Myelin Repair Foundation Game Analysis, Part 1

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Background

Our interests lie in the problem space defined by the need to collect a plurality of conversations about topics that matter. These conversations may be research oriented, as for instance, understanding the nature of climate change, or decision oriented, as for instance, deciding what to do about climate change. When one collects a plurality of such conversations, one is faced with the issue known as *infoglut*, enormous quantities of information resources, some of which are useless, some, perhaps many of which are redundant, and some of which are the gems we seek. In this report, we sketch a single analysis of one component of a plurality of conversations, all about one topic that matters. That one component is precisely one aspect of the way in which the conversation is conducted. In this case, the conversations are structured into individual commentary components: questions, answers, and arguments. Those conversations are conducted in a game-like environment, where participants are *avatars* (either a created identity, or a real one). As we shall see, we are interested in two key aspects of game play: what is stated in each game move, and how it is stated. We shall ask this question: can we evolve and maintain a collection of *best practices*, be they heuristics or patterns, for the conduct of structured conversations that matter?

The background story on the game is this: the Myelin Repair Foundation (MRF)[1] teamed with Justine Lam[2] and The Institute for the Future (IFTF)[3] , funded by the Robert Wood Johnson Foundation's Pioneer Fund[4] to host a game with this title:

> How would you advise the President to reinvent the process of medical discovery?

That title turned out to be the *opening question* in a structured conversation game, which we label the *MRF Game*. We set out to analyze just one branch of the game tree base on our *opening game move*, one of many responses to the question. In a future project, we intend to analyze the entire game, all game moves. In this discussion, we use the term *Issue-based Information Systems* (IBIS) (Rittel & Webber, 1973; Conklin et al., 2003; Conklin, 2005). IBIS was created to provide a conversational means by which solutions to complex, sometimes *wicked* problems can be found. Wicked problems are those for which the situational complexity is so great that sometime the right questions to ask are not yet known. Modern implementations of IBIS employ conversation structure, as we shall see, and provide a

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[1] MRF: http://www.myelinrepair.org/
[2] Justine Lam: http://www.justineblam.com/
[3] IFTF: http://iftf.org/
[4] Pioneer Fund: http://www.rwjf.org/pioneer/

shared view of the unfolding conversation to provide all participants with an opportunity to review where the conversation has been, and decide where it needs to go.

To set the context for this analysis, and to establish a vernacular, we copy a section of our thesis proposal (Park, 2010):

> Let us make two important distinctions. The first distinction is that our research is constrained to the *structured* world of Issue-based Information Systems (IBIS) conversations, where heterogeneity derives from syntactic and semantic aspects of those conversations—a term we use synonymously with *dialogue map* (Conklin, 2005) and *issue map* (Conklin, 2008a) and which can be thought to include the term *argument map* (Twardy, 2004). We define an IBIS conversation as a structured collection of questions, answers, and arguments all elicited in relation to a particular context; such a conversation can exist as the collected thoughts of an individual, those elicited from multiple individuals collaboratively creating an IBIS graph structure, or those created by an individual engaged in facilitating a group conversation.
>
> The second distinction lies among different conversation types. Let us distinguish between *conversations that matter* (Brown & Isaacs, 2005) and general social conversations. Ann Jaloba (2009), speaking of conversations in online breast cancer forums, suggests that the *nature of interactions on such forums may suggest that the best model may be one where interaction is structured by topics and information and interaction is mediated through topical hierarchies*. She explained her findings:
>> "I looked at how often, and for how long people posted on this forum. Then I looked at the subjects of their posts. What I found suggests that, at least with the disease of breast cancer, people coming online to deal with a diagnosis of a serious illness are looking for a very specific form of help and social contact, very different from the patterns of contact which characterise social network sites."
>
> Since our investigation is *about* IBIS conversations in sensemaking, we will use instances of such conversations throughout this report; each is crafted using the Compendium[5] software tool for mapping IBIS structures.

