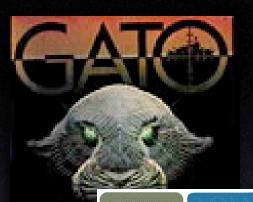


# Prototyping the Rich Web Experience

Bill Scott Yahoo! Ajax Evangelist b.scott@yahoo.com

### stuff i've done



JavaScript for Rich Inte

Documentation

An open-source JavaScript library for cre applications. Rico provides full Ajax sup management and a cinematic effects lib

Demos

#### BACKGROUND

WWIIIGATO-

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. is effort from the Ruby on Rails

#### **OPEN SOURCE**

Rico is provide 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

#### AJAX SUPPORT

Aiax is the term that describe techniques for creating interthe key ingredients is the Jav Rico provides a very simple in request handlers as well as H objects as Ajax response obje objects may be updated as th

Want to get started learning then read our two Ajax tutori

#### DRAG AND DROP

Desktop applications have lo interfaces to simplify user inte the simplest interfaces for en support drag and drop. Just i JavaScript object as a draggal

#### CINEMATIC EFFECTS

When actions are no longer required to clue the user on transitions can communicate Rico provides several cinemat Developer Network Home Help

### VAHOO! DEVELOPER NETWORK

Yahoo! Developer Network > Design Pattern Library

#### - 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

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...

Travel > Guides > North Amer

ica > United States > New York

potentially large quantities of

New York City > Things to do

User needs to navigate

information efficiently

without becoming lost.

Breadcrumbs

#### Recent Patterns



#### Auto-Complete

The user needs to enter an item into a text box which could ambiguous or hard to remember and therefore has the potential to be mis-typed.

#### AP Reuters | AFP | USATOD Cargo Ship Blocks Sue International Observers

#### Module Tabs

The user needs to navigate through one or more stacked panes of content without refreshing the page.

#### Results Page: 1 2 3 4 Next

#### Search Pagination

The user needs to view a set of search results ranked by relevance that is too large to easily display within a single

#### 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.

### \*\*\* Read 20 reviews \*\*\*

#### Rating an Object

A user wants to quickly leave their opinion on an object, with minimal interruption to any other task flow they are involved in

User wants to share her opinion with others about an object (place, person, thing) in greater detail than a simple rating.



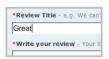
#### Drag and Drop Modules

The user needs needs to re-arrange the layout of modules on a web page directly with the mouse.



#### 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.



#### Writing a Review



#### 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!



### 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

Popup



### My Portfolio

Sort by: Recent L Alpha | Points

Project On

Lerem it suns plor sit amet, consectetuer adipiscing elit. Proin tempor, lectus aliquet ornare suscipit, diam preis suscipit telit rhoncus feugiat purus metus gravida turpis. Nam nisl. Nulla et est in neque laoreet consequat. Quisque vas pede. Curabitur pretium. Etiam varius. Suspendisse tempus nisl eu lectus. Integer et velit. Quisque quis magna. Nunc pellentesque pharetra ligula. Morbi semper.

Project Two

cuisque 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.

Project Three

Maecenas est mauris, volutpat sed, sollicitudin sed, dignissim ac, risus. Praesent rutrum gravida tortor. In in ml. Donec portitor massa ut velit. Cras mollis sollicitudin quam. Cras felis sapien, dictum et, auctor eget, volutpat at, magna. Nunc id augue non quam varius molestie. Vestibulum quis ligula. Nunc semper. Vivamus ut turpis vel lorem vulputate sagittis. Proin tincidunt elit vitae augue tempus sagittis. Ut convallis nunc ut metus. Vestibulum dictum. Sed posuere est quis arcu. Suspendisse vitae nibh pretium velit lacinia venenatis. Nullam mattis congue neque. Vestibulum mattis, mauris quis eleifend ornare, ligula lectus ullamcorper enim, vel tempor tellus eros sed dui.

take a rough prototype



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

sprinkle in some behaviors

### what we will discuss

- quick overview of common design patterns (behaviors)
- quick survey of techniques to prototype a rich web experience
- dive into protoscript and discuss how it can be used to sprinkle behaviors into web pages
- look at similar techniques emerging (jQuery, css behaviors, DED | Chain, etc.

patterns (common interaction behaviors)

