

A Quick Run Through JavaScript

<http://javascript.crockford.com/>



ipSpace

Objects

```
var a;
```

```
a = { vx: 'asdf', 'v-y': 1234,  
      vz: { vza: 123, 'vz-b': 'xy' } };
```

```
a.vx = 'efgh';
```

```
a['v-y'] = 'string';
```

```
a.vz.vza--;
```

```
var b = a.vz['vz-b'].toUpperCase();
```

```
var c = a.missing && a.missing.bit;
```

Everything is an object, including strings, numbers and functions

Functions

```
function a(x,y) { return x+y; }

var b = function(c,d) { return c*d; };
var x = b(2,3); // 6

var e = { mx:a, my: b,
  mz: function() { return this.a(this.b(2,3),1) }
};
e.mx(2,3); // 5
e.my(2,3); // 6
if (e.mz <= 6) { alert("LT6"); };
```

a(x) is a shortcut for a.call(null,x)

Methods

- Functions assigned to object properties
- Called like functions
- **this** is set to the parent object

Constructors

```
var Inc = function (x) {  
    this.start = x; return this; };
```

```
Inc.prototype.next = function() {  
    this.start++; return this.start; };
```

```
var b = new Inc(7);  
b.next(); // 8
```

Constructors – Large-Scale

```
var Inc = function (x) {  
    this.start = x; return this; }
```

```
Inc.prototype = {  
    next: function() {  
        this.start++; return this.start; }  
  
    prev: function() {  
        this.start--; return this.start; }  
};
```

Nested Functions

```
function range(a,b) {  
  
    function max(a,b) { return a > b ? a:b; };  
    function min(a,b) { return a < b ? a:b; };  
  
    var x = max(min(a,b),0);  
    var y = min(max(a,b),1024);  
    return ({x: x, y: y});  
};
```

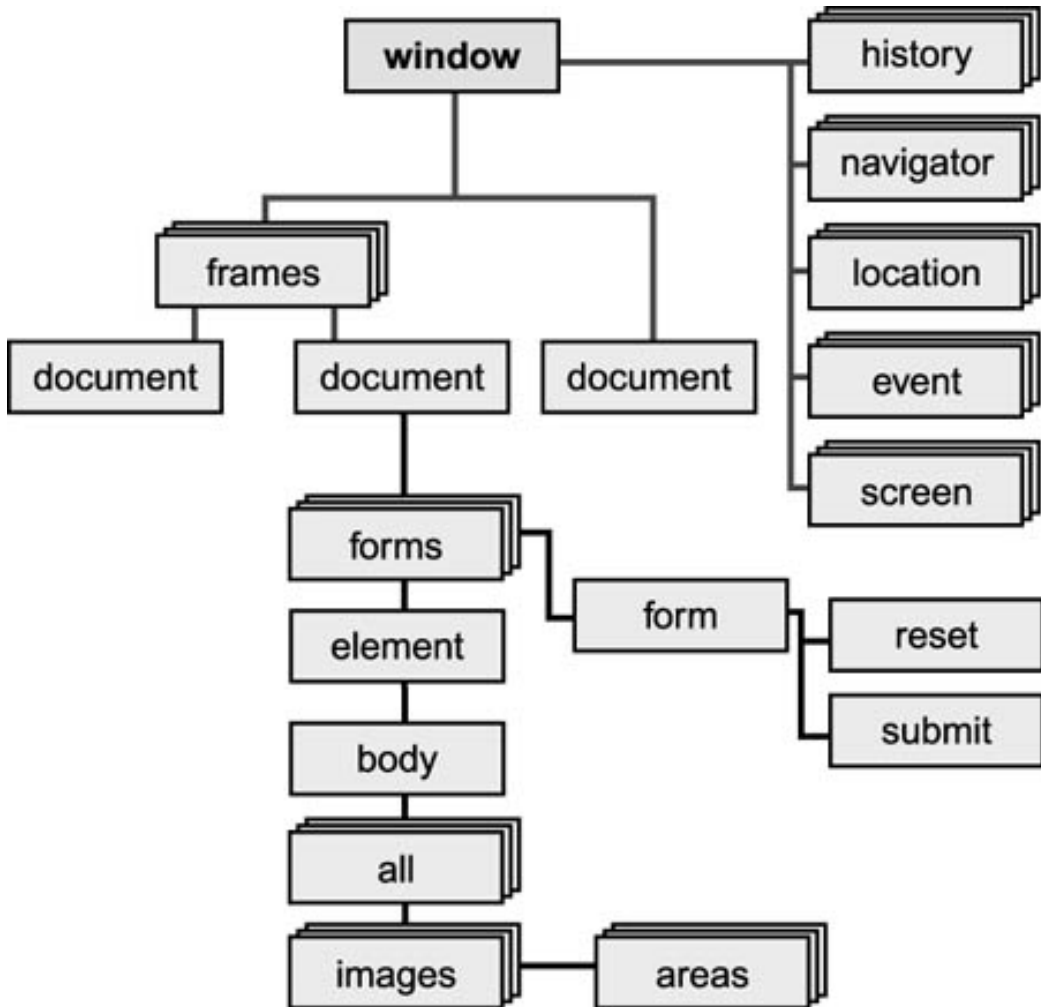
Closures

```
function counter(start) {  
    var cnt = start;  
  
    function incr() { return ++start; }  
  
    return incr;  
};  
  
var cnt1 = counter(3);  
var cnt2 = counter(15);  
cnt1();    // 4  
cnt2();    // 16;
```

