

CMPT 165

Units# 2-4 Reviewed

June 26th, 2015

Well designed webpages

GOOD CONTENT

- Messages to your audience
 - You provide
 - Please check grammar 😊

INTERACTIVE

WELL STRUCTURED

- Give meaning to each element
- “Meta” data (meta=about)

...Again, what is semantic annotation???

WELL STYLED

AN ESSAY FOR CMPT 165

"Anyone who has never made a mistake has never tried anything new."-- Albert Einstein

1. INTRODUCTION

Lorem ipsum dolor sit amet, ne has solet percipitur, voluptaria mnesarchum ea eum. Est te cibo erat rationibus, pro ponderum lobortis vulputate ea, his dolor luptatum eu. Quodsi vocibus eligendi ea duo, petentium neglegentur pro ne. Et vix laudem aperiri interesset, eos ut euismod accusam aliquando. In sit ignota alterum explicari, id vis utroque facilis temporibus, duo no erat iisque scaevola. Ne solet legimus splendide pri, ad mel habemus oportere corrumpit. Vel facilisi volutpat consetetur ut. Dicit graeco te quo, eos ei hinc animal volumus. Ne sea quem simul mucius, duo ei elitr euripidis. Quo tota choro insolens et, id dolore cotidieque duo.

Vix legere legimus id, discere repudiare in vis, amet ridens efficiendi qui no. Aeterno constituam qui id, in dicit bonorum corrumpit eum. Qui id dicam periculis philosophia, id eos explicari quaerendum. Habeo consul ex per. Pri an agam assueverit.

2. METHODS

Vix ne elitr aliquam erroribus, pro id quando deleniti gloriatur. Quo albucius philosophia cu, per diam audiam tamquam an. No illum luptatum delicatissimi his. Utamur qualisque deseruisse pro ei, usu modo eros invidunt ex.

2.1 Xaf sd afdsafasd f

Vix ne elitr aliquam erroribus, pro id quando deleniti gloriatur. Quo albucius philosophia cu, per diam audiam tamquam an. No illum luptatum delicatissimi his. Utamur qualisque deseruisse pro ei, usu modo eros invidunt ex. as aequae detraxit ad. **Cu assum exerci vix, quem congue deserunt ea cum. Quot repudiare in duo, consul consetetur has in.** Nam novum malorum ne. Dictas perfecto sententiae ad sea, modus delectus ex mei. Lorem ando.

2.2 Xaf sd afdsafasd f

In sit ignota alterum explicari, id vis utroque facilis temporibus, duo legimus splendide pri, ad mel habemus oportere corrumpit. Vel fa te quo, eos ei hinc animal volumus. Ne sea quem simul mucius, duo insolens et, id dolore cotidieque duo.

2.2.1 Afasdf Xaf sd afdsafasd f

Lorem ipsum dolor sit amet, ne has solet percipitur, voluptaria m rationibus, pro ponderum lobortis vulputate ea, his dolor luptatum petentium neglegentur pro ne. Et vix laudem aperiri interesset, eo

Gives structure to document, e.g.

1. INTRODUCTION

2. METHODS

2.1 Xaf sd

2.2 Xaf sd

2.2.1 Afasdf

Well designed webpages

GOOD CONTENT

- Messages to your audience
 - You provide
 - Please check grammar 😊

INTERACTIVE

- Provide responses to audience
 - Simple interactive mechanisms
 - Web forms
 - Web-programming via Python
(Javascript, another option but not in class)

WELL STRUCTURED

- Give meaning to each element
 - “Meta” data (meta=about)
- Markup, i.e. XHTML, HTML5

WELL STYLED

- Describe visual properties of each element
 - After midterm: visual design principles
- Cascading Style Sheets (CSS)



Computer languages

- HTML/CSS/Python:
 - Languages read by software:
 - Your way of communicating with browser and related software
 - You need to follow rules understood by these software
 - So software can *parse* (understand) to render your markup properly
- Syntax
 - *defn*: set of rules, principles, and processes that govern the structure of code in a given language

Rules in markup language

3 main parts:

1. Document type declaration (DTD)

Q: why is this important?

2. Head: provides “meta” information
<title>

Q: where is it displayed?

Q: what else can go under here?

<style>

<link>

<meta>

<script>

3. Body: Actual content displayed in window

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
```

```
<html>
```

```
<head>
```

```
<title>
```

Page Title

```
</title>
```

An element

```
</head>
```

```
<body>
```

```
<h1>
```

Page Heading

```
</h1>
```

An element

```
</body>
```

```
</html>
```

Rules in markup language

- Tags must be in lower cases, e.g. <body>, ~~<BODY>~~
- Most tags should be closed:

```
<h1>This is a subheading
```

```
<p>Validator will complain.</p>
```

- Semantics should be respected:

```
<p><h2>Bad annotations</h2>Validator will complain.</p>
```

```
<h2>Good annotations</h2>
```

```
<p>Validator will <em>approve</em> it.</p>
```



- What's wrong in below?

