Topic Maps
for
Polyscopic Structuring of
Information
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Outline

- Presentation of Polyscopic Modeling
- Thoughts on implementation by using Topic Maps
- Examples
Introduction

- Information Overload motivation for polycscopic structuring of information
- A parallel with early history of computer programming suggests the approach to handling information overload
- Similarity between information overload and software industry crisis is striking
The need for a Methodology

➲ Why do we need a methodology?
➲ We need to produce high level information
Bringing structure to Information

Hierarchy of scopes and views

The vertical dimension
Bringing structure to Information

- The horizontal dimension
- The scope determines the view
Bringing structure to Information

- Holistic information
Coherent Whole

➢ To tame complexity, modular, hierarchical, organization is needed
➢ Polyscopic presentation is hierarchical and modular
➢ The whole should be logially coherent and be made up by separate views
Polyscopic information structuring and navigation

- Polyscopic modeling methodology provides a framework for structuring information based upon the notion of scope
- Abstraction has proven to be the key to tackling the complexity of computer programming
- Polyscopic navigation is based upon the principle of “the scope determines the view”
The Perspective criterion states that information needs to allow us to see the described issue or phenomenon as a whole, in correct proportions, with nothing essential left obscure or hidden.
The Polyscopic Modeling Criteria

➲ The Nourishment Criterion draws due attention to subtle ways in which information influences our values, emotions, preferences, habits, etc.
The Relevance Criterion states that information must be prioritized according to the purpose that information needs to fulfill.
The Polyscopic Modeling Criteria

- The Foundation Criterion states that information must be reliable and verifiable (or proven).
Combining Topic Maps with polycopic structuring and navigation

The Topic Map data model is suitable for implementing the polycopically structured information.
Implementing the vertical abstraction

- Superclass / subclass, type / instance, part / whole, high-level / low level constructs
- Typing or Association where topics play high / low roles?
- Modules that contain gradually more detailed information. Low level modules should be able to play the role of high level modules for further low level information.
- Should occurrences be considered low-level topics themselves?
Implementing the horizontal abstraction

- Topic Maps map very well to the horizontal abstraction of polycrpic aspects
- Aspects would be computed on basis of scoped occurrences
- Topic Maps better than other markup since it gives possibility of leaving some of the abstraction to the syntax
Implementing the structural abstraction

- Polyscopic Document structure and navigation
- Most of the implementation would have to happen on the application layer
- High / low levels would have to be computed on basis of syntax
- Good navigational structures and ontologies needed to combat the GOTO problem
Do Topic Map authors use the TM data model to its fullest?

- Will the everyday user be able to use the TM data model efficiently?
- Users show problems in structuring content using the TM data model.
- Is there a need for a formalized TM polyscopic design pattern to help users design good information?
An Example

- Flexplearn, a prototype flexible e-Learning application
- Health map, a tentative example.
To remedy information overload, information structuring needs to be based on a methodology.

We need a way to produce information that is adapted to our changing needs.
Thanks for your attention!

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