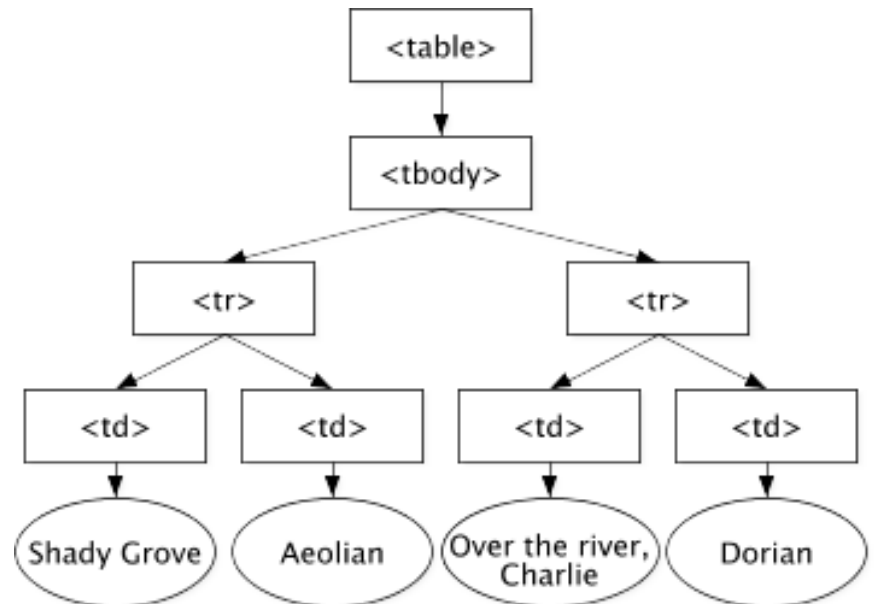

JavaScript In Web Pages

- Dynamic content creation with **document.write** (don't even think about that!)
- Event handling
- Dynamic modifications of DOM objects (DHTML)
- Form validation and submission
- On-demand background transactions (AJAX)

