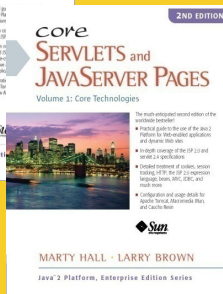
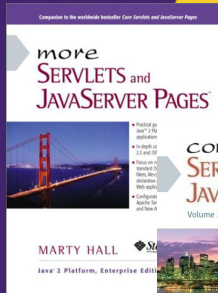




The Script.aculo.us JavaScript Library Part II: Visual Effects

Originals of Slides and Source Code for Examples:
<http://courses.coreservlets.com/Course-Materials/ajax.html>

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For live Ajax & GWT training, see training courses at <http://courses.coreservlets.com/>.



Taught by the author of *Core Servlets and JSP*, *More Servlets and JSP*, and this tutorial. Available at public venues, or customized versions can be held on-site at your organization.

- Courses developed and taught by Marty Hall
 - Java 6, intermediate/beginning servlets/JSP, advanced servlets/JSP, Struts, JSF 1.x & 2.0, Ajax, GWT, custom mix of topics
 - Ajax courses can concentrate on one library (jQuery, Prototype/Scriptaculous, Ext-JS, Dojo) or survey several
 - Courses developed and taught by coreservlets.com experts (edited by Marty)
 - Spring, Hibernate/JPA, EJB3, Ruby/Rails
- Contact hall@coreservlets.com for details**

Topics in This Section

- Overview
- Basic syntax
- Highlighting
- Showing/hiding elements
- Moving, resizing, and styling elements
- Effect options

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Introduction

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Overview

- **Animation effects**

- Usually a temporary change to the color, size, opacity, or position of some element
 - Possibly a compound element like a div
- Sometimes gradually displays hidden element
- Sometimes gradually removes item

- **Purposes**

- Draw attention to some Ajax result
- Draw attention to error (e.g., with client-side validation)
- To remove some previous result

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Installation and Documentation

- **Installation**

- You need the Prototype and Scriptaculous JavaScript libraries. Download from <http://script.aculo.us/>.
 - Details in previous lecture on Scriptaculous Ajax support.

- **Documentation**

- General Scriptaculous (effects, Ajax, drag/drop, etc.)
 - <http://wiki.script.aculo.us/>
- Officially supported visual effects (this lecture)
 - <http://wiki.script.aculo.us/scriptaculous/show/VisualEffects>
- User-submitted visual effects
 - <http://wiki.script.aculo.us/scriptaculous/show/EffectsTreasureChest>
- Visual effects cheat sheet (one page, PDF)
 - http://www.slash7.com/cheats/scriptaculous_fx1.pdf

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Invoking Effects

- **new Effect.someName(someID, { options })**
 - new Effect.Highlight("myTextField")
 - Don't forget the "new"
 - This is most common usage, and version I will use
- **element.visualEffect(effectName, { options })**
 - \$("myTextField").visualEffect("Highlight")
 - Remember from Prototype that \$("someID") is a souped up version of document.getElementById("someID")
 - Every new Effect.Blah() can also be done with someElement.visualEffect("Blah")
- **element.shortcut({ options })**
 - \$("myTextField").highlight()
 - Only a few of the most common effects have this option

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Highlighting Effects

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Highlighting Effects

- **Idea**

- These effects draw attention to something important
 - E.g., a new Ajax result or a validation error

- **Effects**

- Effect.Highlight (also \$("id").highlight())
 - Also known as Yellow Fade Technique, makes background color change gradually (to yellow by default), then revert to normal
 - Options: startcolor, endcolor, revertcolor, keepBackgroundImage
- Effect.Pulsate
 - Fades in and out several times
 - Options: pulse
- Effect.Shake
 - Moves left/right several times
 - Options: duration, distance

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Highlighting Effects: Header For All Examples

```
...
<head><title>Scriptaculous Effects</title>
<link rel="stylesheet"
      href="./css/styles.css"
      type="text/css"/>
<script src="./scripts/prototype.js"
        type="text/javascript"></script>
<script
  src="./scripts/scriptaculous/scriptaculous.js?load=effects"
  type="text/javascript"></script>
</head>
...
```

