

# Designing for Interesting Moments

**Bill Scott**

Director, UI Engineering  
Netflix

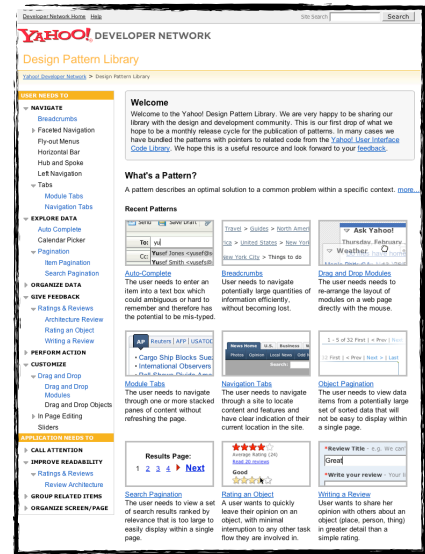
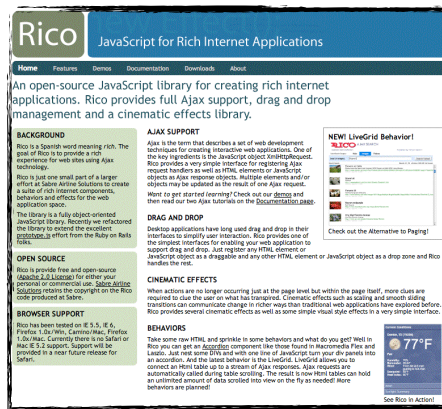
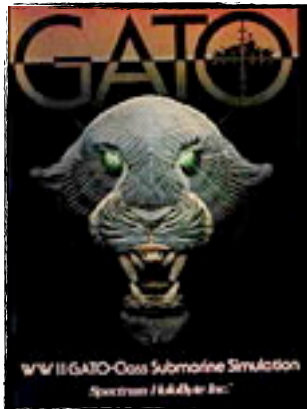
Web App Masters Tour - San Diego - March 24, 2010

1

Did you know there are at least 16 different moments of interaction during a common drag-and-drop operation? Your design must signal which objects are movable. It must show where they can be dropped (and where they can't). It must indicate when the object is moving. From a design perspective, each of these is an interesting moment.

With each interesting moment, we either enhance a user's experience or cause confusion in their mind. With the design of each interaction, we must meet the expectations of our users—by delivering the right feedback and avoiding distraction. When we use a systematic approach, combined with solid principles, we ensure a design that'll delight users.

# Me



Bill's a leader in the world of interaction design. He just released their pattern library in a fabulous book he co-authored with Theresa Neil, *Designing Web Interfaces*. He launched & curated the public pattern library project at Yahoo!, where he was the Ajax evangelist, spreading the goodness of "sane" design and development practices. His current work, driving UI Engineering at Netflix, puts him directly on the front lines of interaction design thinking.

# Simple Interaction?

3

What looks like a simple interaction can in fact be fairly complex. This is the difficulty with create nuanced interactions.

As an example take iGoogle.com. Like other portals you can rearrange your modules on the page with drag and drop. The act of dragging and dropping is fairly simple once the user learns they can drag and drop. But determining how to pull off drag and drop can be trickier than experiencing it.

# Simple Interaction? Events...

Page load. Mouse hover. Mouse down. Drag initiated. Drag leaves original location. Drag re-enters original location. Drag re-enters original location. Drag enters valid target. Drag exits valid target. Drag enters specific invalid target. Drag is over no specific target. Drag hovers over valid target. Drag hovers over invalid target. Drop accepted. Drop rejected. Drop on parent container.

16+

4

There are at least 16 points in time or events that you as the designer/engineer have a chance to provide additional feedback to the user. Some of the events are pretty simple. For example, you could place a tip on a page (Page Load) stating that the user can drag and drop (note: this usually doesn't work that well).

When you start to design or implement a drag/drop operation most people do not realize there are this many events that get involved and so naively don't think about the problem deep enough.



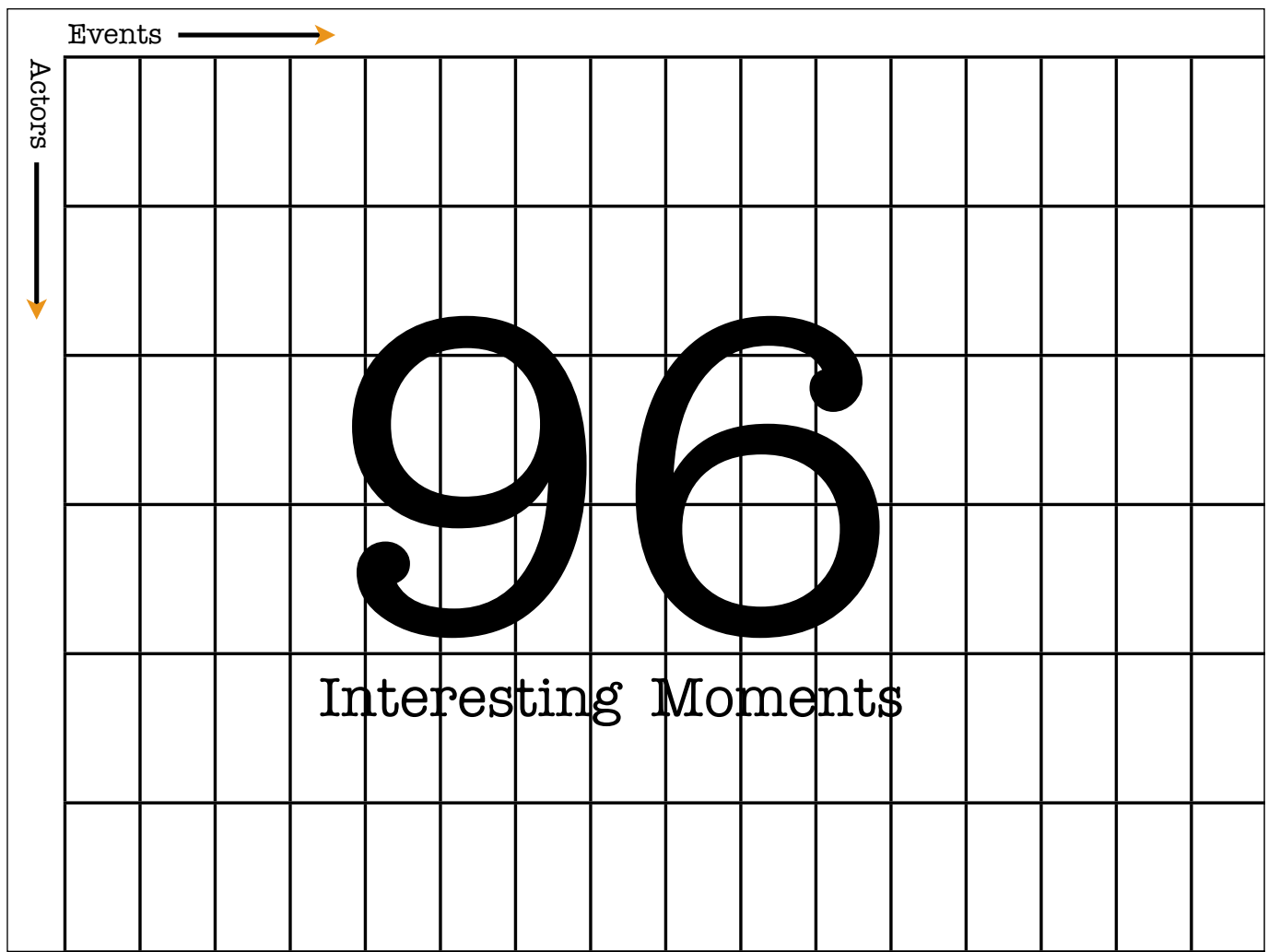
# Simple Interaction? Actors...

Page. Cursor. Tool Tip. Drag  
Object. Drag Object's Parent  
Container. Drop Target.

6+

5

Not only are there a bunch of events, there are a number of rendered elements that get involved in the drag/drop. Of course the page itself (e.g. a tip like we mentioned before), the cursor changing to reflect draggability or the drag object itself.



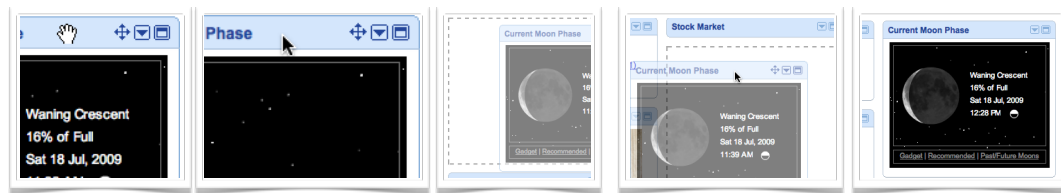
6

If you map the events along the x-axis and the actors along the y-axis you can see that there are 96 interesting moments that you can choose to engage the user (or remain silent).

This grid grew out of my work with the YUI (Yahoo! User Interface) library team. I ended up being the scribe capturing our thinking on drag and drop across yahoo. I got tired of writing all of the special cases, considerations, etc. and decided to visualize the interaction in a grid. Originally I called it an “interaction matrix”. Eric Miraglia (on the YUI team) coined the term “interesting moments” which I have happily used since (with his permission).

Just realizing that in a drag/drop operation there are 96 possible moments of engagement is powerful. For one it visualizes the possibilities. It also documents the interaction at a micro state level allowing it to be refined and communicated across different teams. In our case it helped us define all of the states the drag/drop library would have to support.

# Interesting Moments



			Drag Hovers over Valid Target*	Drop Accepted
Cursor	Change hand	Captures microstates		
Dragged Module		States engagement		Dragged module removed.
Drop Module		Hole is shown as		Hole is removed.
Original Location		States moments of rest		
Drop Target			Hole (gray, thick, dashed outline) is moved to the new drop spot. Other modules shift to close prior hole.	Module is placed in the new location.

Going back to the iGoogle example you can see in this slide how the various interface states map back into the interesting moments grid. You can actually use the grid for anytime you have multiple events and multiple actors for more than just drag and drop.

What you don't do is just as important as what you decide to do. So the blank spots can be thought of in the same way a rest is thought of to music sheets.



