HTML5

First Steps

Background

- Web starts in 1989
    - (Sir) Tim Berners-Lee
    - Enquirer 1980 - His personal project
    - "Classical" Hypertext can be traced back to
        - Jorge Francisco Isidoro Luis Borges Acevedo, The Garden of Forking Paths, 1941
        - Vannevar Bush, Memex 1945
    - Ideas similar to Hypertext can be traced back to
        - Agostino Ramelli, Book-Wheel, 1588
- Hypertext has been very active area starting in the 1960's
    - Ted Nelson = Xanadu

...

- Many different HTML versions
- HTML5
- Main trends ->
  - Structure -> Trees
  - Clear(er) semantics,
  - Towards declarative constructs,
  - Incorporating media
  - Supporting evolving platforms
- Web Standards try to be compatible to older versions
- Web is based on best effort

Material

- https://dev.w3.org/html5/spec-LC/
- https://html.spec.whatwg.org/multipage/

Doctype

<! Doctype>

     <! DOCTYPE html>

<!--

     Comment1

     …….

    CommentN

-->

Tags

- Tags
  - Markup
  - <Tag .... > Something </Tag>
  - Some tags have no end e.g.
    -
    -> line break

   link

- Tags can be nested

Attributes

- Tags have attributes
  - <a **href**="http://www.cs.usask.ca"> link
- Common Attributes
  - https://html.spec.whatwg.org/multipage/dom.html#global-attributes
- Tag specific
  - href
  - target
  - download
  - ping
  - rel
  - hreflang
  - type
  - referrerpolicy

Example

```
<!DOCTYPE html>

<! -- Comment -->

<html>
    <head>
        <meta charset = "utf-8">
        <title> First Steps </title>
    </head>
    <body>
        <p> Hello Web </p>
    </body>
</html>
```
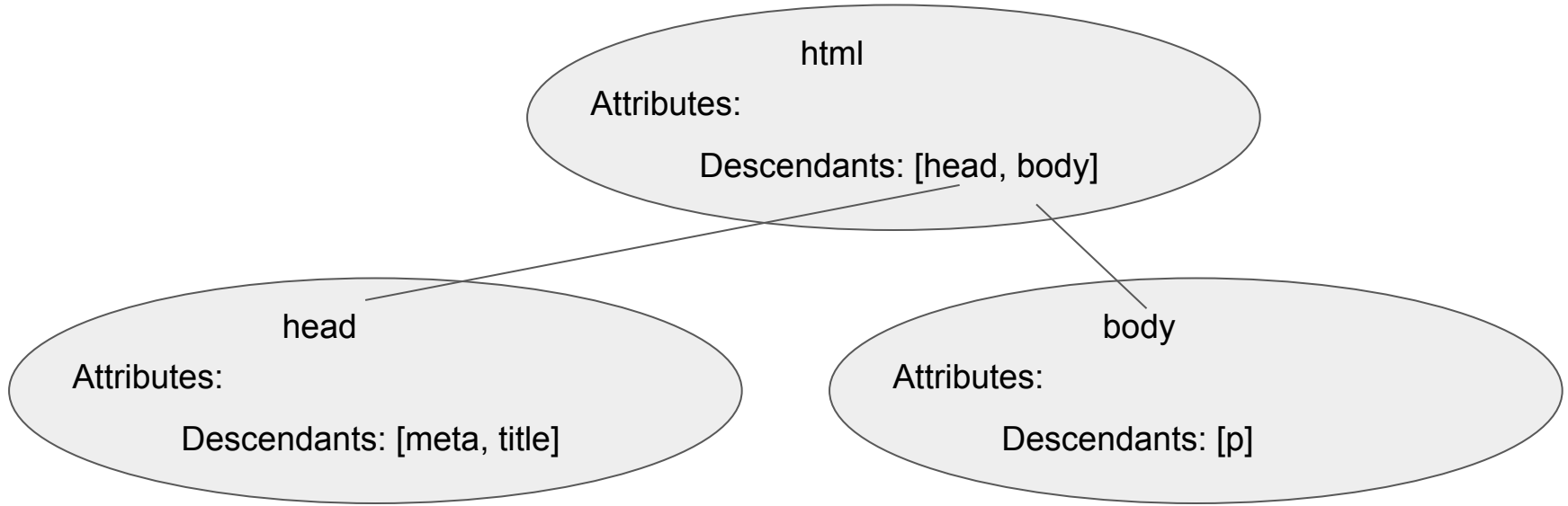
html
Attributes:
Descendants: [head, body]

head
Attributes:
Descendants: [meta, title]

body
Attributes:
Descendants: [p]

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head

Attributes:

Descendants: [meta, title]

meta

Attributes: charset = "utf-8"