```
<p><i>Validator will <em>not</i></em> approve this.</p>
```



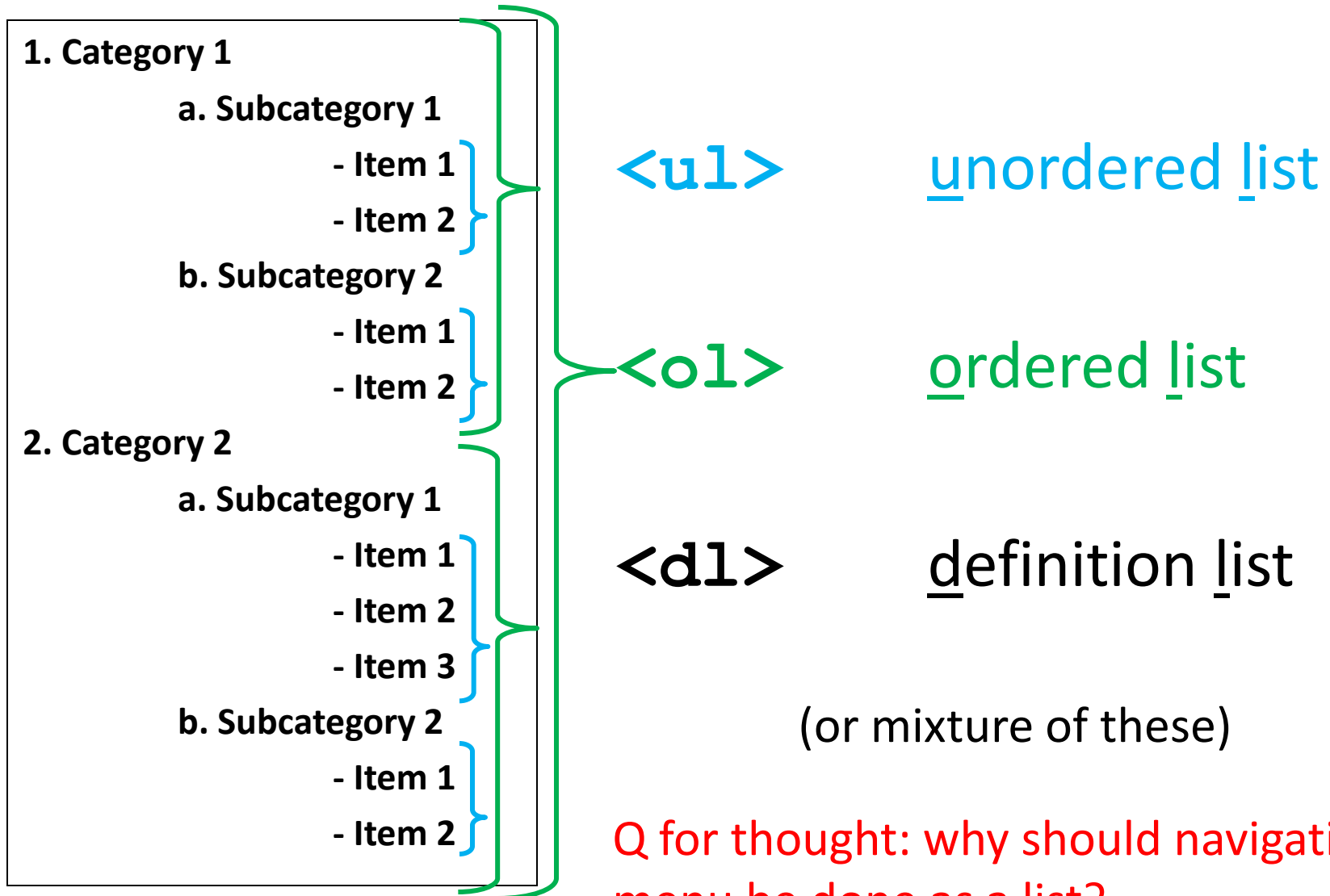
Some tags covered in class

<h1>, ..., <h6>	<u>h</u> eadings	
<p>	<u>p</u> aragraph	*preferred over <i>
	<u>b</u> old	**preferred over
<i>	<u>i</u> talic	(as it gives semantic meaning of content)
<u>	<u>u</u> nderline	
	<u>e</u> mphasis*	
	<u>s</u> trong emphasis**	
<blockquote>	indented <u>q</u> uoting	
<q>	<u>q</u> uoting text (for citations)	
<pre>	<u>p</u> re-formatted text	
<tt>	<u>t</u> ypewriter <u>t</u> ype (“monospace”), not equivalent to <pre>	
 	line <u>b</u> reak	
<hr/>	<u>h</u> orizontal <u>r</u> ule (rule=line)	

Tags you should know well by now

List	<code><dl><dt><dd></code>
Image	<code></code>
Anchor	<code><a></code>
Linking to external data	<code><link></code>
Styling	<code><style></code>

3 types of lists



Q for thought: why should navigation menu be done as a list?

Defining Lists

`<h1>Unordered list</h1>`

``

``

``

`<h1>Ordered list</h1>`

``

``

``

`<h1>Definition list</h1>`

`<dl>`

`<dt>Term</dt><dd>Description</dd>`

`</dl>`

`<dt>`: definition term

`<dd>`: definition description

Creating tables

Heading1	Heading 2	Heading 3
Item1	Data1	Data2
Item2	Data3	Data4
Item3	Data5	Data6

Elements for table:

`<table>`

`<th>` table hader

`<td>` table data

`<tr>` table row

– May contain one or more of `<td>` `<th>`

Creating a simple table

Reporting experimental results...

Substance examined	Measured pH level
Lemon juice	2.4
Baking soda	8.4
Orange juice	3.5

1 header row

3 data rows

→ each with 2 columns

Creating a simple table

Substance examined	Measured pH level
Lemon juice	2.4
Baking soda	8.4
Orange juice	3.5

1 header row

3 data table rows

→ each with 2 columns

Example markup:

```
<table>
  <tr>    <!-- header row -->
    <th>Substance examined</th>
    <th>Measured pH</th>
  </tr>
  <tr>    <!-- data row -->
    <th>Lemon juice</th>
    <td>2.4</td>
  </tr>
  <tr>    <!-- data row -->
    <th>Baking soda</th>
    <td>8.4</td>
  </tr>
  <tr>    <!-- data row -->
    <th>Orange juice</th>
    <td>3.5</td>
  </tr>
</table>
```

Example markup/styling of a table

```
<table >
    <tr> <!-- Headers -->
        <th rowspan="2">Substance</th>
        <th colspan="3">pH level</th>
    </tr>
    <tr> <!-- Subheadings -->
        <th>Sample 1</th>
        <th>Sample 2</th>
        <th>Sample 3</th>
    </tr>
    <tr> <!-- First data row -->
        <td>Lemon juice</td>
        <td>2.2</td>
        <td>2.4</td>
        <td>2.2</td>
    </tr>
    <tr> <!-- Second data row -->
        <td>Baking soda</td>
        <td>8.4</td>
        <td>8.1</td>
        <td>8.2</td>
    </tr>
    <tr> <!-- Third data row -->
        <td>Orange juice</td>
        <td>3.5</td>
        <td>2.9</td>
        <td>3.1</td>
    </tr>
</table>
```

```
/* CSS below */

table {
    border: solid green 2pt ;
    font-size: 14pt;
    font-family: sans-serif;
    text-align: center;
}

tr {
    background-color: #9d9;
    color: green;
    padding: 1em;
}

th {
    width: 120px;
    background-color: green;
    color: white;
}
```

Creating a more complex table

“pH level” header spans over 3 columns

“Substance”
header
spans over
2 rows

Table 1. pH levels measured in 3 test samples.

Substance	pH level		
	Measurement 1	Measurement 2	Measurement 3
Lemon juice	2.4	2.2	2.5
Baking soda	8.4	8.1	7.9
Orange juice	3.5	2.9	2.7

```
<th colspan="3">pH level</th>
```

```
<th rowspan="2">Substance</th>
```


...and attributes

Which are required attributes?

```

```

- Some attributes are good to have. Q: Why?

2 Languages (& their syntaxes) learned so far...

Markup (e.g. XHTML)

- An element has 3 parts
 - Opening tag
 - Contents
 - Closing tag
- Attribute specification:

attribute_name="value"

Style sheet (e.g. CSS)*

