

A Principled Approach To Web Accessibility

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2009-03-26

Why Be Accessible?

Leaders are people who do the right thing; managers are people who do things right.

▶ Warren Bennis

We Like Money

- Accessibility is good business sense
- Just because a market is marginal doesn't make it small
- Persons with disabilities want to use the web
- The population is aging
- It could be expensive to disappoint these potential customers.

So—How big is the market?

Big Enough

\$120,000,000,000

We Like To *Keep* Our Money

- Accessibility is the law
 - Section 508
 - Americans With Disabilities Act (ADA)
- But do these laws apply to my business?
- How bad could it be?

Apple



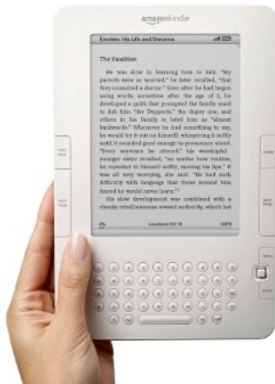
- \$250,000 contribution to Massachusetts Commission for the Blind
- Repair known problems with iTunes services and quickly address new ones as they appear
- Maintain accessibility training for customer service and content development
- Apple took measures to respond quickly and had an existing accessibility policy

Target

- \$6,000,000 damages
- Monitoring
 - Quarterly automatic testing
 - Annual technical assessment and user testing
 - \$40,000/year
- Web Developer Training
 - All web developers are to be accessibility trained by NFB at Target expense.
 - Actual expenses incurred (up to \$15,000 per session)
- Notification
 - Quarterly reports about accessibility or usability complaints
 - Notification about creation of / modification to templates.
- Legal Costs
- Freedom Costs
- This was a *settlement*

Kindle

- Text to Speech feature is The Right Thing
- Author's Guild disagreed
- Publisher lockout flag prevents text to speech functionality
- No one seems to have thought about the deeper accessibility issue
- No lawsuits...Yet.



The Moral of the Story

- We want to do the right thing *and* be profitable doing it
- We'll have to pay for accessibility on the technical side anyway, let's avoid paying the lawyers beforehand.
- Ignorance isn't an excuse

But where do we start?

Thinking Accessibly

In thinking, keep to the simple.

▶ Lao Tzu

Guidelines

- Guidelines are one (complex) way to approach accessibility
 - WCAG 1.0: 14 Guidelines, 65 Checkpoints
 - WCAG 2.0: 4 Principles, 12 Guidelines, 60 Success Criteria
 - Section 508: 3 Sections, 31 Paragraphs, Government Style
- Guidelines **are** important... for testing the *product*
- Guidelines **are not** about the design *process*.

Principles

We need a set of accessibility principles that are

- Representative of the Guidelines
- Easy to Remember
- Commonsense Design Principles
- Few in Number

Ten Principles for Web Accessibility

Those are my principles, and if you don't like them... well, I have others.

▶ Groucho Marx

Avoid making assumptions about the physical, mental, and sensory abilities of your users whenever possible.

- Plan for Multiple Access Paths (but don't get WET)
- Sometimes it can't be helped, but be careful making this call.
- This is the hardest part of accessible design—**but**—once you begin to get it, accessibility problems become clearer.

What's Wrong With This Picture?

Color	Hex Value
Red	0xFF9999
Orange	0xFF9900
Yellow	0xCCCC00
Green	0x99CC99
Blue	0x99CCFF
Indigo	0x9999FF
Violet	0xCC99FF

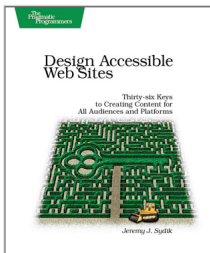
What *else* is Wrong With This Picture?

Color	Hex Value
Red	0xFF9999
Orange	0xFF9900
Yellow	0xCCCC00
Green	0x99CC99
Blue	0x99CCFF
Indigo	0x9999FF
Violet	0xCC99FF

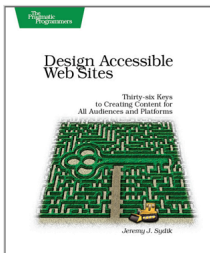
Your users' technologies can send and receive text. That's about all you'll ever be able to assume.

- Curb Cuts
- Images, Sound, and Video
- Javascript is still a problem (for now)

Keyboard Accessible?



Keyboard Accessible.



Add to Cart



Two Assumptions

Red
Orange
Green
Yellow
Blue

Still Difficult But At Least It's Possible Now

▲▼	Red
▲▼	Orange
▲▼	Green
▲▼	Yellow
▲▼	Blue

Users' time and technology belong to them, not to us. You should never take control of either without a really good reason.