Document Object Model



Source: Microsoft.com



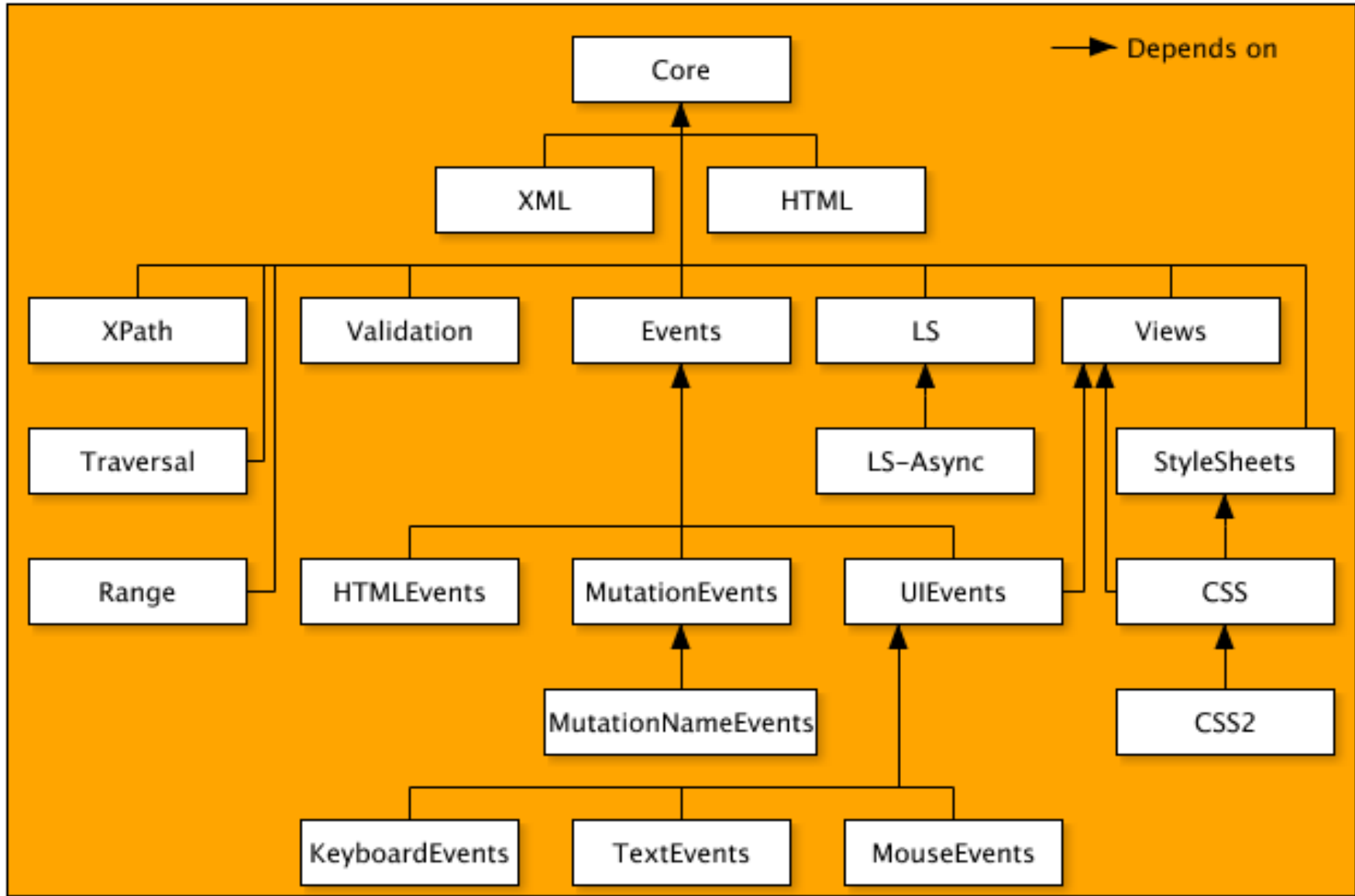
Source: w3.org

Navigating DOM

<code>getElementsByTagName (tag)</code>	<code>n.nodeName</code>
<code>getElementById(id)</code>	<ul style="list-style-type: none">• Tag name for HTML/XML tags• Attribute name for attributes
<code>parentNode()</code>	<code>n.nodeValue</code>
<code>childNodes()</code>	<ul style="list-style-type: none">• Attribute value for attribute nodes• Text for text nodes
<code>firstChild()</code>	<code>n.innerHTML</code>
<code>lastChild()</code>	<code>n.attributes</code>
<code>previousSibling()</code>	<ul style="list-style-type: none">• Returns a collection of node attributes
<code>nextSibling()</code>	
<code>appendChild()</code>	
<code>removeChild()</code>	<code>n.style</code>

