

Not Another Project
The Guts: Formatting Model
The Border: Document Representations
Shiny Stuff: Visuals
The Brain: Styles

A Taxonomy of Automated Typesetting Systems

Joachim Schrod Christopher A. Rowley Christine Detig

EuroT_EX 2005 Pont-à-Mousson, France

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Vision

- Formal model of document formatting
- Emphasis on text typesetting
- Investigate and document, what is automated typesetting?
- Restore automated (high-quality) typesetting to be a vigorous topic of research and development

Why

- Counterpoint to the hype of hypertext
- There is more than online publishing
- Literature is old: hence no description of current systems
- Previous work is empirical: no systematic generalisation

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Strategy

What

- First steps—work in progress!
- Informal but precise description of existing document formats
- Focus on text typesetting
- Describe capabilities of formatters

What not

- Multimedia, multi-channel publishing
- Word processing
- Authoring environments, e.g., spell checkers
- Graphics manipulation
- Calligraphy
- Font design

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Short Term Goals

- Find a vocabulary
- Find categories
- Classify systems
- Find common ground for reasoning
- Discuss current and future system capabilities
- Built up some abstractions
- Present results independent of software artefacts

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Vision
Strategy
Tactics
High-Level Classification

Tactics

Don't describe and focus on the functionality of 7th sub-sub-menu of 3rd subsystem's dialog —
Intention of the creator is what counts!

- Identify underlying models
- Aim of classification demands decision criteria
- Find discriminators

Real Danger: How many angels can be on a 1sp rule?

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High-Level Classification

Input

Output

Document Representation

Graphics Integration

Formatting Model

Composition
Objects
Text & markup generation
Special area typesetting
Observer

Character / glyph representation
Font Models
Formatted document representation
Colour & Painting
Graphics Inclusion

User Interface Style
Style Sheets
Import of non-native documents

User Views
Multi-channel publication

Model

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The Guts: Formatting Model

Categories for formatting model

- Formatting objects
- Composition
- Pagination
- Micro-typography
- Text & markup generation
- Table typesetting
- Special purpose typesetting
- Observers

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Examples: Formatting Objects

“Lines” – New term needed
Abstraction: Sequence of characters along one direction

“Paragraphs” – There's more to a term
E.g.: T_EX with its simple paragraph abstraction cannot handle

- Medieval scripts (inline paragraphs separated by ¶)
- First fit (word-processor style paragraphs)

“Grids / Glue” – Intention of creator

- Systems can often be coerced to do both
- Creator had a clear intent—and we want to capture that
- Examples: QuarkXPress, T_EX

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Formatting Model Categories
Examples

Examples: Micro-Typography, Observers

Micro-typography: separation of concerns

- Punctuation
- Text input methods (alphabetic, syllabic, sinographemes)
- Segmentation (words, sub-words, ...)
- Of' forgotten: text symbols

Observers: missing abstractions

- Observers in current systems are not systematic, most are very limited — e.g., page number of current text position, but no line number
- Missing: object model, with an observer interface

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The Border: Document Representations

Categories for document representations
Interfaces to the outside:

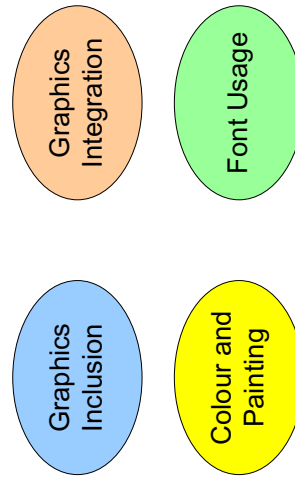
- User interface style
- Character / glyph representation
- User views of the document
- Representation of the formatted document
- Import of non-native material

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Overview
Graphics Integration

Shiny Stuff: Visuals

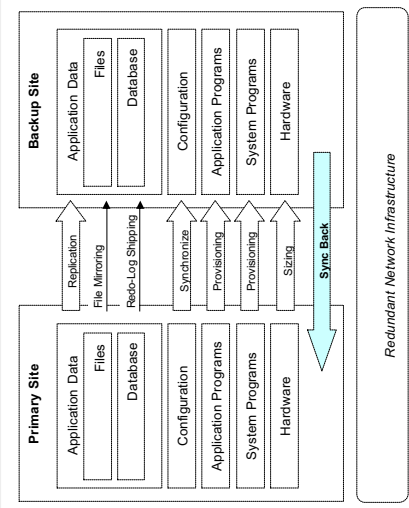


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Overview
Graphics Integration

Example: Problems with Graphics Integration



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Overview
Graphics Integration

Example: Text Flow and Graphics

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What have we learnt?

- Far bigger than Joachim thought!
- Far more interesting than Chris thought!
- Far less current literature than Christine thought!

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The Brain: Style Sheets

Design interface

- Vocabulary: what is a style sheet
- Integration: relation of style sheets to documents
- Examples: Word — L^AT_EX — XSLT/FOP

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What Have You Learnt?

Wrap Up

- Classification is possible and sensible
- Classification has many different facets
- More than one way to format a document
- More than one way to model the formatting of a document
- New names are needed for old ideas
- New ideas are needed for old names
- Clarification of vocabulary is important
- Much work needed on classification and formalisation
- Much work needed on investigating current systems

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