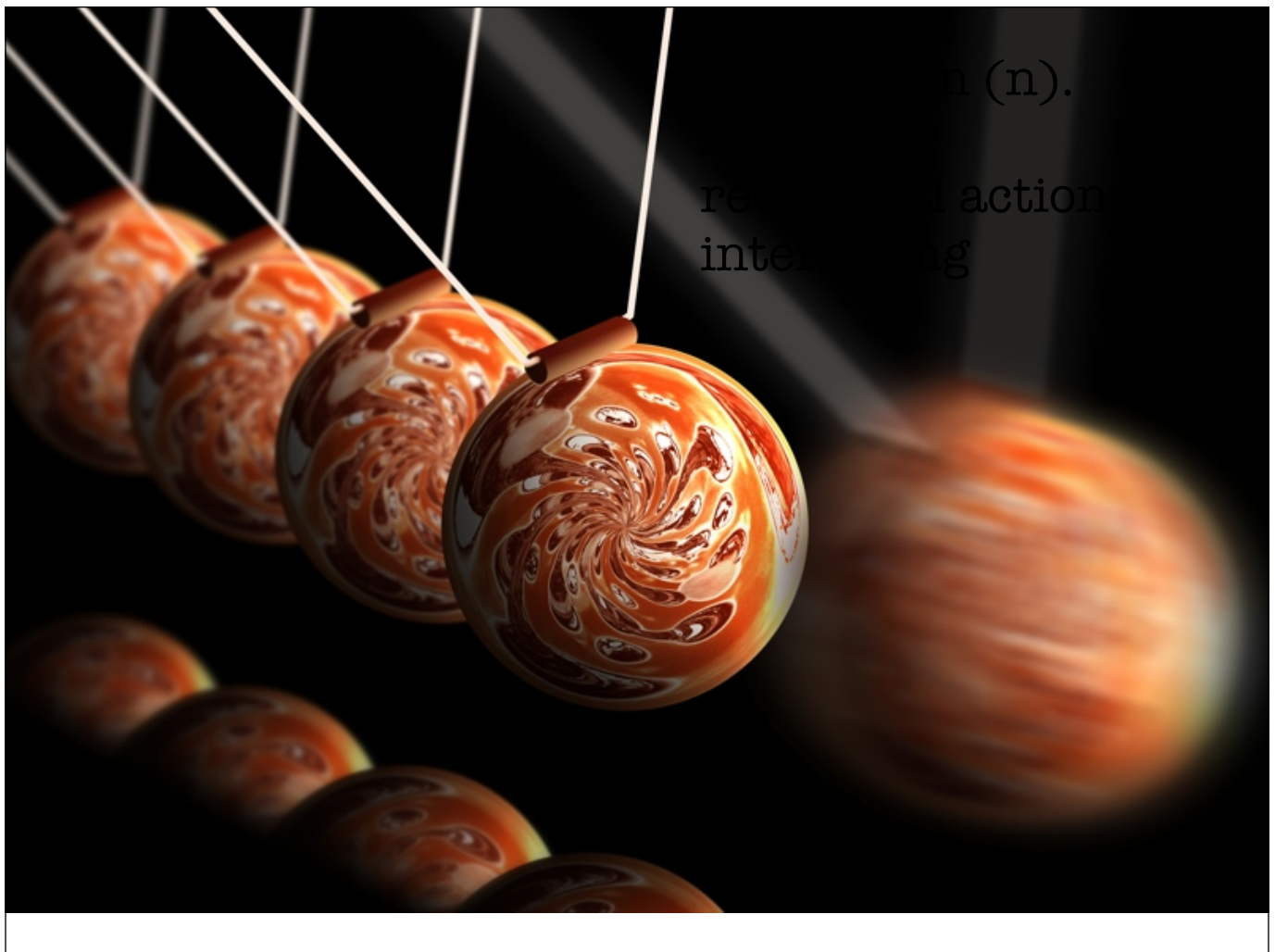
interesting moments.  
opportunities for  
engaging with the  
user throughout an  
interaction.

microstates.

Interesting moments are the opportunities for fine-grained engagement.

Dan Saffer (@odannyboy) calls these detailed moments in the interaction “microstates”.

Credit: <http://www.flickr.com/photos/28481088@N00/1437058332/>



reaction (n).  
reaction action  
interacting

9

Newton's third law. Every action has an equal an opposite reaction. We can apply (physicists will cringe ;-) this rule to web design -- we should be building highly interactive experiences.

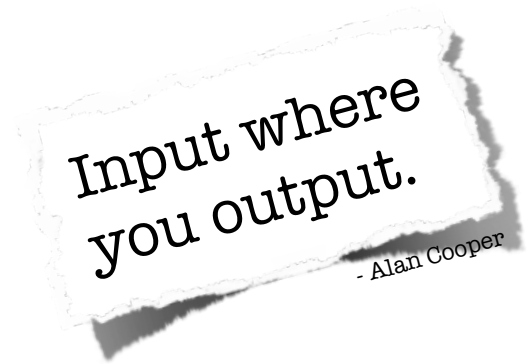
Credit: <http://www.flickr.com/photos/digitalfrance/98314057/>

# 6 principles

for designing interesting moments

10

Focusing just on interaction for rich web experiences, let's discuss 6 principles and look at lots of examples that illustrate them as well as tease out nuances for both good and bad design.



The first principle is direct manipulation. Instead of separating the web into content (read-only) and forms (write) we can think of elements on the page as being live objects. As Alan Cooper stated “Input where you output”. In other words let the elements that you display also be directly editable, draggable, resizable, etc.

Credit: <http://www.flickr.com/photos/rsms/>



12

Around 2000-2001, Stan Lanning (at Netflix) was trying to determine the best way to capture movie rating input (taste input). After some initial experiments with thermometer style widgets the star rating approach was settled upon. There was doubt that user's would really start clicking on it to rate their movies. Why? At the time the web was mostly "read-only". Providing input where you output was mostly unheard of in web interfaces.

Directly rating movies with starbars worked. Netflix now has billions of ratings that fuel the cinematch engine.



# In Page Editing



inline editing. flickr.com

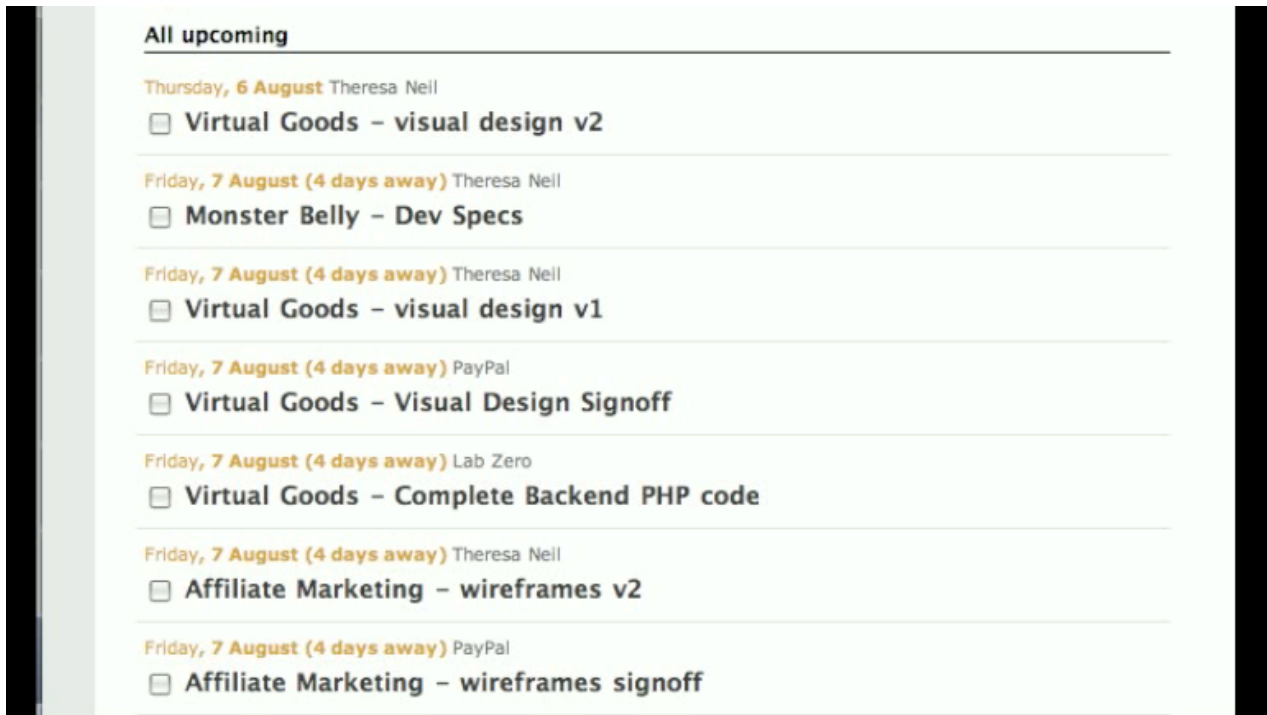
## Additions:

- Yellow spotlight/invitation
- Tooltip invitation
- Explicit Save/Cancel buttons



Flickr is the canonical example for inline editing. Nice invitations and clear call to actions (once editing) make changing photo titles, descriptions simple. The main issue around these types of interactions is discoverability.

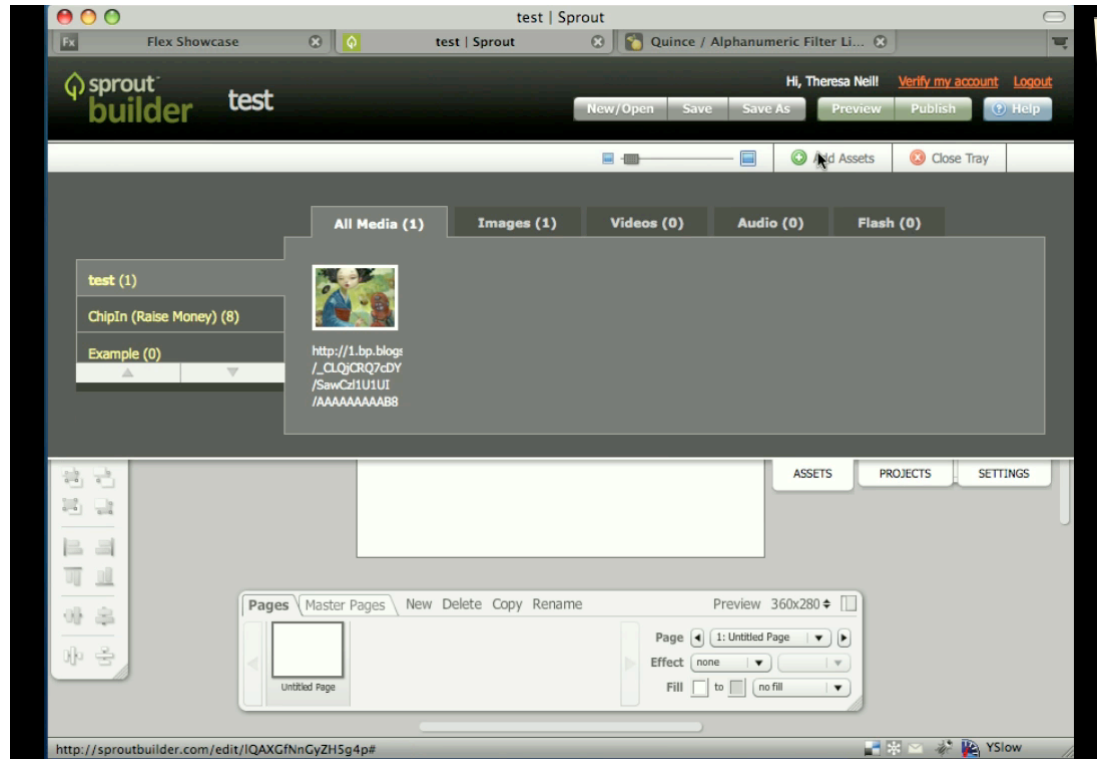
# In Page Editing



multi-inline edit. basecamp

Sometimes you are editing more than just a single field. In this example Basecamp opens up in context with a full edit pane. This new context is similar to switching to a new page, however it stays on the same page and feels much more direct.

