

Web Accessibility

What you need to know



Accessibility Goals

- An accessible website should allow a disabled person to get the same value as a non-disabled person

Assistive Devices



The Carroll Center for the Blind

Assistive Devices



Braille Display

Assistive Devices



Sip and Puff

Assistive Technologies



Closed Captions

Assistive Devices



Reading Glasses

Everyone Wins



Accessibility Challenges

- Vision
- Motion
- Hearing
- Seizures
- Cognitive

Accessibility Law

- Every website servicing Israeli population must be accessible to an AA grade
- Existing websites must be accessible by:
~~25/10/2016~~ 25/10/2017
- New websites must be accessible upon launch

Accessibility Resources

- NVDA screen reader:

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

- Firefox accessibility evaluation toolbar:

<http://wave.webaim.org/>

- WebAim technical articles and resources:

<http://webaim.org/>

- WCAG2 guidelines:

<http://www.w3.org/TR/UNDERSTANDING-WCAG20/complete.html>

Technical Details



Agenda

- Keyboard navigation
- Links
- Media
- Signposts
- Text
- Forms

Keyboard

- All content and functionality must be accessible using keyboard only
- Keyboard focus should never be trapped

Demo

- Can you use <http://www.worldtimebuddy.com/> with your keyboard only?

Keyboard

- Keyboard focus order (tab order) should preserve meaning
- Visual indication for keyboard focus is required
- Keyboard focus change should not change context

Demo

- Can you enter one of the top menu links on
<http://dim-phone.co.il/> ?

Keyboard & JavaScript

- Hover menus are at risk
- Can you use the top menu at [http://
www.wiseway.co.il/](http://www.wiseway.co.il/) ?
- Now head over to ubuntu.com to see it done correctly

Skipping To Content

Can you guess why?

Skipping To Content

- WCAG2 requires a way to navigate directly to page content
- Using correct headers is usually sufficient
- Demo: Document outline

Skipping To Content

```
<html>
  <head><title>Skip To Content Demo</title></head>
  <body>
    <nav>...</nav>
    <main>
      <h1>Main Content</h1>
      <p>This is the main content of the site</p>
    </main>
  </body>
</html>
```

Skipping To Content

- A common practice is to add “Skip To Content” link to the top of the page
- Example:
<http://webaim.org/techniques/skipnav/>

Access Keys

- Recommended access keys:

S - Skip navigation

5 - Frequently Asked Questions (FAQ)

I - Home page

6 - Help

2 - What's new

7 - Complaints procedure

3 - Site map

8 - Terms and conditions

4 - Search

9 - Feedback form

0 - Access key details

Keyboard Traps

- A keyboard trap is a widget you can't leave
- Demo:
<http://codepen.io/ynonp/pen/OyzYgW>
- Don't do that