```
selector1 {  
    Declaration  
    property_1: value_1;  
    property_2: value_2;  
    ...  
    property_N: value_N;  
}
```

A CSS rule set

*http://www.w3schools.com/css/css_syntax.asp

CSS reviewed

Style support for:

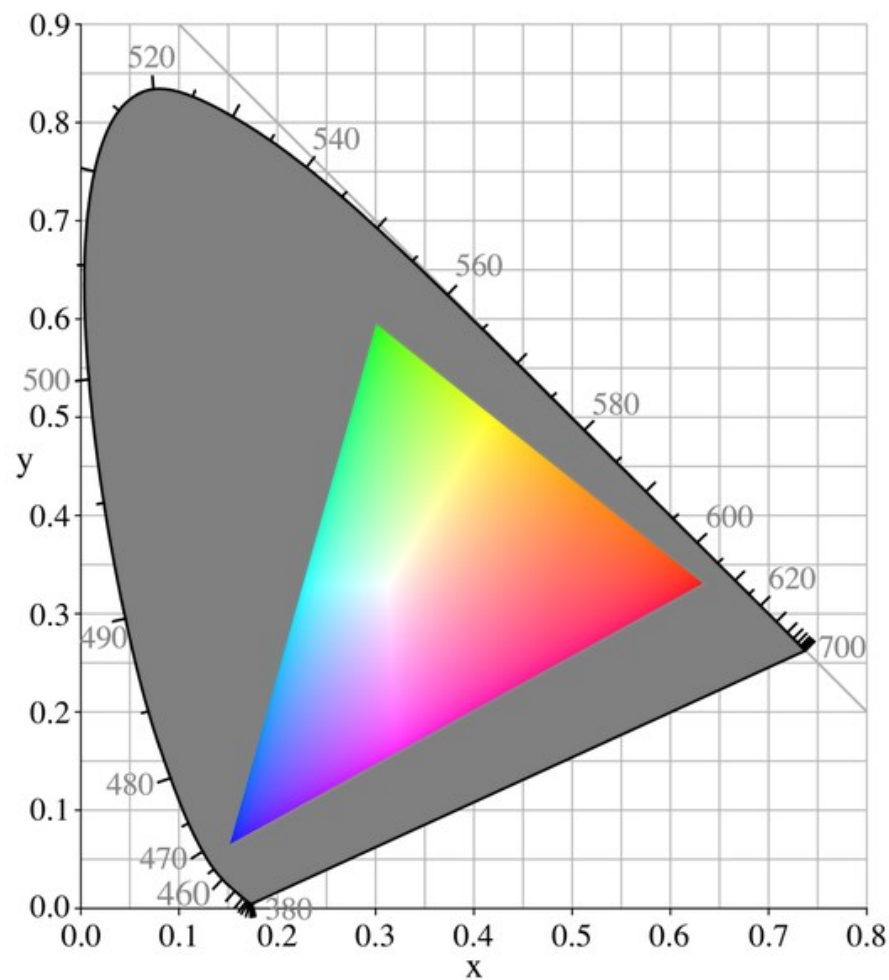
- **Color** of element text, backgrounds, etc.
- **Font** properties: typeface and emphasis
- **Alignment** of elements (text, images, etc.)
- **Text** formatting: e.g. spacing of words, letters, lines
- **Boxing**: margin, border, padding, and positioning
- **Generic vs. unique identification**

Summary on colour

- Key terminologies
 - Luminance vs. brightness
 - Hue, saturation, value
 - Human's color perception: rods, cones, etc.
- RGB + alternative representations (e.g. HSL)
 - Colour space, colour gamut
 - Alternative ways to specify colours in CSS
 - Which 3 ways?