# Non-Symmetrical Interaction



anti-pattern. non-symmetrical. sproutbuilder

15

The Assets tray can be slid down by clicking on its tab. But then the mouse is sitting over the “Add Assets” button. And the “Close Tray” is just to the right. So in order to close the tray you have to move to a different spot to close it. Clicking twice will add an asset creating a non-symmetrical style of interaction (activation & deactivation are different “mechanisms”).

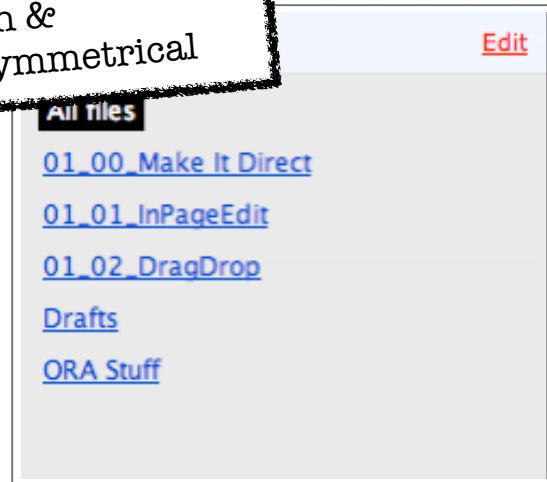
# Non-Symmetrical Interaction

Anti-Pattern  
Non  
Symmetrical  
Interaction



anti-pattern. non-symmetrical. iphone

Keep activation &  
deactivation symmetrical



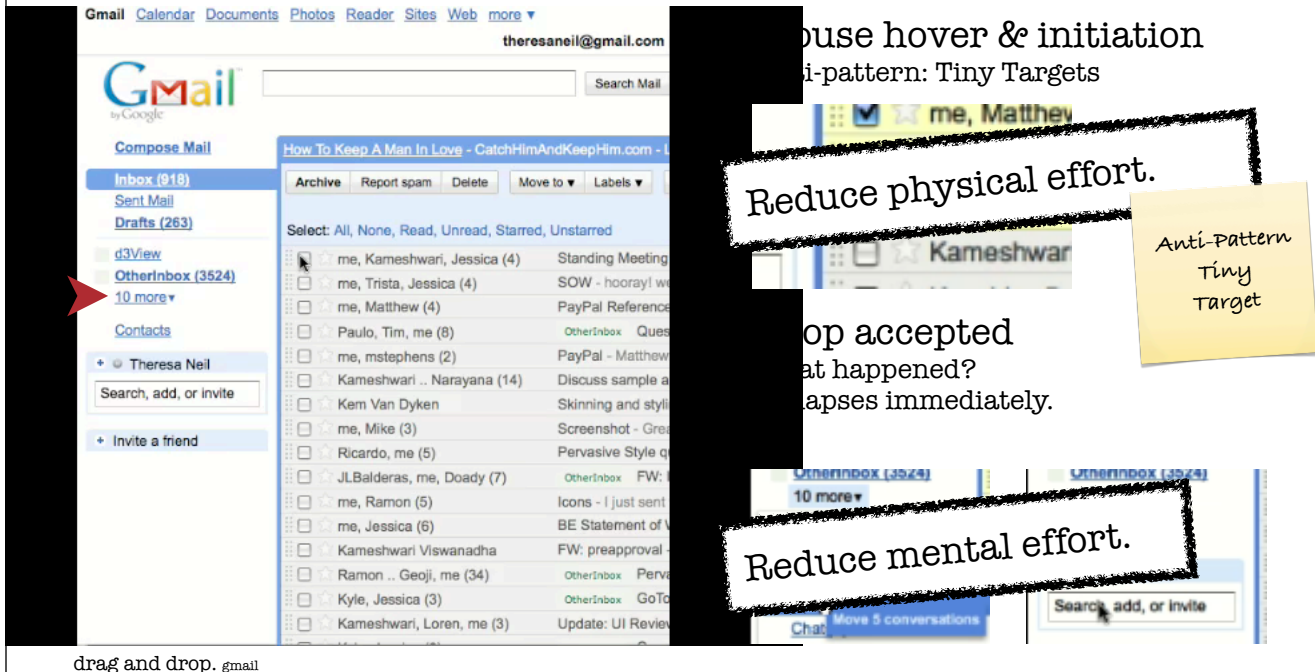
symmetrical interaction. basecamp

16

Same with the iphone. Pressing an icon makes it all “jiggly”. Which means it can be dragged around. How to exit this mode? Clicking the “HOME” button, the physical button. So activate by press and hold on icon. Deactive by hitting physical button on device. Non-Symmetrical.

Basecamp’s “edit” link turns on editing for all of the files in the list. To turn it off click the same button (now relabeled “Done Editing”). This is symmetrical. You can also see this same style of symmetrical interaction on the iphone & ipad with editing lists.

# Drag, Open & Drop

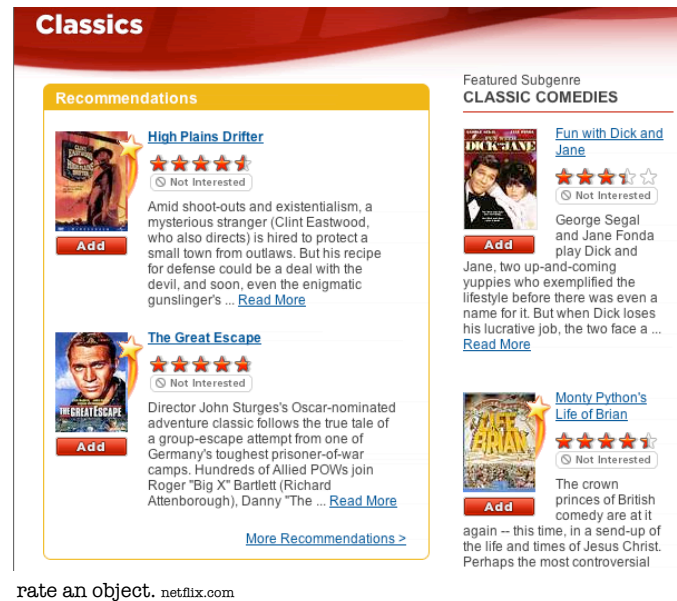


17

Dragging a mail message requires targeting a very small area (the dimpled area). This violates Fitts Law which “predicts that the time required to rapidly move to a target area is a function of the distance to and the size of the target.” In this case what we would rather do is reduce the user’s physical effort by making the target bigger.

When dropping the message there is no feedback that the item got dropped. This caused me to second-guess whether I had added the item or not. Simply delaying the close of the menu, flashing something, updating a stat or doing some other form of feedback to let me know it went into the folder would have reduced my mental effort (not too mention the physical effort of trying it a second time).

# Drag & Drop = Usability?



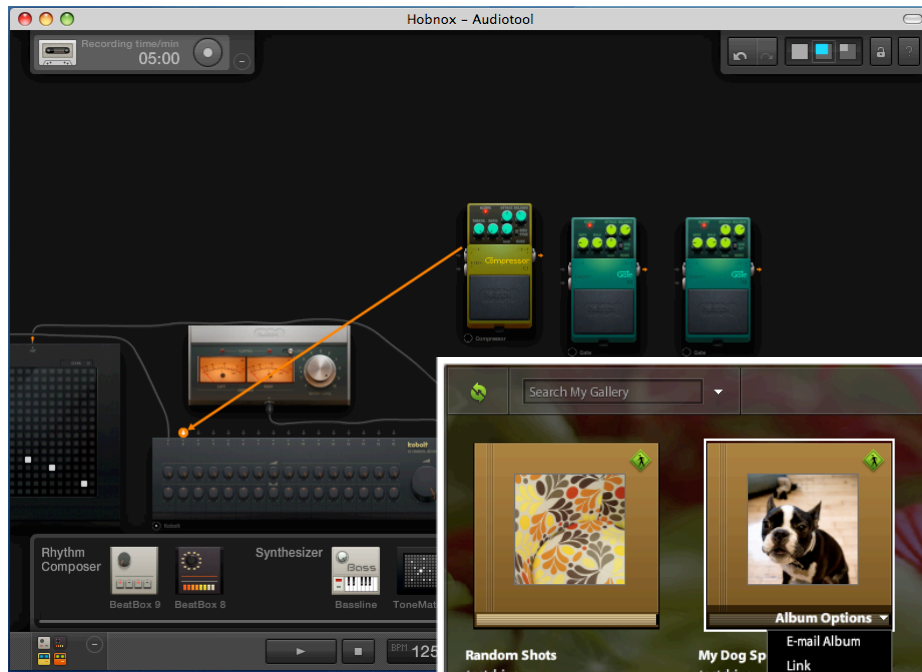
18

In the first example, houses found in the real estate search are dragged to a “favorites area”. This marks them as a favorite. To get rid of them you have to go to a favorites tab and drag the item to the “Remove favorites trash can area”.

In the next example, you rate movies by dragging them into a “loved it”, “haven’t seen it” or “loathed it” bucket. This is a lot of extra work when you could rate the movie the way Netflix does. Or favorite/unfavorite it like Gmail.

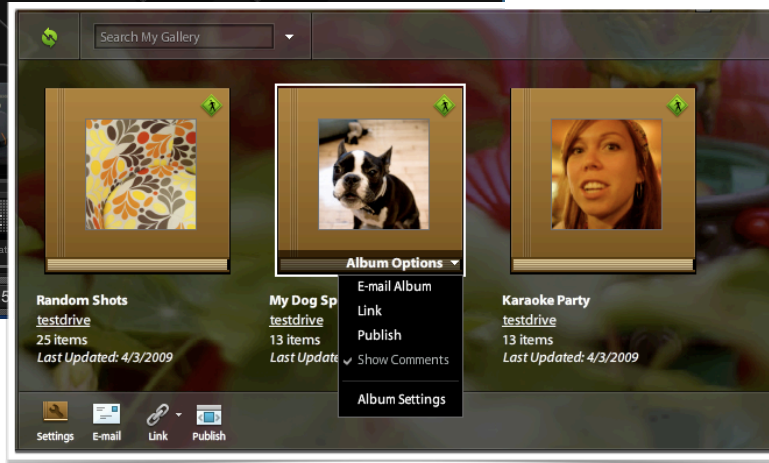
The anti-pattern is “Artificial Visual Construct” (Some have called it “Mismatched Metaphor”. Creating an artificial construct in the interface to support something like drag and drop is wrong. It is the tail wagging the dog. Instead use drag and drop when it makes sense without having to re-orient the whole interface around it.

# Tiny Target



hobnox

Anti-Pattern  
Tiny  
Target



adobe photoshop express

Hobnox provides a nice remixing environment. However the little tiny orange knobs are almost impossible to click on and hook up to other elements. Again Tiny Targets is the anti-pattern.