Unreachable Content

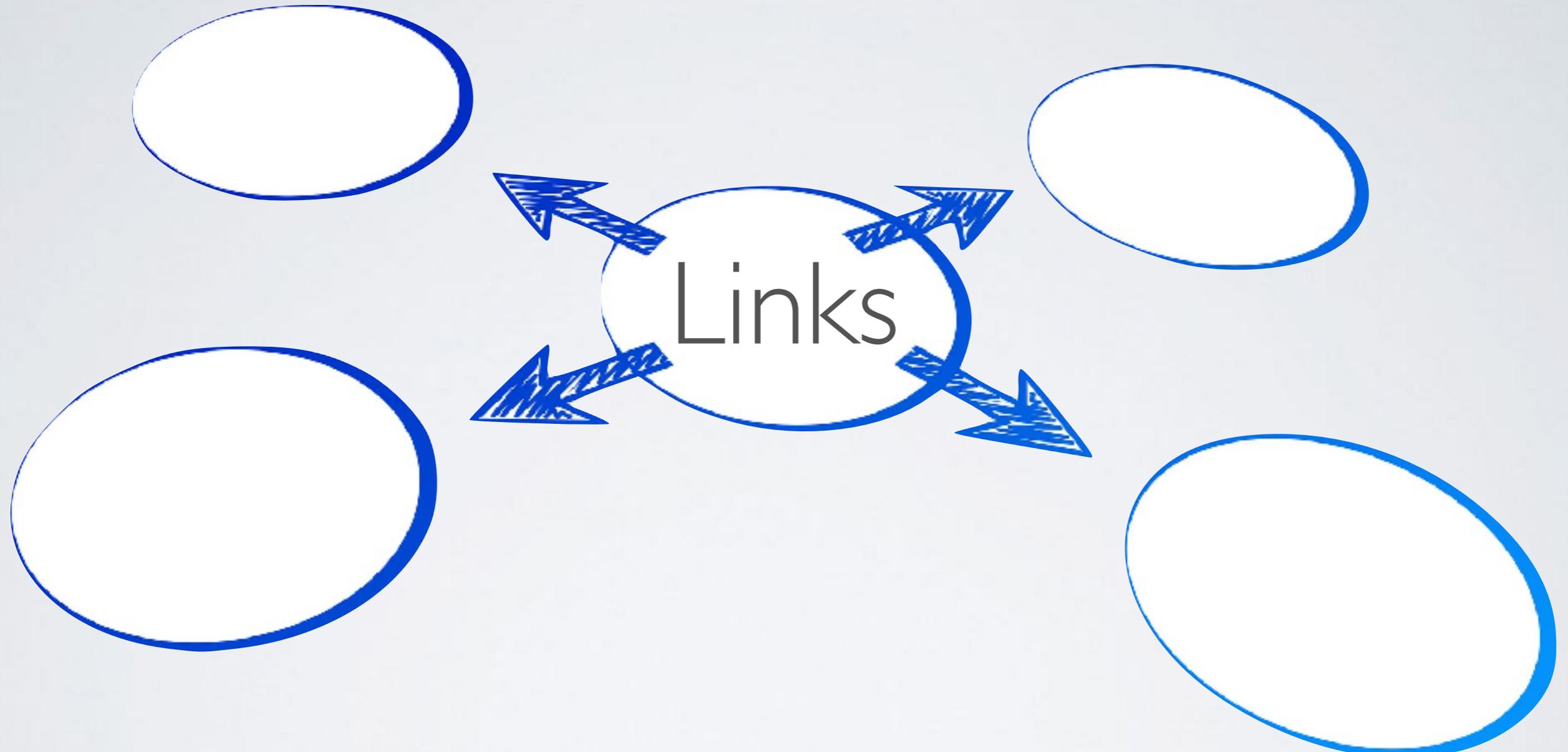
- Without using the accessibility menu, try to reach “registration” link on the superpharm site:
<http://www.super-pharm.co.il/heb/HomePage/>
- Why doesn't it work?

Keyboard & Dialogs

- Modal dialogs should stay modal even when keyboard navigation is used
- Good: <http://www.kolzchut.org.il/>
- Bad: http://www.seret.co.il/movies/s_movies.asp?ID=5407#topHours

Quiz

- Can you change language using only the keyboard at <https://wolfson.crowdvalue.co/campaigns> ?
- Why?
- How would you make it easier?



The Easy Way

```
<a href="contact.php">Contact Us</a>
```

What's So Good About It

- Automatic style
- Easy to recognise

Using Custom Link Style

- A 4.5:1 contrast between the non-link text colour and the background.
- A 4.5:1 contrast between the link text colour and the background.
- A 3:1 contrast between the link text colour and the surrounding non-link text colour.

This Works

- Using a Black-on-White page you can use the link colours:
 - Normal: #3344dd
 - Hover/Focus/Active: #bb1122
 - Visited: #884488
- But usually it's best to keep the underline

Links that don't look like links

- Demo:

<http://codepen.io/ynonp/pen/yYvYVr>

- Real World:

[https://www.discountbank.co.il/DB/branches?
city=&name=](https://www.discountbank.co.il/DB/branches?city=&name=)

Link Where?