- Color theories
 - Color wheel, color schemes
 - Contextual and semantic meaning

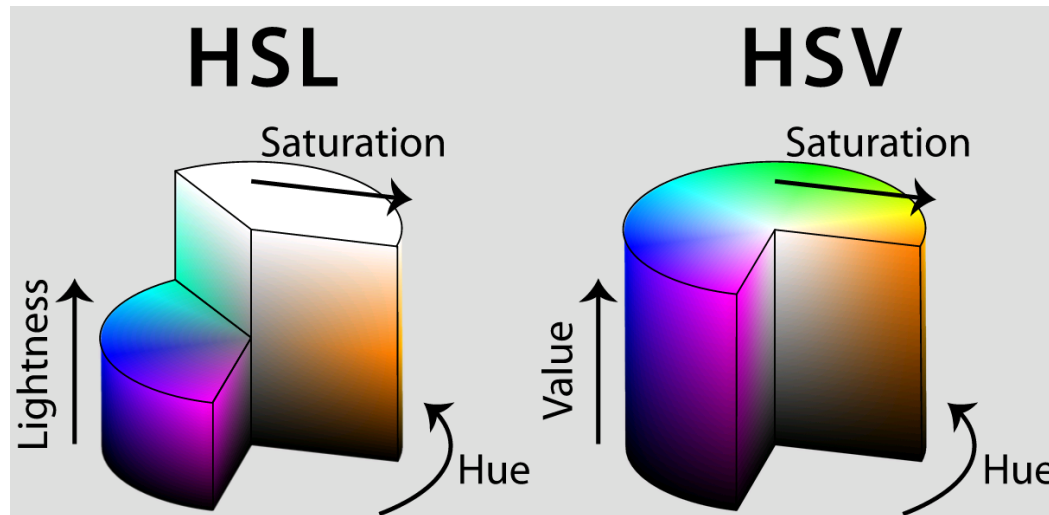
The “colour gamut”

Colour space



Alternative representations: HSL+HSV

- Hue: color E.g. to describe blue: “bale blue”, “pastel blue”
- Saturation: vividness
 - E.g. “Washed out”
 - E.g. “Saturated red”: #FF0000
- Lightness/Value: refers to strength/intensity of emitted light



https://upload.wikimedia.org/wikipedia/commons/a/a0/Hsl-hsv_models.svg

RGB and HSL representations

Hue: $[0, 360]^\circ$ on a rainbow color wheel

Saturation: $[0, 100]\%$
100% is the full color

Lightness: $[0, 100]\%$
100% gives white

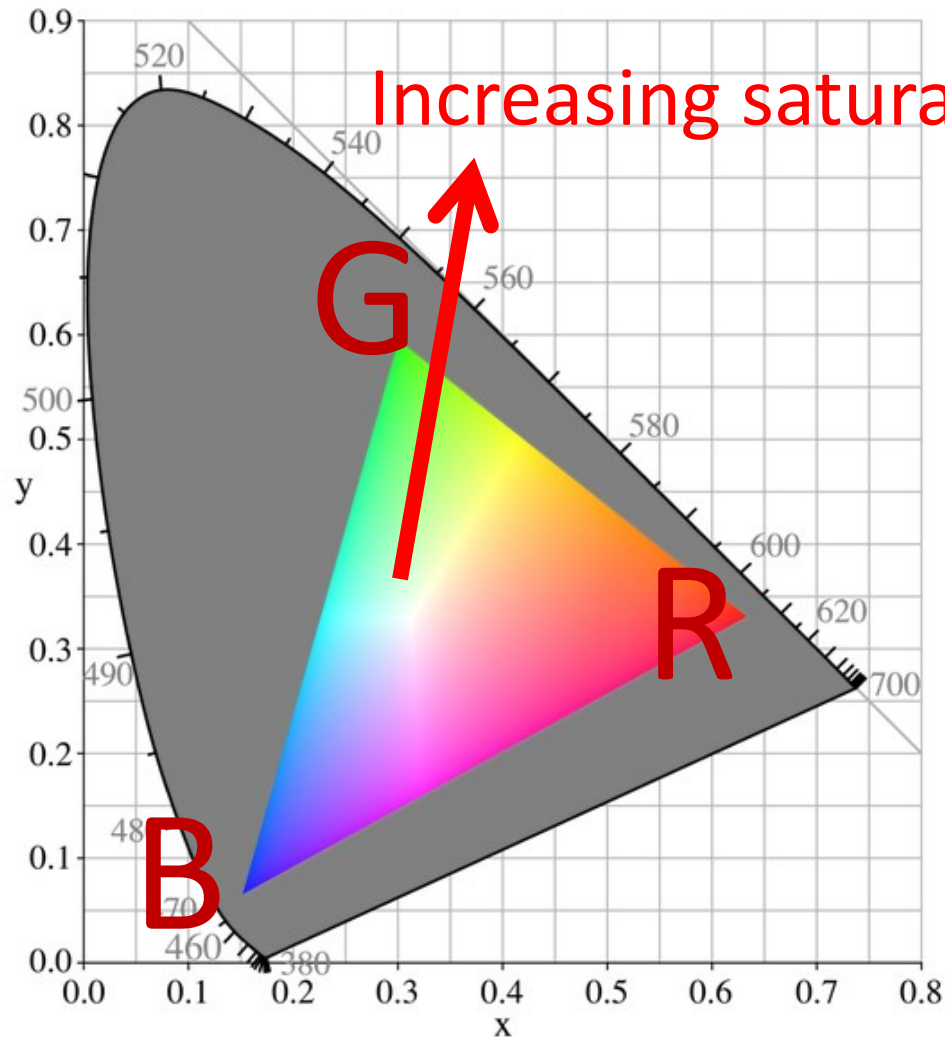


Try these RGB-HSL converters:

<http://www.workwithcolor.com/hsl-color-picker-01.htm>

<http://hslpicker.com/#fff>

RGB and HSL representations



RGB and HSL in CSS + CSS3