Use a library like jQuery

DOM Architecture



Source: w3.org

DOM Events

- Mouse
- Keyboard
- Navigation
- Form input
- Resizing and scrolling
- Generic events
- DOM manipulation events

Typical DOM Events

Mouse

- click
- dblclick
- mousedown
- mouseup
- mouseover
- mousemove
- mouseout

Keyboard

- keydown
- keypress
- keyup

Navigation

- focus / DOMFocusIn
- blur / DOMFocusOut
- DOMActivate

Form input

- select
- change
- submit
- reset
- textInput

Typical DOM Events

Resizing and scrolling

- resize
- scroll

Generic events

- load
- unload
- abort
- error
- DOMContentLoaded

DOM modifications

- DOMSubtreeModified
- DOMNodeInserted
- DOMNodeRemoved
- DOMNodeRemovedFromDocument
- DOMNodeInsertedIntoDocument
- DOMAttrModified
- DOMCharacterDataModified
- DOMElementNameChanged
- DOMAttributeNameChanged

Adding Event Listener(s)

```
element.onclick = myFunction; // don't
```

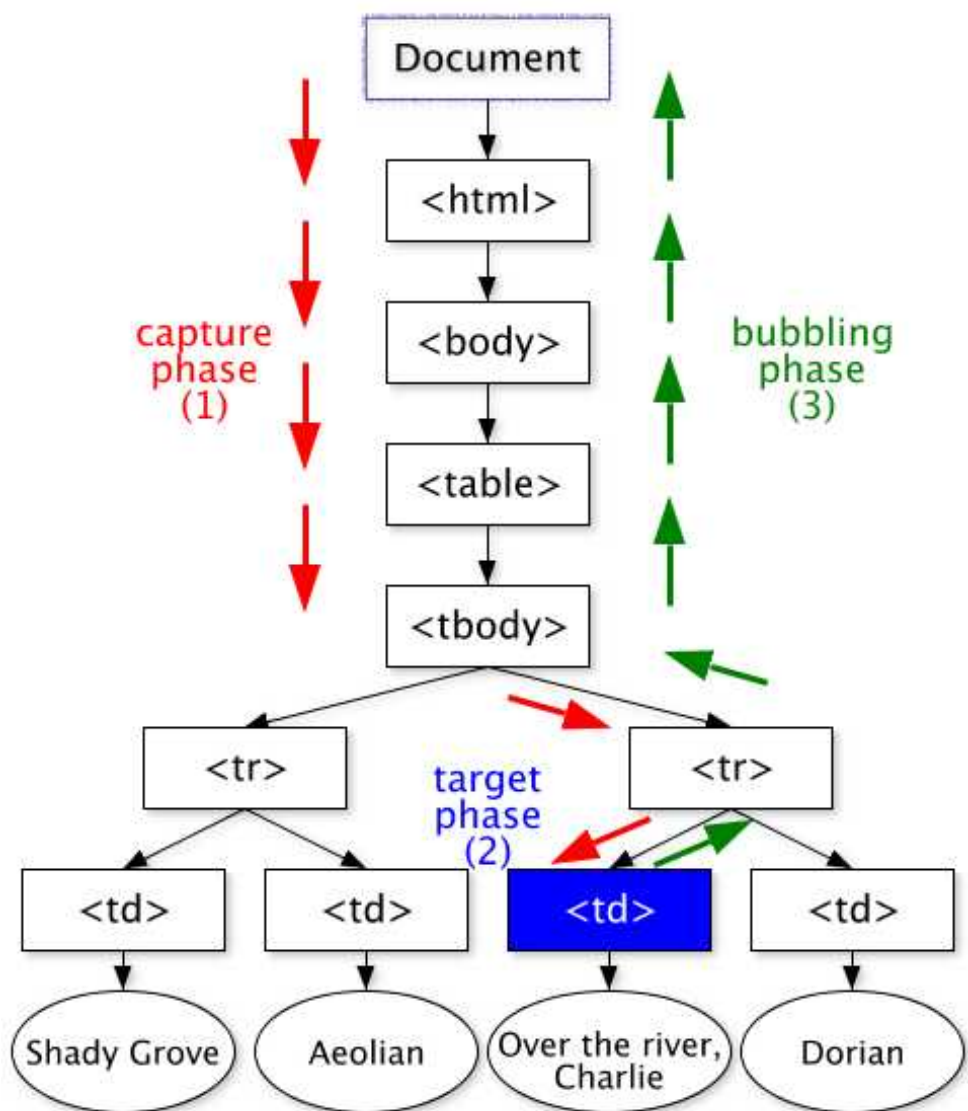
```
window.onload = function() { ... }; // don't
```

```
<body onload="Jscode"> // don't even think about it
```

```
element.addEventListener(type,listener,useCapture);  
window.addEventListener('load',function() { ... });
```

