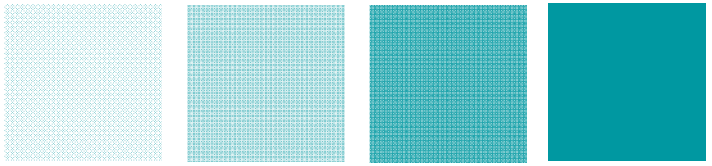
BEUTH HOCHSCHULE FÜR TECHNIK BERLIN
University of Applied Sciences



HTML 5 + CSS3 + JS

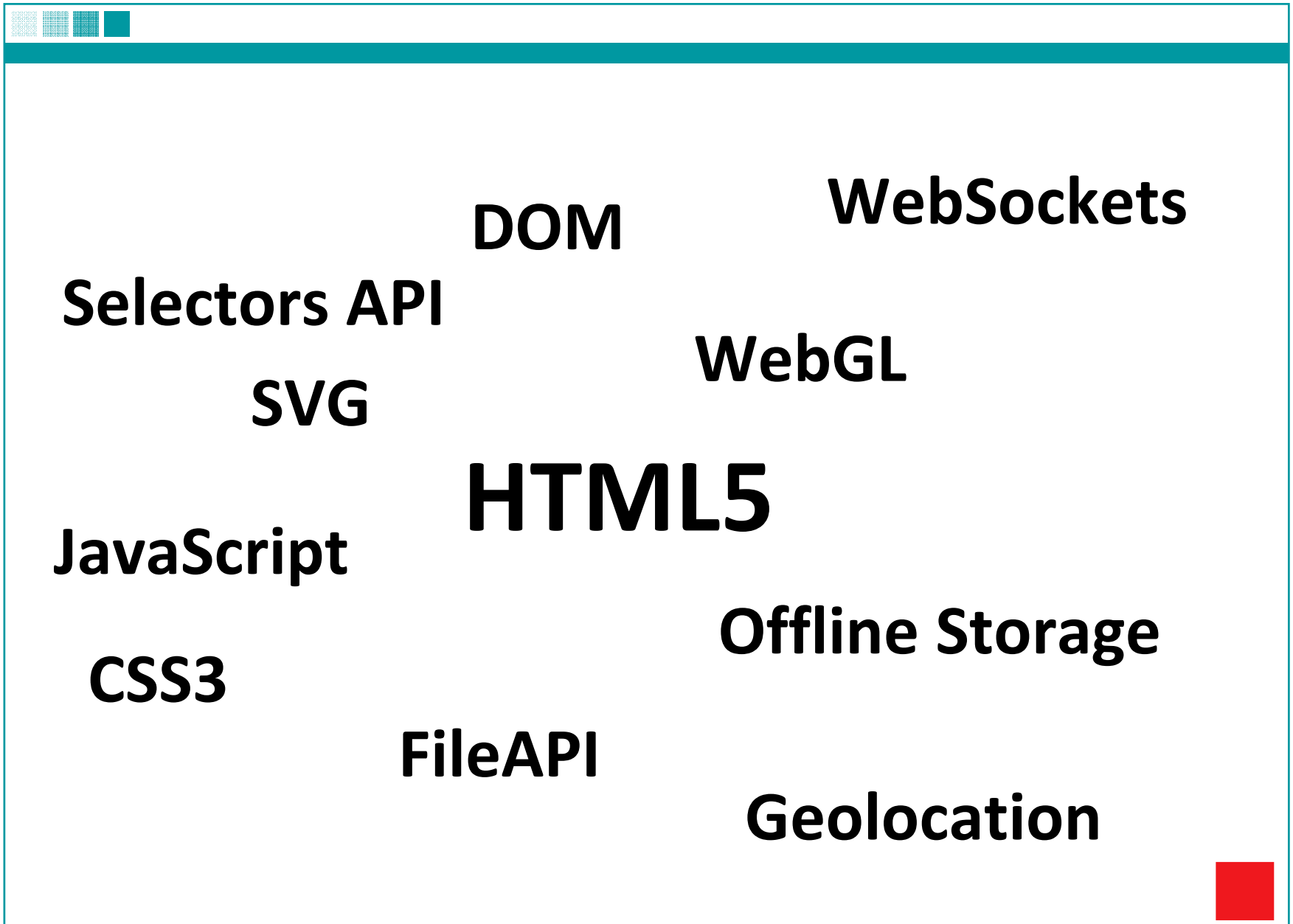
Multimedia Engineering II
WS 13/14