```
body {  
    background-color: rgb(256,0,0);  
}  
  
h4 {  
    /* red with opacity */  
    background-color: rgba(255, 0, 0, 0.3);  
}  
  
h1 {  
    /* green */  
    background-color: hsl(120, 100%, 50%);  
}  
  
h2 {  
    /* dark green */  
    background-color: hsl(120, 100%, 25%);  
}  
  
h3 {  
    /* dark green with opacity 0.3 */  
    background-color: hsla(120, 100%, 25%, 0.3);  
}
```

Web design: choice of color scheme

Don't pick colours randomly!

- 2 main strategies:
 - Dark-On-Light Scheme
 - Light-On-Dark Scheme
- 7 popular selection methods:
 1. Monochromatic Scheme
 2. Complementary Scheme
 3. Analogous Scheme
 4. Triadic Scheme
 5. Split-Complementary Scheme
 6. Rectangle (Tetradic) Scheme
 7. Square Scheme

Example A
This is an
example!!!

Example A
This is an
example!!!

Example A
This is an
example!!!

Example B
This is an
example!!!

Example B
This is an
example!!!

Example B
This is an
example!!!

Complementary:
e.g.

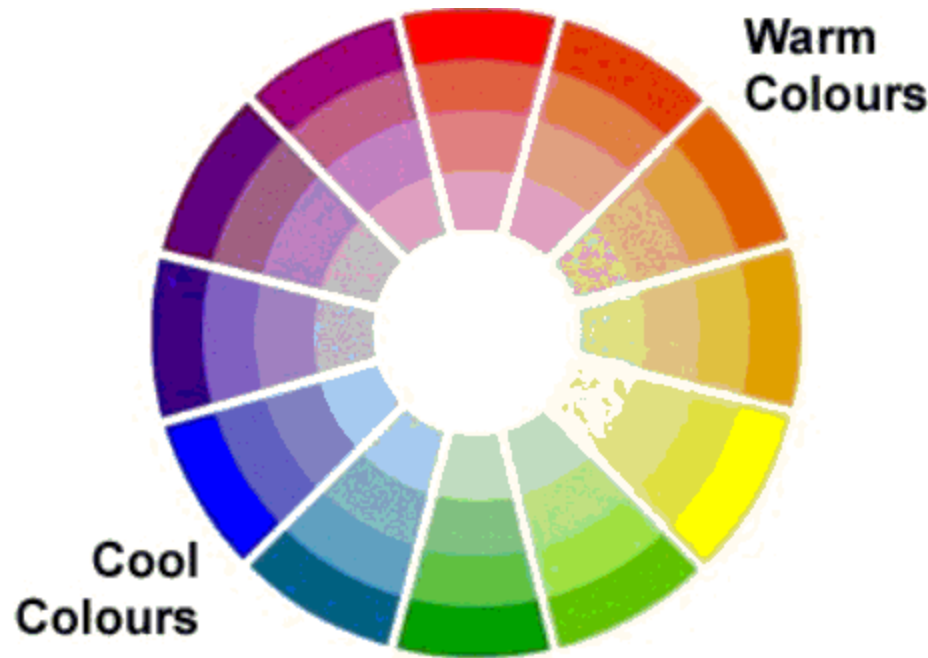


Analogous:
e.g.



Colours and their associations

- Colours associated with temperature



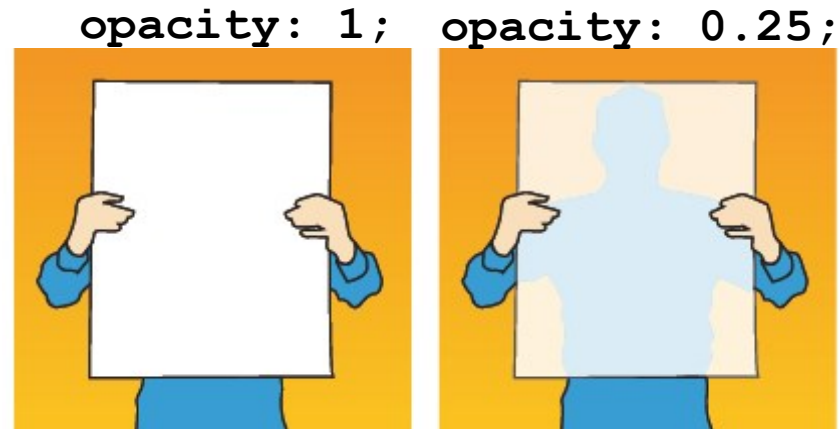
Colours and impressions they give

- Colours are often used symbolically, encode different information
- What's color for warning?
 - Red or Yellow (traffic signs)
- Cultural context:
 - Mourning death:
 - white in Asian
 - black in the West
- Western holiday colour themes?
 - Christmas?
 - red + green
 - Halloween?
 - Black + orange
 - Valentines?
 - Red + pink + white
 - Etc.

Opacity property

- May add transparency to any element
- “Opacity”
 - Amount of light absorption
 - Strength of 0 to 1
 - 1 means 100% absorbed
- Examples:

```
hr {  
    border-color: red;  
    opacity: 0.5;  
}  
img {  
    opacity: 0.25;  
}
```



<http://www.archive.europapier.com/service/knowhow/testingpaper/visual-characteristics/img/opacity.jpg>

CSS Reviewed

Style support for:

- **Color** of element text, backgrounds, etc.
- **Font properties: typeface and emphasis**
- **Alignment** of elements (text, images, etc.)
- **Text** formatting: e.g. spacing of words, letters, lines
- **Boxing**: margin, border, padding, and positioning
- **Generic vs. unique identification**

CSS Reviewed

Style support for:

- **Color** of element text, backgrounds, etc.
- **Font properties: typeface and emphasis**
- **Alignment** of elements (text, images, etc.)
- **Text** formatting: e.g. spacing of words, letters, lines
- **Boxing**: margin, border, padding, and positioning
- **Unique identification**: explained later
- **Generic classification**: explained later

What visual features differentiate between these groups?

Live as if you were
to die tomorrow.
Learn as if you were
to live forever.

Be yourself;
everyone else is
already taken

You only live
once, but if you do
it right, once is
enough.

Be the change
that you wish to
see in the world.

CSS Reviewed: “Serif”

- Dutch word meaning “line”
- Found more often in print, for header
- Claims to improve readability, but no empirical evidence supports the claim



What features are differentiating between these groups?

Serif

Live as if you were
to die tomorrow.
Learn as if you were
to live forever.

Be yourself;
everyone else is
already taken

San serif sans means without in French

You only live
once, but if you do
it right, once is
enough.

Be the change
that you wish to
see in the world.

Serif

San serif

天地

ر ر ح ح ق ق س س
ح ح ه ه ه ه ه ه
ل ل م م ن ن
ك ك ك ك ل ل ف ف

1000 JOURNAL OF CLIMATE

天地

حُرُوف أُمَّةٍ مِنَ الْأُمَمِ مُخَالِفُونَ وَفِيهِمْ مُرْسَلٌ
 لَهُمْ وَلَهُمْ أَسْمَاءٌ مِنْ
 دَعْوَاهُمْ الْحُرُوفُ أَفْطَحُ الْ


Font-specification in CSS

- Various properties: refer to W3c references

```
h1 {  
    font-weight: bold;  
    font-size: 12pt;  
    line-height: 14pt;  
    font-family: helvetica;  
}
```

