The render tree relation to the DOM tree

1. **Non-visual DOM elements will not be inserted in the render tree.**
   — The renderers correspond to DOM elements, but the relation is not one to one.

   — An example is the "head" element. Also elements whose display value was assigned to "none" will not appear in the tree (whereas elements with "hidden" visibility will appear in the tree).

2. **Some DOM elements correspond to several visual objects.**
   — These are usually elements with complex structure that cannot be described by a single rectangle.

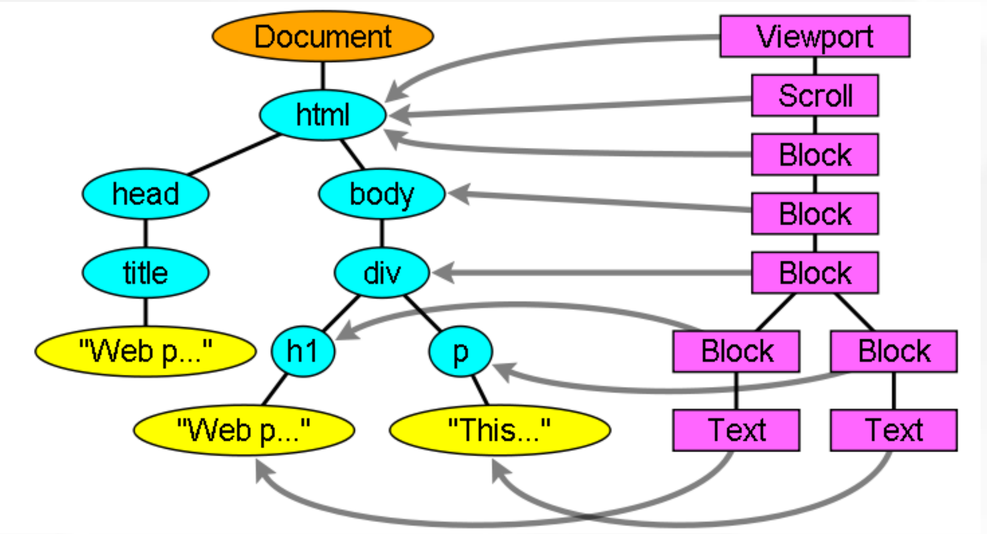
   — For example, the "select" element has three renderers: one for the display area, one for the drop down list box and one for the button.

   — Another example of multiple renderers is broken HTML. According to the CSS spec an inline element must contain either only block elements or only inline elements. In the case of mixed content, anonymous block renderers will be created to wrap the inline elements.

3. **Some render objects correspond to a DOM node but not in the same place in the tree.**
   Floats and absolutely positioned elements are out of flow, placed in a different part of the tree, and mapped to the real frame. A placeholder frame is where they should have been.

The "Viewport" is the initial containing block.

In WebKit it will be the "RenderView" object



THE RENDER TREE AND THE CORRESPONDING DOM TREE

The flow of constructing the tree

1. **FrameConstructor resolves style and creates frames**

   — In Firefox, the presentation is registered as a listener for DOM updates.

   — The presentation delegates frame creation to the FrameConstructor and the constructor resolves style and creates a frame.

2. **Attachment in WebKit**

   — In WebKit the process of resolving the style and creating a renderer is called "attachment".

   — Every DOM node has an "attach" method. Attachment is synchronous, node insertion to the DOM tree calls the new node "attach" method.

3. **Viewport dimensions and DOM nodes insertion**

   — Processing the html and body tags results in the construction of the render tree root.

   — The root render object corresponds to what the CSS spec calls the containing block: the top most block that contains all other blocks. Its dimensions are the viewport: the browser window display area dimensions. Firefox calls it ViewPortFrame and WebKit calls it RenderView. This is the render object that the document points to.

   — The rest of the tree is constructed as a DOM nodes insertion.