



Web Standards & the Browser Wars

What Librarians Need to Know

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Overview

- What are web standards?
- Why are they important?
- Why haven't vendors followed the standards?
- What can be done to make the web more fully accessible for any browser, platform, device or user?

What is the W3C?

- World Wide Web Consortium
<http://www.w3.org/>
- created in 1994
- 379 member organizations (Nov. 2003)
- specifications and guidelines, such as:
HTML, CSS, XML, XHTML and more

Recommendation = Standard

W3C Recommendation (REC)

W3C Recommendation is a specification or set of guidelines that, after extensive consensus-building, has received the endorsement of W3C Members and the Director. W3C recommends the wide deployment of its Recommendations. **Note:** W3C Recommendations are similar to the standards published by other organizations.

Web standards

- hammered out by committee
- designed to deliver greatest benefit to largest number of web users

Forward compatibility

- any web document can work across multiple browsers, platforms, and Internet devices
- will continue to work as new devices are invented

Examples of web standards

- structural languages: HTML, XML, XHTML
- presentation languages: CSS
- object models: W3C DOM
- scripting languages: ECMAScript

What is the DOM?

- Browser-independent, platform-neutral, language-neutral interface that allows “programs & scripts to dynamically access and update the content, structure, and style of documents.”
- Makes standard components of your page accessible to manipulation.
Show/hide content in nav bars, sort table columns, etc.

What is the DOM?

- This means we don't have to give up scripting and interactivity to be standards-compliant.

Some Standards-Compliant Browsers

- Mozilla 1.0 +
- Netscape 6 +
- IE 5+/Mac and IE 6+/Windows
- Opera 7 +

They understand and support XHTML, CSS, ECMAScript and the DOM.

1990s browser wars

- focus on “Netscape-only” or “Microsoft-only” proprietary technologies
- browser developers paid little heed to standards
- some paid lip-service by supporting standards partially and incorrectly

What did web authors do?

- wrote customized versions of (non-standard) markup for every browser
- browser-detection scripts
- costly and expensive, requires constant updating as new browsers are released

What did web authors do?

- wrote presentational markup - doubled the required bandwidth
- more code in pages means each page takes longer to load
- means more load on web servers, need for more servers, more costly to support

“Backward Compatibility”

- using non-standard, proprietary markup and code to ensure that every visitor has the same experience
- sounds great in theory
- there is no true “backward compatibility”

Example

Presentational markup:

```
<td width= "100%"><font face= "verdana,  
helvetica, arial" size= "+1" color= "#CCCCCC66">  
<span class= "header"> <b> Join now!</b>  
</span></font></td>
```

Structural markup:

```
<h3> Join now! </h3>
```

Only one browser matters?

- Increasing number of sites designed to work only in Internet Explorer and sometimes only on Windows platform.
- Locking out 15 - 25% of their potential customers.

Only one browser matters?

- There is no guarantee that IE (or even desktop browsers) will continue to dominate web space.
- A few years ago Netscape dominated and people coded for that.
- There is no telling what will dominate in the future.

Only one browser matters?

- MIT has never been a one-browser environment (and probably never will be).
- At MIT we especially need to support cutting edge devices and platforms.

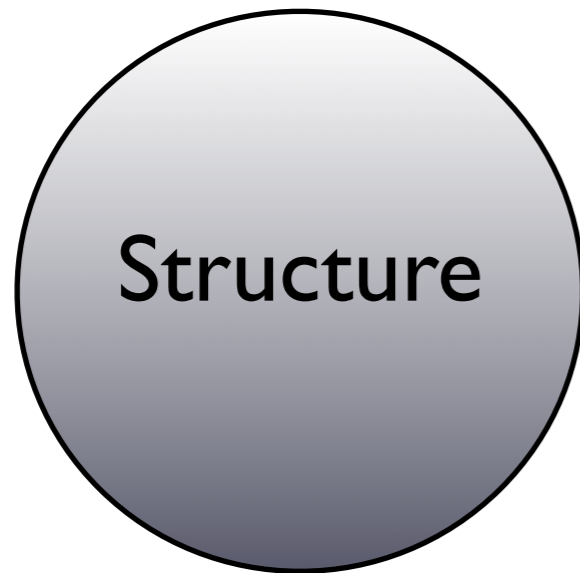
The cure? Web Standards.

- Standards make it possible to design for all browsers and devices as easily and quickly as for just one.

