win/lose frame of the debate.

Despite concerns over the years that IBIS is too simple and limited on the one hand (leading to many proposed extensions, eg.. Dutoit, *et al.* 2006), or too hard to use on the other (e.g. Marshall & Shipman, 1999), there is a growing international community who are fluent enough in IBIS to facilitate and capture highly contentious debates using dialogue mapping, primarily in corporate and educational environments. The author has made a career teaching and writing about the use of IBIS in critical thinking and facilitation (Conklin, 2006). There are several very good tools available for IBIS issue mapping, such as *Compendium* (http://compendium.open.ac.uk/institute), *Debategraph* (https://debategraph.org), *Climate Collaboratorium* (http://cci.mit.edu/research/climate.html), and *bCisive* (http://bcisive.austhink.com), and there are more in development (Buckingham Shum, 2008). Thus a semi-structured discourse scheme like IBIS, delivered via visual web tools, provides a grammar for distilling and inter-connecting speeches, blogs, and other contributions.

Proposal: Begin Building a Global Issue Base and Sociotechnical Infrastructure

Building on two decades of work facilitating small scale, face-to-face deliberation over wicked problems using the IBIS language, this paper proposes that the essence of the mapping approach, augmented by recent technical advances, could eventually scale to support global, online deliberation. The system will need to deal with two main kinds of inputs, documents (including multimedia recordings) and living conversations (including on-line interactions). The development approach will need to be an incremental evolution from smaller groups and more focused scope to ever more diverse stakeholders and wider scope.

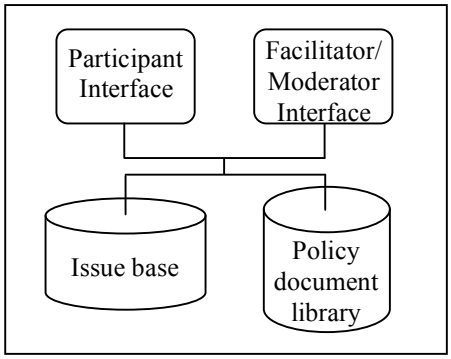

Figure 3: Notional

Natural steps along the way include: (i) selecting a complex problem, e.g. global warming; (ii) identifying the most popular and most frequently cited articles, papers, blogs and websites on the issue; (iii) mapping these reference materials into IBIS to create a seedling issue base; (iv) holding issue mapping sessions with recognized thought leaders in the field to flesh out the issue base, while (v) creating and evaluating system interfaces, ranging from those optimizing ease of use for newcomers to power tools for editors, facilitators, and moderators (see Figure 3); (vi) opening the system to limited beta test groups to experiment with mechanisms for managing coherent growth of the issue base, reference library, and the linkages between them, (vii) opening the system to larger communities and eventually to everyone.

With limited resources it will be necessary to make choices about the initial scope of focus. Broadly speaking, the process could work bottom up, starting by mapping an issue at a regional level (e.g. the current debate about the implementation of AB32, California's greenhouse gas reduction law) and then abstracting that issue base upwards to higher (e.g. national and global) levels. Or one could start by representing the issues at the global level and then work out ways to instantiate them at progressively more local levels.

Since wicked problems are only loosely bounded, the scope of issues and topics covered in the issue base will inevitably grow to cover the whole global policy landscape, including energy, pollution, hunger/food, infectious disease, poverty/economic development, terrorism, and so on.

Open Challenges. There are a variety of challenges to making such a system both operational and trusted.

1. Is IBIS alone a rich enough ontology? Although the author's experience suggests being conservative about expanding from the IBIS question-idea-argument trilogy, expanded hypermedia discourse ontologies (see for example Buckingham Shum, 2007) may offer needed expressive power.

2. How to establish and maintain trust? As with any representation that seeks neutrality there will be a tension about the validity of the issue base: the system will need mechanisms for minimizing bias (assuring that all points of view are represented) as well as mechanisms for managing noise (e.g. information overload) and sabotage (e.g. gaming of the system by disingenuous participants).[5]

3. How can we make the issue-based representation as easy to read and understand as possible for newcomers? Since argumentation structures "atomize" a document into its component elements, a hypermedia issue base lacks the narrative flow of traditional linear media. User acceptance of the system may depend on methods for establishing the accuracy and completeness of a document's projection into the issue base. For example, specialized browsers that link documents to issue structure might resemble current qualitative tools for transcript analysis that support viewing and navigating policy documents and issue maps side-by-side. Figure 4 shows a mock-up of a system that would allow the user to examine an article (on the left) and its linkage to an issue map (on the right).

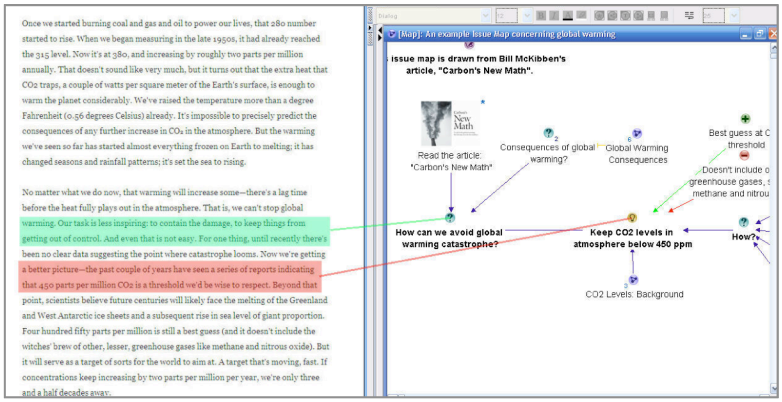

Figure 4: Example viewer showing links between textual regions and an IBIS map

4. How much skilled moderation and editing will be needed as the system evolves toward a "self-organizing" online community a la Wikipedia? Maintaining hygiene and coherence in a large hypermedia corpus is hard work, and there are many subtleties in the application of argumentation structure. While a core group (which is open to anyone demonstrating suitable skills and track record) will be needed to prune, edit, link, tag, and restructure the issue maps, there is empirical evidence that an issue-based system can be designed to be self-organizing (Klein & Iandoli, 2008).

5. Are there showstopper issues about the system's implementation that cause stakeholders to feel that their perspective *cannot* be represented within the system, and how can we address these barriers? For example, some parties may feel that the very goal of a comprehensive issue base violates their principles or values.

[5] Note that, unlike Wikipedia, it is *not* essential for the foreground content to be true or accurate, because the framework of argumentation explicitly foregrounds open deliberation about status and validity.

Conclusion

While we routinely live and work in buildings without needing any engineering knowledge to get along, in order to repair or expand them one needs to know the concealed structures of load bearing walls, electrical wiring, plumbing, etc. Given the urgency of the need for more effective policy design concerning global issues, it is time to see if it is possible to develop structures and mechanisms for getting at the wiring diagram – the deep structure – of policy deliberation. Just as Wikipedia and related sites have become the world's repository of consensual knowledge – representing the state of agreement – it is within reach to capture and represent the knowledge in *live controversies* – the state of disagreement.

The immediate goal of launching such a global issue mapping effort would be research leading to new ways to augment collective intelligence and create shared understanding among diverse stakeholders in complex issues. This is the way dialogue mapping (Conklin, 2006) works with small groups in synchronous meetings. In this paper I've suggested how its principles can be made to scale over time and space, to provide a resource of global scale and utility.

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