### ria patterns

invitation. cursor invitation. hover invitation. tooltip invitation. page invitation. drop invitation. available. selected. auto complete. live suggest. refining search. dynamic filtering. live search. on-demand scrolling. deferred content loading. fresh content. on-demand content. periodic refresh. resizable modules. scrolling modules. hover detail. narrowing actions. narrowing choices. auto form fill. in-place drill down. dependent choices. look before you leap. drag and drop. drag and drop modules. drag and drop objects. persistant portals. in page edit. inline text edit. inline custom edit. direct state edit. rating an object. inline custom edit. inline tag edit. popup custom edit. grid cell edit. slide out custom edit. module configure. module flip configure. module inline configure. module slide out configure. module faceplate. expandable content. incontext tools. in-context links. in-context hover menu. silent submit. remembered collection. auto save. remembered preferences. hover spy. inline assistant. inline validation. validate then suggest. indicator. busy indicator. progress indicator. inline status. in-context busy. cursor busy. opacity fade. high contrast. balloon error tip. dynamic goal. opacity focus. detail zoom. lightbox. transition. brighten. cross-fade. dim. expand. fade-in. fade-out. flip. move. self-heal. collapse. slide. animate.

### Design Pattern Library

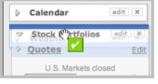
Yahoo! Developer Network > Design Pattern Library > Patterns from A to Z

### Patterns from A to Z



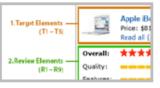
#### Alphanumeric Filter Links

The user needs the ability to look up information alphabetically within a large data set.



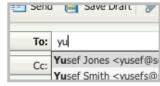
#### Animate Transition

The designer needs to communicate that an object is changing its spatial relationship within the page.



#### Architecture of a Review

A product or website needs to present ratings and reviews with a variety of informational elements.



#### Auto Complete

The user needs to enter an item into a text box which could 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.



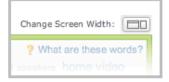
#### Brighten Transition

Designer wants to make a previously dimmed object a point of focus by making the object bright again.



#### Calendar Picker

User wants to find or submit a particular piece of information based on a date or between a date range.



#### Collapse Transition

The designer needs to communicate that an object is no longer of primary importance, yet wants to keep it available in a smaller form.



#### Cross Fade Transition

Designer wants to communicate that a new view of an object is replacing the previous view.



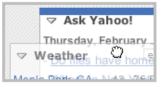
#### Cursor Invitation

Designer needs to cue the user that an object can be interacted with.



#### Dim Transition

Designer needs to communicate that an object is of secondary importance.



#### Drag and Drop Modules

The user needs needs to re-arrange the layout of modules on a web page directly with the mouse.

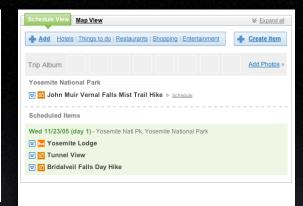
the previous view. view of an object is replacing interacted with. communicate that a new Designer wants to

user that an object can be Designer needs to cue the is of secondary importance. communicate that an object directly with the mouse. modules on a web page re-arrange the layout of The user needs needs to

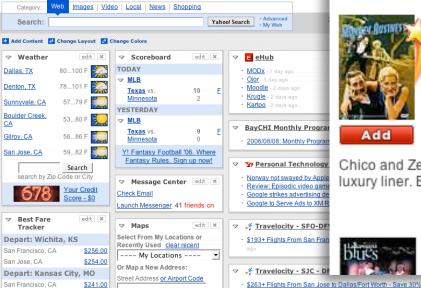
## ria pattern examples

pattern





Bill, the following movies were chosen based on your interest in: **Animal Crackers** Something the Lord Made X2: X-Men United





\$103+ Flights From San Jose to Los Angeles - Save 50%\*

Monkey Business

One of the Marx Brothers' funniest movies, the title of the film says it all as Groucho, Harpo,

Lackawanna

Blues

Chico and Zeppo stow away on a luxury liner. Before ... Read More



itext tools.

**Rate Your** 

pattern. hover details.

Depart: San Francisco, CA

### ria pattern examples

Bill, the following movies were chosen based on your interest in: Animal Crackers Something the Lord Made X2: X-Men United



#### Monkey Business



One of the Marx Brothers' funniest movies, the title of the film says it all as Groucho, Harpo,

Chico and Zeppo stow away on a luxury liner. Before ... Read More



- FREE shipping
- original artwork
- hardcover case

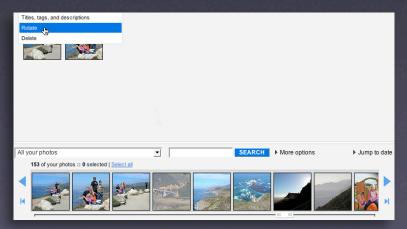
Shop now for o previously viewed title low as \$5



<u>Lackawanna</u> Blues

**Rate Your** 

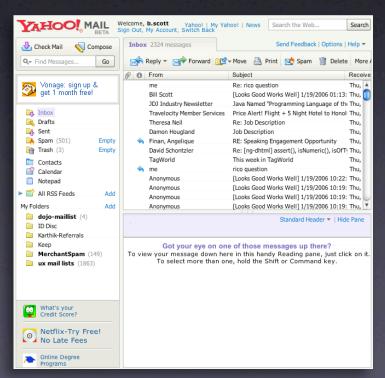
pattern. hover details.



pattern. lightweight popup + lightbox.