- Can capture all event phases
- Allows multiple events of the same type for a single element

DOM Event Bubbling



- Stop a phase with `e.stopPropagation()`
- Stop default action with `e.preventDefault`

Examples:

- Stop form submission
- Replace link click with user action

Source: w3.org

DOMContentLoaded Versus window.onload

URL	Status	Domain	Size	Remote IP	Timeline
▶ GET Main_Page	200 OK	ipSpace.net	14.8 KB	193.110.145.52:80	315ms
▶ GET SelectCategoryTa	200 OK	ipSpace.net	2.1 KB	193.110.145.52:80	11ms
▶ GET wiki20.css?207	200 OK	ipSpace.net	12.5 KB	193.110.145.52:80	87ms
▶ GET ajax.js?207	200 OK	ipSpace.net	4.7 KB	193.110.145.52:80	63ms
▶ GET ipSpaceLogo.jpg	200 OK	ipSpace.net	5.2 KB	193.110.145.52:80	66ms
▶ GET WkIvan.png	200 OK	ipSpace.net	1.4 KB	193.110.145.52:80	47ms
▶ GET WkURHere.png	200 OK	ipSpace.net	7 KB	193.110.145.52:80	64ms
▶ GET IOS_Hints_home-	200 OK	ipSpace.net	82.8 KB	193.110.145.52:80	131ms
▶ GET jquery.min.js	200 OK	ajax.googleapis.com	24 KB	173.194.67.95:80	88ms
▶ GET jquery-ui.min.js	200 OK	ajax.googleapis.com	49.4 KB	173.194.67.95:80	163ms
▶ GET wiki20.js	200 OK	ipSpace.net	2 KB	193.110.145.52:80	54ms
▶ GET bodybg.jpg	200 OK	ipSpace.net	1.1 KB	193.110.145.52:80	11ms
▶ GET headerbg.jpg	200 OK	ipSpace.net	9.5 KB	193.110.145.52:80	17ms
▶ GET wikiBullet.gif	200 OK	ipSpace.net	827 B	193.110.145.52:80	16ms
▶ GET Pipi_150x150.jpg	200 OK	ipSpace.net	7.7 KB	193.110.145.52:80	34ms
▶ GET ga.js	200 OK	google-analytics.com	13.1 KB	173.194.67.100:80	85ms
▶ GET __utm.gif?utmwv=	200 OK	google-analytics.com	35 B	173.194.67.100:80	43ms
17 requests			238.2 KB	822ms (onload: 828ms)	

- DOMContentLoaded triggered with the DOM model is ready (all JS is loaded)
- Onload event triggered when all the content has been loaded (including images)

Questions?