If you know you will only use certain parts of scriptaculous library, you can save download time by loading only some of it. To load all of it, just omit the "load=" part. I.e.,
<script src=".../scriptaculous.js"...></script>

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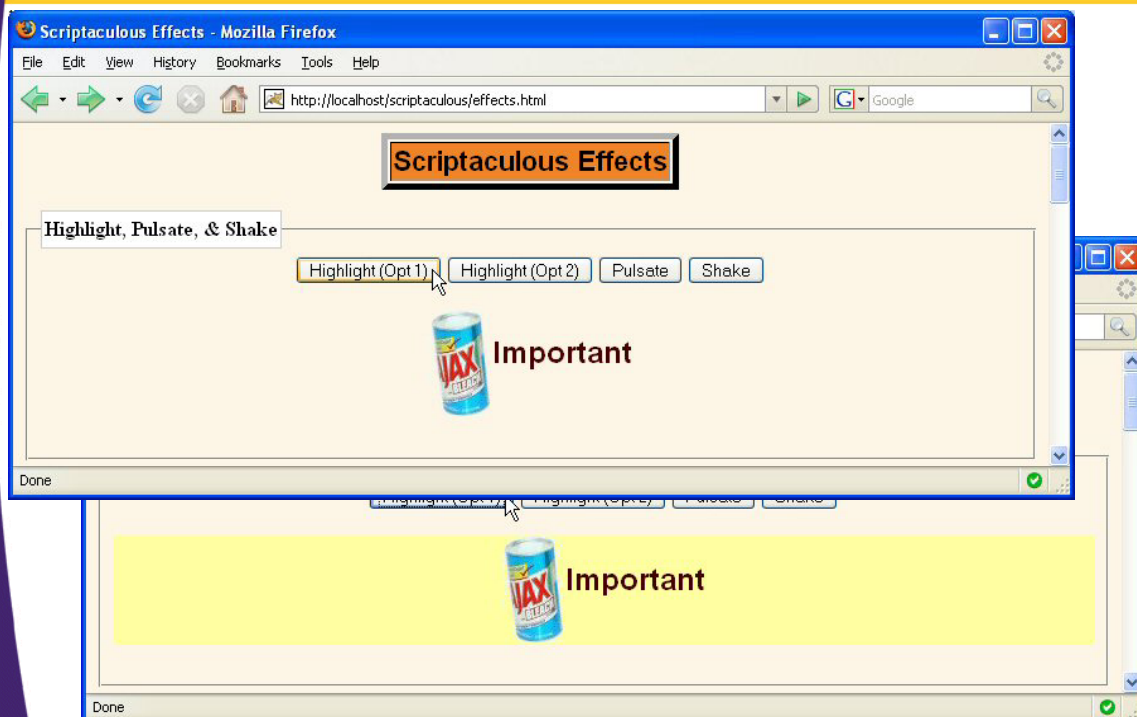
Highlighting Effects Example

```
<fieldset>
<legend>Highlight, Pulsate, &amp; Shake</legend>
<form action="#">
<input type="button" value="Highlight (Opt 1)"
      onclick="new Effect.Highlight('id-to-highlight') "/>
<input type="button" value="Highlight (Opt 2)"
      onclick="$('id-to-highlight').highlight() "/>
<input type="button" value="Pulsate"
      onclick="new Effect.Pulsate('id-to-highlight') "/>
<input type="button" value="Shake"
      onclick="new Effect.Shake('id-to-highlight') "/>
<h2 id="id-to-highlight">
Important</h2>
</form>
</fieldset>
```

Don't forget "new". It is "new Effect.Whatever(...)", not just "Effect.Whatever(...)".