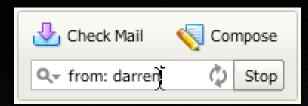


pattern. in-context expand.

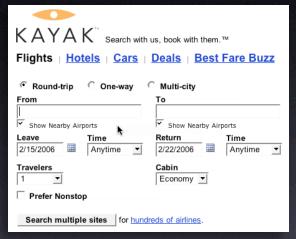


pattern. on-demand scrolling.

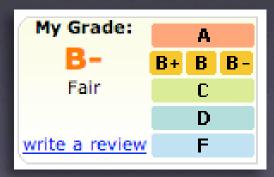
### ria pattern examples



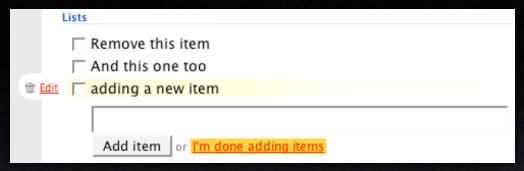
### pattern. busy indicator.



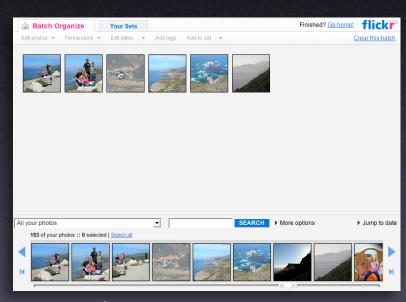
pattern. auto complete.



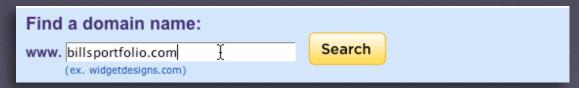
pattern. hover invitation.



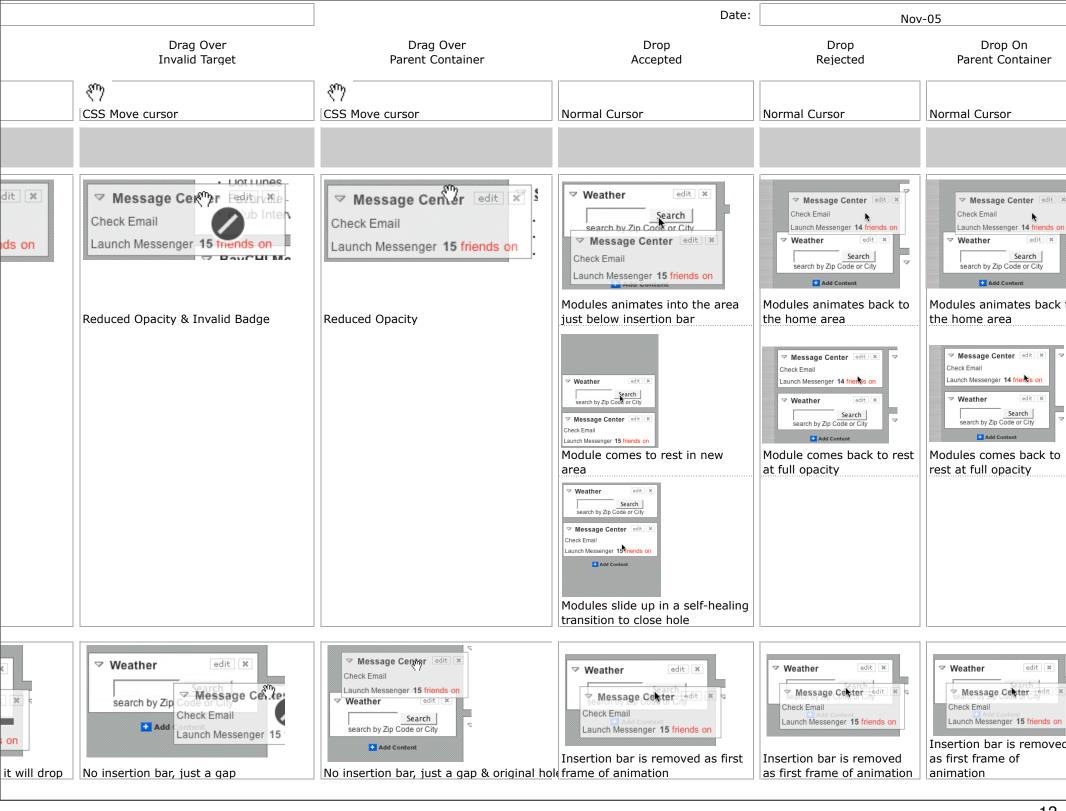
pattern. fade transition + self-healing transition.



pattern. drop invitation.



pattern. live previews.