# Tiny Target Refactored

## Step 1. Selecting a Volcano

Topographic maps are available for all the volcanoes in the United States. Topographic maps and outdoor recreation stores also sell topographic maps for \$1250 about Mount St. Helens. Click on the link to see a major dome building episodes. You can also click on the link to see a major dome building episodes.

## Step 2. Creating a Pattern.

Anti-Pattern  
Tiny  
Target

Remember Fitts Law :-)

$$T = a + b \log_2 \left( 1 + \frac{D}{W} \right)$$



Print the page with the simplified topographic map. The highlighted lines will be about 1/2 inches on a side. It can be square or rectangular.

yahoo teachers

Kilauea

Mauna Loa

Earthquakes

Other  
Volcanoes

Volcanic  
Hazards

Types

Lava  
Zones

About HVO

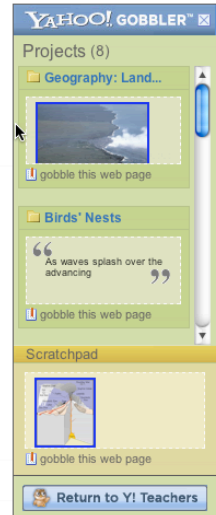
Volcanic Hazards

## When Lava Enters the Sea: Growth & Collapse of Lava Deltas



Photograph by C. Heliker on November 12, 1992.

Only four days old, this fan-shaped lava delta (center of image) extends about 200 m into the ocean on the southeast coast of Kilauea Volcano, Hawai'i. The diffuse plume of white steam at the leading edge of the delta indicates that several small lava flows are pouring into the ocean. Countless deltas have formed



In my Yahoo! Teachers project the first revision had a floating small button for dragging text. A later version I solved the technical challenge and instead floated a larger area that previewed the selected text, had an invitation to drag and surrounded the cursor.

This solved the Fitts Law problem by a) making it bigger and b) bringing the target closer (can't miss it now).



# Novel Notion



Anti-Pattern  
Novel  
Notion

ebay desktop

This ebay Air app has some bizarre radio buttons. I can't even explain what all they do. I call this anti-pattern "Novel Notion". Rarely do we need to invent a new control. If you think you do -- then think again.



This principle goes hand in hand with the first. The user should feel their interaction could be characterized by feeling lightweight.

Credit: <http://www.flickr.com/photos/adamcomerford/>



Digg is a popular news site where the community votes on its favorite stories. If you see a story on Digg that you like you can vote your approval with a simple click action on the “digg it” button.

# Lightweight Actions

sorting by: [ [newest](#) | [oldest](#) | [most digs](#) | [least digs](#) ]

## [IBM, AMD, Sony boost chip speeds by 24%](#)

"IBM and AMD have found a way to improve transistor performance by up to 24% without increasing the power draw - using a tweaked implementation of Big Blue's 'strained silicon' process."

[ [dig this story](#) | [comment](#) | by: anonymous ]

original digg site. digg.com 1.0



in-page action. digg.com

24

It wasn't always this simple. Kevin Rose founded Digg to democratize the finding of tech articles. In the earliest versions of Digg, the user had to complete a two-step process to digg a story.

In the current version of Digg it's much simpler—just click the “digg it” button, and the vote is immediately recorded.

Kevin Rose has noted that changing to a one-step process had a huge impact on the number of stories being dug and thus on the success of his site. Here is his view on what transpired:

There was a huge shift in activity on Digg when we made the move to the one-click digg in November 2005. Once we added Ajax, activity went through the roof on [the number of] digs. It was just insane. Just the ease of the “one-click and you're done” made all the difference in the world. Once the users grasped that the content is syndicated to friends, friends' activities then went through the roof. These small incremental steps in feature additions drove the growth.

Did you get that? Changing to a one-click digg was not technically difficult. Yet it made a significant impact on Digg's success. It not only increased the ease of digging stories, but it also had an impact on other site activities. This is the power of making interactions lightweight.

# Lightweight Actions

Be mindful of the “click weight.”

- # of interaction steps
- Decision time
- Seek time
- Second guessing
- Wait time

<http://genesisconduit.wordpress.com/2008/07/13/click-weight/>

<http://www.amazon.com/Designing-Both-Sides-Screen-Collaborate/dp/0672321513>

25

The term “click-weight” can characterize how “heavy” an interaction feels. You could quantify the number of steps in an interaction (though that does not always determine how heavy the interaction is). You could assign weights to different types of interactions. You could factor in the time it takes the user to find, decide and take action. And then add in the performance and that would give you a good feel for how “heavy” or “lightweight” an interface feels.

<http://genesisconduit.wordpress.com/2008/07/13/click-weight/>

<http://www.amazon.com/Designing-Both-Sides-Screen-Collaborate/dp/0672321513>

# Lightweight Actions

in-page action. digg.com

**282** [digg](#) [digg it](#) [submitted by usedmac 1 day 1 hour ago \(via http://mac\)](#)

The Apple Mighty Mouse brings a slew of great feat with most new Mac systems it is becoming a comm one for close to a year now, I have found that the us Scroll Ball far outweigh its quirks.

[60 comments](#) [blog this](#) [email this](#) category: [apple](#)

0 items in [my bag](#) [checkout](#)

**Pique polo**  
only at [gap.com](#)

[overview](#) [you'll also like](#)

Soft cotton pique knit.  
Short-sleeved, button neckline.  
• [Need large quantities? Click for Corporate Apparel](#)  
• 100% Cotton. Machine wash, imported.

[regular](#) [tall](#)

**Buy More and Save**  
select Color: **royal grape**  
\$29.50 **Buy 2 or more, \$25.00 each**  
\$25.00 **Save \$4.50**

select Size:  
[XS](#) [S](#) [M](#) [L](#) [XL](#) [XXL](#) [XXXL](#)  
[size chart](#)

Quantity: [1](#) [2](#) [3](#) [4](#) [5](#) [6](#) [7](#) [8](#) [9](#) [10](#)  
royal grape **\$29.50 \$9.99** [add to bag](#)

remembered collections. [gap.com](#)

rating an object. [y!news](#), [netflix](#)

**RECOMMEND THIS STORY**

Recommend It: [☆](#) [☆](#) [☆](#) [☆](#) [☆](#) [☆](#) [☆](#) [☆](#) [☆](#) [☆](#)

Average (63 votes) **★★★★★**

**Classics**

**Recommendations**

**High Plains Drifter** **★★★★★**  
[Add](#) [Not Interested](#)  
Amid shoot-outs and existentialism, a mysterious stranger (Clint Eastwood, who also directs) is hired to protect a small town from outlaws. But his recipe for defense could be a deal with the devil, and soon, even the enigmatic gunslingers ... [Read More](#)

**The Great Escape** **★★★★★**  
[Add](#) [Not Interested](#)  
Director John Sturges's Oscar-nominated adventure classic follows the true tale of a group-escape attempt from one of Germany's toughest prisoner-of-war camps. Hundreds of Allied POWs join Roger "Big X" Bartlett (Richard Attenborough), Danny "The ... [Read More](#)

**More Recommendations >**

**Featured Subgenre**  
**CLASSIC COMEDIES**

**Fun with Dick and Jane** **★★★★★**  
[Add](#) [Not Interested](#)  
George Segal and Jane Fonda play Dick and Jane, two up-and-coming yuppies who exemplified the lifestyle before there was even a name for it. But when Dick loses his lucrative job, the two face a ... [Read More](#)

**Monty Python's Life of Brian** **★★★★★**  
[Add](#) [Not Interested](#)  
The crown princes of British comedy are at it again -- this time, in a send-up of the life and times of Jesus Christ. Perhaps the most controversial

**The Critics:**  
**B-**  
[14 reviews](#)

**Yahoo! Users:**  
**B+**  
[13199 ratings](#)

**My Grade:**  
**Rate this Movie!**  
Select grade to the right  
[write a review](#)

<b>A</b>
<b>B</b>
<b>C</b>
<b>D</b>
<b>F</b>

Answer hidden due to its low rating [Show](#)

Total rating: -16 [32](#) [48](#)

rating an object. [y!movies](#), [y!answers](#)

Always make primary actions visible

Primary actions should stay visible. Sacrifice the visual business for visual clarity of the call to action.

# Lightweight Actions

Yelp Food brought to you by MGD 64

## Mi Tierra Foods

★★★★★ based on 35 reviews [Rating Details »](#)

Categories: Grocery, Specialty Food, Mexican [\[Edit\]](#)

Ablo Avenue  
ddison  
A 9470  
946

[Add Photos](#)

**Don't add unnecessary steps.**

**Anti-Pattern  
Idiot  
Box**

Good for Kids: Yes	Accepts Credit Cards: Yes	Parking: Street, Private Lot
Take-out: Yes	Attire: Casual	Good for Groups: No
Outdoor Seating: No	Takes Reservations: No	Delivery: No
	Waiter Service: No	Wheelchair Accessible: Yes
	Good for: Lunch	Alcohol: None

[Edit Business Info](#) [Is this your business?](#)

[First to Review](#) [Amy J.](#)

[Send to Friend](#) [Bookmark](#) [Send to Phone](#) [Write a Review](#) [Print version](#)

anti-pattern. idiot box. yelp.com

Yelp is a great product. This though is a peeve of mine. I hit bookmark and get the popup. Because it is busy it is hard to tell if a) it has saved my bookmark, b) I need to enter info or not, c) hitting cancel will erase my bookmark. This is an anti-pattern I call an "idiot box". (stops the proceedings with idiocy -- alan cooper).

# Contextual Tools: on Hover



**lantzilla pro** says:

...with biscuits and gravy and all the fixins...  
Posted 16 hours ago. ( [permalink](#) )

Add your comment

(Some HTML is OK.)

contextual tool menu. flickr.com

Preserve readability by initially  
hiding secondary actions.