- Screen readers can read all links together
- Looking just on the link text, can you tell where the link will take you?
- Demo: <http://www.shiluvimbateva.co.il/>

Body links

- I.4.1 Use of Color: Color is not used as the only visual means of conveying information, indicating an action, prompting a response, or distinguishing a visual element. (Level A)

Body links

- Color is not enough
- Use underline or **bold** or any other additional differentiator for your body links
- Does not apply to menu links (differentiated by location)

Menus

- Keep in mind screen readers don't see your class names
- Foundation uses .show-for-sr class to show content just to screen readers

Current Menu Item for sr

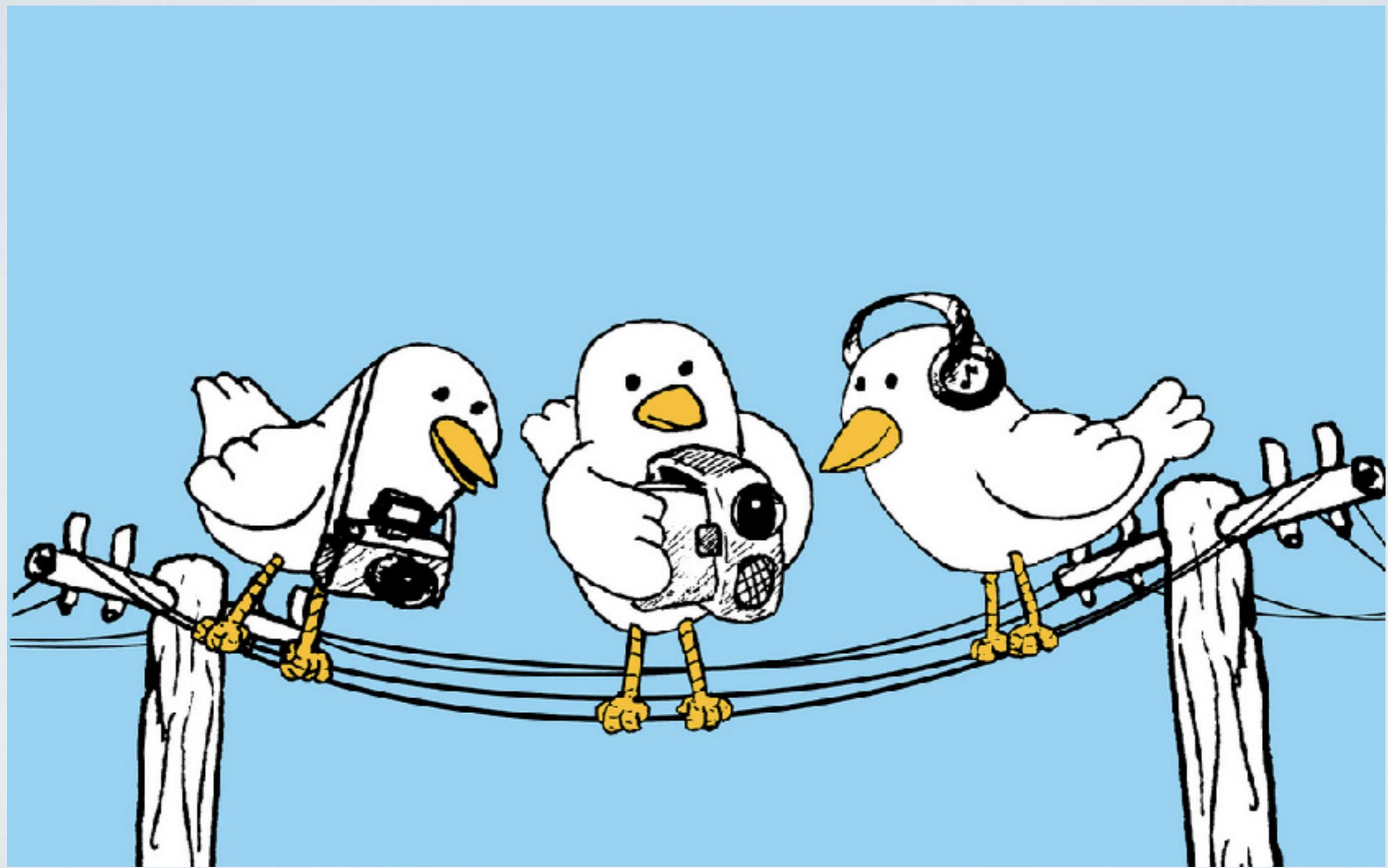
```
<section class="top-bar-section">
  <!-- Left Nav Section -->
  <ul class="left">
    <li><a href="#">Home</a></li>
    <li class="active">
      <a href="#">Gallery
        <span class="show-for-sr">(current)</span>
      </a>
    </li>
    <li><a href="#">About</a></li>
    <li><a href="#">Contact</a></li>
  </ul>
</section>
```

