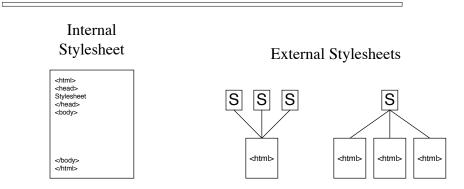# Cascading Style Sheets with XML

James H. Harrison, Jr., M.D., Ph.D.

Centers for Oncology and Pathology Informatics

Department of Pathology

University of Pittsburgh Medical Center

UPMC Cancer Pavilion #310

jhrsn@pitt.edu

# Specification of Format Separate from Content

- CSS useful with both HTML and XML
- Specification of document appearance
- One style sheet for multiple documents
  - > Consistent document appearance
  - > Easier reformatting
- Multiple stylesheets for one content document
  - > Reuse of content, content in multiple contexts
- Features: text format, constant document elements, showing/hiding elements (menus), absolute and relative positioning of elements
- Three levels : CSS1, CSS2, CSS3 (in development)

# Internal and External Style Sheets

Internal
Stylesheet

External Stylesheets

```
<html>
<head>
Stylesheet
</head>
<body>




</body>
</html>
```

S   S   S          S

<html>      <html>  <html>  <html>

# Embedded StyleSheets in HTML

```
<html>
<head><title>My Stylesheet Document</title>
<style type="text/css" media="All">
<!--
p.bolded { text-weight : bold }
-->
</style>
</head>
```

media = All, Aural, Braille, Embossed, Handheld, Print, Tv…

## Multiple StyleSheets

```
<html>
<head><title>My Stylesheet Document</title>
<style type="text/css" media="Tv">
<!--
p { font-size : 28pt }
-->
</style>
<style type="text/css" media="handheld">
<!--
p {font-size : 10pt }
-->
</head>
```

## External StyleSheets in HTML

```
<html>
<head><title>My Stylesheet Document</title>

<link rel="stylesheet" type="text/css"
href="http://jhh.cbmi.upmc.edu/mystyle.css">

</head>
```

## Stylesheet Specification in XML

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<?xml-stylesheet type="text/css" href="toy_report.css"?>
<!DOCTYPE report SYSTEM "SP.dtd">
<report type="Surgical Pathology">
   <hospital code="PUH">
      Presbyterian University Hospital
   </hospital>
```

Since CSS are not well-formed XML, they are generally
specified externally to their XML documents

## Specification Attributes

```
<?xml-stylesheet
      type="text/css"
      href="toy_report.css"
      charset="UTF-8"
      title="Present this for user choice"
      media="screen"
      alternate="no"?>
```
} Optional

Media may be screen, tty, tv, projection, handheld
print, braille, aural, all
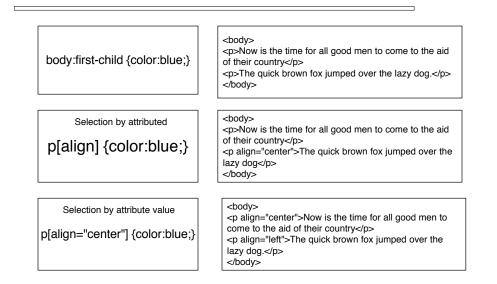
# Stylesheet Syntax and Element Selection

| Tagname { property:value; }<br>p {color:blue;} | `<body>`<br>`<p>`Now is the time for all good men to come to the aid of their country`</p>`<br>`<p>`The quick brown fox jumped over the lazy dog.`</p>`<br>`</body>` |
|---|---|
| Selection by class<br>p.pcolor {color:blue;} | `<body>`<br>`<p class="pcolor">`Now is the time for all good men to come to the aid of their country`</p>`<br>`<p>`The quick brown fox jumped over the lazy dog.`</p>`<br>`</body>` |
| Selection by id<br>p#pcolor {color:blue;} | must be unique<br>`<body>`<br>`<p id="pcolor">`Now is the time for all good men to come to the aid of their country`</p>`<br>`<p>`The quick brown fox jumped over the lazy dog.`</p>`<br>`</body>` |

# More Element Selection

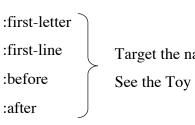| Universal selection<br>* {color:blue;} | `<body>`<br>`<p>`Now is the time for all good men to come to the aid of their country`</p>`<br>`<p>`The quick brown fox jumped over the lazy dog.`</p>`<br>`</body>` |
|---|---|
| Selection by path<br>body p {color:blue;} | `<body>`<br>`<p>`Now is the time for all good men to come to the aid of their country`</p>`<br>`<p>`The quick brown fox jumped over the lazy dog`</p>`<br>`</body>` |
| Selection by path and position<br>body+p {color:blue;} | `<body>`<br>`<p>`Now is the time for all good men to come to the aid of their country`</p>`<br>`<p>`The quick brown fox jumped over the lazy dog.`</p>`<br>`</body>` |

# Even More Element Selection

| | |
|---|---|
| body:first-child {color:blue;} | `<body>`<br>`<p>`Now is the time for all good men to come to the aid of their country`</p>`<br>`<p>`The quick brown fox jumped over the lazy dog.`</p>`<br>`</body>` |
| Selection by attributed<br><br>p[align] {color:blue;} | `<body>`<br>`<p>`Now is the time for all good men to come to the aid of their country`</p>`<br>`<p align="center">`The quick brown fox jumped over the lazy dog`</p>`<br>`</body>` |
| Selection by attribute value<br><br>p[align="center"] {color:blue;} | `<body>`<br>`<p align="center">`Now is the time for all good men to come to the aid of their country`</p>`<br>`<p align="left">`The quick brown fox jumped over the lazy dog.`</p>`<br>`</body>` |

# Additional Selectors

:first-letter

:first-line          Target the named point in the document

:before             See the Toy Report for examples

:after

# Display Characteristics

display: block;      Set off by line breaks

display: inline;      Embedded in surrounding text

display: list-item;      Plain, bullet or numbered

display: table;      Additional specification of rows/cells

display: none;      Hidden

Related features: padding (top left right bottom), border (T L R B), outline, background, position, visibility, float, etc.

# Font and Text Properties (Representative)

| font-family | : | Ariel, Times, Helvetica, serif, sans-serif (list) |
|---|---|---|
| font-style | : | normal, italic |
| font-weight | : | normal, bold, bolder, lighter |
| font-size | : | x-small, small, medium, large, 12pt, larger |
| line-height | : | n (number x font height) or % of font size |
| font | : | multiple options as above, space delimited |
| color | : | color name (16 pre-defined) or #rrggbb |
| background | : | transparent, color name or #rrggbb |
| text-align | : | left, right, center or justify |
| text-decoration | : | underline, overline, line-through |

## Combining specifications

```
P { font : normal left 12pt Times, Geneva; }


H1 {
      display: block;
      font-family : Ariel, Helvetica, sans-serif;
      font-size : 20pt;
      font-weight : bold;
      text-align : center;
}
```

## Examples

See the attached Toy Report XML document with its CSS stylesheet.

Try opening the Toy Report from the class web site using several different browsers.

Browsers are nearing the point at which XML documents with style sheets will be on an equal footing with HTML documents.

## References

- DevGuru's CSS2 Index
  - > http://www.devguru.com/technologies/css/quickref/
    css_index.html
- DeepX CSS Quick Reference
  - > http://www.deepx.com/resources/quickref/
- For fancy layout and menus in HTML
  - > http://meyerweb.com/eric/css/edge/