```
h1 {  
    font: bold 12pt/14pt helvetica  
}
```

Example font faces

- Serif
 - Specific font-families: “new times roman”, “Bodoni” ...
 - San serif
 - Specific font-families: “arial”, “verdana”, ...
 - Fantasy
 - Specific font-families: **Broadway** **ALGERIAN**
 - Cursive: scriptlike
 - Specific font-families: *Bradly Hand ITC*, **Comic San MS**
 - Monospace: “mono”=single; typewriter
 - Eg. `courier new MS`
- MicroSoft; may not be available on Mac
- 

Windows fonts / Mac fonts / Font family

Normal style	Bold style
Arial, Arial , Helvetica , <i>sans-serif</i>	Arial , Arial , Helvetica , <i>sans-serif</i>
Arial Black , Arial Black , Gadget , <i>sans-serif</i>	Arial Black , Arial Black , Gadget , <i>sans-serif</i>
Comic Sans MS, Comic Sans MS ⁵ , <i>cursive</i>	Comic Sans MS , Comic Sans MS ⁵ , <i>cursive</i>
Courier New, Courier New , <i>monospace</i>	Courier New , Courier New , <i>monospace</i>
Georgia ¹ , Georgia , <i>serif</i>	Georgia ¹ , Georgia , <i>serif</i>
Impact , Impact ⁵ , Charcoal ⁵ , <i>sans-serif</i>	Impact , Impact ⁵ , Charcoal ⁵ , <i>sans-serif</i>
Lucida Console, Monaco ⁵ , <i>monospace</i>	Lucida Console , Monaco ⁵ , <i>monospace</i>
Lucida Sans Unicode, Lucida Grande , <i>sans-serif</i>	Lucida Sans Unicode , Lucida Grande , <i>sans-serif</i>
Palatino Linotype, Book Antiqua ³ , Palatino , <i>serif</i>	Palatino Linotype , Book Antiqua ³ , Palatino , <i>serif</i>
Tahoma, Geneva , <i>sans-serif</i>	Tahoma , Geneva , <i>sans-serif</i>
Times New Roman, Times New Roman , Times , <i>serif</i>	Times New Roman , Times New Roman , Times , <i>serif</i>
Trebuchet MS ¹ , Trebuchet MS , <i>sans-serif</i>	Trebuchet MS ¹ , Trebuchet MS , <i>sans-serif</i>
Verdana, Verdana , Geneva , <i>sans-serif</i>	Verdana , Verdana , Geneva , <i>sans-serif</i>
Symbol, Symbol (Symbol ² , Symbol ²)	Symbol , Symbol (Symbol ² , Symbol ²)
Webdings, Webdings (Webdings ² , Webdings ²)	Webdings , Webdings (Webdings ² , Webdings ²)
Wingdings, Zapf Dingbats (Wingdings ² , Zapf Dingbats ²)	Wingdings , Zapf Dingbats (Wingdings ² , Zapf Dingbats ²)
MS Sans Serif ⁴ , Geneva , <i>sans-serif</i>	MS Sans Serif ⁴ , Geneva , <i>sans-serif</i>
MS Serif ⁴ , New York ⁶ , <i>serif</i>	MS Serif ⁴ , New York ⁶ , <i>serif</i>

¹ Georgia and Trebuchet MS are bundled with Windows 2000/XP and they are also included in the IE font pack (and bundled with other MS applications), so they are quite common in Windows 98 systems.

² Symbolic fonts are only displayed in Internet Explorer, in other browsers a font substitute is used instead (although the Symbol font does work in Opera and the Webdings works in Safari).

³ Book Antiqua is almost exactly the same font that Palatino Linotype, Palatino Linotype is included in Windows 2000/XP while Book Antiqua was bundled with Windows 98.

⁴ These fonts are not TrueType fonts but bitmap fonts, so they won't look well when using some font sizes (they are designed for 8, 10, 12, 14, 18 and 24 point sizes at 96 DPI).

⁵ These fonts work in Safari but only when using the normal font style, and not with bold or italic styles. Comic Sans MS works in bold but not in italic. Other Mac browsers seems to emulate properly the styles not provided by the font (thanks to Christian Fecteau for the tip).

⁶ These fonts are present in Mac OS X only if Classic is installed (thanks to Julian Gonggrijp for the corrections).

Font-specification in CSS

- System fonts: already installed on computer
- Newer fonts not necessarily accessible to all

```
body {  
  font-weight: bold;  
  font-size: 12pt;  
  line-height: 14pt;  
  font-family: "Bodini", "Georgia", "Times", serif;  
}
```

Specific family-names

Generic

Other font properties

Weight:

lighter, 100, 200, 300, 400 (same as normal), 500, 600, 700 (same as bold), 800, 900, bolder

Text-decoration:

underline, overline, line-through

Text-transform:

capitalize, lowercase, uppercase

Few more tags...

```
<p><del>strikethrough Text</del></p>
```

```
<p><code>Computer Code Text</code></p>
```

```
<p>X<sup>superscript</sup></p>
```

```
<p>Y<sub>subscript</sub></p>
```

~~strikethrough Text~~

Computer Code Text

X^{superscript}

Y_{subscript}

Q: How would you markup these:

$$a^2+b^2=c^2$$

$$y_1 = x^2$$

CSS Reviewed

Style support for:

- **Color** of element text, backgrounds, etc.
- **Font** properties: typeface and emphasis
- **Alignment** of elements (text, images, etc.)
- **Text formatting**: e.g. spacing
- **Boxing**: margin, border, padding, and positioning
- **Unique identification**: explained later
- **Generic classification**: explained later

```
text-align: center;  
/* or: justify, left, right */
```

CSS Reviewed: Text spacing

```
p {  
    letter-spacing: 0.5em;  
    word-spacing: 2em;  
    line-height: 1.5;  
    text-align: center;  
}
```

CSS Reviewed: Sizes/Lengths

- Units of measurement:

- in, cm, mm



2em Padding

1em Padding

0.5em Padding

- px (pixel) = picture element

- em: element (relative to the current height font)

- ex: element (relative to x-height)

- pt (point): 1 pt = 1/72 of 1in

- pc (pica): 1 pc = 12 pt

Commonly used in typography
(typesetting and design)

- ...

CSS Reviewed: Margin, Padding, Border

Content - Content of the box, where text and images appear

Margin - Clears an area outside the border; transparent

Border - A border that goes around the padding and content

Padding - Clears an area around the content; transparent