# interesting moments for drag drop

	Page Generation	Mouse Hover	Drag Initiated	Drag over Valid	Drag over Invalid	Drag over Original	Drop Accepted	Drop Rejected	Drop on Original
Page Content	Hint	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cursor	Normal	Move Cursor	Move Cursor	Move Cursor	Move Cursor	Move Cursor	Normal	Normal	Normal
Drag Object	Normal	Normal	Reduced Opacity & Tracking	Reduced Opacity & Tracking	Reduced Opacity & Tracking + Invalid Badge	Reduced Opacity & Tracking	2. Modules animates into the area just below insertion bar 3. Module comes to rest in new area 4. Modules slide up in a self-healing transition to close hole	Normal Opacity + Zoom Back to Original	Normal Opacity + Zoom Back to Original
Orig Location	Normal	Normal	Hole Opens	Hole Remains	Hole Remains	Hole Remains	Hole Remains	Hole refilled with drag object	Hole refilled with drag object
Drop Target	Normal	Normal	Normal	Insertion Bar	N/A	N/A	1. Insertion Bar Removed	N/A	N/A
Drop Target	Normal	Normal	Normal	Insertion Bar	N/A	N/A	1. Insertion Bar Removed	object N/A	object N/A

non-dhtml prototyping techniques

# challenge of interesting moments



Wireframing AJAX is a bitch. The best our agency has come up with is the Chuck Jones approach: draw the key frames. Chuck Jones had an advantage: he knew what Bugs Bunny was going to do. We have to determine all the things a user might do, and wireframe the blessed moments of each possibility.

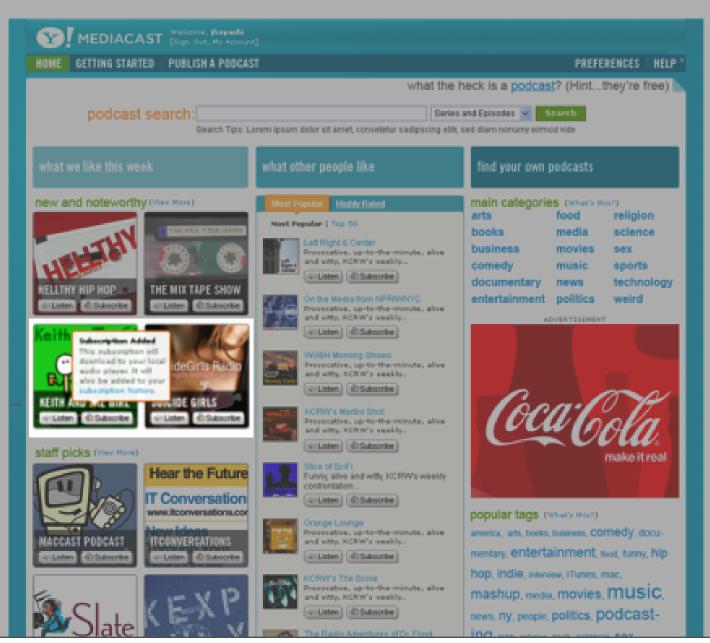
- Jeffrey Zeldman

http://www.alistapart.com/articles/web3point0/

- Blessed Moments = Microstates = Interesting Moments behavior is not static
  - Multiple states need to be captured
  - Happens within a context
  - Not suited for wireframes

### using keyframes

AJAX Status Interaction



On Page Load





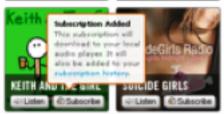




On Click display message (listen and subscribe buttons have same







Fade (50% opactly)