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Highlighting Effects Example: Results



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Making Elements Appear and Disappear

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Fading Effects

- **Idea**
 - These effects gradually turn invisible text visible, or gradually turn visible text invisible
 - Use lower-level Effect.Scale and Effect.Opacity
- **Effects**
 - Effect.Appear
 - Takes hidden element (style="display:none") and gradually increases opacity
 - Effect.Fade
 - Decreases opacity and then leaves it hidden
 - Effect.Grow
 - Takes hidden element and grows it from tiny to normal
 - Better with option of { direction: 'top-left' }
 - Effect.Shrink
 - Decreases size, then makes it hidden

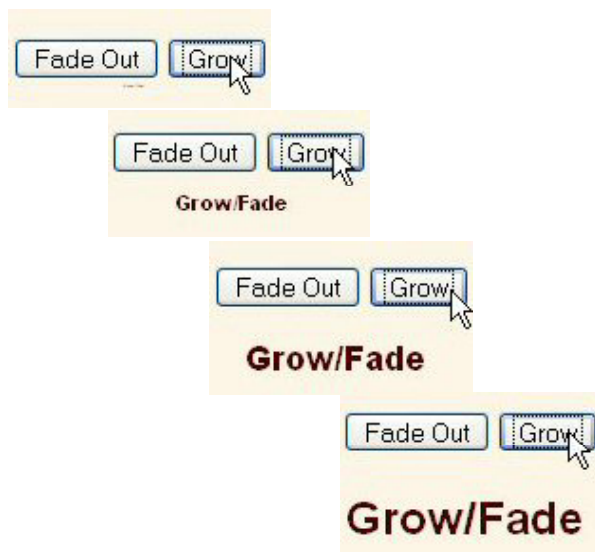
Fading Effects Example

```
<fieldset>
<legend>Appear, Fade, Grow, Shrink</legend>
<form action="#">
<input type="button" value="Fade In"
  onclick="new Effect.Appear('id-to-grow')"/>
<input type="button" value="Fade Out"
  onclick="new Effect.Fade('id-to-grow')"/>
<input type="button" value="Grow"
  onclick="new Effect.Grow('id-to-grow',
    { direction: 'top-left'})"/>
<input type="button" value="Shrink"
  onclick="new Effect.Shrink('id-to-grow',
    { direction: 'top-left'})"/>
<h2 id="id-to-grow" style="display:none">Grow/Fade</h2>
</form>
</fieldset>
```

You must start hidden elements with an [inline style](#) for display:none. You cannot use a style sheet.

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Fading Effects Example: Results



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Disappearing Effects

- **Idea**
 - Kill off elements in creative ways
- **Effects**
 - Effect.Puff
 - Increases size while fading opacity
 - Effect.SwitchOff
 - Supposedly simulates old-style tv turning off
 - Effect.Squish
 - Similar to Shrink, but more reliably toward center
 - Effect.Fold
 - Shrinks vertically, then left. Unclear on many browsers.
 - DropOut
 - Moves lower, then off (like falling through trap door)

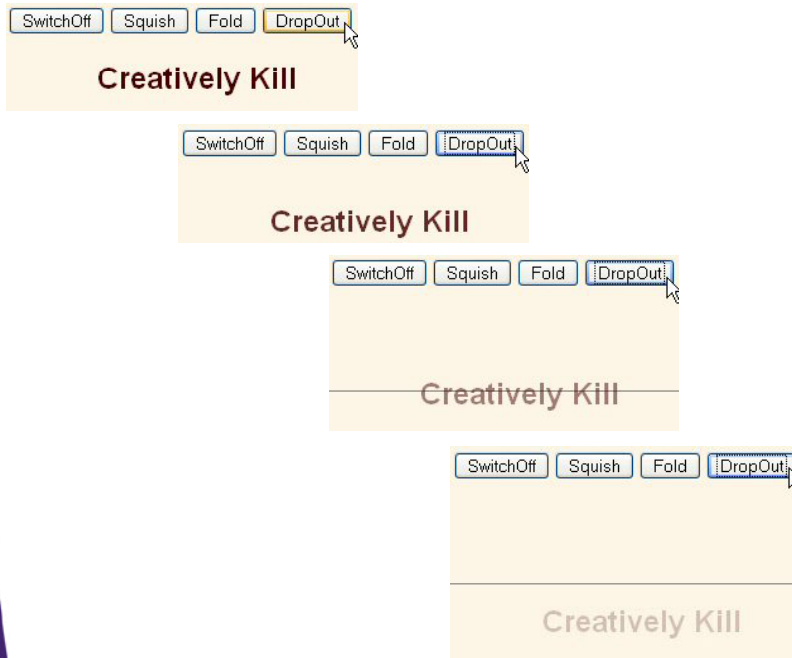
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Disappearing Effects Example

```
<fieldset>
<legend>Puff, SwitchOff, Squish, Fold, DropOut</legend>
<form action="#">
<input type="button" value="Puff"
      onclick="new Effect.Puff('id-to-kill')"/>
<input type="button" value="SwitchOff"
      onclick="new Effect.SwitchOff('id-to-kill')"/>
<input type="button" value="Squish"
      onclick="new Effect.Squish('id-to-kill')"/>
<input type="button" value="Fold"
      onclick="new Effect.Fold('id-to-kill')"/>
<input type="button" value="DropOut"
      onclick="new Effect.DropOut('id-to-kill')"/>
<input type="button" value="Restore"
      onclick="new Effect.Appear('id-to-kill')"/>
<h2 id="id-to-kill">Creatively Kill</h2>
</form>
</fieldset>
```