- Focus belongs to the user
- Timeouts should only be used when there is a clear need
 - Security
 - External Constraints (Testing)

Provide good text alternatives for any nontext content.

- alt=
- Video *and* Audio
- “Applets”
- Good alternative text takes practice – and it’s best done by the content author

Sometimes It's Straightforward...



... Sometimes “Nothing” Is The Right Answer ...

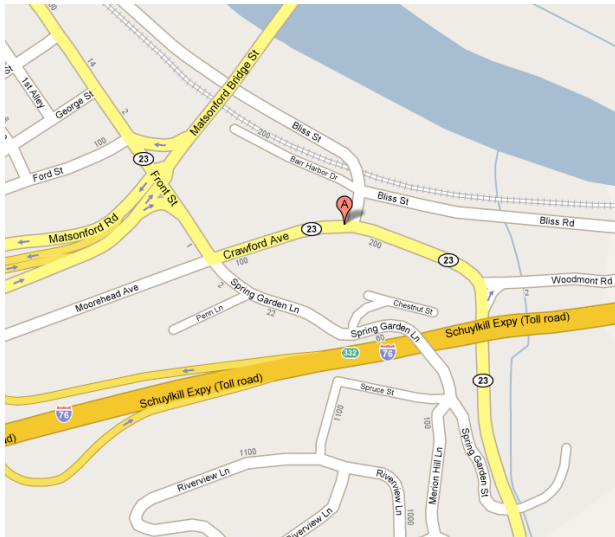


View Cart

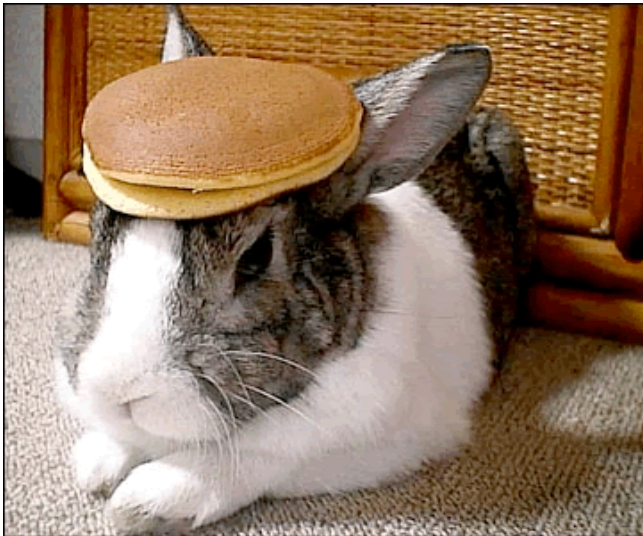
... and Sometimes it Depends



Sometimes it's Complex...



...and Sometimes – Wait – What?



Use widely available technologies to reach your audience.

- This problem went away for a while, but is about to come back around
- AIR, Silverlight, JavaFX
- Flash vs. Flash

Use clear language to communicate your message.

- Accessibility can't save bad content
- Write to the accepted level of your audience

Clear as Can Be?

There are (at least) 3 things wrong with this paragraph:

You can drag and drop the playhead along the timeline to move quickly to a new location in the video. When you drop the playhead it will snap forward to the next keyframe, so it's a good idea to drop it a little to the left of where you want to end up.

Clear as Can Be?

There are (at least) 3 things wrong with this paragraph:

You can drag and drop the playhead along the timeline to move quickly to a new location in the video. When you drop the playhead it will snap forward to the next keyframe, so it's a good idea to drop it a little to the left of where you want to end up.

- Does the user know what “playheads”, “timelines”, and “keyframes” are? Should they need to?
- Should we assume that they're able to “drag and drop”?
- Why should the user worry about our broken video navigation in the first place?

Make your sites usable, searchable, and navigable.

- Accessibility is **one** part of usability, but usability usually improves accessibility
- Searchability is a checkpoint for text alternatives and clear language
- Navigability is a safeguard for multiple input methods and multiple access paths

Design your content for semantic meaning, and maintain separation between content and presentation.