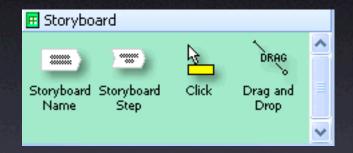


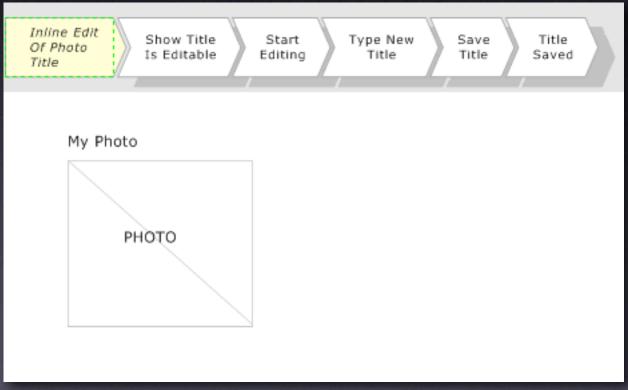




## prototyping with visio

- Changes in state placed in different layers
- Storyboard steps toggle visibility of associated layers
- Each storyline serves as a use case in the wireframe

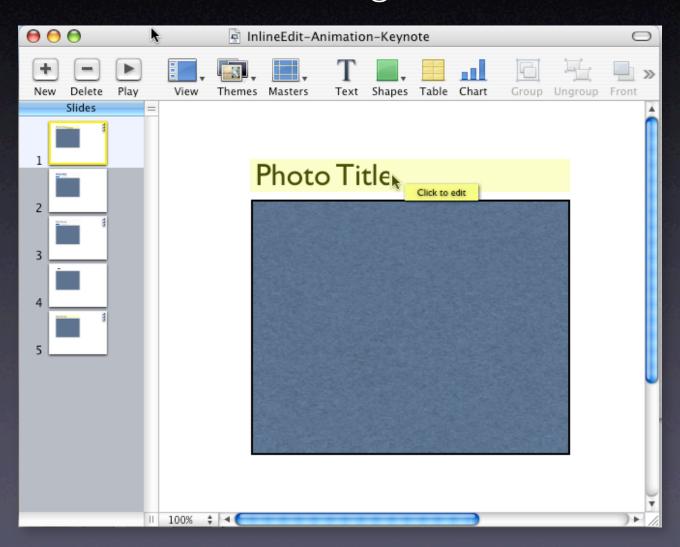




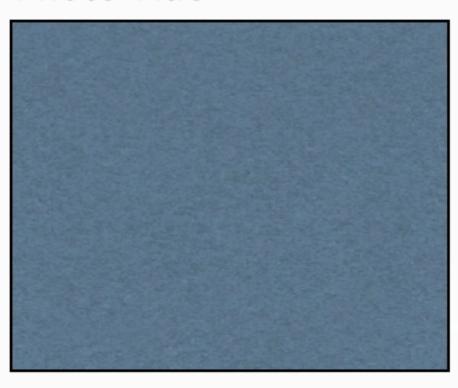
Source: <a href="http://www.boxesandarrows.com/view/storyboarding-rich-internet-applications-with-visio">http://www.boxesandarrows.com/view/storyboarding-rich-internet-applications-with-visio</a>

# prototyping with keynote/powerpoint

- Slides make major steps
- Builds used to bring in transitions, animations

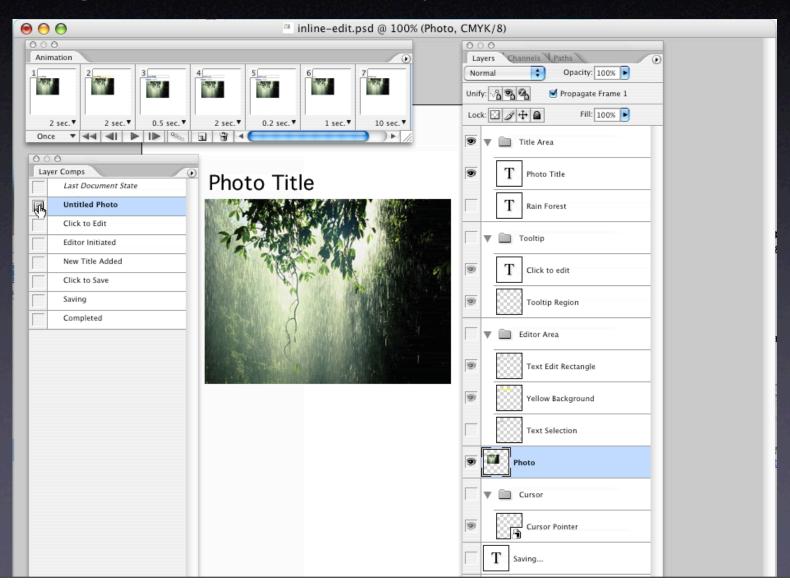


### Photo Title



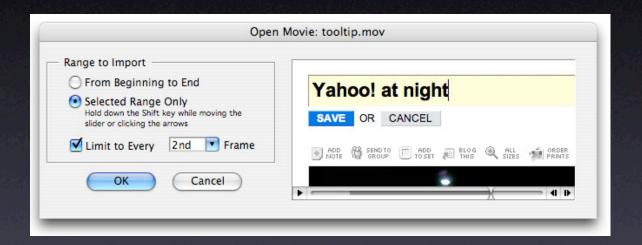
### prototyping with photoshop

- Easy to create from a series of images
- · Images can be created by hand or from other apps