We apply the term IBIS conversation to our analysis of one initial game move, which is illustrated in Figure 1. The entire image is available online[6]. This game tree reflects a conversation in which four players were engaged: Gardener (this author), Katie.Odett (who turns out to be Katie Odett Washington[7], who played her game cards as the MD PhD student that she is), Isotope, and Michael J. Pannel.

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[5] Compendium: http://compendium.open.ac.uk/

[6] Figure 2 online: http://people.kmi.open.ac.uk/jack/wp-content/uploads/2011/01/mrf-1.jpg

[7] Katie Odette Washington: http://www.katieodettewashington.com/Katie_Odette_Washington/Welcome.html

Figure 1: An Opening MRF Game Move and its Conversation

Our interest in this analysis relates to our thesis research, which is to discover and exploit ways in which multiple conversations can be *federated*, by which we mean *combined* into one conversation where that combination possible. Federating conversations means finding those conversations that respond to the same question. The MRF Game is a clear instance of multiple conversations responding to the same question. That is, each opening move (response to the question) constituted the root of a conversation tree that is a response to the same question. To describe federation of those conversations in the simplest terms, our task is to determine which opening moves offered the same response. Consider the following contrived example, shown as an indented outline, as are tree structures:

- Q: How would you advise the President to reinvent the process of medical discovery?
  - A: Search for ways to improve collaboration among researchers.
    - A: Reduce competition
  - A: More collaboration
    - A: Increase funding to researchers
  - A: Use nanobots
    - A: Increase funding to universities

The example shows two answers that are, on first examination, similar enough to warrant further analysis, and one response that is not at all similar. If we make the decision to perform a federation act on that tree, the result would look as follows:

- Q: How would you advise the President to reinvent the process of medical discovery?
  - A: Improve collaboration
    - A: Reduce competition
    - A: Increase funding to researchers
  - A: Use nanobots
    - A: Increase funding to universities

Implementation of federation processes might differ among platforms that perform the process, but one implementation as described in (Park, 2010) is that of a *virtual merge* which leaves both answers intact and creates a new answer that reflects what both offered, and links to each of the merged answers so that they can be examined. The end result is a large-scale view of the conversation tree that reduces navigation of redundant responses, whether those responses are questions, answers, or arguments.

Our analysis picks up on the nature of conversation responses, what the MRF Game called *cards*, which we typically refer to as nodes in a conversation tree. We analyze the way responses are stated. In some sense, we seek to gain a better understanding of how MRF Game moves were made, and then to evolve a set of heuristics for how they might best be made in order to support later federation processes. Our analysis here is simply one step in that process: how game moves are articulated in words.

Analysis

We pluck two nodes out of the conversation to study, Figure 2. These nodes were based on a transliteration of game moves into the Compendium platform; literally, we read each node from the MRF Game and re-create it in Compendium, taking a certain amount of license to change node types where indicated. That is because Compendium offers a richer set of nodes from which to re-structure the conversation tree without changing the contexts or meanings expressed in the original tree.
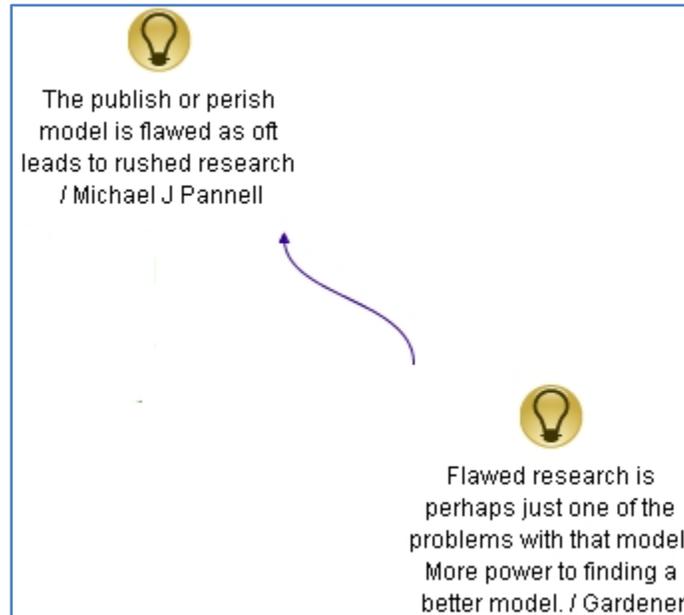

Figure 2: Two Conversation Nodes

Before we look closely at that game move, let us consider the *user experience* (UX) associated with the game, and contrast that with the UX associated with Compendium and similar platforms such as Debategraph[8].   The game platform provided by IFTF offers nodes as cards Figure 3.