Forward compatibility

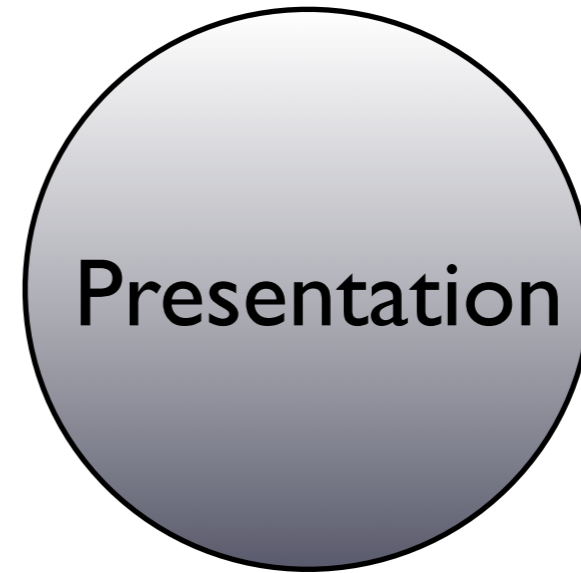
- any web document can work across multiple browsers, platforms, and Internet devices
- will continue to work as new devices are invented

Trinity of web standards



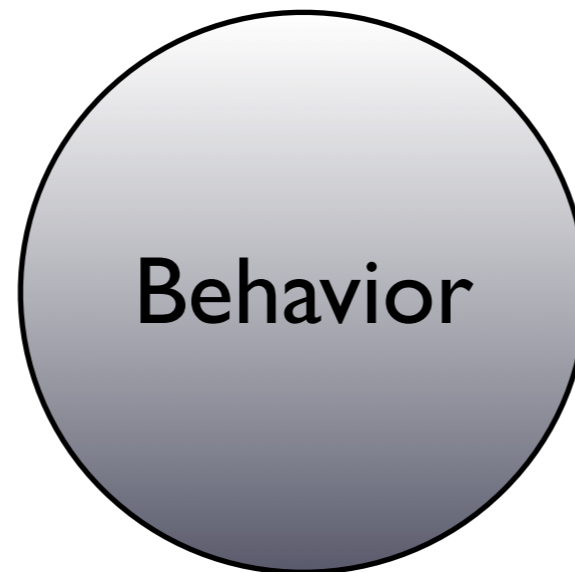
Structure

HTML, XHTML, XML



Presentation

CSS1, CSS2



Behavior

ECMAScript, DOM

Structure

- Markup languages contain text data formatted according to its structural meaning.
- Headline, secondary headline, paragraph, numbered list, etc.

Example of structural markup

```
<h1>MIT Libraries</h1>
```

```
<h2>About Us</h2>
```

```
<h3>Fall & Spring Term Hours 2003-2004</h3>
```

```
<ul>
```

```
<li>Aero/Astro Library</li>
```

```
<li>Barker Library</li>
```

```
<li>Dewey Library</li>
```

```
</ul>
```

XML and XHTML

- **XML: Extensible Markup Language:** a language for creating markup languages
- **XHTML:** a transitional markup language and current W3 recommendation that works just like HTML in nearly every browser or Internet device

Presentation

- Presentation languages (CSS1, CSS2) format the web page, controlling typography, placement, color, etc.
- Replaces HTML tables, font and size tags and other non-standard junk.
- Makes it possible to easily change style without touching the content.

Behavior

- A standard object model (W3C DOM) works with CSS, XHTML, and ECMAScript to enable behaviors and effects that work across multiple platforms and browsers.
- No more Netscape-only Javascript or IE/Windows-only ActiveX and JScript.

What's so great about web standards?

- Precise control over layout, placement and typography, while still allowing users to modify presentation for their own needs.
- Comply with accessibility laws & guidelines without sacrificing beauty, performance, or sophistication.

What's so great about web standards?

- Support multiple browsers without the hassle and expense of creating separate versions.
- Support non-traditional devices: wireless gadgets, cell-phones, braille-readers, screen-readers.

What's so great about web standards?

- Deliver print versions without creating separate “printer-friendly” pages.
- Separates style from structure and behavior: helps facilitate re-purposing documents for other uses (web/print/cd-rom).

If these standards are so great, why haven't they been widely implemented yet?

- Many designers hold the mistaken belief that web standards are hostile to the needs of good graphic design. (i.e. standards = ugly!)

If these standards are so great, why haven't they been widely implemented yet?

- Those who create standards are not in the business of selling them.
- W3C sites hold little inspirational appeal for graphic designers.

W3 Specs speak to engineers, not the public

- CSS2 is for designers, but most designers find it hard to read through the spec on W3's site.
- W3C is not in the business writing designer-friendly tutorials.
- Purpose of a “spec” is to tell programmers who will implement the technology what features it will have.