Descendants: []

title

Attributes:

Descendants: ["first steps"]

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body

Attributes:

Descendants: [p]

p

Attributes:

Descendants: ["Hello Web"]

Style

- Inline
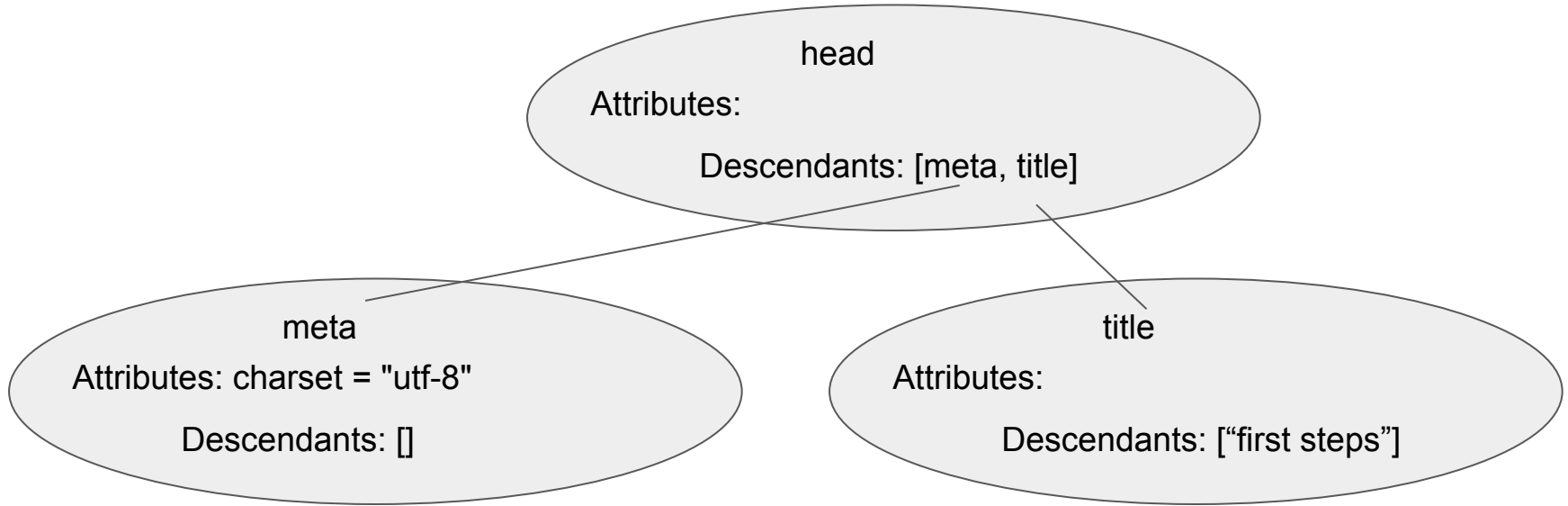- Style File
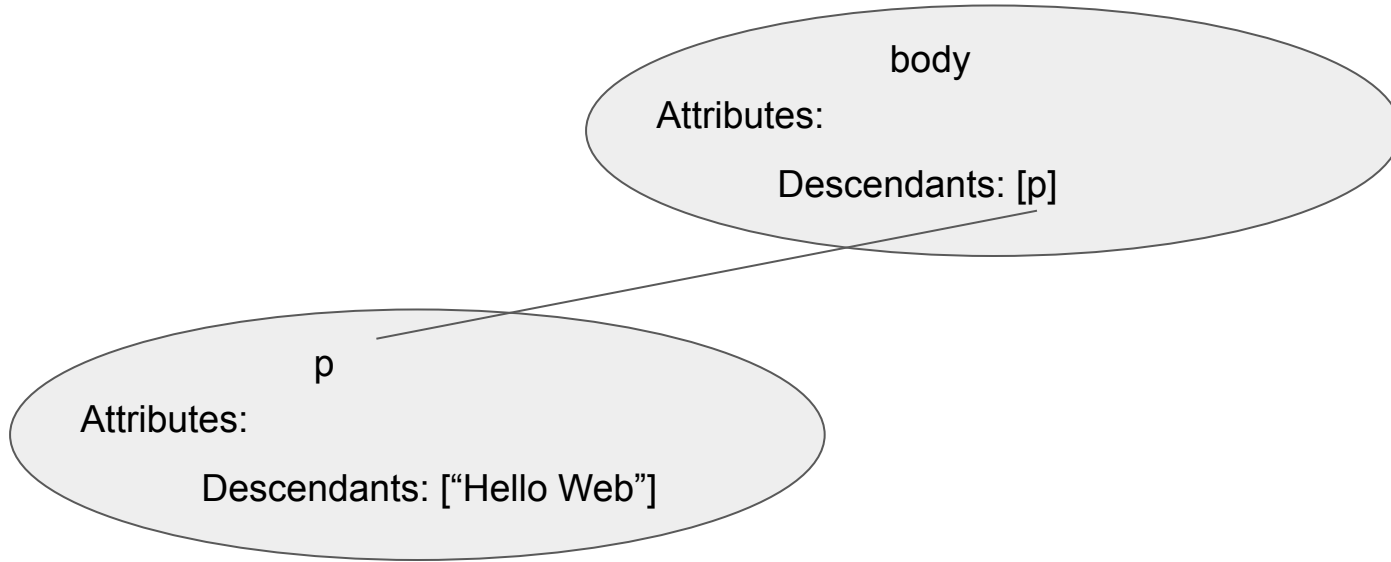
Style (example from html definition)

```
<p>My sweat suit is <span style="color: green; background:
transparent">green</span> and my eyes are <span
style="color: blue;
background: transparent">blue</span>.</p>
```