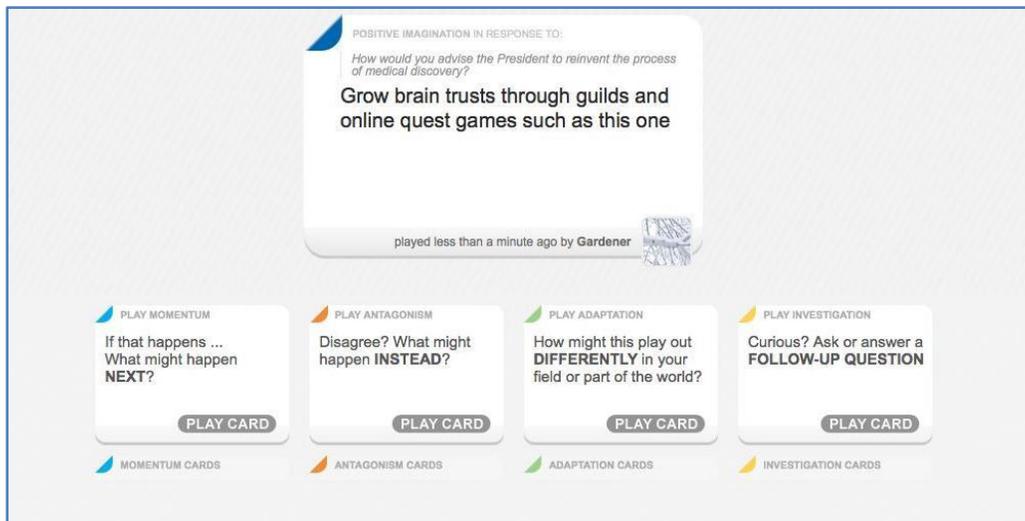[8] Debategraph: http://debategraph.org

Figure 3: The Foresight Game Card

Game cards consist of a text area where one's response is typed in, with a limited number of characters available. When one selects a game move for response, there are four possible game moves available as illustrated.

Compendium and Debategraph are similar at the level of providing a text area for response; Compendium allows up to 32,000 characters for response, while Debategraph restricts the response to 100 characters. Both Compendium and Debategraph offer an additional space, hidden from the response text area but available by clicking on the node, for additional information, *details* as they are called in Compendium.

Figure 2 includes a direct copy of the game move made by the author. It is comprised of two sentences. Let us illustrate that response together with the node to which it responds:

- A: The publish or perish model is flawed as oft leads to rushed research
    - A: Flawed research is perhaps just one of the problems with that model. More power to finding a better model.

Consider each node in isolation. The first answer offers both an idea and one aspect of its justification. It is really two assertions in the same node:

- The publish or perish model is flawed
- [The publish or perish model] oft leads to rushed research

From the *what is stated in each game move* perspective, that response node is explicitly two separate ideas in one node. Our intuitions suggest that conversations conducted in which multiple ideas are expressed in single nodes raise issues related to the analysis and federation of such conversations. The first issue we observe is this:

- How does one debate a particular node when there are two topics represented in that node?

For instance, we may wish to debate the assertion that *publish or perish is flawed*, or we may wish to debate that it *oft leads to rushed research*. We begin to see a preference for breaking up response nodes that express multiple ideas into individual nodes, one for each idea. If we take the second answer node and re-express it as two responses, Figure 4, we see that we have created a conversation sub-tree better suited to a more detailed conversation, affording more room for fine-grained debate or amplification.