Sven Spielvogel

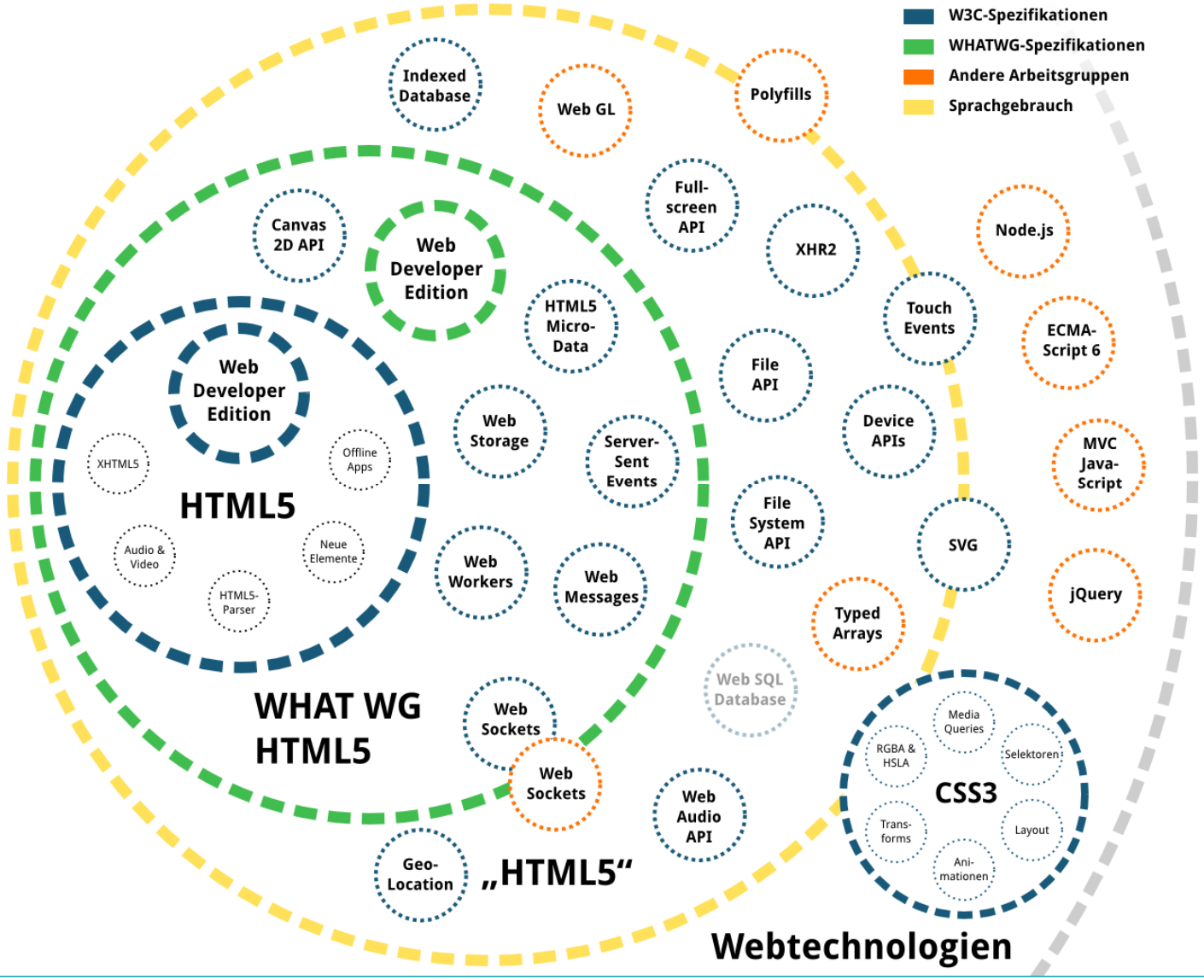
Let’s be clear: It’s fine to say that Flash is flawed; it is. You know who’d agree? The Flash team

John Nack, Product Manager - Adobe

Was ist HTML5?