## Pick Up at the Store

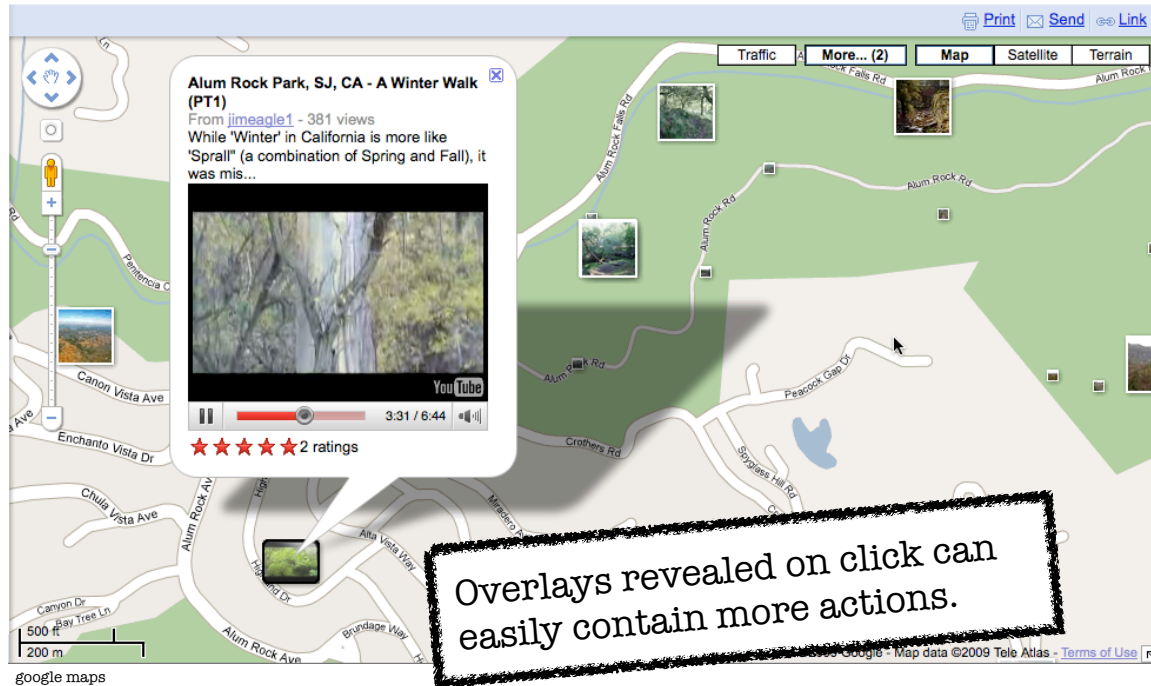
- ☐ Milk
- ☐ Orange Juice
- ☐ Tomatoes
- ☐ Lettuce
- ☐ Bread
- ☐ Chips

contextual tool actions. backpackit

Secondary actions can be hidden and revealed on hover. This cuts down on visual noise and reveals the actions just in time.



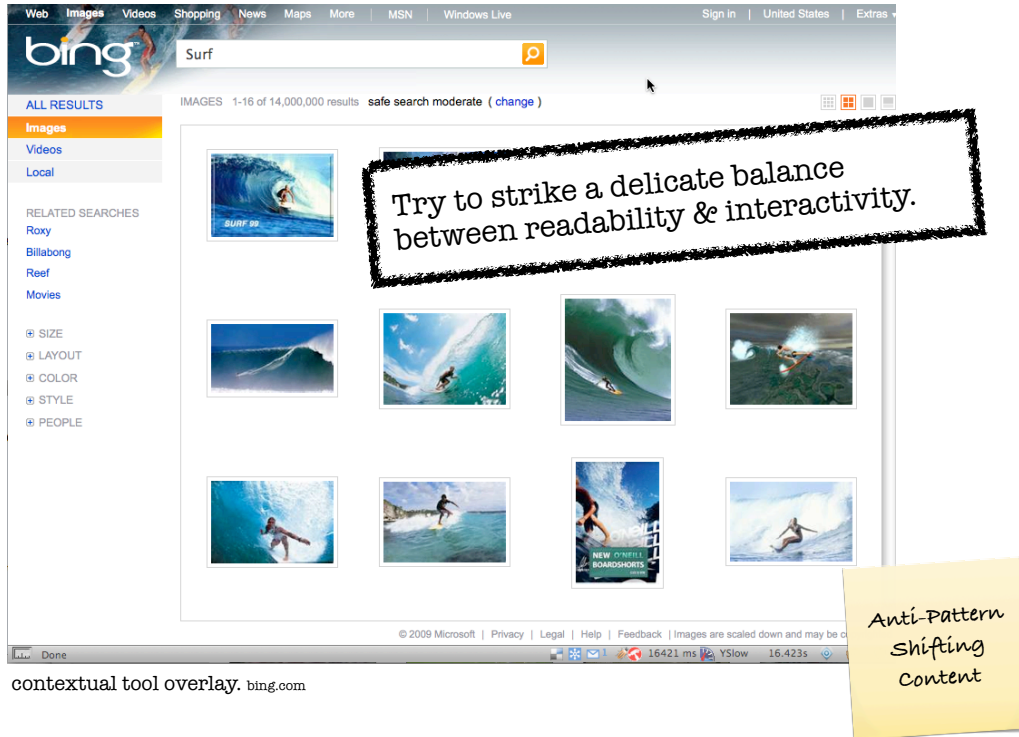
# Contextual Tools: on Click



29

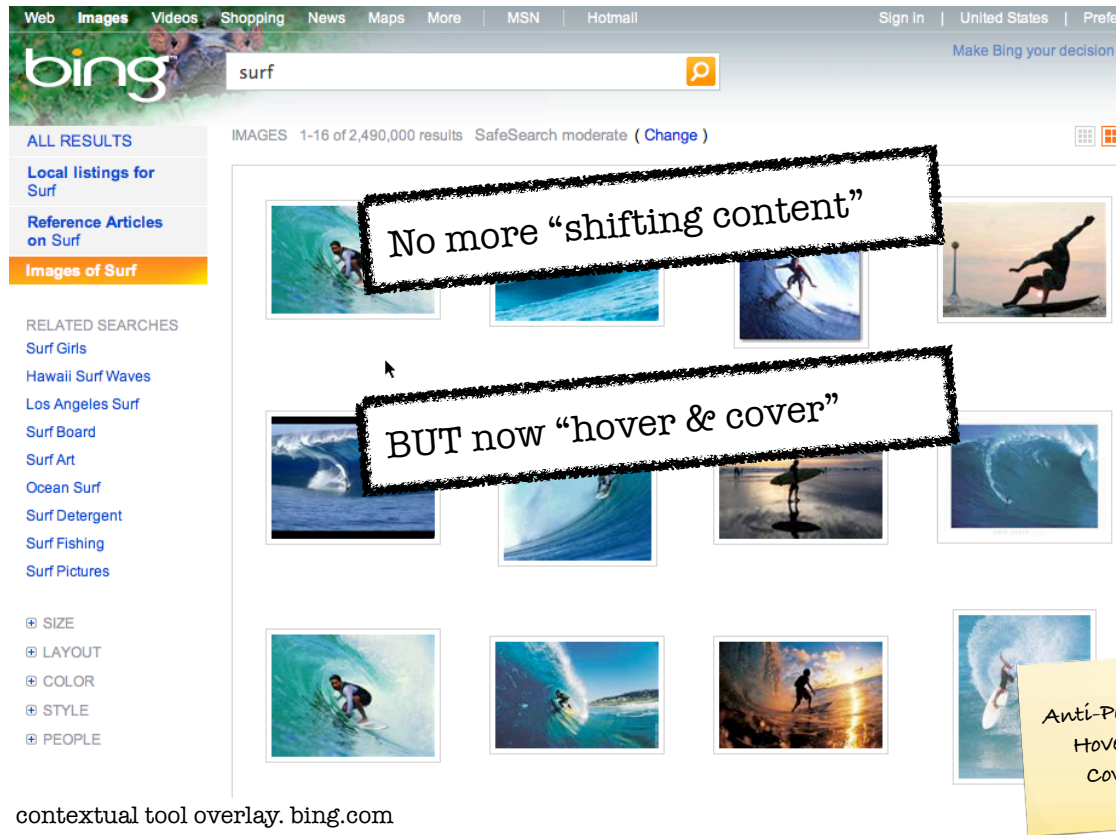
If you reveal the overlay on click you know the user's intent. You can then keep the overlay up till they explicitly close it. This allows you to add additional interactive elements (links, video player, etc.). This would not work if revealed on hover (or at least be really hard to pull off).

# Shifting Content



There is a needless zoom up of the image when hovering. The tools are nicely revealed, but shifting the content like this is distracting.

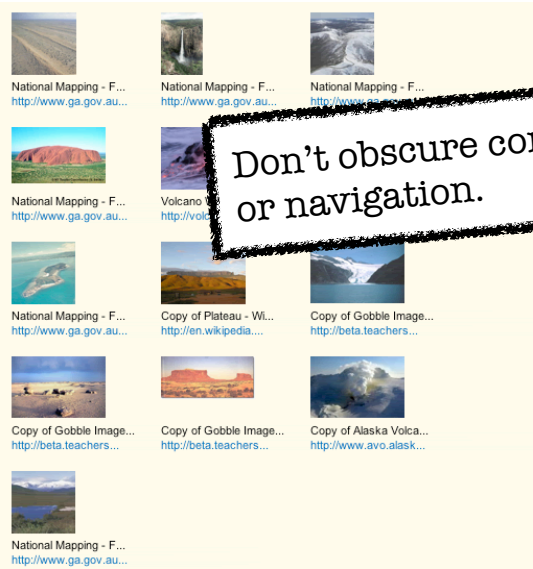
# Bing Refactored




31

In this latest revision of Bing Images the shifting content anti-pattern is gone, but a new one appeared -- hover & cover. This is when the overlay hides essential content or navigation and getting rid of the overlay takes more effort than popping it up. (a little bit of the non-symmetrical anti-pattern thrown in).

# Hover & Cover

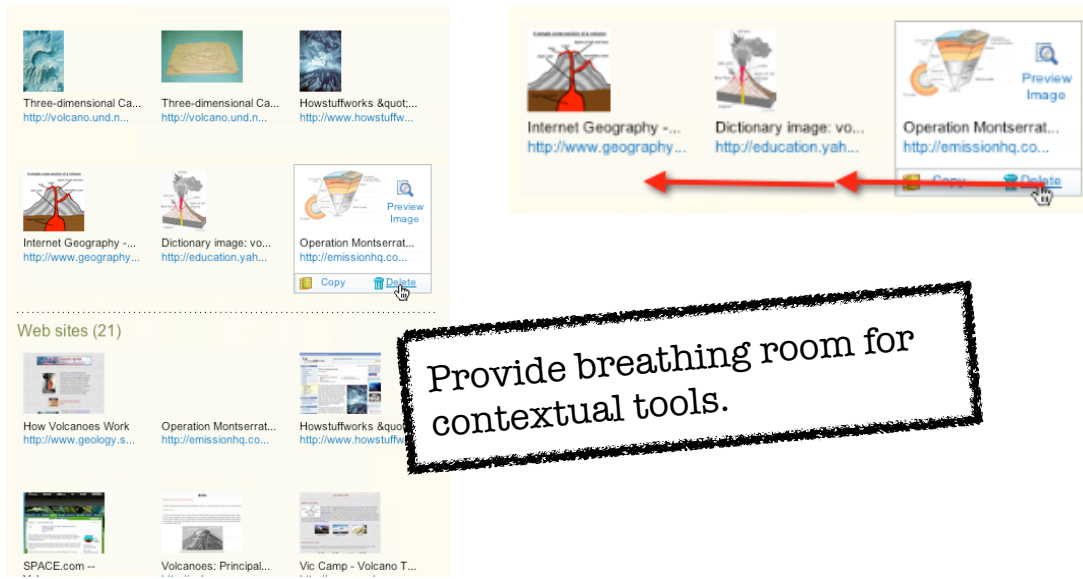


anti-pattern. hover & cover. yahoo! teachers

	Page Render	Mouse over object	Mouse leaves tool layer	Tool selected	Anti-pattern Hover & Cover	
		link cursor				
Actionable Object		Wrapped by tool layer	Normal display mode	Normal display mode		
Contextual Tools		Show tool layer	Hide tool layer	Hide tool layer		
						

The original version of yahoo! teachers had the hover & cover anti-pattern. Notice that the image to the right would get covered. This caused a zig-zag approach to mouse movement (gymnastics) to get around the problem.

