

Multilayered paper prototyping for user concept modeling

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Problem statement

- This is a talk about how to get your user population to work with you.
- (Actually, this is just a bit of text on a Powerpoint slide. The talk is happening over there )



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Prerequisites for communication

- Required:
 - Common ground
 - The opportunity to meet
 - Something to talk about



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User-centred metadata?

- “User-centred design for metadata structures?”
- Is metadata about the user, really?
- Indirectly...



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User conceptual models

- A simple conceptual model describes user perceptions of how an object or system operates.
- Difficult to comprehend/reason about
 - abstract generalisations



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Caveat

An abstraction learnt in the absence of examples and scenarios may present specific difficulties in terms of evaluation - without provision of context of use, the tendency is to generalise on the basis of an abstract model

Exploration of a conceptual model is greatly facilitated by the existence of examples and scenarios of use.



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Conceptual model= domain/data model?

- Not necessarily; lots of simple conceptual models can/should overlay one data model
- Exploring the way people think about things in different contexts is just part of the puzzle



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Conceptual, logical, physical models

- Conceptual model – 'this is how I am thinking about it, right now...'
- Domain model – conceptual model, but the term usually implies a completed, decontextualised overview
- Logical model - representation of data in terms of a given technology ('this is how it looks, in Dublin Core')
- Physical model – database-level detail ('this is how it looks, in DC + utf8 + on a big-endian system + using our implementation over a mysql data store')



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Critiques of prototyping in the conceptual domain

- Hard to evaluate a model – you're likely to evaluate the interface by mistake
- Interface criticisms may not apply to logical model, poor interfaces will be detrimental to making a good evaluation
- Models are immune to criticism?



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If not through the user interface, then?

- Paper prototyping? Cardboard boxes? Molecular models?
- Just about any simple, easily usable surrogate can support some level of discussion
- Think of it as something to point at whilst you discuss...
- Aim: reduce load on working memory, facilitate chunking (ie. recoding information)



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User-centred design methods in Information Architecture

- Investigated several existing methods
- Ethnographic methods/contextual enquiry
- Free-listing
- Card sorting



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Ethnographic methods & contextual enquiry

- “researching human activity through study of user activity in context, observation, interview techniques and examination of related artifacts.”
- Powerful, reduces bias, deals well with the unexpected
- Time-consuming, expensive, results sometimes hard to quantify or apply to a design process
- Various specific methodologies/frameworks exist formalising this, such as contextual enquiry



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Free-listing

- Borrowed wholesale from cognitive anthropology
- Simple individual exercise: “Name all the X's you know”
- Similar to Rosch's well-known “listing things in the category X.”
- Result: quantitative data (term + frequency)



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A Quick Aside

- Vocab/ontology generation is a busy research area in general
- Many methods and approaches exist for identifying things/concepts/ideas, from unsupervised methods over existing datasets to crowdsourcing
- Lots of possible data sources



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Card sorting

- Common approach to eliciting information about site navigation, taxonomy design and menu structure
- Open card sorting: Sort cards into arbitrary groups.
- Closed: Sort into predefined groups
- Complex relations can also be represented with simple encoding schemes (adhesive coloured dots?) but a bit messy...



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Card sorting (2)

- Flexible: potential uses limited by imagination!
- Cheap
- Comparison between card sorting outcomes – quantitative data, diffs
- Can be used as basis for scenario-based testing



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Prototyping complex (multi-entity) data structures?

- Created a workspace for exploring multilevel relations
- Very simple (layered plastic sheets on card + OHP pens!)
- Create, erase, redraw...



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Method

- 1) Individual free-listing
- 2) Collation – joint term list (copied onto sticky notes...)
- 3) Collaborative work: Arranging sticky notes into groups (result: vague approximation of domain model)
- 4) Exploring the model (scenario-based testing)



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Why the links?

