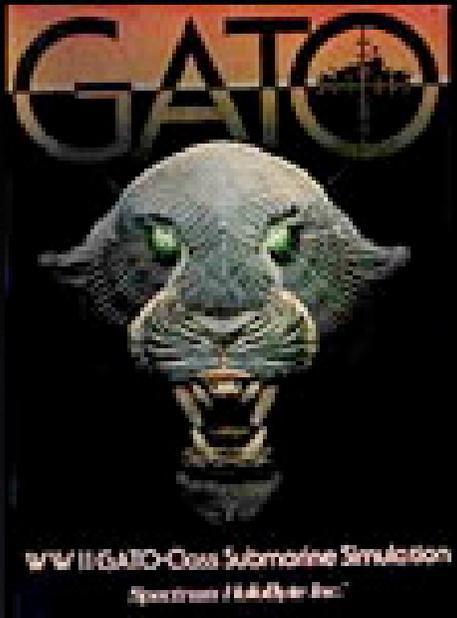




# Prototyping the Rich Web Experience

Bill Scott  
Yahoo! Ajax Evangelist  
[b.scott@yahoo.com](mailto:b.scott@yahoo.com)

# stuff i've done



# stuff i've done



## Rico

### JavaScript for Rich Internet Applications

[Home](#) [Features](#) [Demos](#) [Documentation](#) [Downloads](#) [About](#)

An open-source JavaScript library for creating rich internet applications. Rico provides full Ajax support, drag and drop management and a cinematic effects library.

#### BACKGROUND

Rico is a Spanish word meaning *rich*. The goal of Rico is to provide a rich experience for web sites using Ajax technology.

Rico is just one small part of a larger effort at Sabre Airline Solutions to create a suite of rich internet components, behaviors and effects for the web application space.

The library is a fully object-oriented JavaScript library. Recently we refactored the library to extend the excellent [prototype.js](#) effort from the Ruby on Rails folks.

#### OPEN SOURCE

Rico is provided free and open-source ([Apache 2.0 License](#)) for either your personal or commercial use. [Sabre Airline Solutions](#) retains the copyright on the Rico code produced at Sabre.

#### BROWSER SUPPORT

Rico has been tested on IE 5.5, IE 6, Firefox 1.0x/Win, Camino/Mac, Firefox 1.0x/Mac. Currently there is no Safari or Mac IE 5.2 support. Support will be provided in a near future release for Safari.

#### AJAX SUPPORT

Ajax is the term that describes a set of web development techniques for creating interactive web applications. One of the key ingredients is the JavaScript object XMLHttpRequest. Rico provides a very simple interface for registering Ajax request handlers as well as HTML elements or JavaScript objects as Ajax response objects. Multiple elements and/or objects may be updated as the result of one Ajax request.

*Want to get started learning?* Check out our [demos](#) and then read our two Ajax tutorials on the [Documentation page](#).

#### DRAG AND DROP

Desktop applications have long used drag and drop in their interfaces to simplify user interaction. Rico provides one of the simplest interfaces for enabling your web application to support drag and drop. Just register any HTML element or JavaScript object as a draggable and any other HTML element or JavaScript object as a drop zone and Rico handles the rest.

#### CINEMATIC EFFECTS

When actions are no longer occurring just at the page level but within the page itself, more clues are required to clue the user on what has transpired. Cinematic effects such as scaling and smooth sliding transitions can communicate change in richer ways than traditional web applications have explored before. Rico provides several cinematic effects as well as some simple visual style effects in a very simple interface.

#### BEHAVIORS

Take some raw HTML and sprinkle in some behaviors and what do you get? Well in Rico you can get an [Accordion](#) component like those found in Macromedia Flex and Laszlo. Just nest some DIVs and with one line of JavaScript turn your div panels into an accordion. And the latest behavior is the LiveGrid. LiveGrid allows you to connect an HTML table up to a stream of Ajax responses. Ajax requests are automatically called during table scrolling. The result is now HTML tables can hold an unlimited amount of data scrolled into view on the fly as needed! More behaviors are planned!

#### NEW! LiveGrid Behavior!

Check out the Alternative to Paging!

The screenshot shows a web application interface with a search bar and a table of results. The table has columns for 'Item Name', 'Price', and 'Description'. The results are displayed in a grid that can be scrolled horizontally. Below the table, there is a link that says 'Check out the Alternative to Paging!'.

#### Current Conditions

See Rico in Action!

The screenshot shows a weather widget for Dallas, TX (75201). It displays the current temperature as 77°F. Below the temperature, there are several weather-related statistics: Humidity: 70%, Dewpoint: 73.4°F, Wind: From SW at 8 mph, and Pressure: 30.79 inHg. At the bottom, there is a link that says 'See Rico in Action!'.

# stuff i've done



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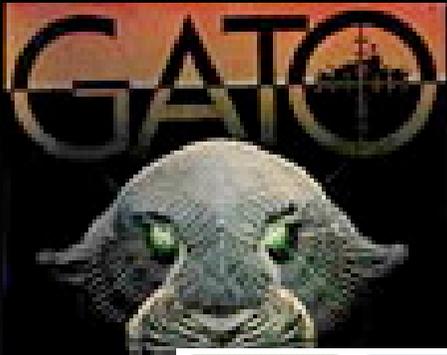
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The screenshot shows the Yahoo! Developer Network Design Pattern Library. The page has a clean, structured layout with a navigation sidebar on the left and a main content area on the right. The sidebar is divided into sections: 'USER NEEDS TO' (with sub-sections for NAVIGATE, EXPLORE DATA, ORGANIZE DATA, GIVE FEEDBACK, PERFORM ACTION, and CUSTOMIZE), and 'APPLICATION NEEDS TO' (with sub-sections for CALL ATTENTION, IMPROVE READABILITY, GROUP RELATED ITEMS, and ORGANIZE SCREEN/PAGE). The main content area features a 'Welcome' message, a 'What's a Pattern?' section, and a 'Recent Patterns' section. Each pattern includes a small thumbnail image, a title, and a brief description. The 'Recent Patterns' section includes examples like 'Auto-Complete', 'Breadcrumbs', 'Drag and Drop Modules', 'Module Tabs', 'Navigation Tabs', 'Object Pagination', 'Results Page', 'Search Pagination', 'Rating an Object', and 'Review Title'. At the bottom, there is a 'See Rico in Action!' section with a small weather widget and a link to a demo.

# stuff i've done



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Developer Network Home Help Site Search Search

## YAHOO! DEVELOPER NETWORK

### Design Pattern Library

Yahoo! Developer Network > Design Pattern Library

- USER NEEDS TO
  - NAVIGATE
    - Breadcrumbs
    - Faceted Navigation
    - Fly-out Menus
    - Horizontal Bar
    - Hub and Spoke
    - Left Navigation
    - Tabs
      - Module Tabs
      - Navigation Tabs
  - EXPLORE DATA
    - Auto Complete
    - Calendar Picker
    - Pagination
      - Item Pagination
      - Search Pagination
  - ORGANIZE DATA
  - GIVE FEEDBACK
    - Ratings & Reviews
      - Architecture Review
      - Rating an Object
      - Writing a Review
  - PERFORM ACTION
  - CUSTOMIZE
    - Drag and Drop
      - Drag and Drop Modules
      - Drag and Drop Objects
    - In Page Editing
    - Sliders
- APPLICATION NEEDS TO
  - CALL ATTENTION
  - IMPROVE READABILITY
    - Ratings & Reviews
      - Review Architecture
  - GROUP RELATED ITEMS
  - ORGANIZE SCREEN/PAGE

#### Welcome

Welcome to the Yahoo! Design Pattern Library. We are very happy to be sharing our library with the design and development community. This is our first drop of what we hope to be a monthly release cycle for the publication of patterns. In many cases we have bundled the patterns with pointers to related code from the [Yahoo! User Interface Code Library](#). We hope this is a useful resource and look forward to your [feedback](#).

#### What's a Pattern?

A pattern describes an optimal solution to a common problem within a specific context. [more...](#)

#### Recent Patterns

- [Auto-Complete](#)  
The user needs to enter an item into a text box which could be ambiguous or hard to remember and therefore has the potential to be mis-typed.
- [Breadcrumbs](#)  
User needs to navigate potentially large quantities of information efficiently, without becoming lost.
- [Drag and Drop Modules](#)  
The user needs to re-arrange the layout of modules on a web page directly with the mouse.
- [Module Tabs](#)  
The user needs to navigate through one or more stacked panes of content without refreshing the page.
- [Navigation Tabs](#)  
The user needs to navigate through a site to locate content and features and have clear indication of their current location in the site.
- [Object Pagination](#)  
The user needs to view data items from a potentially large set of sorted data that will not be easy to display within a single page.
- [Results Page](#)  
The user needs to view a set of search results ranked by relevance that is too large to easily display within a single page.
- [Search Pagination](#)  
A user wants to quickly leave their opinion on an object, with minimal interruption to any other task flow they are involved in.
- [Rating an Object](#)  
User wants to share her opinion with others about an object (place, person, thing) in greater detail than a simple rating.
- [Review Title](#) - e.g. We can't Great!  
Write your review - Your li

Current Conditions  
Dallas, TX (77081)  
77°F  
Partly Cloudy  
Humidity: 70%  
Dewpoint: 73.0°F  
Wind: From SW at 10 mph  
Pressure: 30.1 in  
Visibility: 10.0 mi  
Moon: Waxing Gibbous  
Sunrise: 6:57 AM  
Sunset: 7:57 PM  
See Rico in Action!

## YAHOO! GOBBLER™

### Scratchpad

Add Website to Scratchpad

### Projects(3)

- [National Mapping - Fab Facts, Landforms](#)  
http://www.ga.gov.au/education/fe  
Geography: Landfor...
- [Civil War Battles](#)

Add Website to Project

Create a new Project

# prototyping

- Have been involved with prototyping for a number of years
- Last summer wrote a quick dragdrop proto library that was based on CSS class names and associating behavior to these classes ('dragme', 'drophere')
  - Goal was to make it easy for designers to start prototyping
  - However it was not possible to provide enough logic without resorting to writing code
  - Been planning to get back to the idea for a year.
- This got me thinking about simplifying the experience of prototyping with dhtml/ajax

# what i really want



**Bill Scott**  
Total Projects 12  
Total Points 24

## My Portfolio

Sort by: Recent | Alpha | Points

▼ **Project One** [view](#) | [delete](#)  
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Proin tempor, lectus aliquet ornare suscipit, diam turpis suscipit velit, rhoncus feugiat purus metus gravida turpis. Nam nisl. Nulla et est in neque laoreet consequat. Quisque quis pede. Curabitur pretium. Etiam varius. Suspendisse tempus nisl eu lectus. Integer et velit. Quisque quis magna. Nunc pellentesque pharetra ligula. Morbi semper.

▼ **Project Two** [view](#) | [delete](#)  
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▼ **Project Three** [view](#) | [delete](#)  
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## Scratchpad



A vertical scrollbar is located to the right of the image grid.

take a rough prototype

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Lorem ipsum dolor sit amet, consectetur adipiscing elit. Proin tempor, lectus aliquet ornare suscipit, diam turpis suscipit velit, rhoncus feugiat purus metus gravida turpis. Nam nisl. Nulla et est in neque laoreet consequat. Quisque quis pede. Curabitur pretium. Etiam varius. Suspendisse tempus nisl eu lectus. Integer et velit. Quisque quis magna. Nunc pellentesque pharetra ligula. Morbi semper.