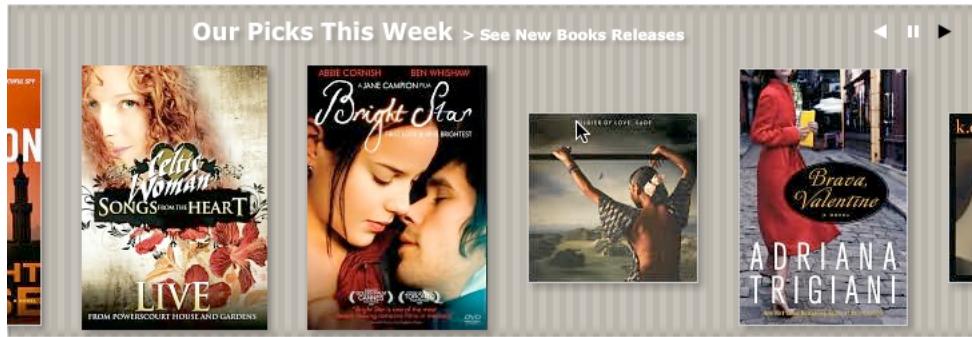
# Hover & Cover Refactored



hover & cover resolved. y! teachers

We refactored it by clearing out a little space around the image and revealing the tools on hover (like bing images did -- without the zoom though). Now the mouse movement to do back to back operations (like delete are straightforward). Nothing gets covered when the tools show up.

# Hover & Cover (and more)



barnes and nobles

Anti-Pattern  
Hover &  
Cover

Anti-Pattern  
Needless  
Fanfare

Anti-Pattern  
Mouse  
Trap

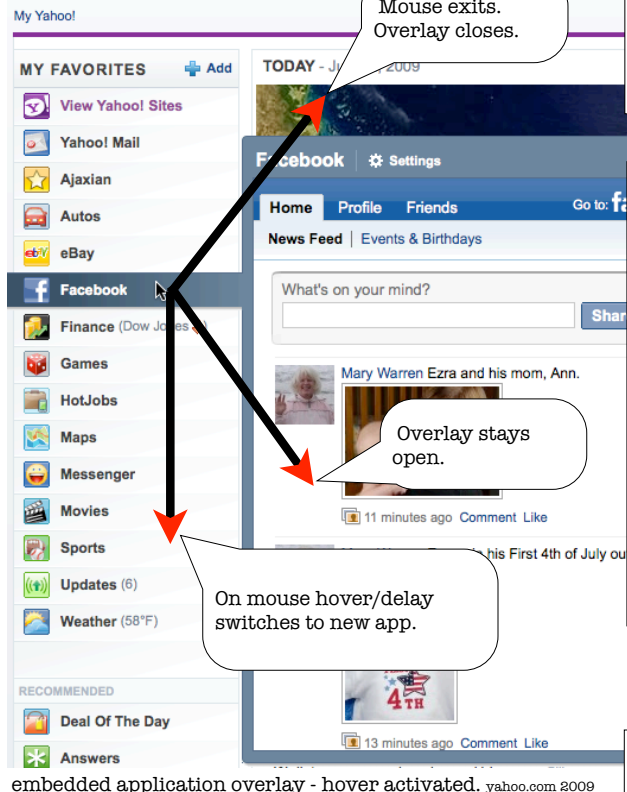
Anti-Pattern  
Tiny  
Target

Anti-Pattern  
Novel  
Notion

Barnes and Nobles went crazy with this “carousel”. It wins the award for demonstrating 5 anti-patterns!

# What about new Yahoo page

Anti-Pattern  
Mouse  
Trap



## The good?

- Doesn't obscure other navigation
- Doesn't collapse erratically.

## The not so good?

- Activation delay feels sluggish (however delay is necessary).
- Not all menus activate a panel.
- Accidental triggering (result in obscuring content).
- Gigantic overlays activated by hover



**bokardo**

I like the idea of the left-hand nav on Yahoo's new home page, but my guess is the gigantic hovers won't last long.

<http://yahoo.com>

20 minutes ago from TweetDeck

See also: Jakob Nielsen's research on "Mega Menus": <http://tr.im/twnC>

There is something unsatisfying about hovering over an item to activate it if it takes too long to respond. The whole interface felt sluggish. And if you accidentally collapsed the monstrosity it felt like a balloon popping. It also could activate accidentally -- say if your mouse was in the wrong place when the page loaded.

# Yahoo! Refactored



36

The latest version requires a click to activate the overlay. This is better. As I understand more improvements are on the way.





Maintain flow.

37

In the book, *Flow: The Psychology of Optimal Experience*, published by Harper Perennial, Mihaly Csikszentmihalyi describes the state of “optimal experience” as the times when people enter a state of concentration so focused it creates a state of effortless control. Athletes may enter into flow and report the feeling of unself-consciousness as well as rising to the peak of their abilities. Flow, however, can be broken by a sudden awareness of the surroundings or by some interruption that happens to come along.

Unfortunately, users of our web applications rarely experience this level of happiness. In fact, the traditional web experience is punctuated with a page refresh each time the user chooses an action. It’s like watching a play where the curtain comes down between each line of dialogue. The page refresh creates an artificial break in the action—or a break in the user’s flow.

Credit: <http://www.flickr.com/photos/zetson/>

# Exploratorium Exhibit



38

The break can cause visual consequences as well. I recently took some of my children to the Exploratorium in San Francisco (a wonderful hands-on science museum for all ages). An exhibit that caught my eye was the one demonstrating change blindness.

A large screen displayed an image of a store-front typical of those seen in most urban areas, complete with awning, windows, doors—all of a distinctive style. Then suddenly a new updated image of the store-front replaced the original one. The new image had a slight change from the original. However, try as I might I could not detect the change. Why? The transition was punctuated by a very brief (less than a fourth of a second) delay. Showing the original image, going blank, then showing the second image made it really hard to detect the change between the two.

# Spot the differences



39

<http://www.usd.edu/psyc301/ChangeBlindness.htm>  
<http://www.youtube.com/watch?v=mAnKvo-fPs0>  
[http://www.youtube.com/watch?v=vBPG\\_OBgTWg](http://www.youtube.com/watch?v=vBPG_OBgTWg)



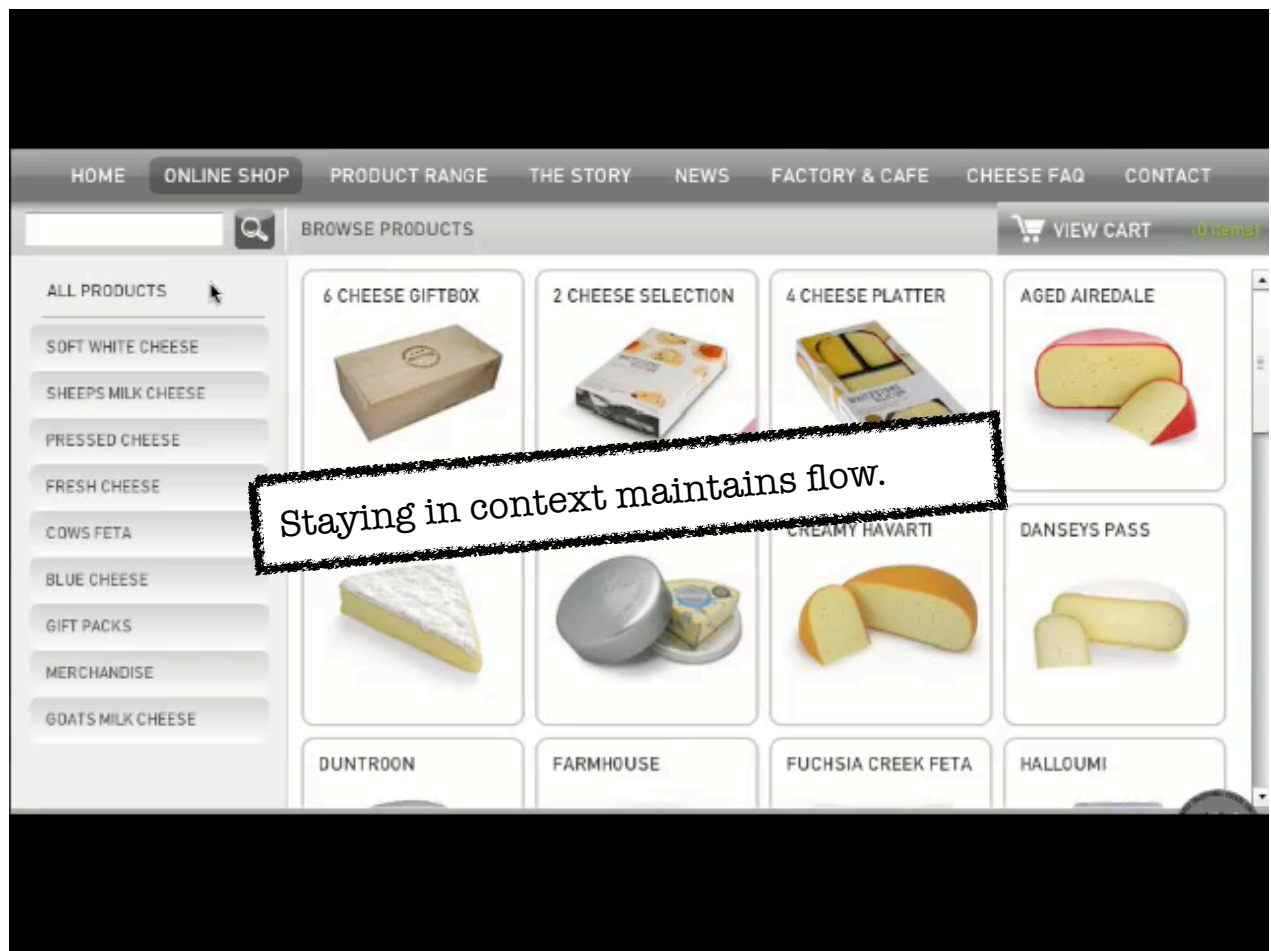
# Now try again...

Keep the moments within the page.



40

Wikipedia describes change blindness as: In visual perception, change blindness is the phenomenon where a person viewing a visual scene apparently fails to detect large changes in the scene.



Though a little heavy handed on the animation, the one page shopping experience for whitestone cheese illustrates a single page interaction that minimizes breaking the flow.

# Overlays



42

In the original version of netflix if you added a movie to your queue the confirmation & recommendation appeared on the next page. If you saw something interesting you could add that and then be taken to yet another page. To unwind from this you have to keep hitting the back button. User's could get frustrated and lose the original context.

# Overlays



By capturing the confirmation & recommendation in a layer you essentially encapsulate this whole flow and can return to the original flow by closing out the overlay.