If these standards are so great, why haven't they been widely implemented yet?

- Designers have invested a lot of time learning proprietary scripting and markup.
- Or they use WYSIWYG editors that haven't supported standards. (leading WYSIWYG editors now *do* support standards)

If these standards are so great, why haven't they been widely implemented yet?

- Only recently have mainstream browsers offered meaningful standards compliance.

Examples

- <http://www.csszengarden.com/>

A brief history of browsers & standards

Version 0, 1 - 2 browsers

- 1993: NCSA Mosaic
- 1994: Netscape 1.0
- 1994: Mozilla 0.96b
- 1995: Internet Explorer 1.0
- others: Opera, Cello, Lynx

Version 2-3 browsers

- 1995: Netscape Navigator 2.0: frames, client-side imagemaps, Javascript, SSL



- 1995: Internet Explorer 3: above, plus stylesheets (limited), JScript, Active X

Version 4 browsers

- IE 4 greatly improved CSS support, but still buggy and incomplete.
- Netscape 4 offered CSS for the first time, but was still broken (better than IE 3's first try, but broken).

First “modern” browser: Internet Explorer for the Mac

- **March 2000: IE 5 for Macintosh: supported XHTML, ECMAScript, nearly all of CSS1, much of CSS2, most of the DOM.**

Netscape's bold move

- Netscape totally junked its old version 4 code and re-built from scratch. (1998 - late 2000)
- Took longer, so they lost market share. But they heroically hung in there and placed the future health of the web over their own self-interest.
- Used open source code parent: Mozilla.

Opera 6

- No DOCTYPE switching and no DOM, but fine support for most other standards.
- Opera 7 supports the DOM.

Internet Explorer 6 for Windows

- mostly caught up with Mac version, accurate CSS, strong support for XML, ECMAScript and the DOM
- they got CSS fixed-attachment backgrounds wrong and included a bug that broke the “float” property in CSS

No browser is perfect

- each of these was a major achievement, however
- demonstrated commitment to interoperability
- now designers are finally free to use CSS layout and other standards-based techniques

Standards-Compliant Browsers

- Mozilla 1.0 +
- Netscape 6 +
- IE 5+/Mac & IE 6+/Windows
- Opera 7 +

They understand and support XHTML, CSS, ECMAScript and the DOM.

Too little, too late?

- Many designers were convinced that web standards were a pipe-dream and had ceased trying to implement them.
- CSS1 - issued in Dec. 1996!

Too little, too late?

- IE 3 supported just a little CSS, very buggy
- Designers were thrilled at first with what you could do, then realized all the bugs - soon decided CSS not ready for prime time.

Bad browsers lead to bad practices

- CSS is designed to separate presentation from structure.
- By default most browsers display `<h1>` as big and bold with whitespace above and below.
- CSS allows you to change that.

Bad browsers lead to bad practices

- With CSS `<h1>` can be small, italic, and margin-free if the designer wants.
- Alas, not in Netscape 4: adds its default legacy renderings to any CSS rule.
- So Netscape 4 will add whitespace there anyway.

Bad browsers lead to bad practices

- Some designers gave up on CSS.
- Other designers got rid of structural markup and instead did this:

```
<div class= "headline1">
```

- This solved the display problem at the expense of structural markup.

Bad browsers lead to bad practices

- This led to numerous problems which have now come home to roost.
- Content management systems and visual web editors developed during the 4.0 browser era are littered with that sort of meaningless markup.
- Makes it hard to migrate your pages to structural markup.

Bad browsers lead to bad practices

- Large sites created by multiple designers might have different non-standard tags, making it impossible to gather all the data and reformat it.
- Also, to a Palm device or screen-reader, markup like the previous example is plain text, not a headline. `<div class= "headline1">`

Junk markup

- Older web browsers are lax and forgiving about bad code. Pages with many errors display OK.
- Newer browsers are getting more strict. So bad code is now breaking.

Browser History

<http://www.dejavu.org/>

Try their browser emulator to see your site in old browsers.

What does this mean for
us at MIT?

A diverse environment

- MIT is an environment of diverse platforms, devices, and users.
- MIT is the home of W3C.
- It's especially important for us to implement these web standards.

What does this mean for our web site?

- We will take an incremental approach.
- Next complete redesign will be standards compliant.

Until then:

- Our new home page will be standards-compliant.
- New templates for Subject Guides, Publication Type Guides, Database Cheatsheets, and Course pages will be standards-compliant.

What does it mean for you as a web author?

- We will offer training as we move to new ways of authoring.
- We will offer new tools that make it simpler to author pages without knowing so many technical details.
- In some ways it will be simpler than the current environment.