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Disappearing Effects Example: Results



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PowerPoint-Like Effects

- **Idea**
 - Make elements appear or disappear in slide-show manner.
 - Important: if you have multiple elements (e.g., image plus text), enclose in an inner div.
- **Effects**
 - Effect.BlindUp
 - Keep element fixed, make appear from bottom up.
 - Think of element in window as blind is raised.
 - Effect.BlindDown
 - Keep element fixed, make disappear from top down
 - Effect.SlideUp
 - Move element up into region.
 - Think of looking at window (with blind already up), and elements moves up into window.
 - Effect.SlideDown
 - Slide element down out of site

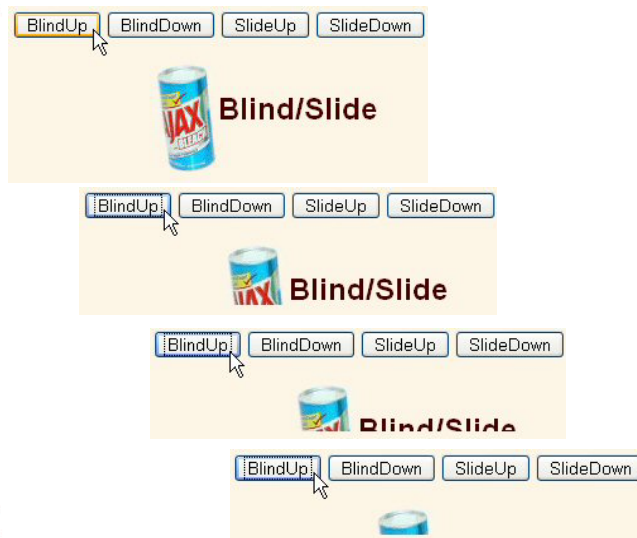
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Blind/Slide Example

```
<fieldset>
<legend>BlindUp, BlindDown, SlideUp, SlideDown</legend>
<form action="#">
<input type="button" value="BlindUp"
      onclick="new Effect.BlindUp('id-to-slide')"/>
<input type="button" value="BlindDown"
      onclick="new Effect.BlindDown('id-to-slide')"/>
<input type="button" value="SlideUp"
      onclick="new Effect.SlideUp('id-to-slide')"/>
<input type="button" value="SlideDown"
      onclick="new Effect.SlideDown('id-to-slide')"/>
<input type="button" value="Restore"
      onclick="new Effect.Appear('id-to-slide')"/>
<h2 id="id-to-slide"><div>
Blind/Slide
</div></h2>
</form>
</fieldset>
```

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Blind/Slide Example: Results



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Morph Example: HTML

```
<fieldset>
<legend>Morph</legend>
<form action="#">
<input type="button" value="Morph"
      onclick="new Effect.Morph('id-to-morph',
                                {style: 'weird'})"/>
<h2 id="id-to-morph" class="boring">Morph</h2>
</form>
</fieldset>
```