DOM
WebSockets
Selectors API
WebGL
SVG
HTML5
JavaScript
Offline Storage
CSS3
FileAPI
Geolocation

Quelle: http://www.joocom.de/blog/html5-ein-uberblick/



Kompatibilität

- Anfangs großes Problem
- Max 475

306	329	315	373	302
				
10 Beta	11.60	9.0	16.0	5.1

Quelle: html5test.com (2011)

Kompatibilität

- Immer noch viele Inkompatibilitäten vorhanden
- Max 500

355	423	410	463	378
				
11	15	22	28	6

Quelle: html5test.com (20.08.2013)

Kompatibilität - Video

					
H.264					
OggTheora					
WebM					

Einsatzgebiete

Beispiele - http://html5demos.com/

Storage

Values are stored on `keyup`

Content loaded from previous sessions:

- sessionStorage: Hallo Welt! (last updated: 10.411s ago)
- localStorage: Hallo MME 2 :D (last updated: 2.72s ago)

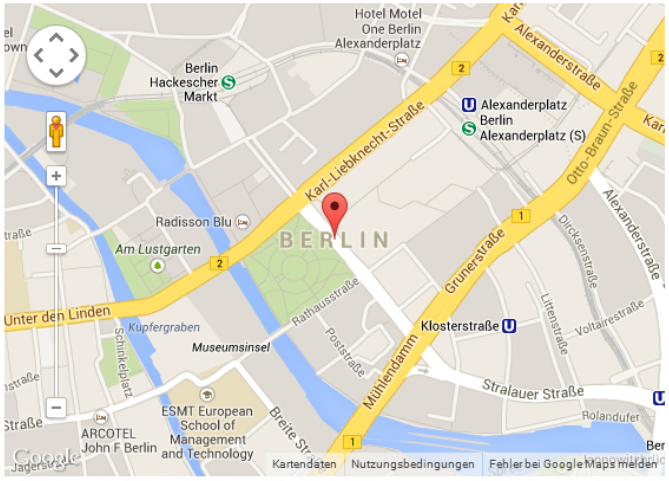
sessionStorage:

localStorage:

Clear storage

geolocation

Finding your location: found you!



Canvas

Die Basis

```
<!DOCTYPE html>
```
➡ definiert HTML5 als doctype

```
<html>
```
➡ beschreibt die eigentliche Website

```
<body>
```
➡ sichtbarer Inhalt der Seite

```
<h1>Hello World!</h1>
```
➡ Definition einer Überschrift

```
<p>I'm a paragraph without any
sense.</p>
```
➡ Definition eines Absatzes

```
</body>
</html>
```

doctype

HTML5

```
<!DOCTYPE html>
```

HTML 4.01

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
```

HbbTV – Hybrid Broadcast Broadband Television

```
<!DOCTYPE html PUBLIC "-//HbbTV//1.1.1//EN"
"http://www.hbbtv.org/dtd/HbbTV-1.1.1.dtd">
```

Neue Elemente - Canvas

`<canvas>` Ermöglicht grafische Bearbeitung zur Laufzeit.

- Bilderbearbeitung
- Texte darstellen
- Kurven

Neue Elemente - Medienelemente

Tag	Description
<audio>	Defines sound content
<video>	Defines a video or movie
<source>	Defines multiple media resources for <video> and <audio>
<embed>	Defines a container for an external application or interactive content (a plug-in)
<track>	Defines text tracks for <video> and <audio>

Quelle:http://www.w3schools.com/html/html5_new_elements.asp

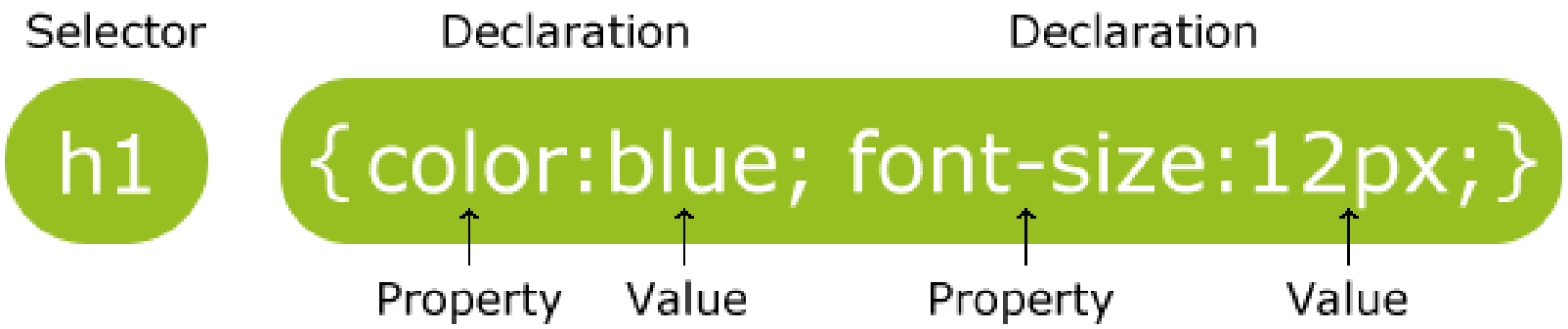
Neue Elemente - Sematische/Strukturelle Elemente

Tag	Description
<article>	Defines an article
<aside>	Defines content aside from the page content
<bdi>	Isolates a part of text that might be formatted in a different direction from other text outside it
<command>	Defines a command button that a user can invoke
<details>	Defines additional details that the user can view or hide
<dialog>	Defines a dialog box or window
<summary>	Defines a visible heading for a <details> element
<figure>	Specifies self-contained content, like illustrations, diagrams, photos, code listings, etc.
<figcaption>	Defines a caption for a <figure> element
<footer>	Defines a footer for a document or section
<header>	Defines a header for a document or section
<mark>	Defines marked/highlighted text
<meter>	Defines a scalar measurement within a known range (a gauge)
<nav>	Defines navigation links
<progress>	Represents the progress of a task
<ruby>	Defines a ruby annotation (for East Asian typography)
<rt>	Defines an explanation/pronunciation of characters (for East Asian typography)
<rp>	Defines what to show in browsers that do not support ruby annotations
<section>	Defines a section in a document
<time>	Defines a date/time
<wbr>	Defines a possible line-break

Quelle:http://www.w3schools.com/html/html5_new_elements.asp

Was ist CSS?

Cascading Style Sheet - Basis



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

CSS - Basis

Cascading Style Sheets

- deklarative Sprache
  - Feste Regeln
  - Vererbungsmodell
- Layout