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### Scratchpad

take a rough prototype

Animate Color Animate Fade Move Spotlight  
Close DragDrop Hide Open Popup  
ReplaceClass Script SetClass SetStyle  
Show ToggleClass ToggleOpenClose  
ToggleShowHide FetchHtml SetHtml Blur  
Click DbClick Focus Keypress Mousedown  
Mousemove Mouseout Mouseover  
Mouseup Timer

sprinkle in some behaviors

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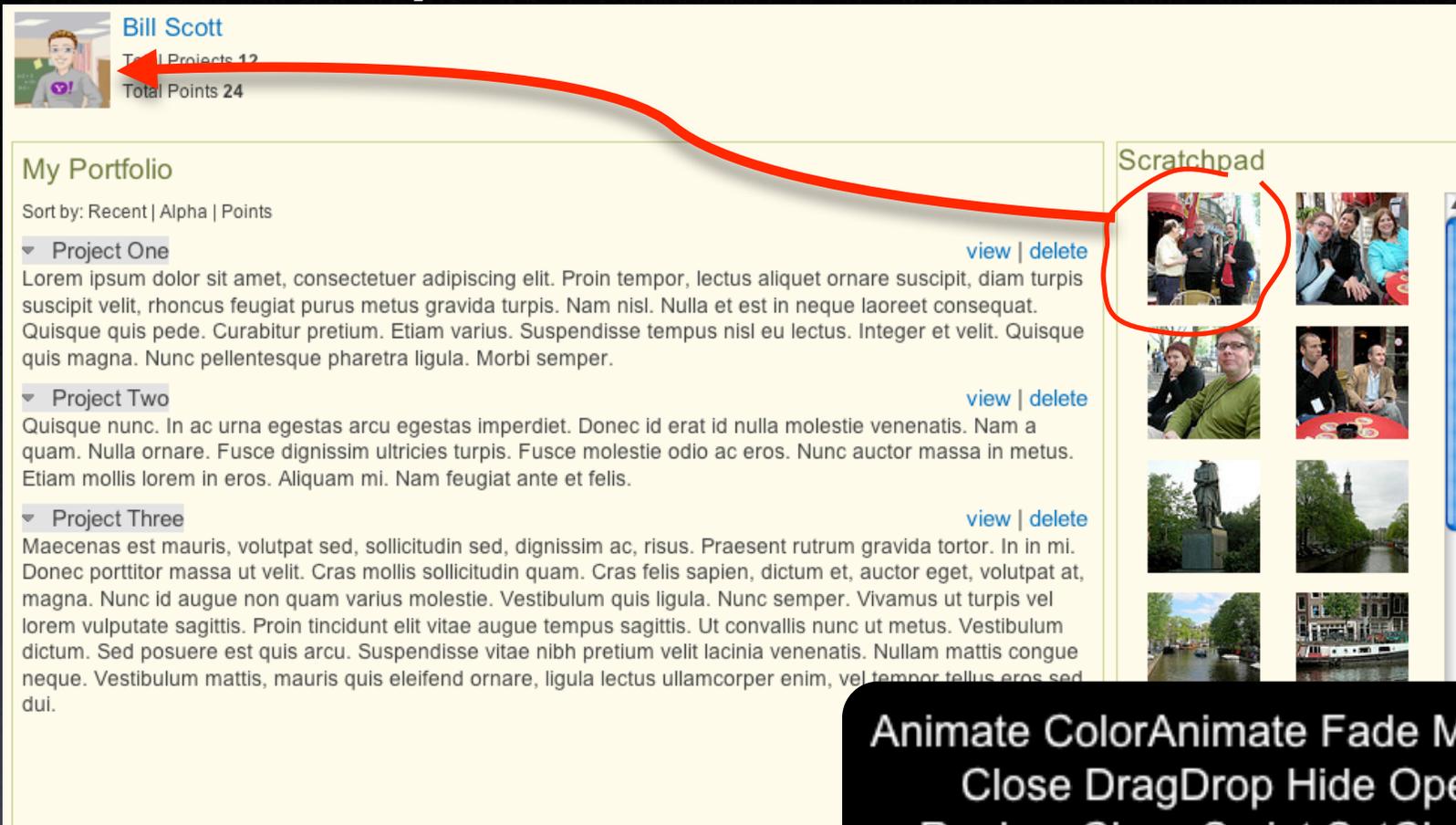
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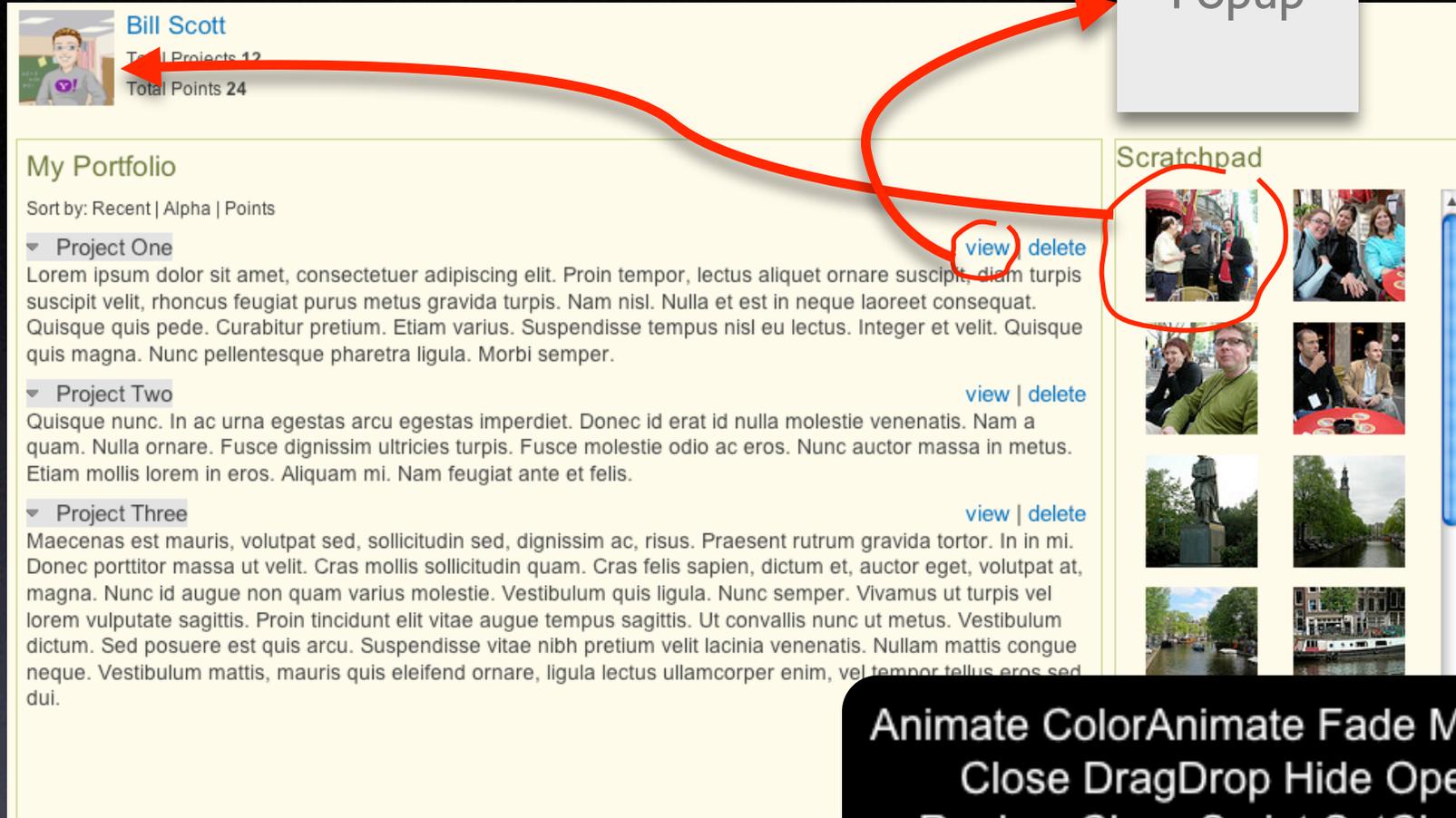


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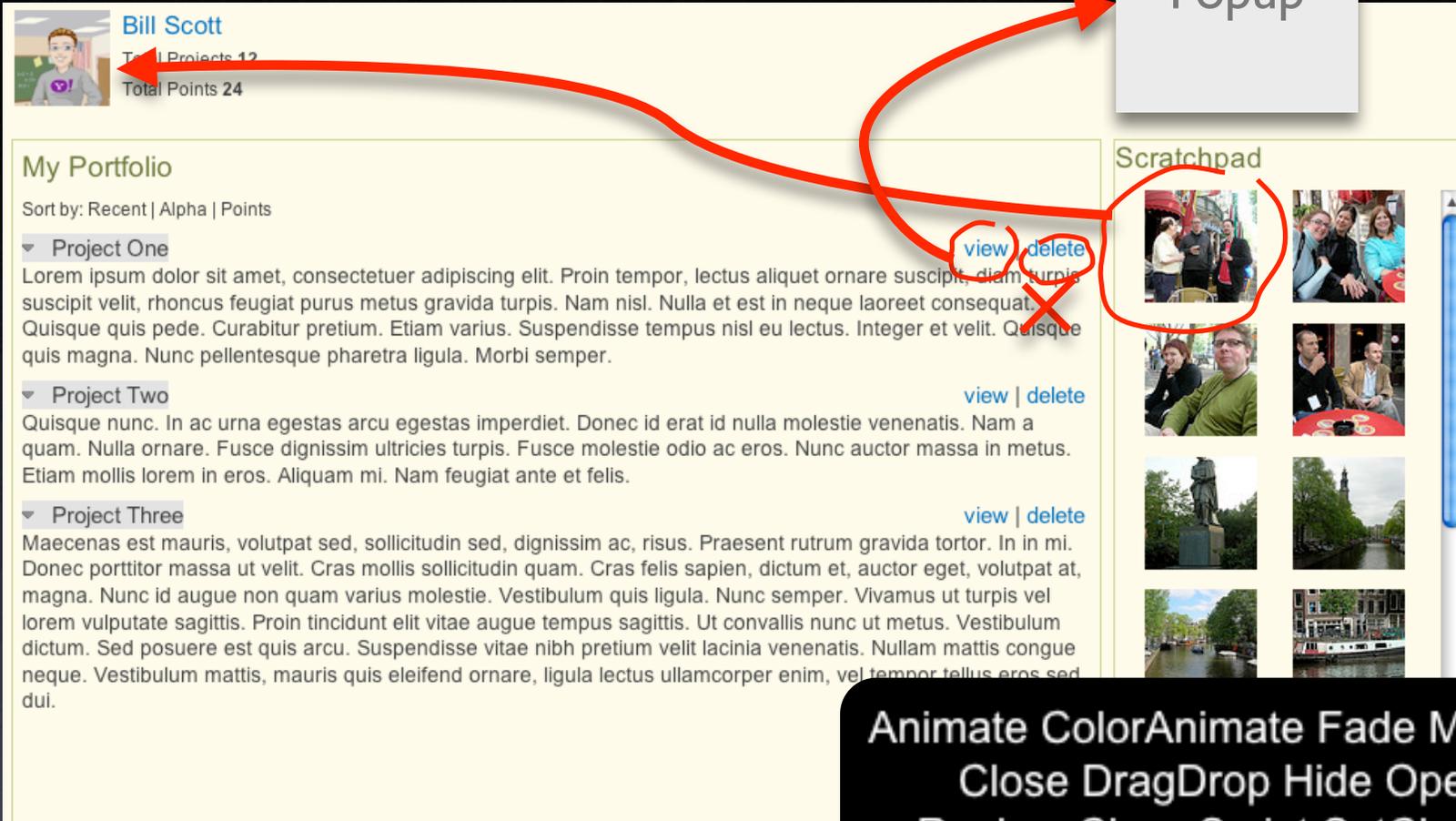