### animations from screencasts

Start with screencast (SnapZPro/Snaglt)
Turn movie into animated GIF (Adobe ImageReady)



### other approaches

```
Flash
Flex
iRise (www.irise.com) $$$
Axure (www.axure.com)
Interactive PDFs
Fireworks + PDF
Powerpoint
```

**DHTML** 



# 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, Mootoos, Prototype, cssQuery()
- Use JSON syntax (options)

### underlying desire for protokit

- 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

Protoscript is a simplified scripting language for creating Ajax style prototypes for the Web. With Protoscript it's easy to bring interface elements to life. Simply connect them to behaviors and events to create complex interactions.

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



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, consectetuer 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.

▼ Project Three view | delete

Maecenas est mauris, volutpat sed, sollicitudin sed, dignissim ac, risus. Praesent rutrum gravida tortor. In in mi. Donec porttitor massa ut velit. Cras mollis sollicitudin quam. Cras felis sapien, dictum et, auctor eget, volutpat at, magna. Nunc id augue non quam varius molestie. Vestibulum quis ligula. Nunc semper. Vivamus ut turpis vel lorem vulputate sagittis. Proin tincidunt elit vitae augue tempus sagittis. Ut convallis nunc ut metus. Vestibulum dictum. Sed posuere est quis arcu. Suspendisse vitae nibh pretium velit lacinia venenatis. Nullam mattis congue neque. Vestibulum mattis, mauris quis eleifend ornare, ligula lectus ullamcorper enim, vel tempor tellus eros sed dui.





All behaviors added with protoscript

### anatomy of an interaction

### **DOM** elements

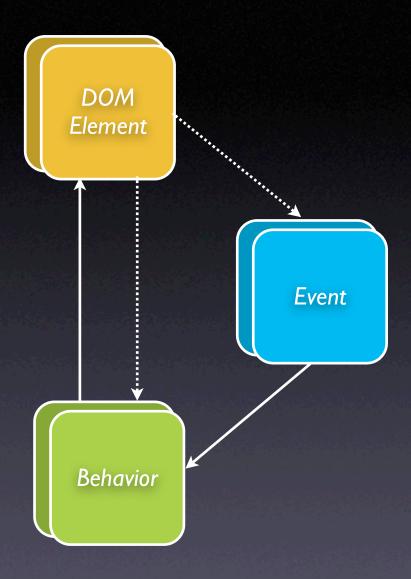
Target an element or elements for attaching events & behaviors.

### **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

### **DOM** elements

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

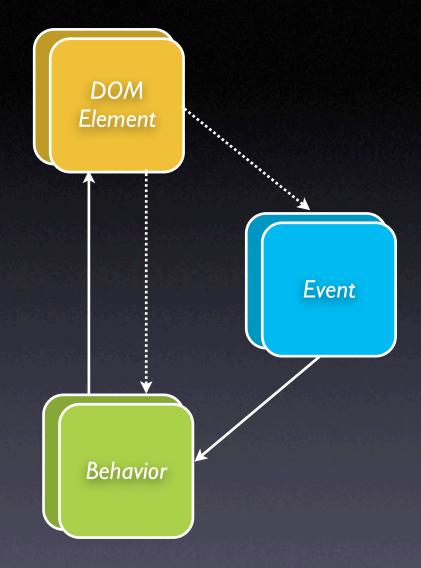
### **Events**

Click onClick (callback)

### **Behaviors**

Fade Close

# Files [X] mystuff.tmp [X] bigfile.tmp [X] oldmovie.mov [X] scrap.txt



### protoscript code

#### 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)



```
<div id="multiple" class="example-live">
Files
                                                         Files
<l
                                                         [X] mystuff.tmp
 <span><strong>[X]</strong></span><span>mystuff.tmp</span>
                                                         [X] bigfile.tmp
  <span><strong>[X]</strong></span>bigfile.tmp</span></or>
 <span><strong>[X]</strong></span><span>oldmovie.mov</span>
                                                         [X] oldmovie.mov
 <span><strong>[X]</strong></span><span>scrap.txt</span>
                                                         [X] scrap.txt
</div>
$proto('span:contains([X])', {
   SetStyle: {cursor:'pointer'},
   Click: {
      onClick: {
         Fade: {
            target: '#multiple li',
            opacity: {to: 0},
            onComplete: {Close : {} }
```