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Morph Example: CSS

```
.boring {
  color: black;
  background-color: #fdf5e6;
  border: 0px solid cyan;
  font-family: serif;
  font-size: 18px;
}
.weird {
  color: yellow;
  background-color: red;
  border: 10px solid cyan;
  font-family: Arial, sans-serif;
  font-size: 100px;
}
```

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Morph Example: Results



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Lower-Level Effects

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Lower-Level Effects

- **Idea**
 - Effects upon which most others are built
- **Effects**
 - Effect.Move
 - new Effect.Move('id', { x: ..., y: ...})
 - Effect.Scale
 - new Effect.Scale('id', percent)
 - Scales entire container, not just text
 - Use embedded span to scale text only
 - Effect.Opacity
 - new Effect.Opacity('id', { to: ... })
 - Effect.Tween
 - Gradually adjusts property or function
 - See upcoming slide

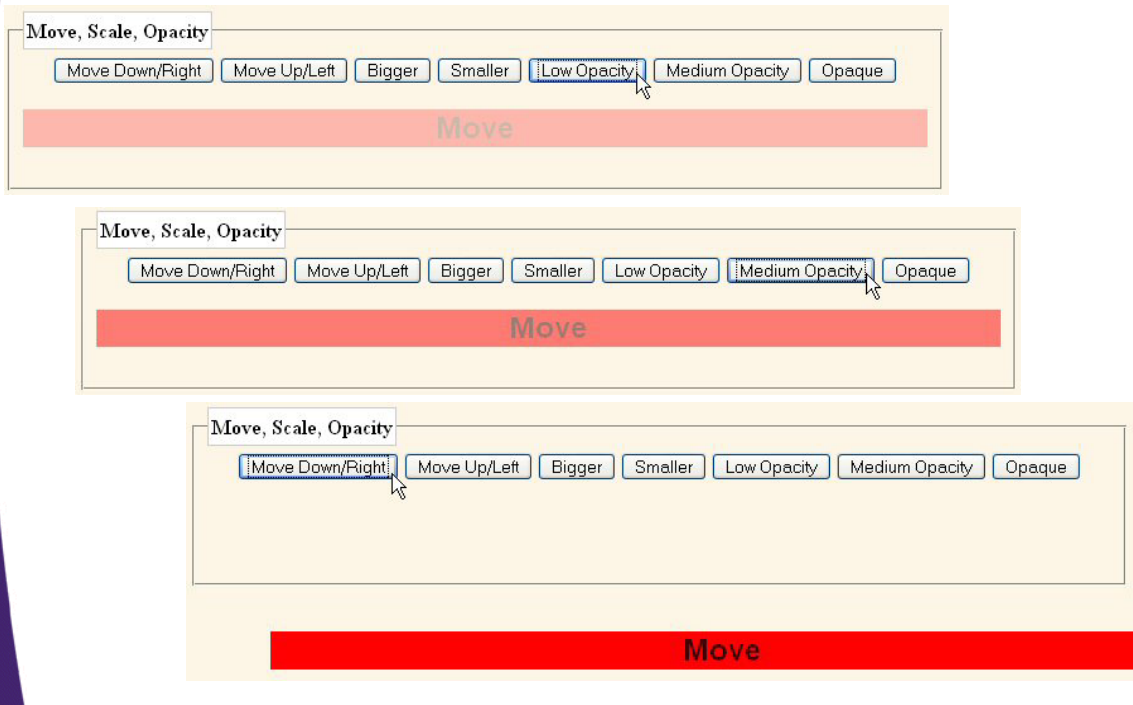
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Lower-Level Effects Example

```
<input type="button" value="Move Down/Right"
  onclick="new Effect.Move('id-to-move',
    {x: 50, y: 100})"/>
<input type="button" value="Move Up/Left"
  onclick="new Effect.Move('id-to-move',
    {x: -50, y: -100})"/>
<input type="button" value="Bigger"
  onclick="new Effect.Scale('id-to-move', 150)"/>
<input type="button" value="Smaller"
  onclick="new Effect.Scale('id-to-move', 66.66)"/>
<input type="button" value="Low Opacity"
  onclick="new Effect.Opacity('id-to-move',
    {to: 0.25})"/>
<input type="button" value="Medium Opacity"
  onclick="new Effect.Opacity('id-to-move',
    {to: 0.50})"/>
<input type="button" value="Opaque"
  onclick="new Effect.Opacity('id-to-move',
    {to: 1.0})"/>
<h2 id="id-to-move" style="background:red">Move</h2>
```