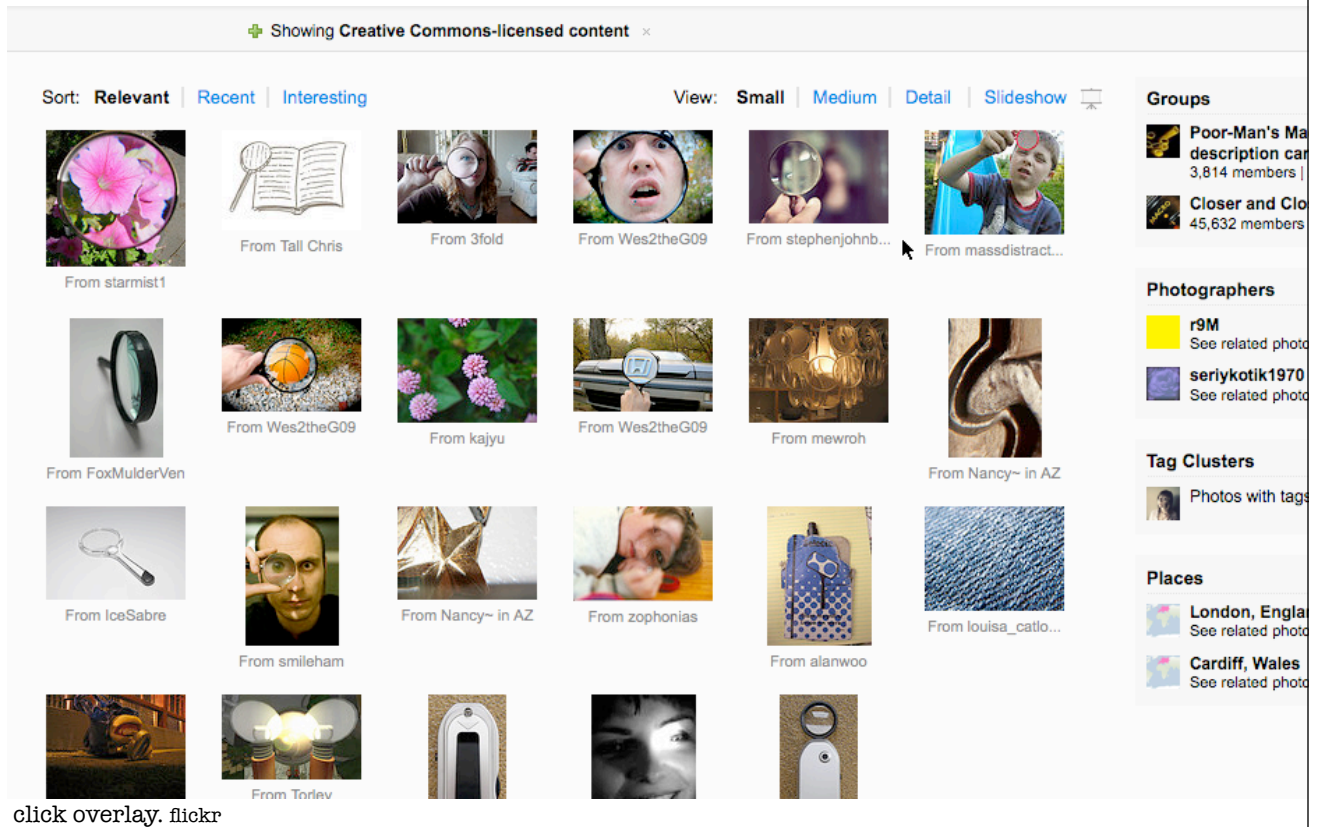
# Overlays: Idiot Box



Yahoo! photos had a number of nice features and was very well executed engineering-wise. However, some design elements were troubling. If you dragged photos to an album there was no feedback in the album folder before or after the drop. I am assuming that is why the 2 “idiot boxes” showed up. First to confirm if you really meant to drop it there. Second to acknowledge that it had actually added them to the folder.



# Overlays



Flickr has a nice “info” peek/click for details box. I can more quickly explore and stay on the page with these in-page actions & overlays rather than drilling into the details & back out again.

# Inlays

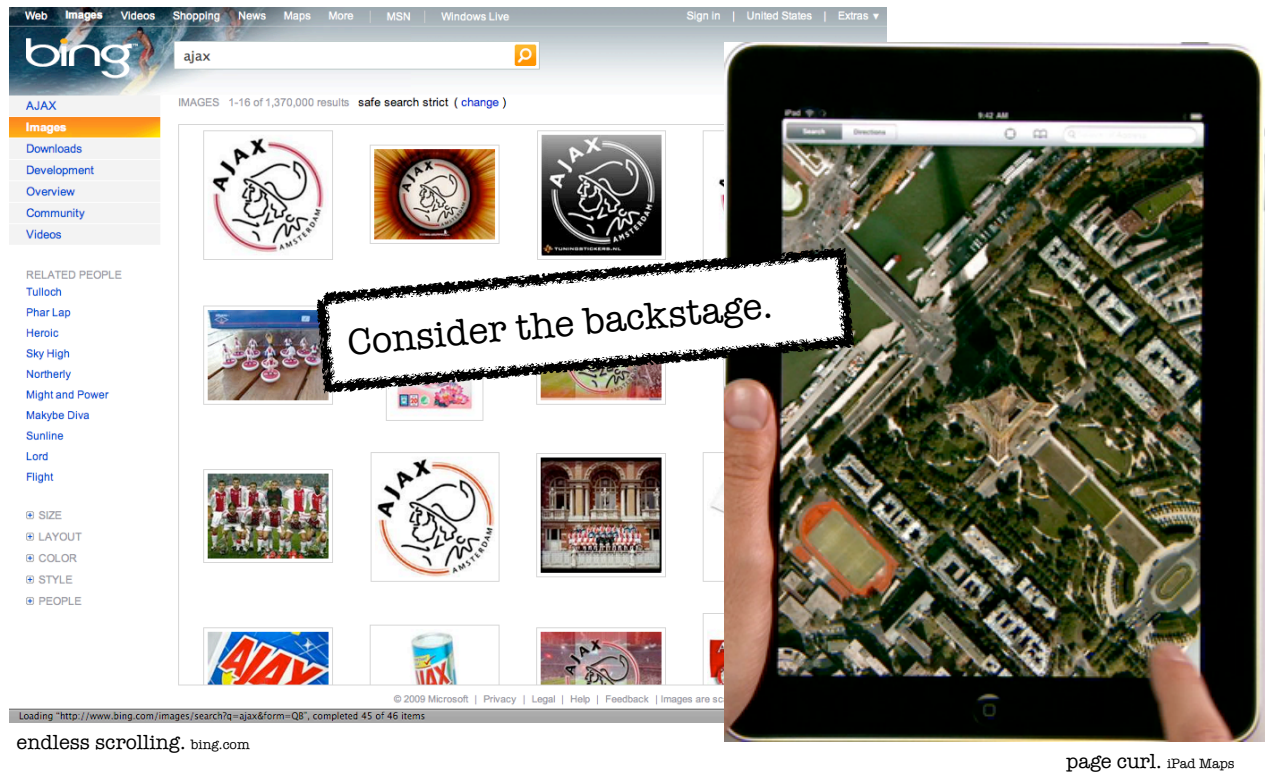


46

This earlier version of roost nailed inlays. Clicking to view photos opened the row up showing all of the photos with a larger viewer for the photo selected. With this interface you could quickly browse numerous houses (think of the real world drive-by curb appeal). Later versions lost this simplicity.

HootSuite is a nice twitter web client that feels like a desktop app. The show conversation is perfect for showing a twitter conversation (imagine that!). Using an inlay here illustrates the in-context nature of this technique.

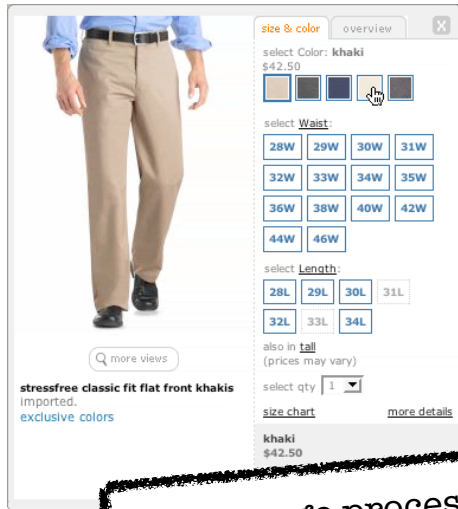
# Virtual Space



47

We can keep the user in the flow by creating a pipeline of relevancy, continuing moving elements onto the mainstage from the backstage without moving the user to another room (page). Both bing's endless scrolling and the iPad's settings hidden under the dog ear are powerful for working without breaking context.

# Process Flows



the gap.

Single page process \*can\* improve conversions.

Keep steps clear



animoto. create a video

A screenshot of the Broadmoor Hotel reservation form. The form is divided into several sections: "Click buttons below to select check-in date, check-out date, room type, and suite", "Choose a room below and availability will be displayed on the calendar.", "Complete form, click 'Finish Reservation' & complete your reservation.", and "Check-in: Check-out: Room Type: Adults: 0 Rooms: 1 Children: 0". It includes a calendar for selecting dates, a room selection table with options like "Superior South", "Superior Main", "Intermediate Main", "Intermediate West", "Standard", and "Suite", and a form for personal information including name, address, city, state, country, postal code, email, phone, and fax. It also has a section for payment information with fields for cardholder name, card number, expiration date, and a checkbox for "Include me in future email campaigns".

broadmoor hotel. one page checkout

The first thing to consider is your process flows. Your wizards. Can they be inlined?

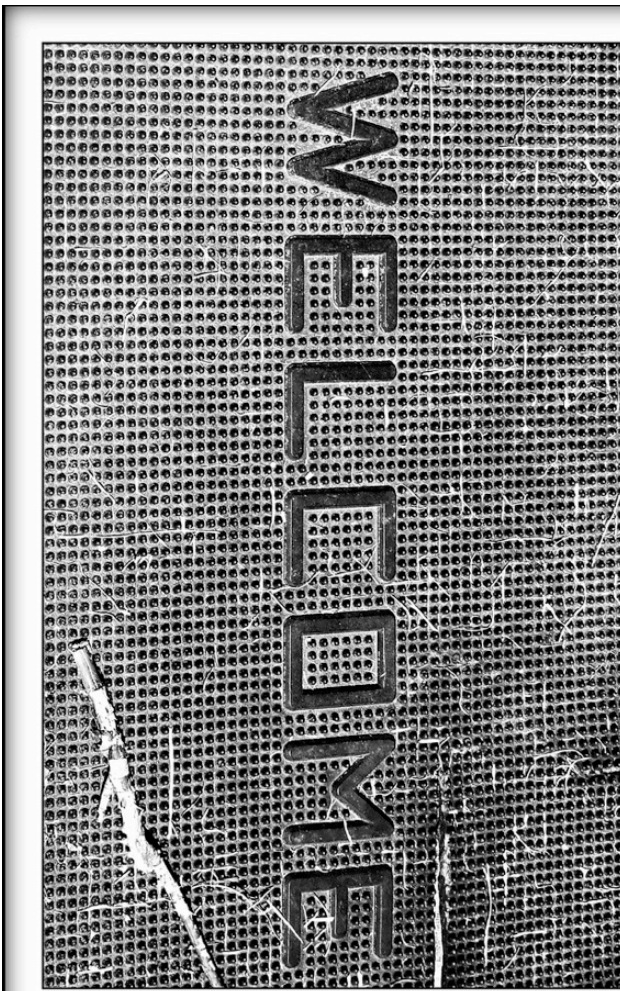
Not to say that all wizards should be done this way, but consider that each page context is an opportunity for user "bail-out" the opposite of "user-engagement".