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Popup

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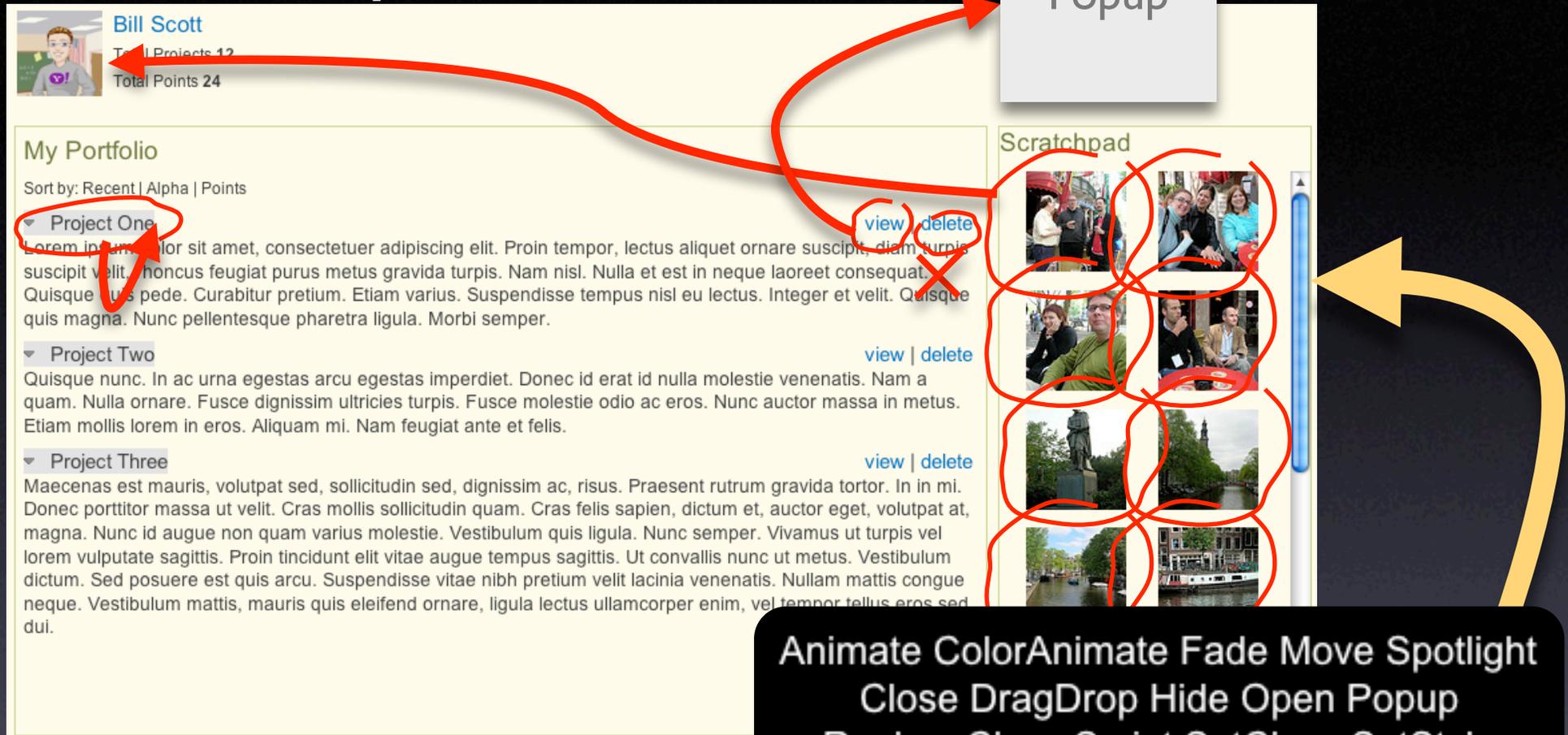
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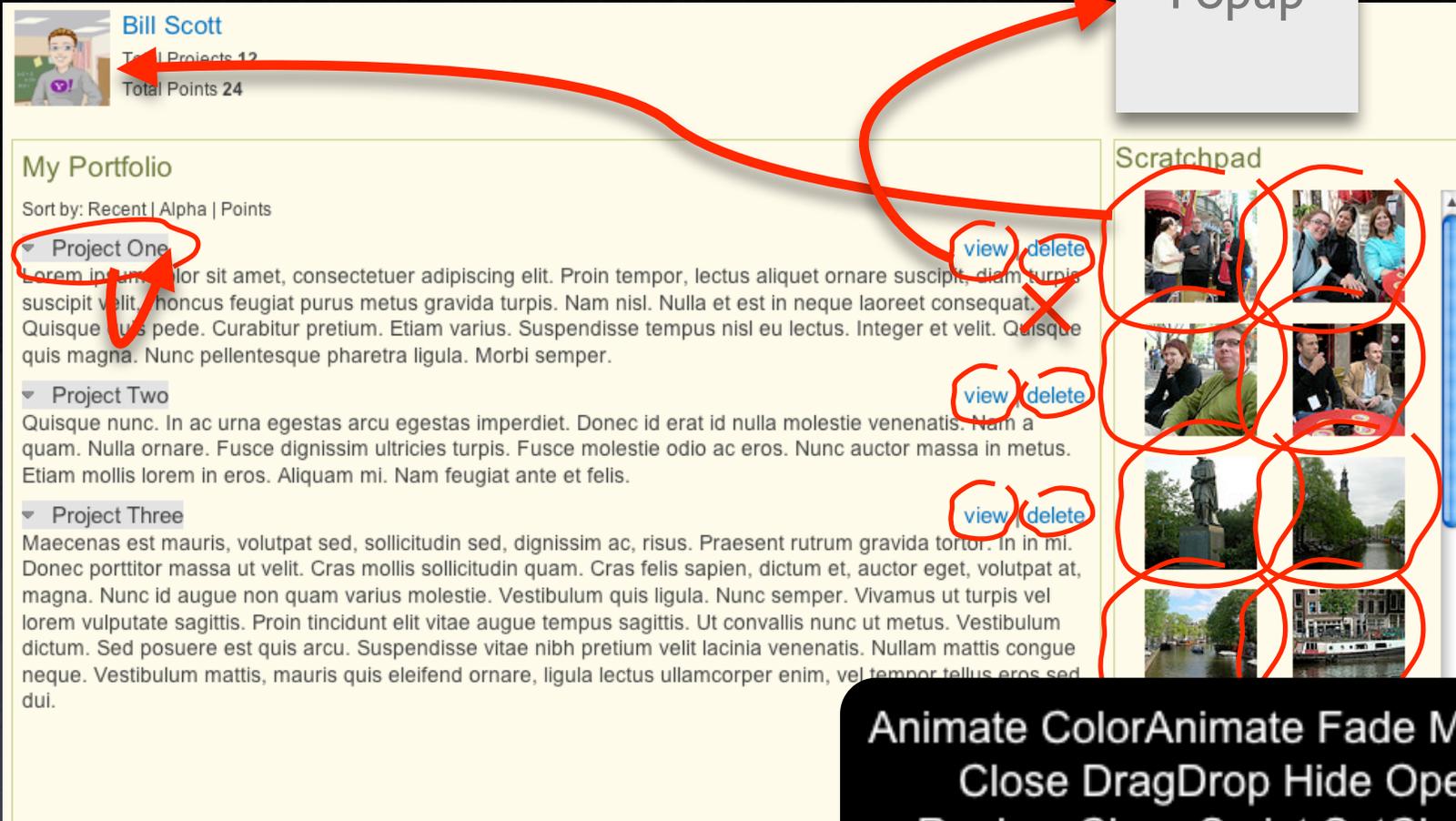


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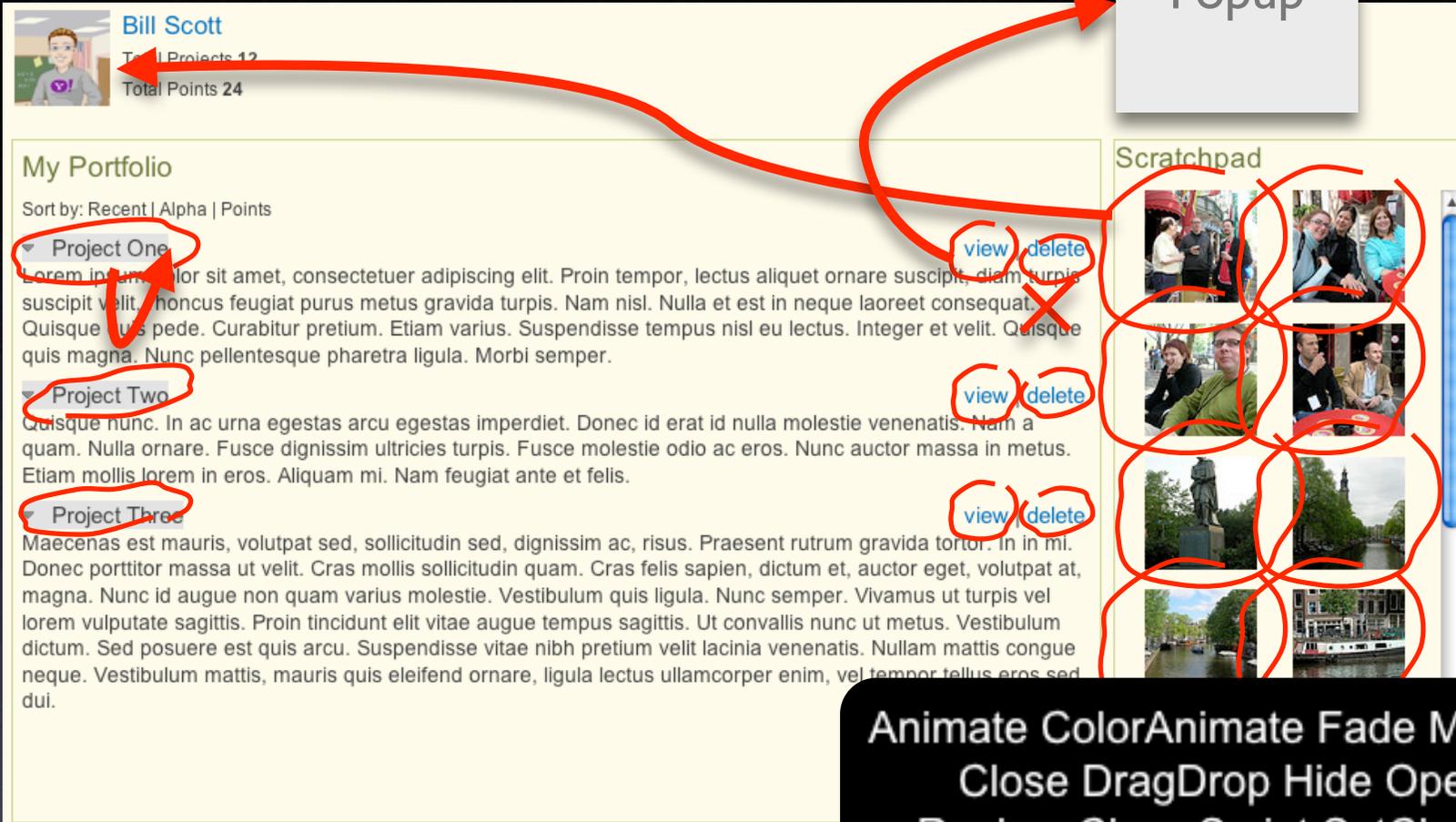
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- Timer

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# dhtml prototyping

# prototyping with DHTML

- Benefits
  - Can start simple and layer in complexity
  - Works well across different teams (design to code)
  - Technology the same or similar to final implementation
  - Most capable to approximate final result
  - Living example
- Disadvantages
  - Requires technical savvy
  - Bugs can suck down time
  - Too much time spent 'messing with code'
  - Hard to extract into documentation

# dhtml prototyping skills/techniques

- Keep structure, style and logic separate
  - Avoid adding onclick handlers in the HTML (unobtrusive)
  - Avoid any direct styles or html style tags (font, etc.)
- Use style class switching for visual changes
- Use CSS to simulate most mouse hover behavior
- Use innerHTML for content changes
- Understand when to use a class vs. id
- Use CSS query libraries for referencing interface parts
  - CSS selector syntax allows non-intrusive behavior injection

# dhtml prototyping skills/techniques

- Use anchors as basic navigation/action hooks
- Use background images in CSS with style switching
- Use a grid layout system
  - YUI Grid
- Use Firebug
- Understand CSS Selectors
  - Ext, jQuery, Dojo, Mootools, Prototype, cssQuery()
- Use JSON syntax (options)

# underlying desire for protoscript

- address the **conceptual phase** of interface development  
-- think “**interaction theme**”  
*(free from solving production issues)*
- express an **interaction as a configuration**  
*(no code; declarative approach)*
- **dynamically insert interaction** themes (behaviors) to any web page  
*(allows experimentation)*
- create a **gui tool** for configuring & exploring interactions

# protoscript approach

- JSON used to express interaction theme to express relationship between dom elements, behaviors, attributes, and callbacks
- jQuery CSS Selector syntax for dom elements
- Chain dependent behavior as well as parallel behavior with JSON syntax
- Simple to add behaviors (class with 2 methods)
- Focus is on prototyping

Demo

<http://protoscript.com/demos.php>

# simple example

Here's an example that fades & closes the image when the user clicks on it. (It's live, so go ahead and try it!)



```
$proto('img#avatar', {  
  Click: {  
    onClick: {  
      Fade: {  
        opacity: {to: 0},  
        onComplete: {Close : {}} }  
      }  
    }  
  }  
});
```

The protoscript above says: *for an image with id **avatar**, fade it out when the user clicks on it and close it when the fade completes.*

## Simple Click, Fade, Close (self-healing delete)

# sprinkling in behaviors



Bill Scott

Total Projects 12

Total Points 24

## My Portfolio

Sort by: Recent | Alpha | Points

### Project One

[view](#) | [delete](#)

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Proin tempor, lectus aliquet ornare suscipit, diam turpis suscipit velit, rhoncus feugiat purus metus gravida turpis. Nam nisl. Nulla et est in neque laoreet consequat. Quisque quis pede. Curabitur pretium. Etiam varius. Suspendisse tempus nisl eu lectus. Integer et velit. Quisque quis magna. Nunc pellentesque pharetra ligula. Morbi semper.