Inline style

- Use the style attribute (in tag) to declare a style for an individual element
- Every CSS property is followed by a colon and the value of the attribute
- Multiple property declarations are separated by a semicolon

```
<h1
  style = "font-size: 18pt; color: #FF0000">
hello
</h1>
```

Style tag

```
<style type = "text/css">
    h1    { font-family: helvetica, tahoma; color: #FFFF00}
    h2    { font-size: 18pt; color: #00FF00 }
    .ralph1 { color: #FF0000}
    #ralph2 {color: #00FF00}
</style>
...
<body>
<h1 style = "font-size: 18pt; color: #0000FF"> hello </h1>
<h1> hello1  </h1>
<h1 class="ralph1"> hello2 </h1>
<h1 id="ralph2"> hello3 </h1>
```

Style in Separate File

```
<!DOCTYPE html>
<html>
    <head>
        <title>Demo page</title>

    <link rel=stylesheet href= "test.css" type="text/css">

    </head>

    <body>

    ……


    </body>
</html>
```

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CSS File

h1 { font-family: helvetica, tahoma; color: #FFFF00}

h2 { font-size: 18pt; color: #00FF00 }

.ralph1 { color: #FF0000}

 #ralph2 {color: #00FF00}

CSS Statements

- Style defines rules
  - Each rule consists of selector and body
  - Rule body begins with { and ends with }
  - Different properties are separated by ;
  - Different values are separated by ,

- h1   { font-family: helvetica, tahoma; color: #FFFF00;}

- Selector {attribute: value;}
- Selector {attribute1: value; …..; attributeN: value; }

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Selectors

- Selector is name for rule/style
- Selector Types
  - Tag
    - h1   { font-family: helvetica, tahoma; color: #FFFF00;}

  - Class
    - .ralph1 { color: #FF0000}

  - ID
    - #ralph2 {color: #00FF00}

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CSS File

<style type = "text/css">

    h1 { font-family: helvetica, tahoma; color: #FFFF00}

    h2 { font-size: 18pt; color: #00FF00 }

    .ralph1 { color: #FF0000}

   #ralph2 {color: #00FF00}

</style>

Grouping & Nesting

- Standalone
  - h1 { font-family: helvetica, tahoma; color: #FFFF00;}

- Grouping
  - h1, h2 { font-family: helvetica, tahoma; color: #FFFF00;}

- Nested
  - h1 h2 { font-family: helvetica, tahoma; color: #FFFF00;}

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- .class
  - class
- #id
  - id
- tag
  - standalone
- tag1 tag2
  - Select if tag2 is in tag1

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- tag1>tag2
  - Select when tag1 is a parent of tag2
- tag1+tag2
  - Select tag2 that is right after tag1
- [attribute]
  - Select all tags with attribute
- [attribute=value]
  - Select all tags with attribute equal value

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- [attribute~=value]
  - Select all tags with attribute containing value
- :link
  - Select unvisited links
- :visited
  - Select visited links
- :active
  - Select active link
- :hover
  - Select links with "mouse over"

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DOM Manipulation

```html
 <!DOCTYPE html>

<html>
    <head>

        <meta charset="UTF-8">
     <title>Demo 1</title>

    </head>
    <body>

        <p id="p1">Hello world!</p>

        <button onclick="ChangeText()"> Change text </button>
        <button id="b2"> Change color </button>

        <script type = "text/javascript">


                function ChangeText()
                {
                        document.getElementById("p1").innerHTML="New text!";
                }

                function ChangeColor()
                {
                        document.getElementById("p1").style.color = "blue";
                }

                document.getElementById("b2").addEventListener("click", ChangeColor);
                  </script>


            </body>
</html>
```