- This is important for alternative access
- It's also a major curb cut for web designers as new technologies emerge

Semantic Content With Style

A

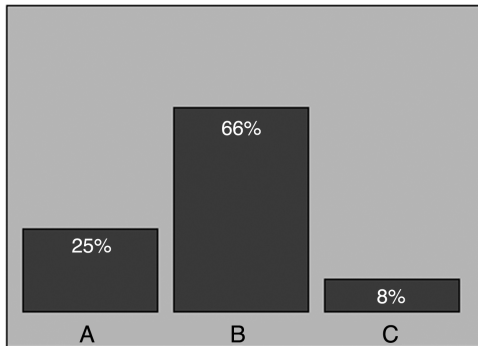
25%

B

66%

C

8%



Progressively enhance your basic content by adding extra features. Allow it to degrade gracefully for users who can't or don't want to use them.

- Make accessibility part of the process from the start
- Stylesheets
- Optional Scripts (for now)

As you encounter new web technologies, apply these same principles when making them accessible.

- I've reapplied them to Java and Flash
- New RIA technologies have similar accessibility functionality

An Accessibility Toolbox

Man is a tool-using animal. Nowhere do you find him without tools; without tools he is nothing, with tools he is all.

▶ Thomas Carlyle

Validators

If it isn't standards compliant, it's probably not accessible*

- Markup
- Stylesheets
- Feeds

Color and Contrast

- Render to Grayscale
- Vischeck (<http://www.vischeck.com/>)
- Colorblind Web Page Filter (<http://colorfilter.wickline.org/>)

Colorblind Web Page Filter

UNIVERSITY OF NEBRASKA-LINCOLN

APPLY NOW!

Search: UNL Web GO

UNL Quick Links GO

cal/people/weather/com

- Visitor
- Prospective Student
- Current Student
- Faculty & Staff
- Business, Industry & Government

Apply

- Undergraduate
- Graduate
- Law
- Extended Ed.

Resources

- Colleges & Depts
- Intl. Students
- Your First Year
- Giving to UNL
- Maps/Tour
- News
- Research

Affiliates

- Alumni
- Huskers
- Lied Center
- NET
- Quilt Study
- Ross Theatre
- Sheldon Gallery
- State Museum
- UNL Bookstore
- U of N Press
- NU Foundation
- NU System
- Parents Assoc.
- UNL Emeriti

N the KNOW
N The Know: UNL experts share unique insights on important issues.

UNL Today
UNL Today: The source for what's happening on campus today.

Color Blindness: Normal Protan Deutan Tritan
 Anomalous Forms: Mono Protan Deutan Tritan
 Coverage Testing: Monochrome Black White Gray
 Toggle: Scripts [nonGIF] Images [invalid] CSS
 go to: This page Colorfilter ColorLab AWARE

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Automatic Testing Tools

- **TWO** of them
- Functional Accessibility Evaluator (<http://fae.cita.uiuc.edu/>)
- WAVE (<http://wave.webaim.org/>)

WAVE

WAVE has detected no accessibility errors
...but you must still check your page to ensure it is actually accessible.

The following are present in the head section or apply to this page in general:

The screenshot shows the WAVE accessibility tool interface overlaid on a webpage. The webpage content includes the University of Nebraska-Lincoln logo, navigation links (Prospective Student, Current Student, Faculty & Staff, Visitor), and a search bar. The WAVE tool annotations include:

- UNL graphic identifier**: A red starburst annotation with the text "APPLY NOW!" pointing to the "UNL" logo.
- UNL Quick Links**: A dropdown menu with options like "Business, Industry & Government".
- UNL Web**: A search bar with a "Go" button.
- Navigation**: A dark grey box with the text "Navigation" and a "Visitor" link below it.
- apply now**: A red starburst annotation with the text "APPLY NOW!" pointing to the "UNL" logo.
- UNL : UNL Today**: A link in the header.
- col/people/seoather/cas**: A link in the footer.

Firefox

- Firefox Accessibility Extension
- WAVE Toolbar
- FireVox
- Fangs

Thinking About The Future

The best way to predict the future is to invent it.

▶ Alan Kay

Accessible Rich Internet Applications (ARIA)

- Connect OS Level Accessibility to the Web
- Attribute Extensions to Existing HTML language
- Accessible Components
 - Tab Bars
 - Tree Controls
 - Slider Controls
 - Progress Bars
- Accessible AJAX (but try to be polite)

But—JavaScript isn't Accessible!

WCAG 1.0

Ensure that pages are usable when scripts, applets, or other programmatic objects are turned off or not supported. If this is not possible, provide equivalent information on an alternative accessible page.

Section 508

When pages utilize scripting languages to display content, or to create interface elements, the information provided by the script shall be identified with functional text that can be read by assistive technology.

Screen Reader Support

- JAWS
- WindowEyes
- Orca
- NVDA

ARIA Support



Questions?

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