### Project Two

[view](#) | [delete](#)

Quisque nunc. In ac urna egestas arcu egestas imperdiet. Donec id erat id nulla molestie venenatis. Nam a

## Scratchpad



## My Portfolio

Sort by: Recent | Alpha | Points

### Project One

[view](#) | [delete](#)

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Proin tempor, lectus aliquet ornare suscipit, diam turpis suscipit velit, rhoncus feugiat purus metus gravida turpis. Nam nisl. Nulla et est in neque laoreet consequat. Quisque quis pede. Curabitur pretium. Etiam varius. Suspendisse tempus nisl eu lectus. Integer et velit. Quisque quis magna. Nunc pellentesque pharetra ligula. Morbi semper.

### Project Two

[view](#) | [delete](#)

Quisque nunc. In ac urna egestas arcu egestas imperdiet. Donec id erat id nulla molestie venenatis. Nam a quam. Nulla ornare. Fusce dignissim ultricies turpis. Fusce molestie odio ac eros. Nunc auctor massa in metus. Etiam mollis lorem in eros. Aliquam mi. Nam feugiat ante et felis.

# anatomy of an interaction

## DOM elements

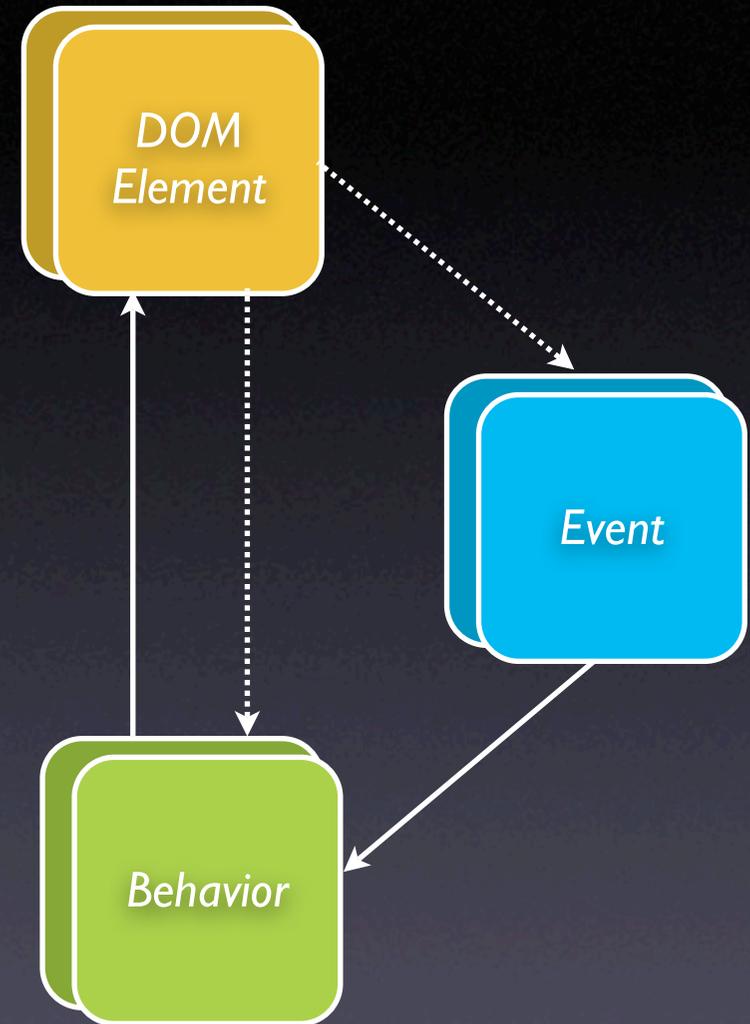
Target an element or elements for attaching events & behaviors.

## Events

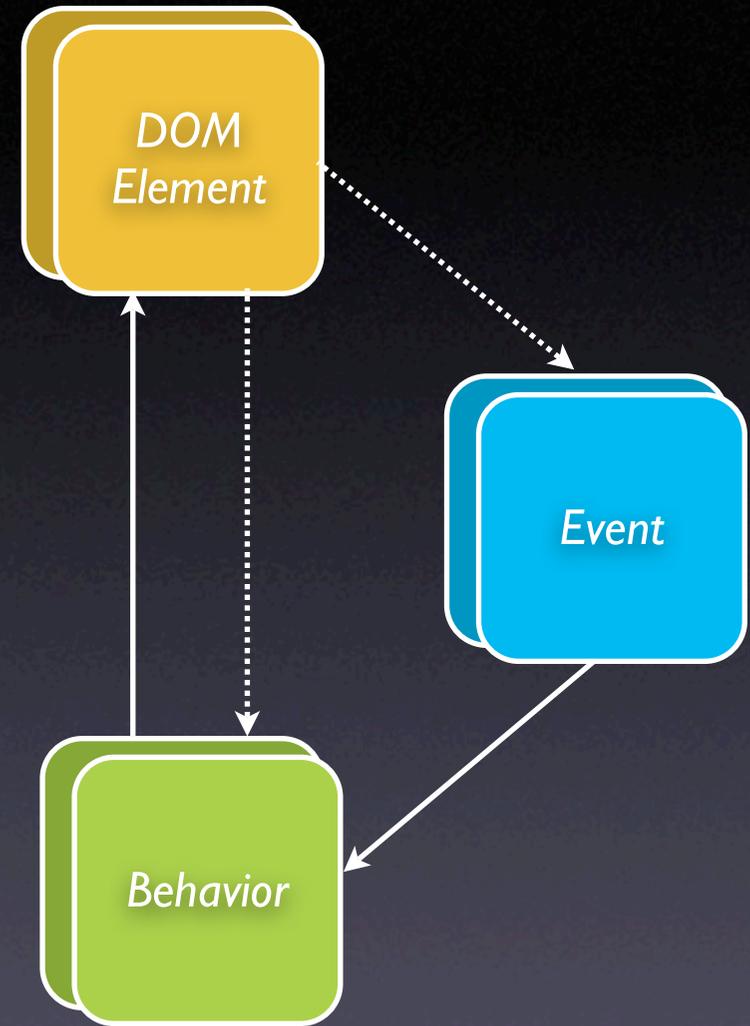
Events are the glue between the user and behaviors. They start behaviors.

## Behaviors

Blocks of logic, patterns, actions that operate on elements.



# anatomy of self-healing delete

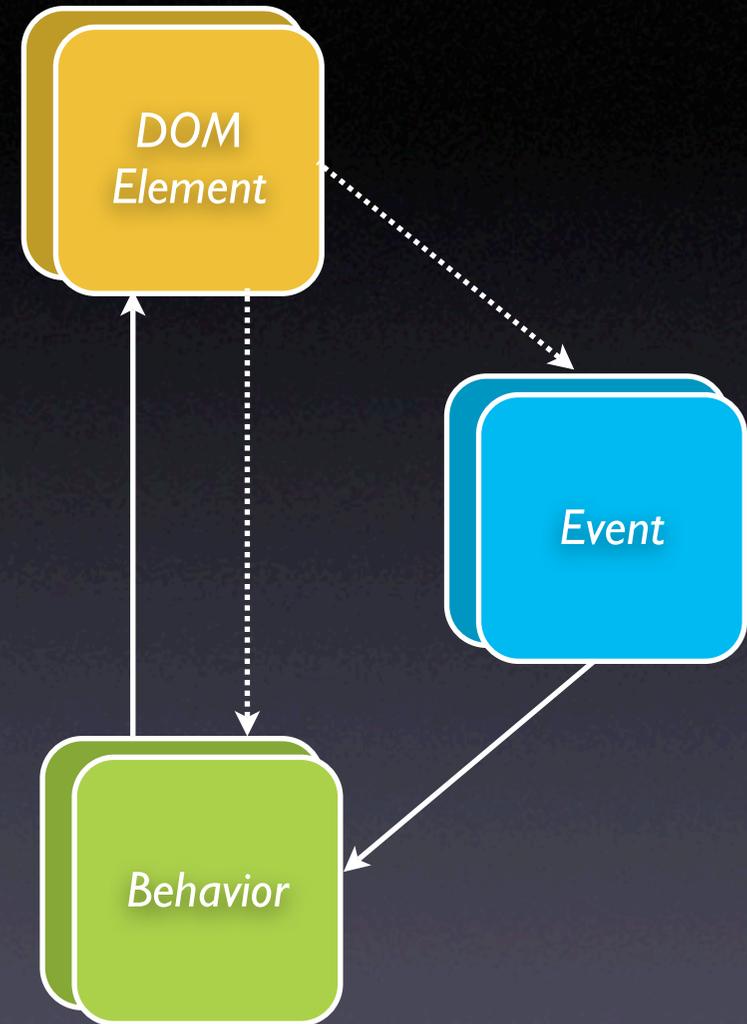


# anatomy of self-healing delete

**Handling Click for Multiple Elements**

|                  |   |
|------------------|---|
| Files            | Let's say you want to delete files from a list. You would like to embed the delete control with the filename. |
| [X] mystuff.tmp  |   |
| [X] bigfile.tmp  | You can target two sets of objects: delete controls and list of file names.                                   |
| [X] oldmovie.mov |   |
| [X] scrap.txt    | We select the [X] with 'span.contains([X])' and associate with it the hand cursor and click event.            |

The Fade & Close target the list of file names with 'multiple li' (all LI items in our multiple example). When you click on an individual delete control it knows the corresponding LI item and operates on it correctly. You can [click here](#) to restart the example.



# anatomy of self-healing delete

## DOM elements

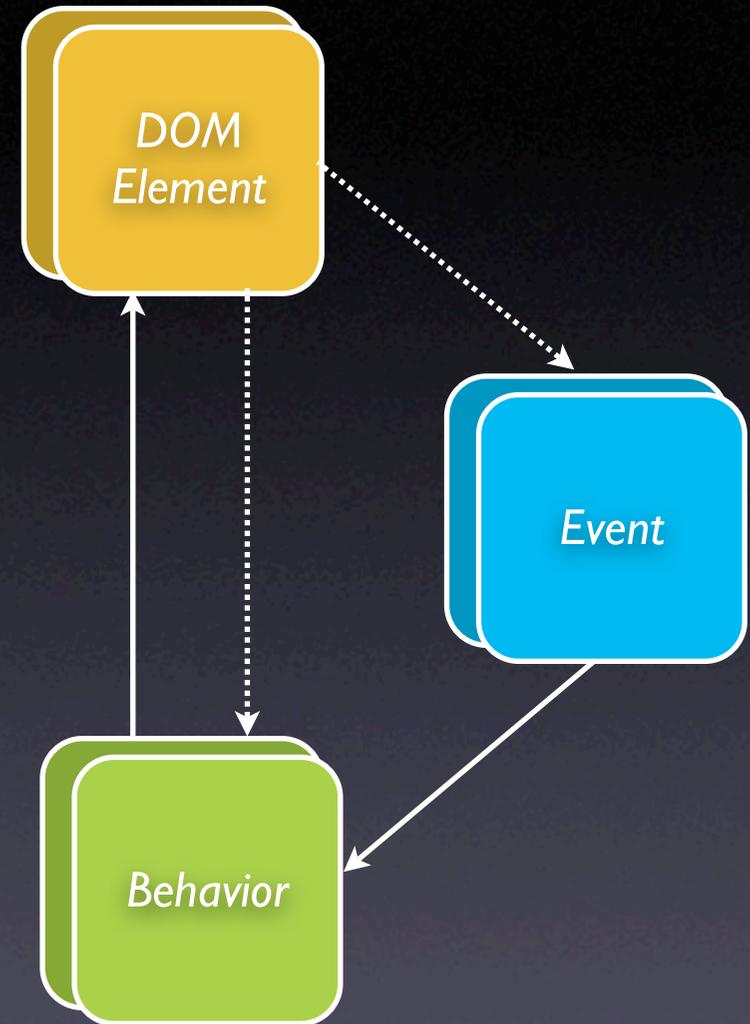
[X]

<LI>[X] oldmove.mov</LI>

**Handling Click for Multiple Elements**

|                 |   |
|-----------------|---|
| Files           | Let's say you want to delete files from a list. You would like to embed the delete control with the filename. |
| [X] mystuff.tmp |   |
| [X] bigfile.tmp | You can target two sets of objects: delete controls and list of file names.                                   |
| [X] oldmove.mov |   |
| [X] scrap.txt   | We select the [X] with 'span.contains([X])' and associate with it the hand cursor and click event.            |

The Fade & Close target the list of file names with 'multiple li' (all LI items in our multiple example). When you click on an individual delete control it knows the corresponding LI item and operates on it correctly. You can [click here](#) to restart the example.