<http://codepen.io/ynonp/pen/wKyyKG>

Q & A



Media



Alt Text for Images



```

```



```

```

Alt Text for Images

- All tags should have an alt attribute
- Alt text should specify **content** and **function**
- Decorations should get alt="" (an empty alt)
- Meaningful photos cannot be placed as background-image

Demo

- Firefox Accessibility Toolbar can show only text alternatives
- Demo

Alt Text for Images

- Alternative Captchas must be provided for visually impaired users



Audio & Video

- Provide alternatives to voice channel (subtitles)
- Provide alternatives to visual channel (audio descriptions of important visual information)
- Alternatives must be in sync with video
- Player must be accessible

Subtitles Format

- Subtitles can be provided as Open Captions or Closed Captions

- Youtube guide:

[http://www.youtube.com/watch?
v=WkQjYHx3NY8](http://www.youtube.com/watch?v=WkQjYHx3NY8)

Audio Highlights

- If you want to play long sounds (over 3 seconds):
 - Provide a way for users to stop it
 - Provide volume control



Audio Highlights

- Don't use audio as a sole indication
- Visual aids must also be provided

Structure and Flow

- Screen readers don't use CSS



Structure and Flow

- Use semantic markup
- Use meaningful flow

Semantic Markup

Usage	Tag
Headers	H1-H6
Lists and menus	UL, LI
Paragraph	P
Emphasize	EM, STRONG
Citations	CITE

Semantic Markup

- Don't style with tables
- Don't link with onclick
- Don't use inline css

Aria Landmarks

```
<header role="banner">
    <p>Put company logo, etc. here.</p>
</header>

<nav role="navigation">
    <ul>
        <li>Put navigation here</li>
    </ul>
</nav>

<main role="main">
    <p>Put main content here.</p>
</main>

<footer role="contentinfo">
    <p>Put copyright, etc. here.</p>
</footer>
```

Text size and colour

Contrast Ratio

- Ranged 1-21
- Required: 4.5, except when:
 - Large text can have contrast ratio 3
 - Disabled UI control or decoration
 - Logo

Text Size

- Website should be usable if resized by up to 200%

Contrast Checking Tool

- http://www.snook.ca/technical/colour_contrast/colour.html

Foreground Colour: <div style="background-color: #33FF33; width: 100px; height: 20px;"></div> <p># 33FF33</p> <p>Red: <input type="range" value="119.74"/></p> <p>Green: <input type="range" value="204"/></p> <p>Blue: <input type="range" value="9.32"/></p> <p>Hue (°): <input type="range" value="NO"/></p> <p>Saturation (%): <input type="range" value="YES"/></p> <p>Value (%): <input type="range" value="YES"/></p>	Background Colour: <div style="background-color: #333333; width: 100px; height: 20px;"></div> <p># 333333</p> <p>Red: <input type="range" value="119.74"/></p> <p>Green: <input type="range" value="204"/></p> <p>Blue: <input type="range" value="9.32"/></p> <p>Hue (°): <input type="range" value="NO"/></p> <p>Saturation (%): <input type="range" value="YES"/></p> <p>Value (%): <input type="range" value="YES"/></p>	Results <p>This is example text. Some of it bolded. <i>Some of it italicized.</i></p> <table><tbody><tr><td>Brightness Difference: (>= 125)</td><td>119.74</td></tr><tr><td>Colour Difference: (>= 500)</td><td>204</td></tr><tr><td>Are colours compliant?</td><td>NO</td></tr><tr><td>Contrast Ratio</td><td>9.32</td></tr><tr><td>WCAG 2 AA Compliant</td><td>YES</td></tr><tr><td>WCAG 2 AA Compliant (18pt+)</td><td>YES</td></tr><tr><td>WCAG 2 AAA Compliant</td><td>YES</td></tr><tr><td>WCAG 2 AAA Compliant (18pt+)</td><td>YES</td></tr></tbody></table>	Brightness Difference: (>= 125)	119.74	Colour Difference: (>= 500)	204	Are colours compliant?	NO	Contrast Ratio	9.32	WCAG 2 AA Compliant	YES	WCAG 2 AA Compliant (18pt+)	YES	WCAG 2 AAA Compliant	YES	WCAG 2 AAA Compliant (18pt+)	YES
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WCAG 2 AA Compliant (18pt+)	YES																	
WCAG 2 AAA Compliant	YES																	
WCAG 2 AAA Compliant (18pt+)	YES																	

