TOOLS FOR INTERCREATIVITY ON THE WEB

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Tools for Intercreativity on the Web

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Outline

1. Historical perspective
2. Intercreativity and authoring
3. Requirements for authoring tools
4. Amaya, W3C's testbed client
5. Conclusion

Initial goal of the Web

When created at CERN in 1990, the Web was intended to help people to cooperate

Cooperation:

- Editing web pages
- Making links to (remote) pages
- Posting web pages on servers

Deployment

The explosive growth of the Web was due to the availability of browsers (Mosaic)

A browser:

- A user–friendly tool to navigate the Web
- A passive tool to access remote information

User categories

Two separate categories of users:

- Information providers
- Information consumers

Every user should be able to read *and* write on the Web

Creativity on the Web

Creativity
Free expression,
organizing information,
solving problems,
building complex things
on the Web
with others,
without frontiers,
without constraints, global reuse

Intercreativity: building together in the Web

Current creativity on the Web

- Offline composition
- Uploading web sites
- Form filling
- Plain text email

Available authoring tools

Authoring tools are far behind browsers

- They are not user–friendly
- They produce poor documents

Authoring and publishing Web documents is much more painful than browsing

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Authoring documents for the Web

Methods:

- Filters: Word processor format –> HTML
  Not all Web features are available (links)
- Writing HTML ''by hand''
  An error–prone process
- HTML aware editors
  Available tools are still in the infancy

To author an HTML document, use an HTML tool

HTML aware editors

HTML is a syntax for representing the logical structure of documents

- Editing Web documents = manipulating a logical structure

The HTML structure is defined by a SGML DTD

- A Web editor should follow the HTML DTD

Requirements: structure

Regarding document structure, an authoring tool should:

- Accept invalid documents coming from the Web
- Automatically transform invalid documents into valid documents
- Help users to produce valid documents
- Be easy to use, with a direct manipulation style of interface
- Present an unconstrained user interface

Requirements: links

Links are first class citizens in the Web

An authoring tool should

- Provide specific commands to handle links:
  - Create, update, copy & paste
- Update URLs when saving documents
  - Relative links

Requirements: communication

Documents and links should be manipulated directly on the Web

An authoring tool should provide remote access:

- browsing the Web:
  - Copy and paste
  - Cite, comment, discuss
  - Make links
- publishing on remote servers, using HTTP/POST

Authoring for the Web

The Web is not only HTML+HTTP+URL's

Web documents may use:

- Other structures:
  - XML
  - MathML
- Style: CSS
- Filtering: PICS
- Active functions: DOM

An authoring tool should support these features

Amaya: a Web authoring tool

Amaya is a testbed client to experiment and demonstrate new specifications for the Web

Amaya is both

- an authoring tool
- a Web browser

Amaya is based on a structured approach to Web documents

Protocols and formats

Amaya implements

- **HTML 3.2**, plus some features from **HTML 4.0**
  lang, object, table
- **PNG** and other graphics formats
- **CSS 1**: browsing and authoring
- **MathML**: embedded mathematical expressions
- **HTTP 1.1**: browsing, forms, publishing

Approach to HTML documents

HTML is considered as a data structure definition language

- a document is represented internally as a decorated tree

A direct manipulation user interface

- Amaya handles the document structure for the user

Formatting is based on the document structure

- formatting properties specify document appearance

A flexible HTML parser

Coping with invalid structures

- Parse documents independently of the HTML DTD

- Transform invalid documents by
  - creating missing elements,
  - moving misplaced elements,
  - adding mandatory attributes, etc.

User interface – Views

A formatted representation of a document does not show all details of its structure

Additional *views* may be used to display and edit documents:

- Logical structure
- Alternate view (for text only browsers)
- All hypertext links (A, LINK)
- Table of Contents (Headings)
- MathML structure (mathematical expressions)

User interface – CSS

Style is entered in the usual way by direct manipulation

The style of a single element is used as a model to specify a **class**

Classes may be associated with any element

Advanced features

- Structure transformation
  e.g. change a table into nested lists
- Multi–lingual spell checker
  Change dictionary according to the LANG attribute

- Section numbering
  Number headers according to their type and position
- Assembling document collections
  Replace a typed link by its target document (transclusion)

Publishing documents on the Web

Publishing documents on the Web is as simple as saving documents locally

- Resources are written remotely by the HTTP Put method
- URLs are updated according to the document address
- Images are saved with the document

Other needs

On-line authoring tools are not enough for intercreativity

- Access control
- Version control
- Notification of change
- Collaborative editing

Conclusion

The Web is not only an information space browsed by passive users

The Web can also support intercreativity

New tools are needed

DISCUSSION

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Lecture Two

During the talk, Professor Randell pointed out that although the Web helped a lot of people in publishing information and making it available to others, there are users who do not require tools with authoring capabilities. Another issue raised by Dr Coleman is the inability of many HTML editors, currently used, to produce not only valid but also well-structured HTML documents. In another instant of the presentation, members of the audience extended this observation to WYSIWYG editors.

Professor Randell indicated that many of the tools for producing HTML documents try to solve their problems by introducing more complicated structures, not always conforming to the HTML standard. He continued by suggesting that an authoring tool should not only help users create HTML documents but also make sure that the produced documents are valid (i.e. that they conform to the HTML standard).

Dr Quint, in response to Professor Randell's question, mentioned that Amaya (the tool the W3 consortium is experimenting on) respects the content and appearance of the user's documents when manipulating the DTD elements (trying to correct the HTML tags). Dr Quint continued by saying that the Amaya Web authoring tool does not support manipulation of links on a collection of documents yet.

Following the conclusion of Dr Quint's presentation, Dr Larcombe suggested that the notion of 'intention to change' notification could be implemented in a collaborative web authoring environment. A document could be submitted for consideration and then either be published on the WWW or rejected. Dr Anderson briefly presented his experience with collaborative medical-related web authoring environments. He suggested that when critical information is presented on Web pages, the issue of maintaining valid links between documents is crucial.

Professor Farber referred to the number of features being added to protocols and tools. He suggested that after a short period of time, the great number of features would make them unusable. Finally, the discussion ended with a comment by Professor Kopetz who suggested that the Web requires a 'life-time' indication for pages, which will be considered to be 'out-of-date' their life-time expires and then removed.