# anatomy of self-healing delete

## DOM elements

[X]

<LI>[X] oldmove.mov</LI>

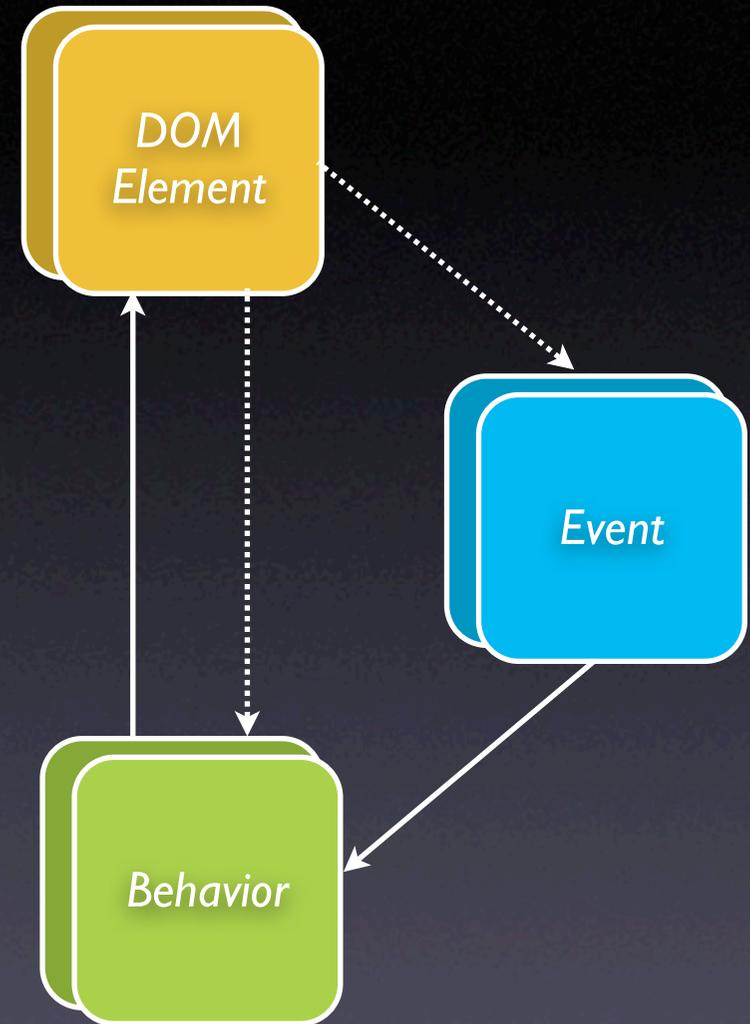
## Events

Click  
onClick (callback)

**Handling Click for Multiple Elements**

|                  |   |
|------------------|---|
| Files            | Let's say you want to delete files from a list. You would like to embed the delete control with the filename. |
| [X] mystuff.tmp  |   |
| [X] bigfile.tmp  | You can target two sets of objects: delete controls and list of file names.                                   |
| [X] oldmovie.mov |   |
| [X] scrap.txt    | We select the [X] with 'span.contains([X])' and associate with it the hand cursor and click event.            |

The Fade & Close target the list of file names with 'multiple li' (all LI items in our multiple example). When you click on an individual delete control it knows the corresponding LI item and operates on it correctly. You can [click here](#) to restart the example.



# anatomy of self-healing delete

## DOM elements

[X]

<LI>[X] oldmove.mov</LI>

## Events

Click  
onClick (callback)

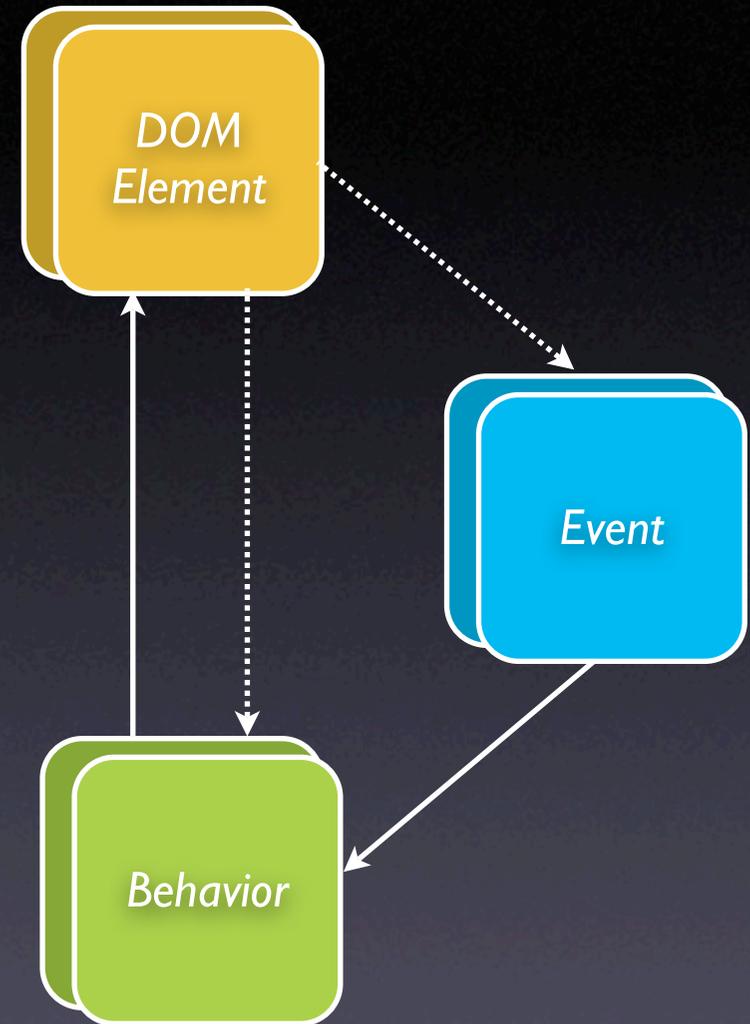
## Behaviors

Fade  
Close

**Handling Click for Multiple Elements**

|                  |   |
|------------------|---|
| Files            | Let's say you want to delete files from a list. You would like to embed the delete control with the filename. |
| [X] mystuff.tmp  |   |
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The Fade & Close target the list of file names with 'multiple li' (all LI items in our multiple example). When you click on an individual delete control it knows the corresponding LI item and operates on it correctly. You can [click here](#) to restart the example.



# protoscript code

```
<div id="multiple" class="example-live">
<p>Files</p>
<ul>
  <li><span><strong>[X]</strong></span><span>mystuff.tmp</span></li>
  <li><span><strong>[X]</strong></span><span>bigfile.tmp</span></li>
  <li><span><strong>[X]</strong></span><span>oldmovie.mov</span></li>
  <li><span><strong>[X]</strong></span><span>scrap.txt</span></li>
</ul>
</div>
```

Files

```
[X] mystuff.tmp
[X] bigfile.tmp
[X] oldmovie.mov
[X] scrap.txt
```

```
$proto('span:contains([X])', {
  SetStyle: {cursor:'pointer'},
  Click: {
    onClick: {
      Fade: {
        target: '#multiple li',
        opacity: {to: 0},
        onComplete: {Close : {} }
      }
    }
  },
});
```

Element

Behavior

Event

# selecting dom elements (targeting)

Element

```
<div id="multiple" class="example-live">
<p>Files</p>
<ul>
  <li><span><strong>[X]</strong></span><span>mystuff.tmp</span></li>
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$proto('span:contains([X])', {
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Behavior

Event

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</div>
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Behavior

Event

# selecting dom elements (targeting)

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```

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Behavior

Event

# selecting dom elements (targeting)

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```
$proto('span:contains([X])', {
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```

Behavior

Event

# chaining of target scope

```
<div id="multiple" class="example-live">
<p>Files</p>
<ul>
  <li><span><strong>[X]</strong></span><span>mystuff.tmp</span></li>
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```

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$proto('span:contains([X])', {
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  </ul>
</div>
```

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$proto('span:contains([X])', {
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# chaining of target scope

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  <ul>
    <li><span><strong>[X]</strong></span><span>mystuff.tmp</span></li>
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    <li><span><strong>[X]</strong></span><span>oldmovie.mov</span></li>
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```

```
$proto('span:contains([X])', {
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# chaining of target scope

Element

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<div id="multiple" class="example-live">
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    <li><span><strong>[X]</strong></span><span>scrap.txt</span></li>
  </ul>
</div>
```

```
$proto('span:contains([X])', {
  SetStyle: {cursor:'pointer'},
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    onClick: {
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        target: '#multiple li',
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Behavior

Event

# chaining of target scope

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<div id="multiple" class="example-live">
<p>Files</p>
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<li><span><strong>[X]</strong></span><span>mystuff.tmp</span></li>
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<li><span><strong>[X]</strong></span><span>oldmovie.mov</span></li>
<li><span><strong>[X]</strong></span><span>scrap.txt</span></li>
</ul>
</div>
```

```
$proto('span:contains([X])', {
  SetStyle: {cursor:'pointer'},
  Click: {
    onClick: {
      Fade: {
        target: '#multiple li',
        opacity: {to: 0},
        onComplete: {close: {}} }
      }
    }
  },
});
```

Behavior

Event

# chaining of target scope

```
<div id="multiple" class="example-live">
<p>Files</p>
<ul>
<li><span><strong>[X]</strong></span><span>mystuff.tmp</span></li>
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</ul>
</div>
```

```
$proto('span:contains([X])', {
  SetStyle: {cursor:'pointer'},
  Click: {
    onClick: {
      Fade: {
        target: '#multiple li',
        opacity: {to: 0},
        onComplete: {close: {}} }
      }
    }
  },
});
```

# selector syntax

Element

Consult jQuery docs:

[http://docs.jquery.com/DOM/Traversing/Selectors#CSS\\_Selectors](http://docs.jquery.com/DOM/Traversing/Selectors#CSS_Selectors)

If you are setting up your own prototypes, stick with class and identifier

```
.my-class-name
```

```
#my-id-name
```

Other useful examples

```
a:contains(Click Here)
```

```
.my-class-name #my-id-under-there
```

```
#my-specific-container .my-items
```

Consult CSS-1, CSS-2, CSS-3 and XPath

Behavior

Event

# behaviors

Behavior

Animate. ColorAnimate. Fade.  
Move. Spotlight. Close.  
DragDrop. Hide. Open.  
Popup. ReplaceClass. Script.  
SetClass. SetStyle. Show.  
ToggleClass. ToggleOpenClose.  
ToggleShowHide. FetchHtml.  
SetHtml.

Event

Element

# behavior demos

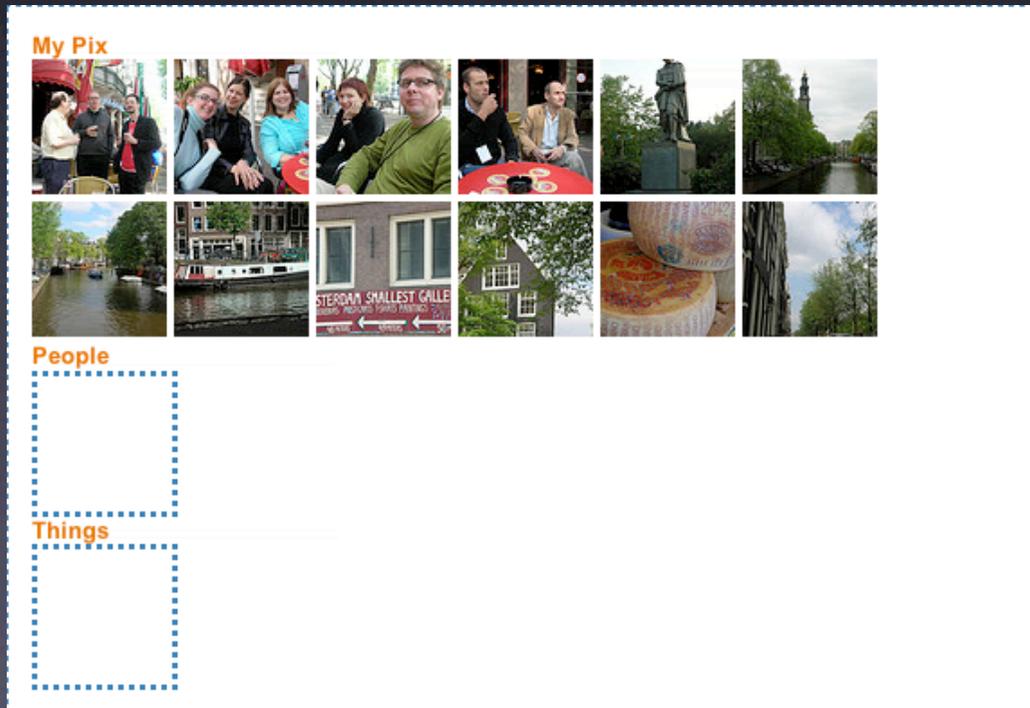
Behavior

Site has a demo page for each behavior

<http://protoscript.com/demos.php>

Site has a wiki with documentation page for each behavior

<http://docs.protoscript.com/>



Event

Element

# behavior attributes

Behaviors may supply attributes for configuring the behavior

Where possible if an underlying YUI component or utility has a config object, this is exposed

**EXAMPLE FROM Popup BEHAVIOR (bold denotes from Panel cfg)**