Time Based Actions



What Is Time Based Actions

- Every action that happens automatically after a given time frame
- Examples:
 - Content refresh
 - Page transitions

Guidelines

- User should be able to block time based events before they occur
- User should be able to change time limits before they occur
- User should be able to take an “extension”, when facing a time limited action

Examples

- Pause button for auto scroll texts
- Control time frames in user's preferences

Movement Control

- User can control all moving or blinking elements on screen
- Same applies for self-updating information

Textual Images

- Don't use text-in-images unless
 - User can visually customise the text
 - Image is inseparable from the text
(Example: logos)



Language Guidelines

- Use lang attribute on HTML

```
<html lang="en">
```

```
<html lang="he">
```

Language Guidelines

- Specify language change inside the document, if changing from english to another language

```
<p>Accessibility for all “  
<span lang="he" dir="rtl" , נגישות לכל> W3C</span>  
" in Hebrew.</p>
```

Forms



Link form element to its description

```
<label for="firstname">First name:</label>
<input type="text" name="firstname"
       id="firstname" />
```

The Label Element

- Screen readers read labels and ignore other text in between
- Demo: <http://codepen.io/ynonp/pen/QjQNRr>

Use title when label is not appropriate

```
<fieldset>
  <legend>Phone number</legend>
  <input id="areaCode" name="areaCode"
    title="Area Code"
    type="text" size="3" value="" >

  <input id="exchange" name="exchange"
    title="First three digits of phone number"
    type="text" size="3" value="" >

</fieldset>
```

Required Fields

- Use clear textual indications for required fields
- Explain in the beginning of the form what indicates a required field
- fields marked with(*) are required