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Lower-Level Effects Example: Results



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Effect.Tween

- **Version 1**
 - Sets a property to start value, several intermediate values, end value
 - `new Effect.Tween('textField1', 10, 50, 'value')`
 - Sets the 'value' property of `$('#textField1')` to 10, then to several values between 10 and 50, then to 50
 - Options: `{ ... }` can be before last argument
- **Version 2**
 - Calls an element's method with start value, several intermediate values, and then end value
 - `new Effect.Tween('heading1', 10, 50, 'setHeight')`
 - Calls `$('#heading1').setHeight(10)`, then calls `$('#heading1').setHeight` on intermediate values, then calls `$('#heading1').setHeight(50)`
- **Version 3**
 - Calls an arbitrary function with start, intermediate, end values.
 - `new Effect.Tween($('#element'), 10, 50, function(x) { ... })`

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Effect Options

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Effect Options: Speed

- **delay**
 - Time in seconds before effect starts
 - Default: 0.0
- **duration**
 - How long (in seconds) from start to finish
 - Default: 1.0
- **fps**
 - Frames per second
 - Default: depends on cpu, usually between 25 and 100
- **Example**
 - `new Effect.Highlight('id', { delay: 0.5, duration: 5.0 })`

Effect Options: transition

- **flicker**
 - Randomly picks from last 25% of frames
- **full, none**
 - Shows last frame (final result) or first frame (nothing)
- **linear**
 - Steady transition.
- **pulse**
 - Runs through transitions five times
- **reverse**
 - Does effect backward
- **sinoidal (misspelling of sinusoidal)**
 - Starts/ends slowly, fast in between. **Default.**
- **spring**
 - Overshoots final result then bounces back and forth to final value.
- **Example**
 - `new Effect.Highlight('id', {duration: 10, transition: 'pulse'})`

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Effect Options: Callbacks

- **beforeStart**
 - Function to call after effect is queued
- **beforeSetup, afterSetup**
 - Function to call after delay and first frame renders
- **beforeUpdate, afterUpdate**
 - Function to call before/after each frame renders
- **beforeFinish, afterFinish**
 - Function to call before/after finish
 - `afterFinish` can be used to trigger another effect, but effect queues are more powerful

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Effect Options: queue

- **Idea**
 - Specify order in which serial effects should take place
 - Parallel by default, and parallel effects can be synchronized with `Effect.Parallel` (see next slide)
- **Simple usage (global queue)**
 - `new Effect.Blah(..., { queue: 'front' })`
 - `new Effect.Blah(..., { queue: 'end' })`
- **Advanced usage (named queues)**
 - `new Effect.Blah(..., { queue: { position: 'front', scope: 'queue1' } })`

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Effect.Parallel

- **Idea**
 - Lets you run several effects at one, with frames synchronized
 - Although you are not required to apply effects to same element, it is usually used that way
 - Effects must set `{ sync: true }` in their options
 - Time options (duration, fps, etc. are applied to `Effect.Parallel`, not to individual effects)
- **Syntax**
 - `new Effect.Parallel(id, arrayOfEffects, { timeOptions })`
- **Example**
 - `new Effect.Parallel('id',
[new Effect.Blah1(..., { sync: true }),
new Effect.Blah2(..., { sync: true })],
{ duration: 5 });`