Behavior



### Element

### chaining of target scope

```
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 : } }
```





# selector syntax



Consult jQuery docs:

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





### behaviors



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





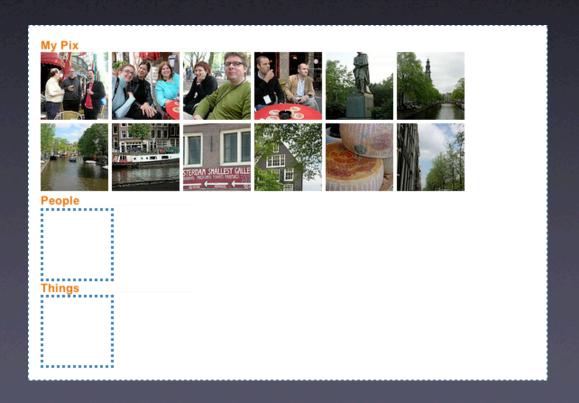
## behavior demos



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/







### behavior attributes

Behavior

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,
contraintoviewport: false,
iframe: false,
id: 'popup_panel',
hd: 'Panel Title',
bd: 'This is the body',
ft: null
```





# plug-in 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





#### Behavior

## peek under the hood of a 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.elems, 'visibility', 'visible');
        if(this.cfq.onShow) {
            ProtoScript.Core.callBehaviors(this.cfg.onShow, currScope);
};
```

'Show' behavior



# adding a behavior (to default YUI set)



- I. Add behavior to удноо.protoscript namespace
- 2. In init store name & apply config parameters
- 3. In action put your behavior logic

The action performs the behavior

action(currscope)

currScope.elems: list of elems resolved from the current target scope currScope.idx: if multiple elems, the index into the active element for this action currScope.pseudoElems: 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





### events



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

Element

Behavior

Event

## events are actually behaviors

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

### 'Click' behavior

Element

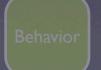
Behavior

### callbacks



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

Element



## 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
onMouseDown	Provides access to the mousedown event. The mousedown does not always result in a drag operation.
startDrag	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.
onDrag	Occurs every mousemove event while dragging.
onDragEnter	Occurs when the dragged object first interacts with another targettable drag and drop object.
onDragOver	Fires every mousemove event while over a drag and drop object.
onDragOut	Fires when a dragged object is no longer over an object that had the onDragEnter fire.
onDragDrop	Fires when the dragged objects is dropped on another.
onInvalidDrop	Fires when the dragged objects is dropped in a location that contains no drop targets.
endDrag	Fires on the mouseup event after a drag has been initiated (startDrag fired).
onMouseUp	Fires on the mouseup event whether or not a drag was initiated.

Event

### callbacks are invoked in behaviors

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

### 'Open' behavior invoking on Open

ehavior

# Bookmarklet\*

\*humble beginnings

#### Search

>>

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Chicago (M)

Boston (M)

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### Directory

Browse our directory of burrito places (recently added)

#### USA > California > Sunnyvale (show map)

Sort by: A to Z | High Scores

- Burrito Factory (no reviews) 1671 Hollenbeck Ave
- Chavez Supermarket Taqueria (7.2) 666 N Fairoaks A
- El Camino Mexican Restaurant (7.0) 510 E El Camino
- Garcia's Taqueria (5.7) 738 S Falroaks Ave
- Hot and Mild Taqueria (6.5) 848 East Evelyn Ave
- Las Islitas (5.3) 848 E Evelyn Ave
- <u>Little Michoacan</u> (6.5) 305 N Fair Oaks
- Senor Jalapeno (6.0) 415 N Mary Ave # 117
- Tacos Jalapa (6.5) 154 W.El Camino Real
- <u>Taqueria Latina</u> (8.0) 195 E Maude Ave
- <u>Tres Potrillos Taqueria</u> (no reviews) 670 S Fair Oaks Ave
- Tres Potrillos Taqueria (no reviews) 670 N Falroaks Ave
- Una Mas (Lawrence Expy) (5.5) 548 Lawrence Expy
- Una Mas (Sunnyvale Saratoga Rd) (no reviews) 725 Sunny

#### Help us improve the directory.

Send your suggestions to <a href="mailto:editors">editors</a> <a href="mailto:att] burritophile.com">burritophile.com</a>.