```
Selektor [, Selektor2, …] {
        Eigenschaft-1: Wert-1;
        … Eigenschaft-n: Wert-n[;]
}
/* Kommentar */
/* In eckigen Klammern stehen optionale Angaben */
```

CSS - Selektoren

Pattern	Meaning	Described in section
*	Matches any element.	Universal selector
E	Matches any E element (i.e., an element of type E).	Type selectors
E F	Matches any F element that is a descendant of an E element.	Descendant selectors
E > F	Matches any F element that is a child of an element E.	Child selectors
E:first-child	Matches element E when E is the first child of its parent.	The :first-child pseudo-class
E:link E:visited	Matches element E if E is the source anchor of a hyperlink of which the target is not yet visited (:link) or already visited (:visited).	The link pseudo-classes
E:active E:hover E:focus	Matches E during certain user actions.	The dynamic pseudo-classes
E:lang(c)	Matches element of type E if it is in (human) language c (the document language specifies how language is determined).	The :lang() pseudo-class
E + F	Matches any F element immediately preceded by a sibling element E.	Adjacent selectors
E[foo]	Matches any E element with the "foo" attribute set (whatever the value).	Attribute selectors
E[foo="warning"]	Matches any E element whose "foo" attribute value is exactly equal to "warning".	Attribute selectors
E[foo~="warning"]	Matches any E element whose "foo" attribute value is a list of space-separated values, one of which is exactly equal to "warning".	Attribute selectors
E[lang|="en"]	Matches any E element whose "lang" attribute has a hyphen-separated list of values beginning (from the left) with "en".	Attribute selectors
DIV.warning	*Language specific.* (In HTML, the same as DIV[class~="warning"].)	Class selectors
E#myid	Matches any E element with ID equal to "myid".	ID selectors

Quelle:http://www.w3.org/TR/CSS2/selector.html

CSS – Kombination von Selektoren

Folgende Schreibweise ist äquivalent:

```
h1 { font-family: sans-serif }
h2 { font-family: sans-serif }
h3 { font-family: sans-serif }
```

```
h1, h2, h3 { font-family: sans-serif }
```

CSS – Hierarchie

Die Hierarchie in CSS funktioniert auf zwei Ebenen.

1. Inline Style

2. Internal style sheet

    1. #id type.class
    2. #id type
    3. #id
    4. type .class
    5. type

3. Externalstyle sheet

4. Browser default

CSS – Hierarchie

- Es gibt eine klare Hierarchie
- Jede Stufe überschreibt die darunter liegende

1. Inline Style
2. Internal style sheet
3. External style sheet
4. Browser default

ABER