- Relations between entities/terms/'things'
- Named relations often proposed during discussion, especially through exploration of scenarios



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Analysis

- Potentially time-consuming, mitigated by setting constraints/ensuring clarity of assigned task
- Quantitative analysis of results possible
- Scenario-based exploration of model can be evaluated as a form of task analysis
- **Communication with participants during collaborative development of shared model**



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Cost

- Why bother with users?
- Data models are part of the user experience, for end-users and developers alike
- Getting it right will save money and improve uptake of standard
- Clarifying requirements -- reduce future costs
- Undiagnosed over-enthusiastic software engineering can overcomplicate simple problems



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Current work

- Reducing the cost of this approach
- Much of the time spent is in analysis of results
- Software-driven equivalent
- MRVoBI: Metadata Registry Vocabulary Building Interface
- Visual builder prototype – cheaper means to solve the same problem, enabling automated quantitative analysis



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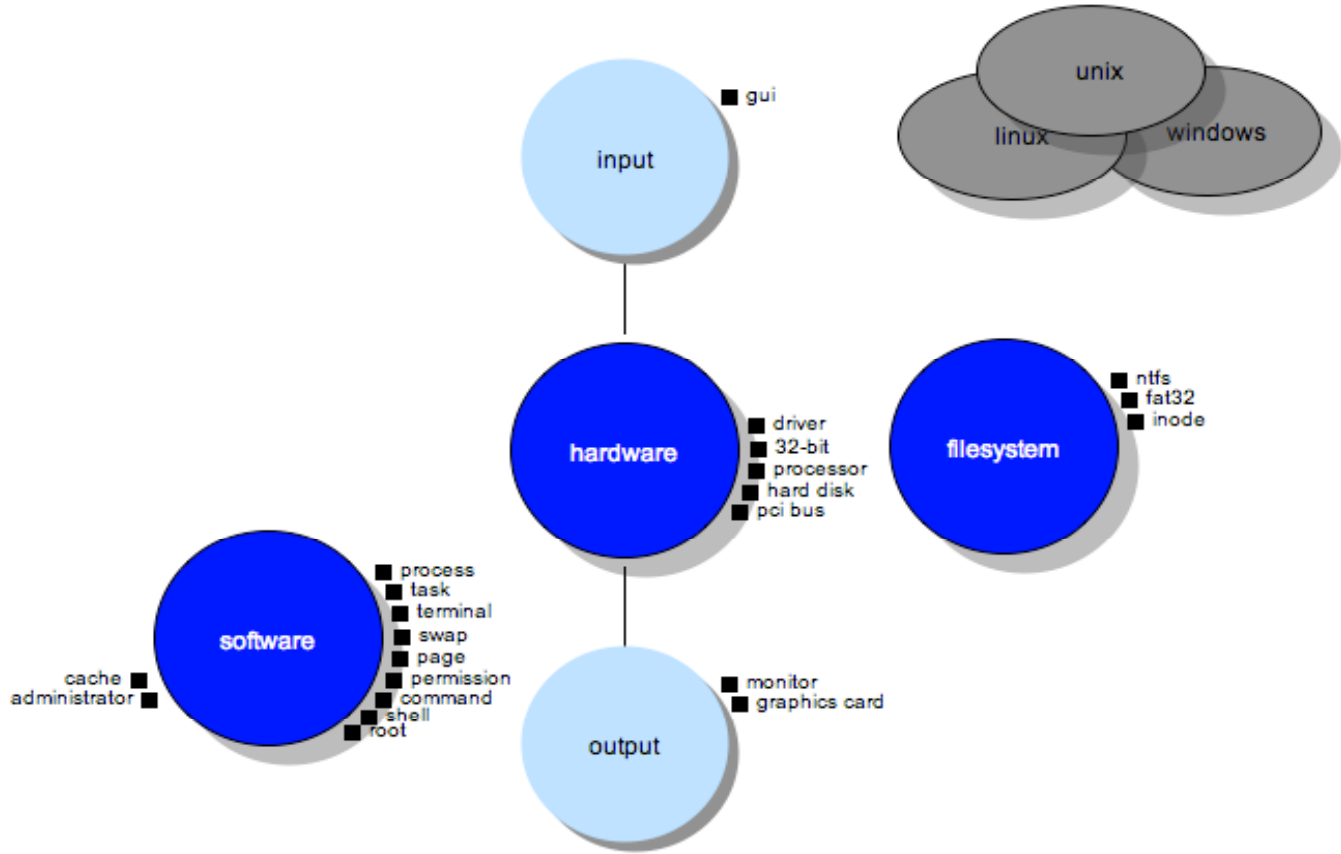
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Prototype interface



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Future work

- Linking with registry-backed vocab/AP development tools, such as IEMSR's AP creation tool
- Integrating this work into an agile AP development process, as discussed elsewhere...



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Questions?



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