#### Latest User Reviews

<u>La Borinquena Mexicatessen</u> Oakland, CA

## For elements matching: ul.bulleted li .small Find

# Do the following: SetHtml: { html: '<span class="small">&nbsp;[X]&nbsp;</span>' },

B

SetStyle: {
 cursor: 'move'
},
Click: {

onClick: {
 target: 'ul.bulleted li',
 Fade: {
 duration: 1,

onComplete: {
 Close: { }
 }
}

Add Behaviors

Protoscripter

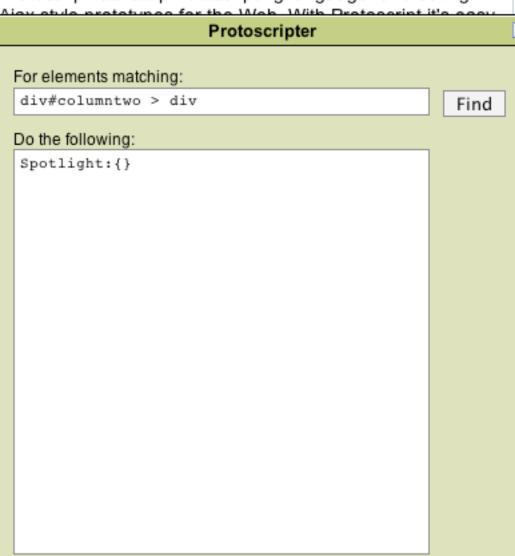
demos

home



Add Behaviors

Protoscript is a simplified scripting language for creating



Protoscript is for prototying. 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: <u>proto.js</u>
- The default behavior set (jQuery + YUI): <u>yui\_proto.js</u>
- jQuery library: <u>jquery-1.1.3.1.js</u>

#### 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 -->
<!-- YUI CSS -->
<!-- Type="text/container-fonts-grids/reset-fonts-grids/reset-fonts-grids.css"></script type="text/css" href="http://yui.yahooapis.com/2.3.0/build/reset-fonts-grids/reset-fonts-grids.css"></script type="text/css" href="http://yui.yahooapis.com/2.3.0/build/base/base-min.css"></script>
</script type="text/css" href="http://yui.yahooapis.com/2.3.0/build/container/assets/container.css"></script>
</script type="text/css" href="http://yui.yahooapis.com/2.3.0/build/container/assets/container.css"></script>
</script type="text/css" href="http://yui.yahooapis.com/2.3.0/build/container/assets/container.css"></script>
</script type="text/css" href="http://yui.yahooapis.com/2.3.0/build/container/assets/container.css"></script>
</script type="text/javascript" src="scripts/jquery-1.1.3.1.js"></script></script>
</script type="text/javascript" src="scripts/jquery-1.1.3.1.js"></script></script>
</script type="text/javascript" src="scripts/jquery-1.1.3.1.js"></script></script>
</script type="text/javascript" src="scripts/jquery-1.1.3.1.js"></script></script>
</script type="text/javascript" src="scripts/jquery-1.1.3.1.js"></script></script type="text/javascript" src="scripts/jquery-1.1.3.1.js"></script-jquery-1.1.3.1.js"></script-jquery-1.1.3.1.js"></script-jquery-1.1.3.1.js"</script></script>
</script type="text/javascript" src="scripts/jquery-1.1.3.1.js"></script-jquery-1.1.3.1.js"</script>
</script type="text/javascript" src="scripts/jquery-1.1.3.1.js"></script-jquery-1.1.3.1.js"</script>
</script type="text/javascript" src="scripts/jquery-1
```

#### 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

#### Protoscripter Bookmarklet

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...

### 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)

## Open source

- Code is at Google Code. Send me email if you want to participate will get you acces to SVN trunk
- BSD license

### Bookmarklet

- Just hack to start experimenting with GUI
- Combined with firebug, works ok

## 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

# 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/
- 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-keepingpresentation-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)

### more resources

#### Articles

Web 3.0 article: www.alistapart.com/articles/web3point0/

looksgoodworkswell.blogspot.com/2005/11/visio-wireframe-toolkit-for-download.html looksgoodworkswell.blogspot.com/2005/11/animating-interactions-with-photoshop.html Prototyping with PowerPoint: blogs.msdn.com/jensenh/archive/2006/02/20/535444.aspx Visio - the interaction designer's nail gun: http://www.guuui.com/issues/01\_06.php

PDF Prototyping: http://www.gotomedia.com/gotoreport/may2005/news\_0505\_usable | .html

#### **Products**

www.axure.com/demo.aspx

iRise Application Simulator: irise.com

#### Visio Stencils

www.boxesandarrows.com/view/storyboarding\_rich\_internet\_applications\_with\_visio

Visio Stencil Library: swipr.com

Wireframe Stencils: http://iainstitute.org/tools/

Garrett Dimon's Stencils: http://www.garrettdimon.com/resources/templates-stencils-for-visio-omnigraffle

http://protoscript.com http://looksgoodworkswell.com