```
!important
```

CSS – Hierarchie

```
#content ul li { color : red; }
ul li { color : blue !important; }
```

Das !important befördert eine Regel in der Hierarchie an die Spitze.

Dies gilt intern wie auch extern.

z.B.:

1. External style sheet + !important
2. Inline Style
3. Internal style sheet
4. Browser default

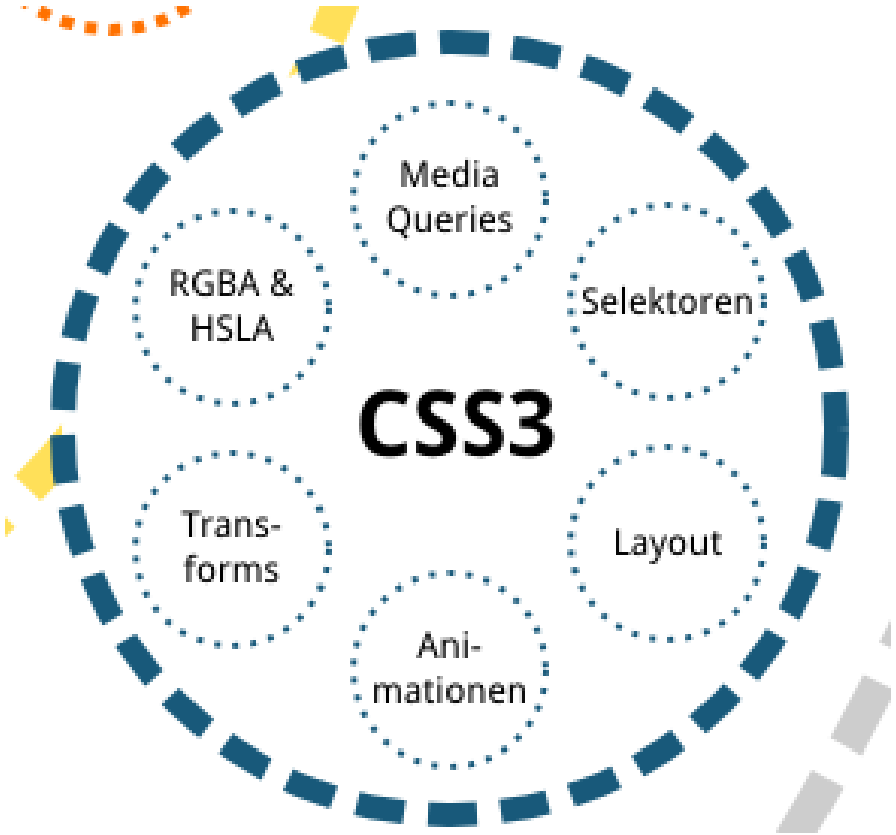
CSS – Hierarchie

```
!important
```

Das !important befördert eine Regel in der Hierarchie an die Spitze.

z.B.:

1. Inline Style + !important
2. External style sheet + !important
3. Internal style sheet
4. Browser default


Media Queries
RGBA & HSLA
Selektoren
CSS3
Trans-forms
Layout
Ani-mationen

Was ist JS?

JS had to “look like Java” only less so, be Java’s dumb kid brother or boy-hostage sidekick. Plus, I had to be done in ten days or something worse than JS would have happened.

Brendan Eich [1]

- 1995: Brendan Eich entwickelt *Mocha / LiveScript* bei Netscape
- Ziel: Konkurrenz zu *Visual Basic,* für *semiprofessionelle* Frontend-Entwickler
- Java war gerade das „hot thing for the web“, daher Umbenennung in *JavaScript*

1) http://en.wikipedia.org/wiki/Brendan_Eich

Mehr Rückblick unter https://brendaneich.com/2011/06/new-javascript-engine-module-owner/

- **funktional:** mit Funktionen als First-Class-Citizens, Closures, ...
- **objektorientiert:** aber nicht mittels Klassen, sondern mittels Prototypen.
- **kompromisslos dynamisch:** Objekte können zur Laufzeit um Methoden und Attribute erweitert werden, Quellcode kann zur Laufzeit hinzugefügt werden, ...
- **prinzipiell unstrukturiert:** JavaScript gibt keine Strukturen vor; diese müssen mittels Patterns und Disziplin vom Entwickler geschaffen werden.

Mehr dazu später!

- 3 verschiedene Formen der Definition
  - Inline

```
<a href="#" onclick="alert('Hi')">Click Me</a>
```

  - Im HTML

```
<script type="text/javascript">
 function onclick(event) { alert('Hi') }
</script>
```

  - Extern

```
<script src="js/app.js"></script>
```