```
close: true,
draggable: true,
underlay: 'shadow',
model: false,
visible: true,
effect: null,
monitorresize: true,
x: null,
y: null,
xy: null,
context: null,
fixedcenter: true,
width: '300px',
height: null,
zIndex: null,
constraintviewport: false,
iframe: false,
id: 'popup_panel',
hd: 'Panel Title',
bd: 'This is the body',
ft: null
```

# plug-in behavior

Behavior

Protoscript core is independent of any single toolkit

selector is a plugin. *default set uses jQuery*

behavior set is plugged in. *default set uses YUI.*

```
ProtoScript.Core.registerBehaviorSet($, YAHOO.protoscript);  
(yui-proto.js)
```

You are free to create your own behavior sets or plug in other selector technologies

Example: Mootools selector & behaviors

```
ProtoScript.Core.registerBehaviorSet($ES, MooBehaviors);  
(moo-proto.js)
```

You can also add behaviors to the default set

Event

Element

# peek under the hood of a behavior

Behavior

```
YAHOO.protoscript.Show = function (behaviorName, behaviorCfg) {
    this.init(behaviorName, behaviorCfg);
};
YAHOO.protoscript.Show.prototype = {
    defaultCfg : {
    },

    init: function(behaviorName, behaviorCfg) {
        this.name = behaviorName;
        this.cfg = ProtoScript.Core.applyConfig(this.defaultCfg, behaviorCfg);
    },

    action: function(currScope) {
        YAHOO.util.Dom.setStyle(currScope.elms, 'visibility', 'visible');
        if(this.cfg.onShow) {
            ProtoScript.Core.callBehaviors(this.cfg.onShow, currScope);
        }
    }
};
```

'Show' behavior

Event

Element

# adding a behavior (to default YUI set)

Behavior

1. Add behavior to `YAHOO.prototype` namespace
2. In `init` store name & apply config parameters
3. In `action` put your behavior logic

The action performs the behavior

`action(currScope)`

`currScope.elms`: list of elms resolved from the current target scope

`currScope.idx`: if multiple elms, the index into the active element for this action

`currScope.pseudoElms`: some behaviors set dynamic elements (like `$drag`, `$drop` in `DragDrop` behavior).

4. For any interesting moments, call

`ProtoScript.Core.callBehaviors` to process the callback

5. Add attributes as needed (in your `defaultCfg`)
6. Start using it in your scripts

Event

Element

# events

Event

Blur. Click. Dblclick. Focus.  
Keypress. Mousedown.  
Mousemove. Mouseout.  
Mouseover. Mouseup. Timer.

Element

Behavior

# events are actually behaviors

Event

```
YAHOO.prototype.Click = function(behaviorName, behaviorCfg) {
    this.init(behaviorName, behaviorCfg);
};
YAHOO.prototype.Click.prototype = {
    defaultCfg : {},
    init: function(behaviorName, behaviorCfg) {
        this.name = behaviorName;
        this.cfg = ProtoScript.Core.applyConfig(this.defaultCfg, behaviorCfg);
    },
    action: function(currScope) { YAHOO.prototype.Trigger(this.cfg,
currScope, 'click');}
};
```

'Click' behavior

Element

Behavior

# callbacks

Event

onComplete. onTween. onStart. onClose.  
onStartDrag. onDrag. onDragEnter. onDragOver.  
onDragDrop. onDragOut. onEndDrag. onMouseUp.  
onInvalidDrop. onBlur. onClick. onDbClick. onFocus.  
onKeypress. onMouseDown. onMousemove.  
onMouseout. onMouseover. onMouseup. onTimer.  
onHide. onOpen. onReplaceClass. onSetClass.  
onSetStyle. onShow. onToggleClass.  
onToggleOpenClose. onToggleShowHide.  
onSuccess. onFailure. onSetHtml.

Element

Behavior

# callbacks are interesting moments



## Interesting Moments

Simply making an object draggable rarely suffices to achieve the desired interaction behavior for a drag-and-drop implementation. In most cases, Drag and Drop requires that you write code to respond to the interesting moments in the interaction: when the drag event starts, when the dragged object enters another object, and so on. The Drag and Drop Utility provides methods that fire during each of the interesting moments of the interaction. You customize your implementation by supplying the code for these methods (all of which are members of the `YAHOO.util.DD`, `YAHOO.util.DDProxy`, and `YAHOO.util.DDTarget`).

| Moment                     | Description   |
|----------------------------|---|
| <code>onMouseDown</code>   | Provides access to the mousedown event. The mousedown does not always result in a drag operation.   |
| <code>startDrag</code>     | Occurs after a mouse down and the drag threshold has been met. The drag threshold default is either 3 pixels of mouse movement or 1 full second of holding the mousedown. |
| <code>onDrag</code>        | Occurs every mousemove event while dragging.  |
| <code>onDragEnter</code>   | Occurs when the dragged object first interacts with another targettable drag and drop object.   |
| <code>onDragOver</code>    | Fires every mousemove event while over a drag and drop object.  |
| <code>onDragOut</code>     | Fires when a dragged object is no longer over an object that had the <code>onDragEnter</code> fire.   |
| <code>onDragDrop</code>    | Fires when the dragged objects is dropped on another.   |
| <code>onInvalidDrop</code> | Fires when the dragged objects is dropped in a location that contains no drop targets.  |
| <code>endDrag</code>       | Fires on the mouseup event after a drag has been initiated ( <code>startDrag</code> fired).   |
| <code>onMouseUp</code>     | Fires on the mouseup event whether or not a drag was initiated.   |

# callbacks are invoked in behaviors

Event

```
YAHOO.protoscript.Open = function (behaviorName, behaviorCfg) {
    this.init(behaviorName, behaviorCfg);
};
YAHOO.protoscript.Open.prototype = {
    defaultCfg : {
    },

    init: function(behaviorName, behaviorCfg) {
        this.name = behaviorName;
        this.cfg = ProtoScript.Core.applyConfig(
            this.defaultCfg, behaviorCfg);
    },

    action: function(currScope) {
        YAHOO.util.Dom.setStyle(currScope.elms, 'display', 'block');
        if(this.cfg.onOpen) {
            ProtoScript.Core.callBehaviors(this.cfg.onOpen, currScope);
        }
    }
};
```

'Open' behavior invoking onOpen

Element

Behavior

# Bookmarklet\*

\*humble beginnings

Search  >>

- Blog
- User Reviews
- Editorial Reviews
- Scoring
- Directory (recent)
  - San Francisco (M)
  - Mountain View (M)
  - San Jose (M)
  - Los Angeles (M)
  - San Diego (M)
  - Chicago (M)
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- Suggest
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## Directory

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- [Chavez Supermarket Taqueria](#) (7.2) 666 N Fair Oaks Ave
- [El Camino Mexican Restaurant](#) (7.0) 510 E El Camino
- [Garcia's Taqueria](#) (5.7) 738 S Fair Oaks Ave
- [Hot and Mild Taqueria](#) (6.5) 848 East Evelyn Ave
- [Las Islitas](#) (5.3) 848 E Evelyn Ave
- [Little Michoacan](#) (6.5) 305 N Fair Oaks
- [Senor Jalapeno](#) (6.0) 415 N Mary Ave # 117
- [Tacos Jalapa](#) (6.5) 154 W El Camino Real
- [Taqueria Latina](#) (8.0) 195 E Maude Ave
- [Tres Potrillos Taqueria](#) (no reviews) 670 S Fair Oaks Ave
- [Tres Potrillos Taqueria](#) (no reviews) 670 N Fair Oaks Ave
- [Una Mas \(Lawrence Expy\)](#) (5.5) 548 Lawrence Expy
- [Una Mas \(Sunnyvale Saratoga Rd\)](#) (no reviews) 725 Sunny

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Send your suggestions to [editors \[at\] burritophile.com](mailto:editors[at]burritophile.com).

### Latest User Reviews

[La Borinquena Mexicatessen](#)  
Oakland, CA

**Protoscripser** [X]

For elements matching:

Do the following:

```

SetHtml: {
  html: '<span class="small">&nbsp;[X]&nbsp;</span>'
},
SetStyle: {
  cursor: 'move'
},
Click: {
  onClick: {
    target: 'ul.bulleted li',
    Fade: {
      duration: 1,
      onComplete: {
        close: { }
      }
    }
  }
}

```

Protoscript is a simplified scripting language for creating  
View style prototypes for the Web. With Protoscript it's easy

### Protoscripiter

For elements matching:

Do the following:

```
Spotlight: {}
```

Protoscript is for prototyping. It's simple syntax makes it easy to sprinkle behaviors onto any web page.

**Easy to query for interface elements**

Uses jQuery. Plug-in architecture allows different selector plugins.

**Simple to express complex dependent behaviors**

Just nest behaviors within behaviors or callbacks.

**Add new behaviors & events with plug-in architecture**

Uses YUI library. Can be extended to use other Ajax frameworks.

You can play with the current version of protoscript with the ProtoScripter Bookmarklet.

For Firefox, drag this link [ProtoScripter](#) to your bookmarks toolbar. On IE right-click it and choose Add Favorite...

# adding protoscript to your page

## Download

- The protoscript library: [proto.js](#)
- The default behavior set (jQuery + YUI): [yui\\_proto.js](#)
- jQuery library: [jquery-1.1.3.1.js](#)

## Default YUI + jQuery Behavior Set

Include the following in your page:

```
<!-- YUI Library -->
<script type="text/javascript" src="http://yui.yahooapis.com/2.3.0/build/utilities/utilities.js"></script>
<script type="text/javascript" src="http://yui.yahooapis.com/2.3.0/build/container/container-min.js"></script>

<!-- jQuery Library -->
<script type="text/javascript" src="scripts/jquery-1.1.3.1.js"></script>

<!-- Default Behavior Set - YUI -->
<script type="text/javascript" src="scripts/yui_proto.js"></script>

<!-- YUI CSS -->
<link rel="stylesheet" type="text/css" href="http://yui.yahooapis.com/2.3.0/build/reset-fonts-grids/reset-fonts-grids.css">
<link rel="stylesheet" type="text/css" href="http://yui.yahooapis.com/2.3.0/build/base/base-min.css">
<link rel="stylesheet" type="text/css" href="http://yui.yahooapis.com/2.3.0/build/container/assets/container.css">
```

## Protoscript library

Include the following in your page:

```
<script type="text/javascript" src="scripts/proto.js"></script>
```

## Code Repository - Subversion

The code repository for protoscript is located at [googlecode](#)

## Protoscripiter Bookmarklet

You can play with the current version of protoscript with the ProtoScripiter Bookmarklet.

For Firefox, drag this link [ProtoScripiter](#) to your bookmarks toolbar. On IE right-click it and choose Add Favorite...

<http://protoscript.com/downloads.php>

# syntax

## **\$proto(selector, interaction)**

where:

selector is the jQuery selector syntax

interaction is a configuration object (JSON) describing the interaction

```
$proto('span:contains([X])', {
  SetStyle: {cursor:'pointer'},
  Click: {
    onClick: {
      Fade: {
        target: '#multiple li',
        opacity: {to: 0},
        onComplete: {Close : {} }
      }
    }
  }
});
```

# syntax

## **\$proto**(**config**)

single config object defines an interaction

convenient for passing interactions around or saving to config files

```
$proto(  
{  
  'span:contains([X])': {  
    SetStyle: {cursor:'pointer'},  
    Click: {  
      onClick: {  
        Fade: {  
          target: '#multiple li',  
          opacity: {to: 0},  
          onComplete: {Close : {} }  
        }  
      }  
    }  
  }  
})
```

# syntax

## **\$proto**(**config**)

single config object defines an interaction

convenient for passing interactions around or saving to config files