What does this mean for Barton?

- The HTML for Barton is not web standards compliant.
- McGill has written standards compliant code for their ALEPH web opac (as far as they can go). Some screens can't be changed.
- muse.mcgill.ca

What does this mean for Barton?

- We are advocating for ExLibris to write standards-compliant code in a future version.
- We have a project in our list of future projects to re-do our web OPAC pages in a standards-compliant way (as McGill did).

What does this mean for Barton?

A standards-compliant OPAC would work allow us to offer one version for all:

- screen-readers
- PDAs
- Athena, Mac, Windows
- future devices

What does this mean for databases & e-journals that we purchase?

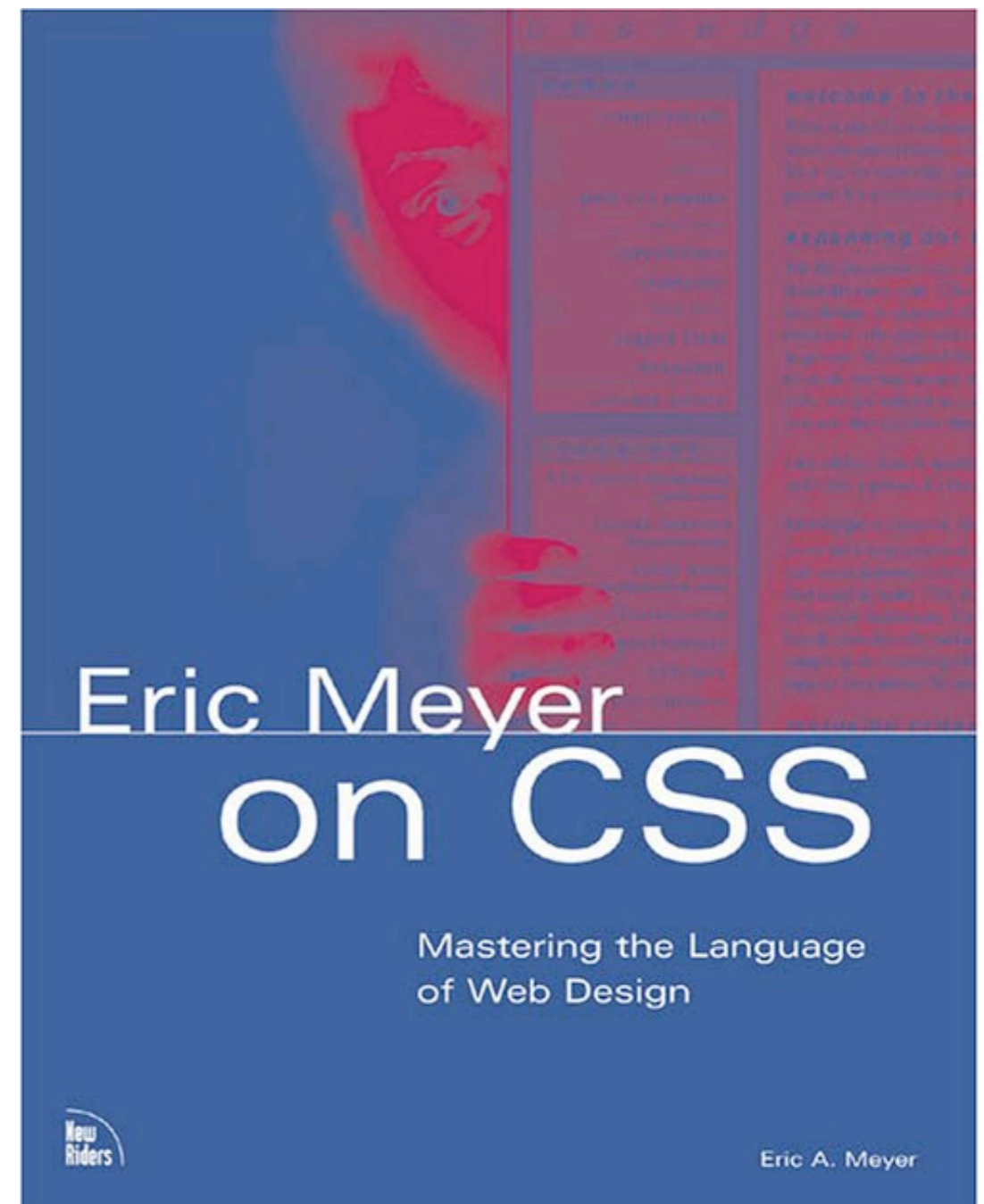
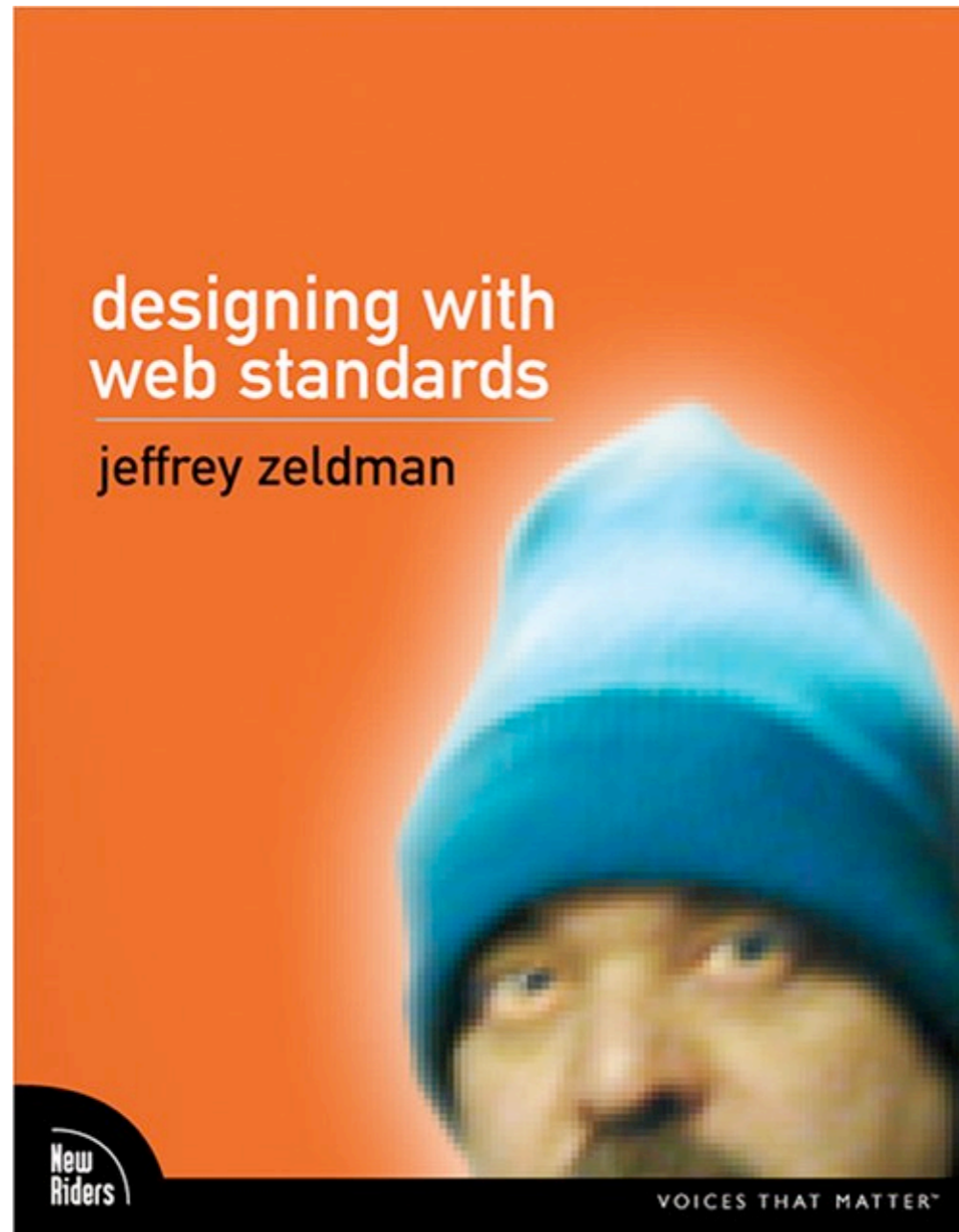
- We should ask vendors if their code is standards-compliant, i.e. uses XHTML, CSS, at the very least.
- Where there is a choice, we should consider standards as much as we consider usability of the interface.

What about other web-based products?

We should consider standards-compliance as part of the mix when choosing web-based products, such as:

- portals
- meta-search & database-discovery tools
- open-URL tools (SFX)
- content management systems
- future Vera replacements, such as the “green box.”

For more information



For more information

A List Apart

<http://www.alistapart.com/>

CSS Zen Garden

<http://www.csszengarden.com/>

CSS Tutorial:

http://www.westciv.com/style_master/academy/hands_on_tutorial/index.html

HTML and XHTML for CSS

http://www.westciv.com/courses/course_info/html_and_xhtml/

