

Probation Report Outline

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Abstract

This is an outline of my probation report (due in September). If the submission dates are right, I hope to be able to present a version of it at Wikimania to get feedback (the deadline for that submission is May 20). The outline describes several projects, and the agenda for expanding the outline is primarily to report on the way these projects go. It is based on the extended abstract of my work I submitted to the CRC student conference, now with more refined thinking.

1 INTRODUCTION

In order to give my project a narrative backbone, it's useful to say: is a project about how people make sense of things.

I've identified six major dimensions that I think describe sense-making pretty well. A survey of literature – pending – should back me up! At any rate, I can easily say a few words about how I came up with this outline now. I was looking for a set of dimensions that would sum up and motivate the various implementation projects I had in mind. The main content of this document describes a demo or prototype project in each of these dimensions that should show how each one works.

The remainder of my Ph. D. project will involve more explicit interconnections between the several dimensions; I'll say more about that towards the end of this report. Here I'll mention that this plan clearly relates to several other plans and documents I've been working on (the prospectus, my submission to the WikiSym doctoral symposium, and the book chapter we've started to work on for the book on OERs). This plan shouldn't supersede those plans, but should provide a new organization of material, sometimes with greater specificity. It should be taken as a "minimal outline of what I'd like to get done before September."

2 DYNAMIC MAPS TO ASSIST IN SENSEMAKING

2.1 PRAXIS

idea: "What are we doing?" is a question that can be answered not just with words, but also with higher dimensional things (maps and actions).

project: Make an etherpad-wide Recent Changes page.

how the project relates to the idea: a "live" Recent Changes would show people what is happening; it can subsequently be filtered to show only items that users have identified as interesting. This can help users establish explicit sharable practices.

2.2 CONTROL

idea: There are many different ways of dividing up a problem and coordinating dataflow in the midst of a dynamically changing space.

project: Read the 3rd manifesto book and related texts and situate Arxana/RDF relative to them.

how the project relates to the idea: The typical mode of the semantic web is to work with relationships that are not changing. Some projects do consider ontology evolution, but even so, fully dynamic knowledge representation seems to present novel challenges (e.g. how do we best represent changing relationships between objects that are themselves changing?). This project will attempt to understand what the foundations of data management theory have to say about this issue. This will be useful when working on problems that involve lots of change.

2.3 SIMPLIFICATION

idea: How can we bring the useful bits of information to the attention of the people who need to know about them, or link up different groups to facilitate productivity? (Notice that this has to do with understanding how resources are used, and how people might prefer to use them.)

project: Survey available mining and markup techniques to use on available data-sources and data-streams.

how the project relates to the idea: How do people decide what data to look at, or whom to talk to about which problems? Generally it relates to picking certain items or relationships out of a large collection of possibilities. There are many techniques for simplifying things in this way; I'm interested to see which ones relate to institutional practice, and to look at how this relates to existing algorithmic methods.

2.4 EXPERIMENT

idea: How can we put complicated things into terms that people can understand? Well, for one thing, people are familiar with the data of their experiences.

project: Create a PlanetComputing and use it to document its own underlying software.

how the project relates to the idea: Documentation in computer science is always a bit of a tricky issue – programmers don't always need extensive documentation for the code they're writing themselves (after all, they understand it well enough to write it). Rather, documentation tends to fulfill an educative or knowledge-transfering role for others. In fact, this points to an educative role for science in general: it's not just about building experiments to see what happens, but about documenting the results of experiments in a comprehensible, explanatory, way. Documentation is important, therefore, insofar as computing relates not just to producing code, but to producing knowledge. Documenting the tools people use to communicate and collaborate with one another seems particularly useful, since these activities are so foundational.

2.5 INTERCONNECTION

idea: What are the available or desirable interfaces for moving data between formats and tools?

project: Write proposal on how to use OMDoc with PlanetMath content.

how the project relates to the idea: In addition to saying what tools might be used together, we have to deal with the fact that users will often only be willing to do a tiny bit "extra", especially at first. So it seems that to get major uptake of semantic web ideas in general, we need "long levers". For this reason, I'm particularly interested in (semi-)automatic translations and transformations.

2.6 MOTIVATION

idea: How to detect what people want, and which way(s) things are going?

project 1: Use graph properties to cluster WordNet into 12 components.

project 2: Divide PMA content into 6 pieces.

how the projects relate to the idea: This section is made up of two small projects to divide a given data source into segments. Once that's accomplished, new pieces of data can be marked up according to which segment they belong to or are nearest to. This should start to give us a way to read the "tangents" of a piece of text.

3 WHAT'S COMING UP NEXT

My thesis now has a narrative orientation, and a small lexicon that will be useful for talking about my work in a way that should keep minds from swirling. The prospectus and work plan overview that I've already written give more of the big picture.

In the prospectus, I said:

(1) "I want to make context or landscape central, and examine the ways in which it constrains or supports different types of (inter-)actions."

And in the work summary, I asked:

(2) "Can we turn PlanetMath into a place where people can get a good education in math for free?"

In particular, I'm hoping that now with these ideas of sense-making in hand, I can approach the "context" in a way that will make sense out of that otherwise somewhat radical-sounding question!

4 CONCLUSION

This outline describes how to use "dynamic maps to assist in sensemaking", in a way that specifically should help develop the themes of "semantic adaptivity and social networking in personal learning environments". It connects with other things I've been working on, including the recent OER book chapter about "Crowdsourcing Education". Whereas that chapter focuses on a framework for planning and evaluation, this outline focuses on implementation ideas. Ideally, the two will meet in the middle!