```
var cfg = {'span:contains([X])': {
  SetStyle: {cursor:'pointer'},
  Click: {
    onClick: {
      Fade: {
        target: '#multiple li',
        opacity: {to: 0},
        onComplete: {Close : {} }
      }
    }
  }
};
$proto(cfg);
```

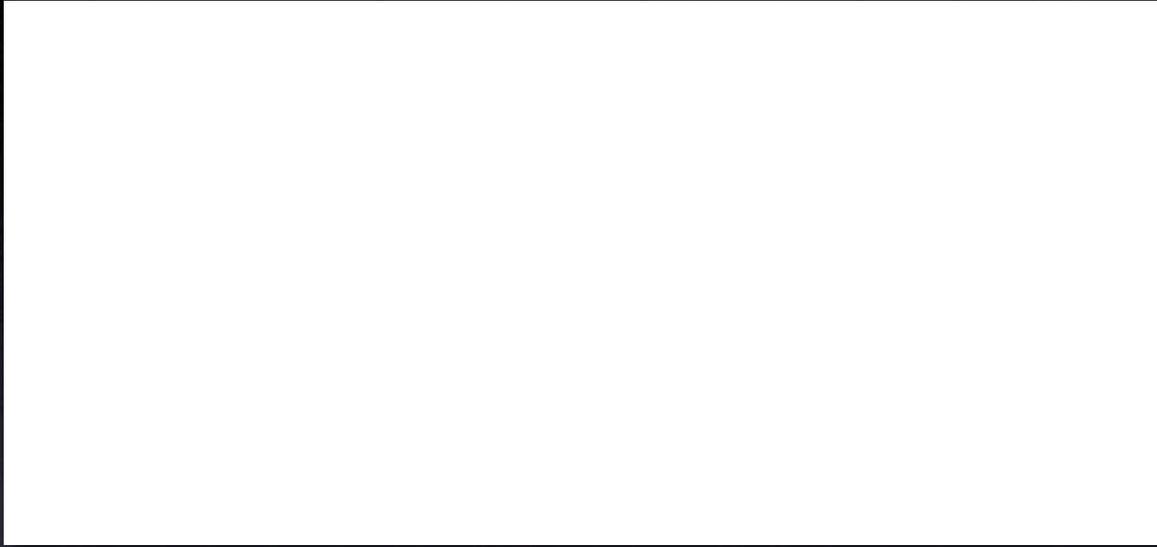
# 0.1 beta

- Live at <http://protoscript.com>
  - Started it last month
  - reference implementation YUI + jQuery
  - 31 behaviors (including events)
  - 40+ live examples
  - full wiki site with all behaviors documented ([docs.protoscript.com](http://docs.protoscript.com))
- Open source
  - Code is at Google Code. Send me email if you want to participate will get you access to SVN trunk
  - BSD license
- Bookmarklet
  - Just hack to start experimenting with GUI
  - Combined with firebug, works ok
  - Right now best on Firefox

## next steps

- 'You' write lots of behaviors
  - Wiki for docs
  - Google code for new behaviors & behavior sets
- New GUI tool
  - Most likely extend Firebug
  - Combine 'inspector' with behavior wizard to inject behaviors
  - Persist configurations for pages; allow re-load
- Flesh out behavior self-publishing
  - Will add spec on how to make behavior publish itself to a GUI tool

# lego-style interaction builder



Animate  
ColorAnimate  
Fade  
Move  
Spotlight  
Close  
DragDrop  
Hide  
Open  
Popup  
ReplaceClass  
Script  
SetClass  
SetStyle  
Show  
ToggleClass  
ToggleOpenClose  
ToggleShowHide  
FetchHtml  
SetHtml  
Blur  
Click  
DbClick  
Focus  
Keypress  
MouseDown  
MouseMove  
Mouseout  
Mouseover  
Mouseup  
Timer

# lego-style interaction builder

#avatar

[+ behavior](#) [edit](#) [\[x\]](#)

Animate  
ColorAnimate  
Fade  
Move  
Spotlight  
Close  
DragDrop  
Hide  
Open  
Popup  
ReplaceClass  
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Keypress  
MouseDown  
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Mouseout  
Mouseover  
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Timer

# lego-style interaction builder

```
#avatar + behavior edit [x]  
└─ Click + callback + behavior edit [x]
```

Animate  
ColorAnimate  
Fade  
Move  
Spotlight  
Close  
DragDrop  
Hide  
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ReplaceClass  
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Click  
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Focus  
Keypress  
MouseDown  
MouseMove  
Mouseout  
Mouseover  
Mouseup  
Timer

# lego-style interaction builder

#avatar [+ behavior](#) [edit](#) [\[x\]](#)

L Click [+ callback](#) [+ behavior](#) [edit](#) [\[x\]](#)

Modifier:

Delay:

OK

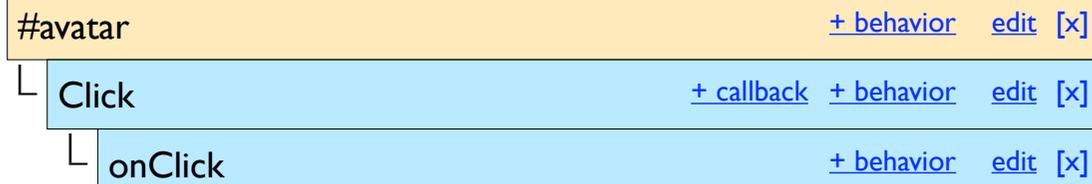
Animate  
ColorAnimate  
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Close  
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DbClick  
Focus  
Keypress  
MouseDown  
MouseMove  
Mouseout  
Mouseover  
Mouseup  
Timer

# lego-style interaction builder