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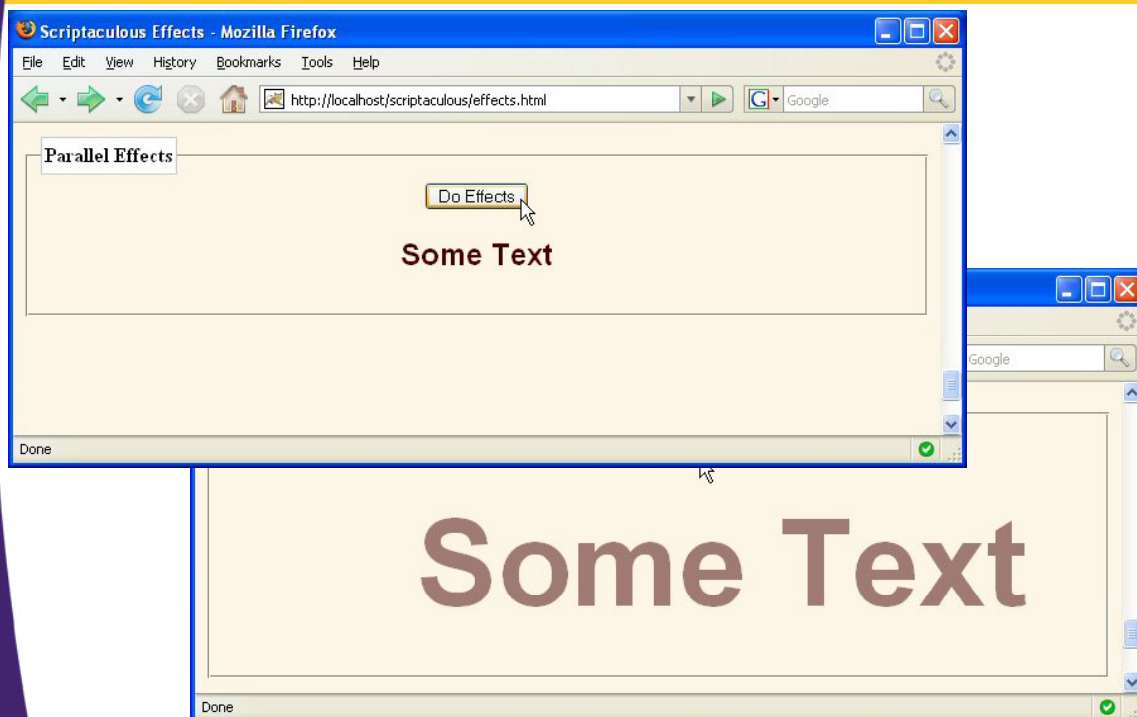
Effect.Parallel Example

```
<form action="#">
<script type="text/javascript">
function doParallelEffects(id) {
  new Effect.Parallel(
    [ new Effect.Move(id, {sync: true, x: 50}),
      new Effect.Opacity(id, {sync: true, to: 0.5}),
      new Effect.Scale(id, 400, {sync: true}) ],
    { duration: 10 } );
}
</script>
<input type="button" value="Do Effects"
  onclick="doParallelEffects('id-to-munge')"/>
<h2><span id="id-to-munge">Some Text</span></h2>
</form>
```

Use embedded span so that you scale text, not the full browser-width heading.

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Effect.Parallel Example: Results



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Advanced Features

- **Effect.toggle**
 - Flips state back and forth
 - Note this (and next two) are methods, not classes
- **Effect.multiple**
 - Applies effects over a series of elements
- **Effect.tagifyText**
 - Encloses each character in its own span. Helpful for Effect.multiple to applies effects to one char at a time
- **Effect.Base**
 - Base class on which to build your own effects
- **More details**
 - <http://wiki.script.aculo.us/scriptaculous/tags/effects>

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Wrap-up

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Summary

- **Highlighting**
 - Effect.Highlight
- **Showing/Hiding**
 - Effect.Appear, Effect.Fade, Effect.Grow, Effect.Shrink
- **Basics**
 - Effect.Move, Effect.Scale, Effect.Opacity
 - Remember these apply to entire container
- **Combining effects**
 - queue option
 - Effect.Parallel

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Questions?

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