Flawed research is perhaps just one of the problems with that model.
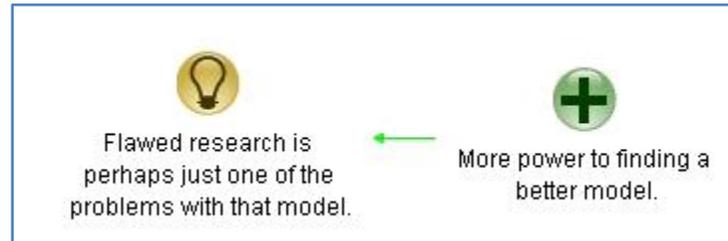
More power to finding a better model.

Figure 4: Restructured Response

Returning to our federation needs, we need to perform linguistic analysis on each node, transforming the assertions found into structures capable of being compared. When there are multiple ideas in each node, the problem is made more complex. The linguistic analysis we choose is that of sentence parsing into *triples* of the form `< subject, predicate, object >`. For many nodes, that's reasonably easy. For instance, a triple derived from "Flawed research is perhaps just one of the problems with that model", we rely on inferences based on textual entailment (Glickman, 2006) to derive this triple:

`< Flawed research, is problem with, publish or perish model >`

or its equivalent:

`< publish or perish model, has problem, flawed research >`

Federation processes, as we describe them, rely on the ability to create triples or related graph structures capable of being compared.

From the *how it is stated* perspective, we must consider each statement (assertion) itself. Consider the author's "More power to finding a better model". We believe that statement to be problematic along several dimensions, most importantly, our inability to see an obvious triple structure in it that suggests that it relates to the conversation expressed in that tree. It reads more like an *ad hoc* node that carries little information. On reflection, that is, were we playing the game again, we might consider a conversation tree that looks more like this:

- A: The publish or perish model is flawed as oft leads to rushed research
  - A: Flawed research is perhaps just one of the problems with that model
  - Q: Are there available options to the publish or perish model?

Conclusions

We believe that the purpose of each node in any conversation tree is to contribute to the subject of the node to which it responds. In that sense, each branch of a tree reads like an individual narrative, not unlike a story with optional directions of the narrative. Each node has the capability to change the subject—to branch to another subject—when correctly stated. Perhaps branching takes the form of a question, or perhaps an argument node that, itself, opens a new line of conversation.

We ask this question: can we evolve and maintain a collection of *best practices*, be they heuristics or patterns, for the conduct of structured conversations that matter? A complete answer to that question must evolve out of further research, and further structured conversation analysis, including future game play. For now, we offer the following heuristics[9]:

- One topic or idea per node. This means, if the idea is complex, state just its essence in a single assertion; expand on that assertion either in following nodes, or in *details* forms if available (as they are in Compendium and related platforms)
- Create statements that are as short as possible—using the least number of adjectives or adverbs, staying as close to the nouns and verbs appropriate to the statement
- Create statements that are capable of being parsed into triples as illustrated above
- Reduce the amount of textual entailment inference required to fill in the triple. This implies restating the subject or object if necessary

Restating our reasons for these heuristics, we return to our asserted need to collect a multitude of conversations that matter. This means, asking important questions, and engaging many different conversations—around the world, on global issues—in order to collect a sufficient number of responses that we raise the possibility of federating all world views as we move into decision processes that must account for the widest range of views. To conduct those conversations, we posit the need for structure, and for uniformity in terms of the ways in which responses are articulated.

We do not posit the need for a uniform vocabulary or ontology. In (Park, 2010; Park & Cheyer, 2005), we suggest that it is possible to conduct conversation federation using knowledge structures (topic maps) that, by their very nature, federate the different ways in which the same topics are named or described.

We view the MRF Game is an important demonstration of what we believe to be a turning point in the way civic conversations of the research or decision making kind can be conducted. We believe it is important to study the ways in which structured conversations in or outside game play are conducted. This analysis intends to be just the beginning of such a study. Part 2 of this work is planned to harvest the entire MRF Game and to expand on the nature of analysis and possible heuristics to be derived.

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[9] Heuristics: we do not claim originality in these heuristics; elements of each can be traced to many practitioners in this and related fields

Acknowledgments

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