Grouping Fields

- Group fields in a fieldset when you have > 10 form fields

```
<fieldset>
  <legend>address</legend>
  <label for="city">City</label>
  <input id="city" name="city" type="text" />

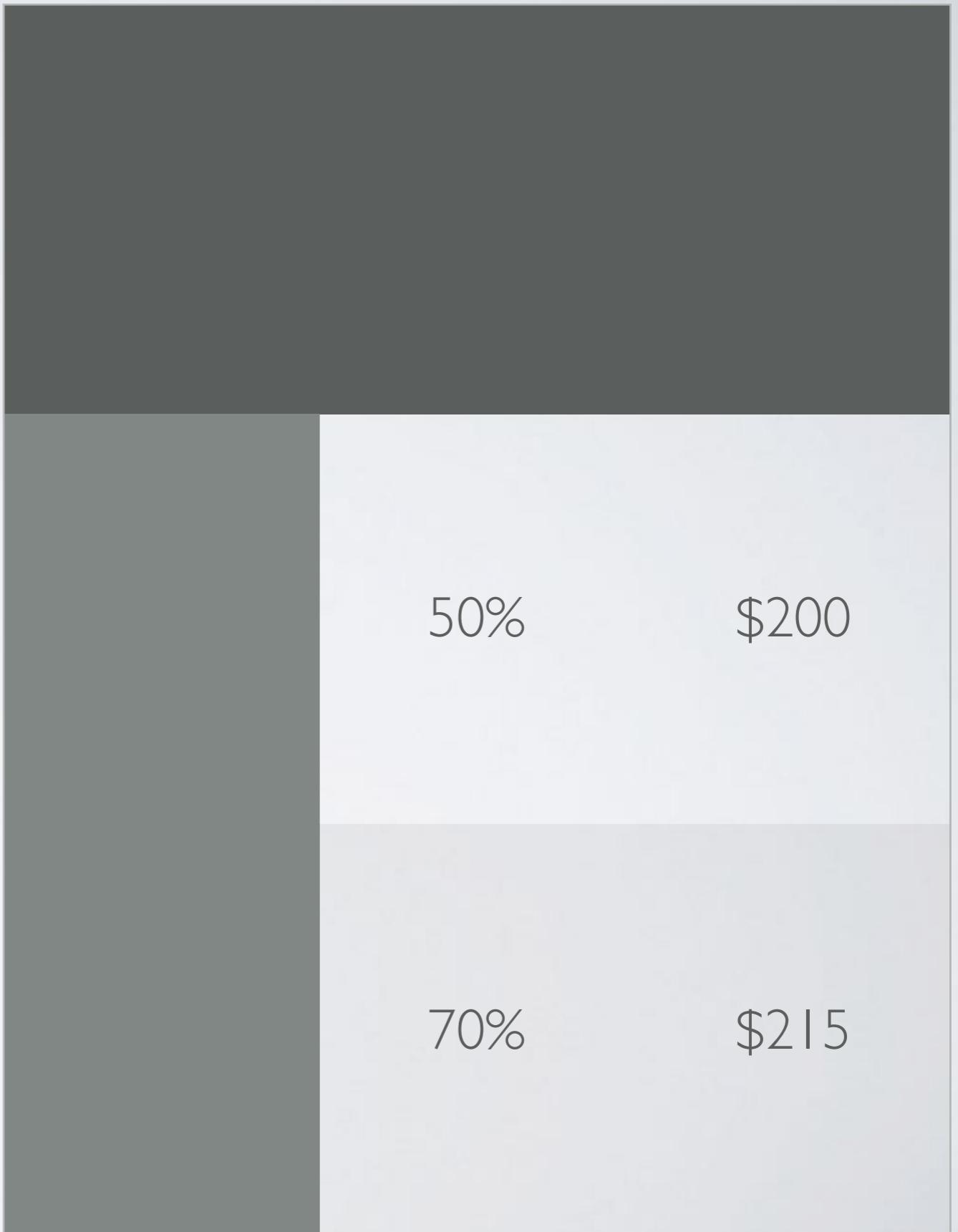
  <label for="street">Street</label>
  <input id="street" name="street" type="text" />

</fieldset>
```

Error Messages

- Show error text when item is in error state
- When possible, suggest a correction
- Abide validation already handles this

Tables



Use Caption to Describe the Table

```
<table>
  <caption>Table 1: Company data</caption>
```

Use th for table headers

```
<table>
  <caption>Table 1: Company data</caption>
  <tr>
    <th>Name</th>
    <th>Email</th>
  </tr>

  <tr>
    <td>Bob</td>
    <td>bob@gmail.com</td>
  </tr>
</table>
```

Use cell headers for complex tables

```
<tr>
  <th id="acme">ACME Inc</th>
  <td headers="acme employees men">700</td>
  <td headers="acme employees women">300</td>
  <td headers="acme founded">1947</td>
</tr>
```

Table 1: Company data				
	Employees		Founded	
	Men	Women		
ACME Inc	700	300	1947	
XYZ Corp	1200	800	1973	

Writing By Standards

- Start and end tag to each element
- Elements are nested by spec
- No duplicate attributes
- Unique IDs

Q & A



Accessibility Lab

- Find as many accessibility issues in the following website
- How would you fix each?

Thanks For Listening

- Ynon Perek
- ynon@ynonperek.com
- <http://ynonperek.com>

Photos From

- <http://placeit.net>
- <http://123rf.com>