```
#avatar + behavior edit [x]  
└─ Click + callback + behavior edit [x]
```

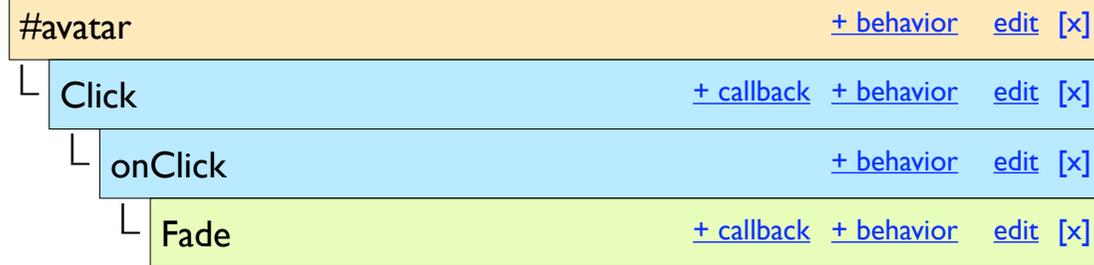
Animate  
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Mouseup  
Timer

# lego-style interaction builder



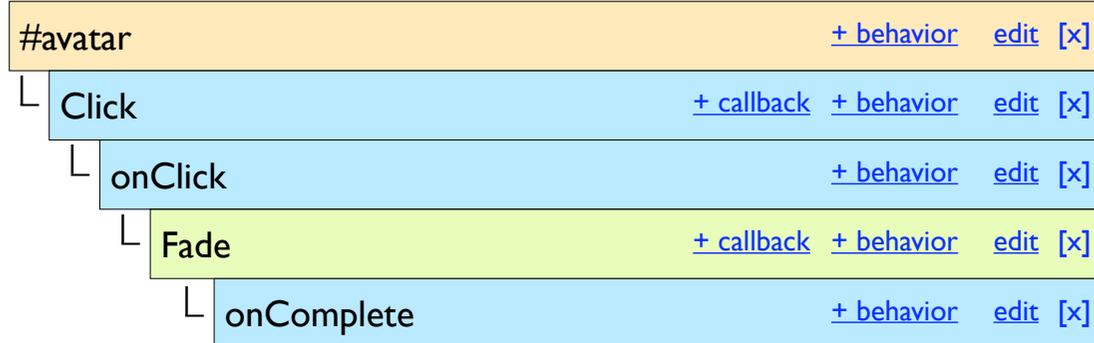
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# lego-style interaction builder



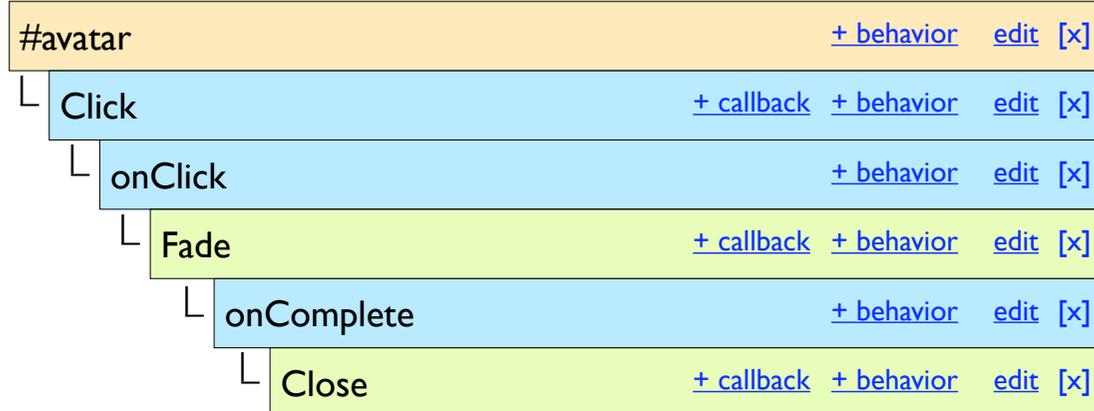
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Mouseup  
Timer

# lego-style interaction builder



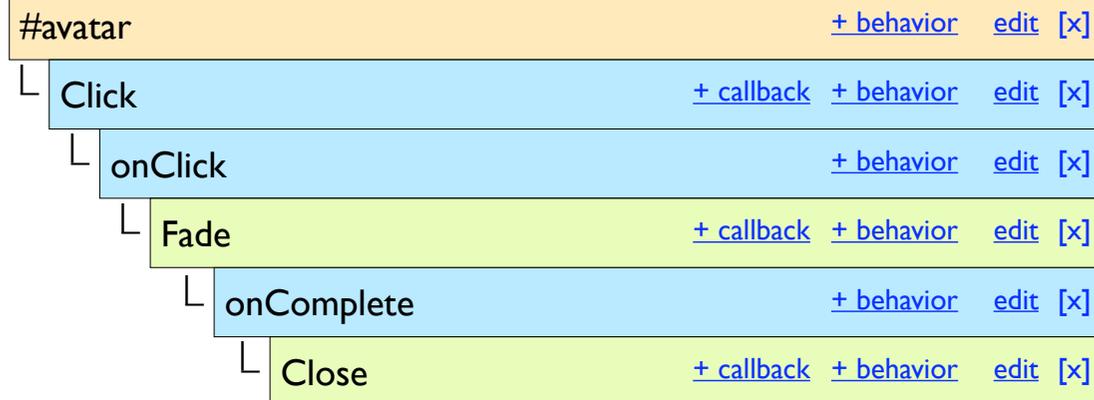
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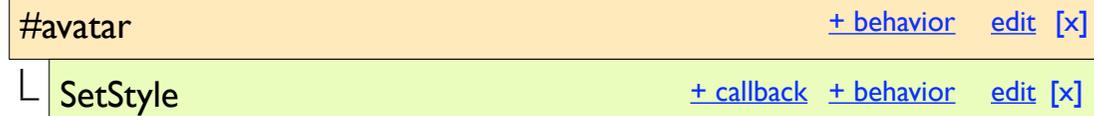
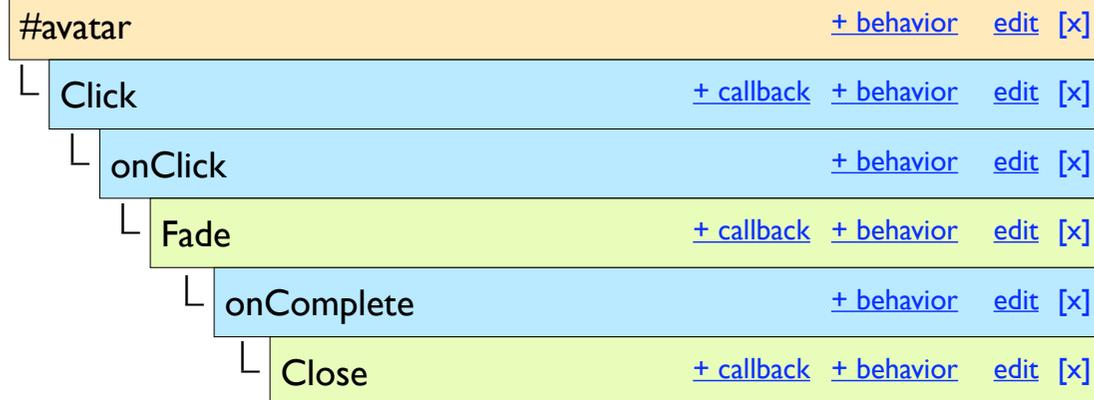
# lego-style interaction builder



#avatar + behavior edit [x]

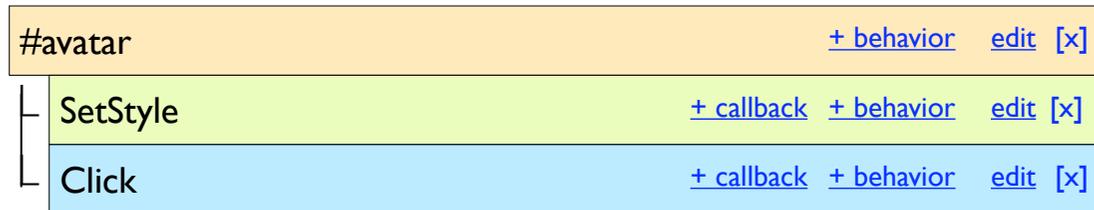
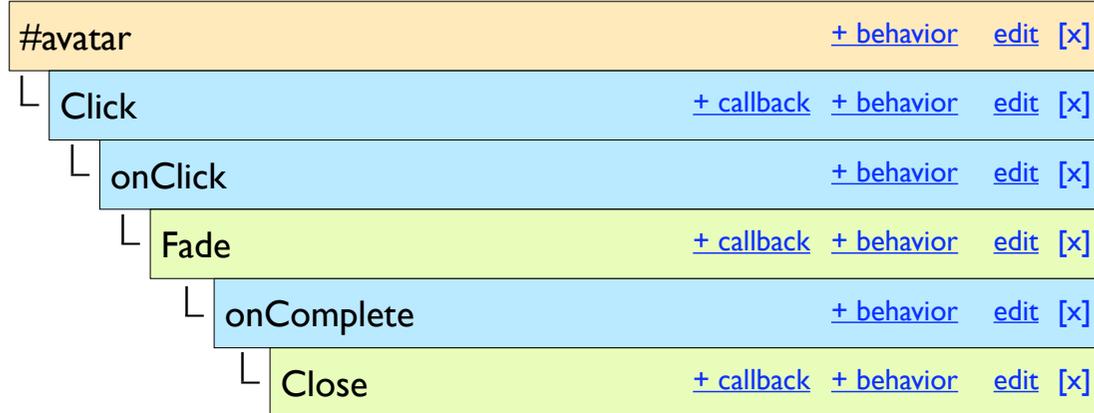
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Timer

# lego-style interaction builder



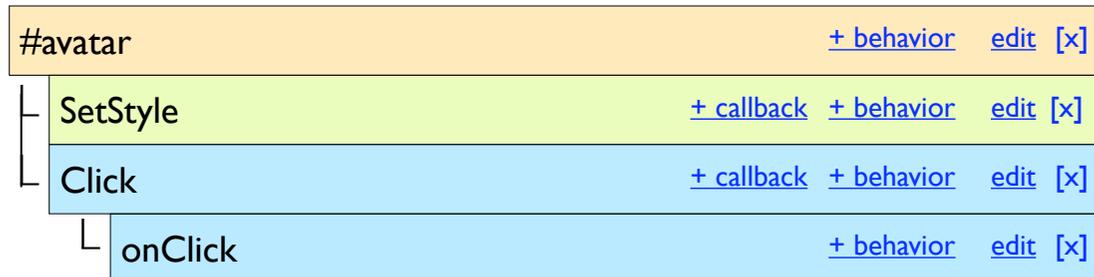
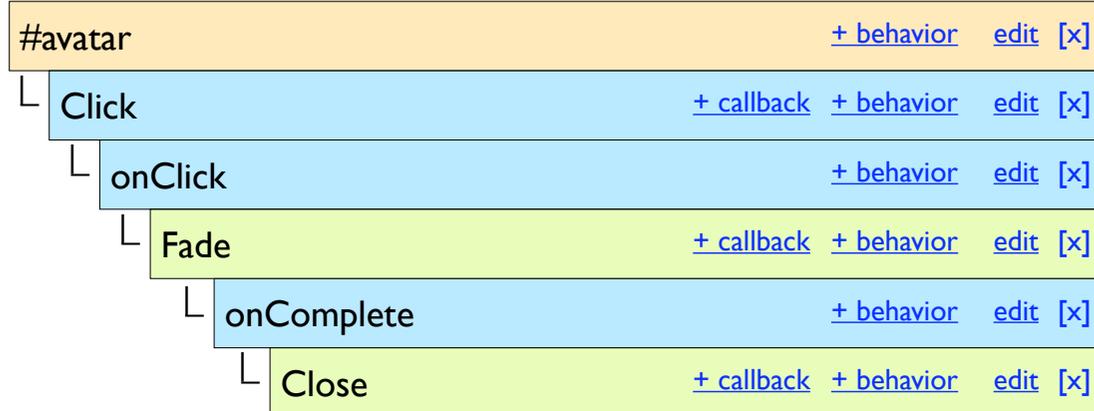
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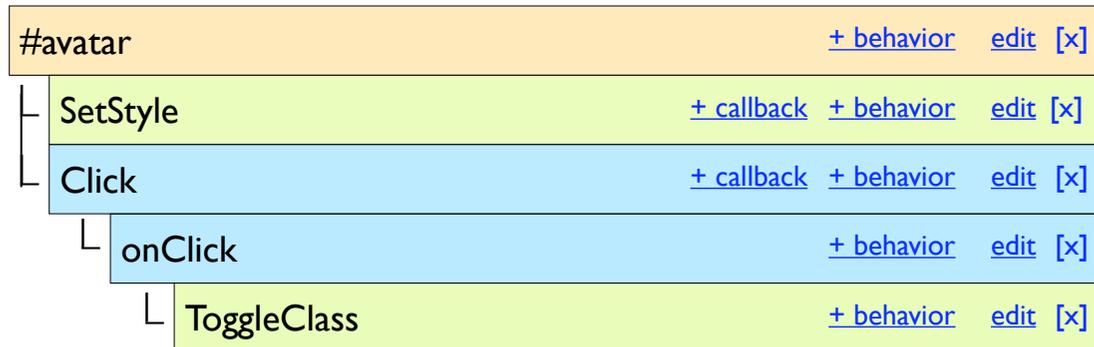
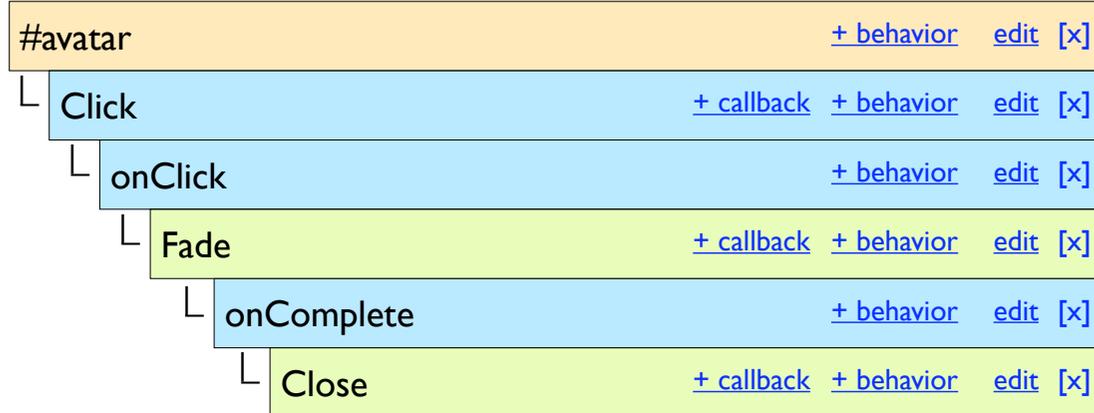
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# lego-style interaction builder



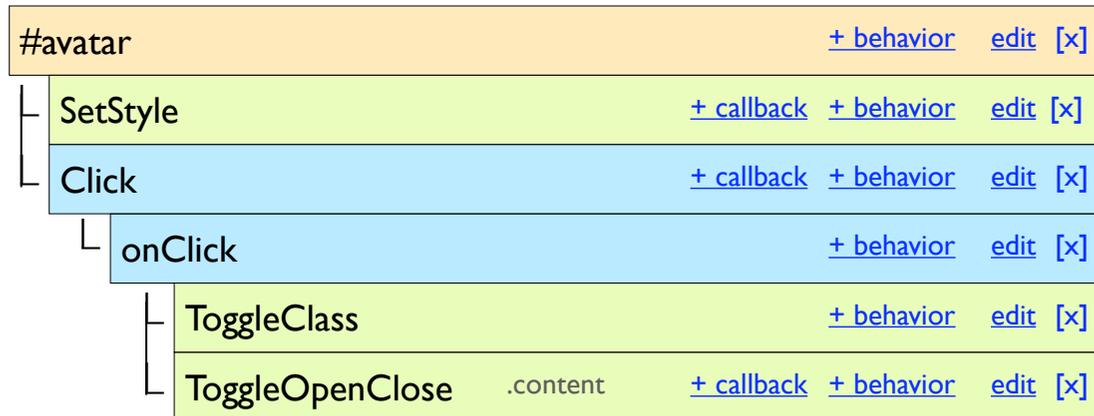
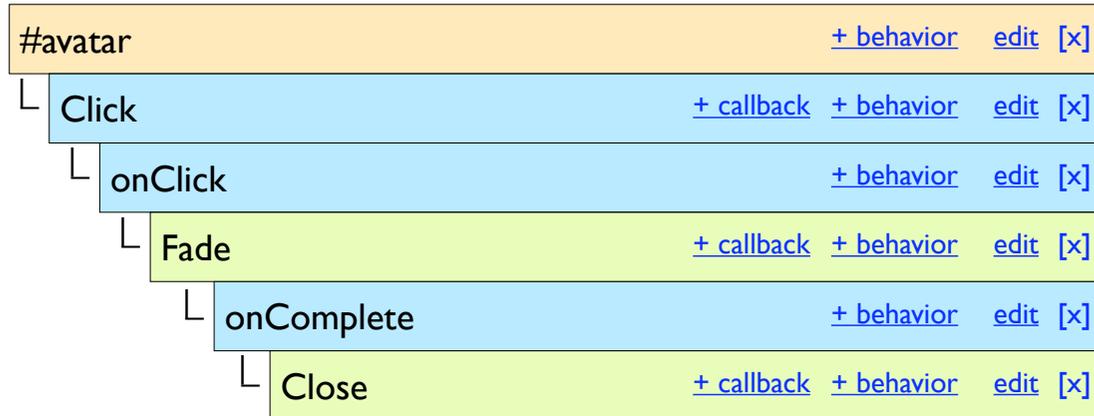
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# lego-style interaction builder



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# lego-style interaction builder



- Animate
- ColorAnimate
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- SetHtml
- Blur
- Click
- DbfClick
- Focus
- Keypress
- Mousedown
- Mousemove
- Mouseout
- Mouseover
- Mouseup
- Timer

# useful approaches (inspiration)

- Responder
  - <http://www.boxpop.net/responder>
  - given a style class name, associate behavior with those objects
- jQuery
- LivePipe's Event.Behavior
  - [http://livepipe.net/projects/event\\_behavior/](http://livepipe.net/projects/event_behavior/)
- Dustin Diaz, DED Chain
  - <http://dedchain.dustindiaz.com/>

# useful approaches (inspiration)

- Transclusions
  - including html from somewhere else on your page
  - <http://ajaxian.com/archives/purple-include-transclusions-you-know-you-want-them>
- DOMDom
  - nice way to express HTML for Dom insertion
  - <http://www.zachleat.com/web/2007/07/07/domdom-easy-dom-element-creation/>
  - (merge with protokit)
- Magic DOM
  - <http://amix.dk/blog/viewEntry/19199>
- Jester. JavaScriptian REST
  - <http://giantrobots.thoughtbot.com/2007/4/2/jester-javascriptian-rest>
- JavaScript Templating Library: MJT
  - <http://mjtemplate.org/>

# useful approaches (inspiration)

- moz-behaviors (dean.edwards.name)
  - <http://dean.edwards.name/moz-behaviors/intro/>
  - uses CSS Linking mechanisms
  - <http://www.w3.org/TR/becss>
- ClassAnim
  - <http://blog.mozmonkey.com/2007/classanim-hoverhijax-keeping-presentation-out-of-your-javascript/>
- JDA Emulator: Spring for JS
  - Adds properties to the HTML tags themselves
- Ben Nolan's Behavior Library
  - <http://www.ccs.neu.edu/home/dherman/javascript/behavior/>
  - <http://www.ccs.neu.edu/home/dherman/javascript/behavior/example.html>
  - Ben Nolan, Dave Herman, Simon Wilison
- Prototype Behavior Library (built on prototype.js)

site - <http://protoscript.com>  
blog - <http://looksgoodworkswell.com>