Think of page switches as big mental speed bumps.

Of course, there is a competing issue of page view monetization. Changing from page based monetization to other more sophisticated models is not an easy road, so consider the change carefully from your overall revenue perspective.

Animoto is a beautiful example of providing clear steps at each stage (and showing the overall progress as well).





Invite interaction.

Invitations are the prompts and cues that lead users through an interaction. They often include just-in-time tips or visual affordances that hint at what will happen next in the interface.

Providing an invitation to the user is one of the keys to successful interactive interfaces.

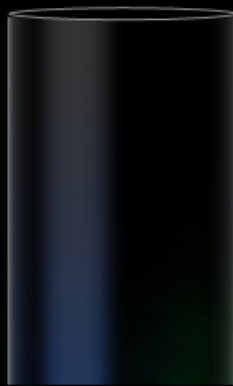
Credit: <http://www.flickr.com/photos/rubbertoe/>

*Hello average person,*

# You should follow me on Twitter.

**A quick study exploring the power language has on clickthrough rates.**

July 14, 2009



I spend a lot of time thinking about how to improve user experiences. Sometimes, I take my ideas and create experiments to get hard data about how users behave in the real world.

**During the past few months, I have been performing an experiment on this site.**

PERMUTATION	CLICKTHROUGH
"I'm on <u>Twitter</u> ."	4.70%
"Follow me on <u>twitter</u> ."	7.31%
"You should follow me on <u>twitter</u> ."	10.09%
"You should follow me on twitter <u>here</u> ."	12.81%

Use a clear call to action.

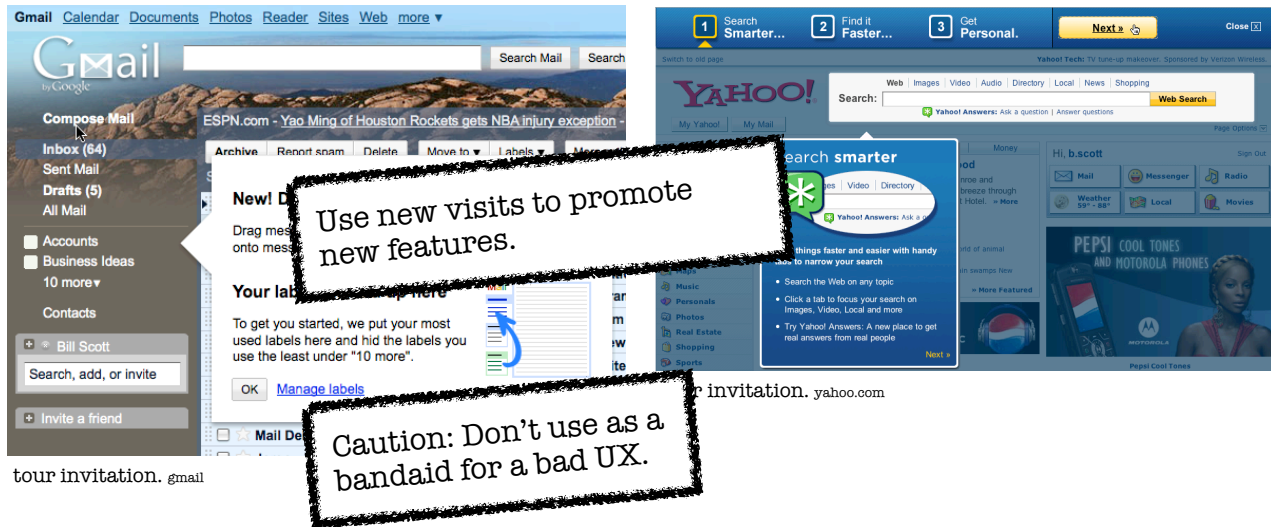
[http://dustincurtis.com/images/twitter/green\\_spill.jpg](http://dustincurtis.com/images/twitter/green_spill.jpg)

Forceful phrasing shows the power of invitations and persuasive experience.

Interestingly a lower case t in twitter yielded higher click throughs than uppercase :-)

Credit: [http://dustincurtis.com/images/twitter/green\\_spill.jpg](http://dustincurtis.com/images/twitter/green_spill.jpg)

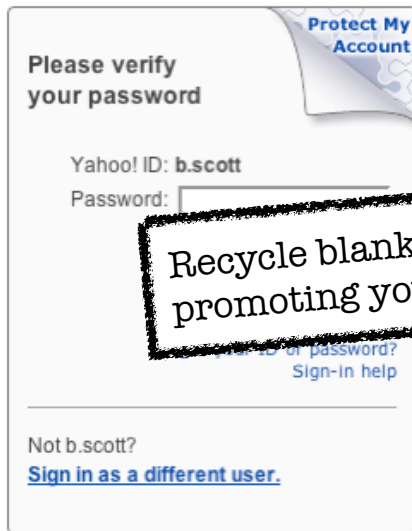
# Tour Invitation



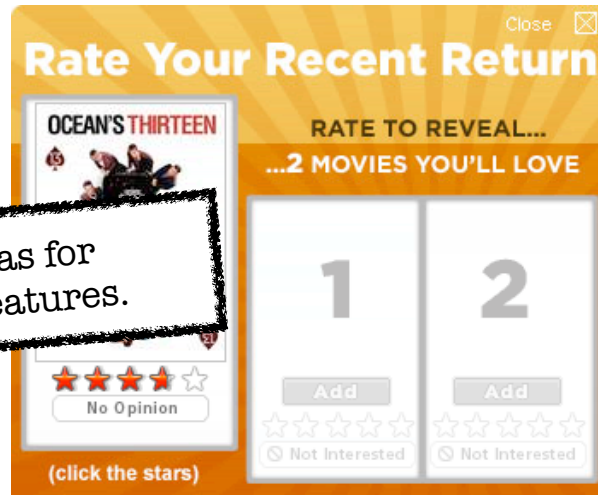
Using new visits to tease up new features or give tours is a way to invite users to increased levels of interaction. However, users won't read much if at all, so be careful. For transient apps (web sites) this is tricky. For sovereign apps (used day to day) you can do more of this.



# Blank Slate Invitation



dog-ear invitation. login.yahoo.com



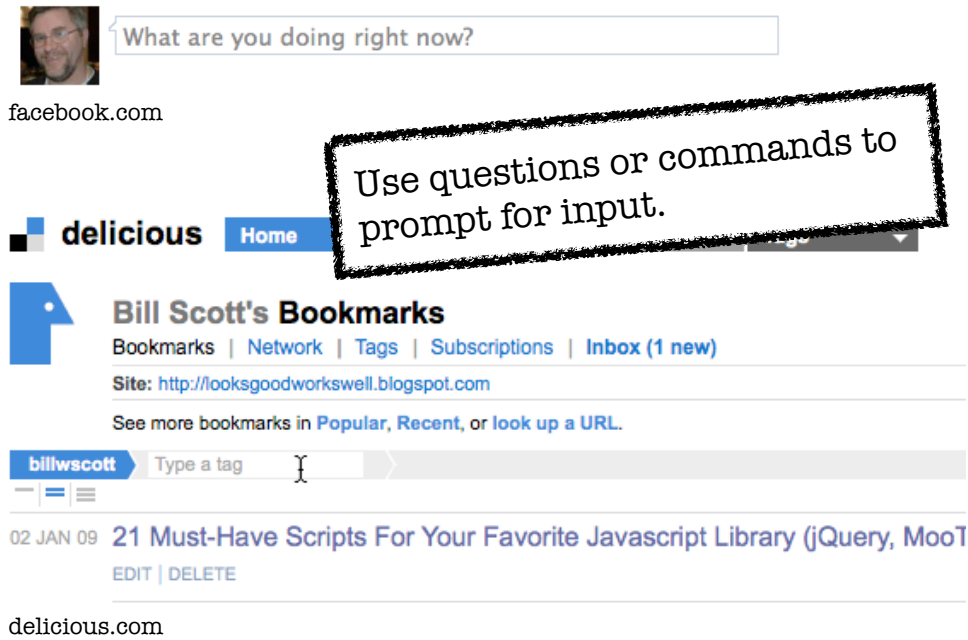
fill-in-the-blanks invitation. netflix



blank-slate invitation. backpackit

Another type of Call to Action Invitation is a Blank Slate Invitation. 37 Signals utilizes this in its Backpackit application. Yahoo! experimented with a dog-ear (looks like it needs fixing or is undone so user will notice & interact with it.). Netflix has a rate one reveal 2 tool. This is very effective. Clear call to action with immediate reward seems to work well.

# Prompt Invitation

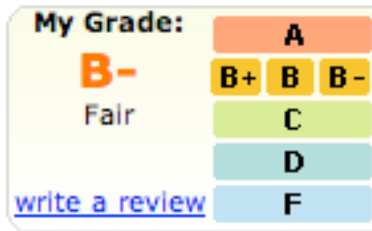


54

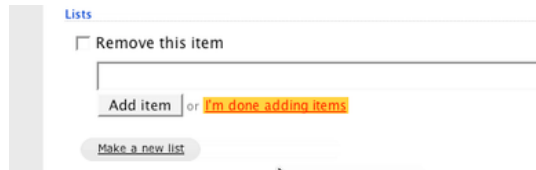
The prompt itself can be an invitation as in this early version of facebook. The delicious example suffers from visual overload. Everything looks equal weight. Good example of going “too simple” with the visual style -- everything is the same, not enough contrast.

# Hover Invitation

hover invitation. y!movies



hover & tool invitation. backpackit



## Front Grounds



tooltip, hover & cursor invitation. flickr.com

One way to engage the user is by using the mouse hover to show a Hover Invitation.

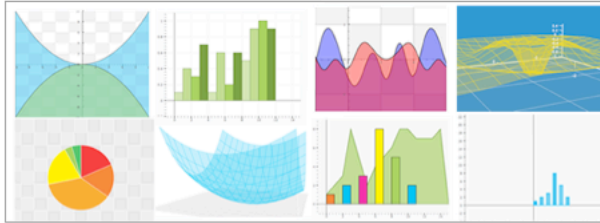
Yahoo's movie rater was troubling to some users. Too many choices. Also bizarre right to left ordering. Backpackit & flickr are good examples of invitational interfaces.

# Drag & Drop Moments

Rich Data Visualization Tools. I've included the first three to whet your appetite.

## Ajax.org

Ajax.org Platform is a pure javascript application framework for creating real-time collaborative applications that run in the browser.



## AnyChart

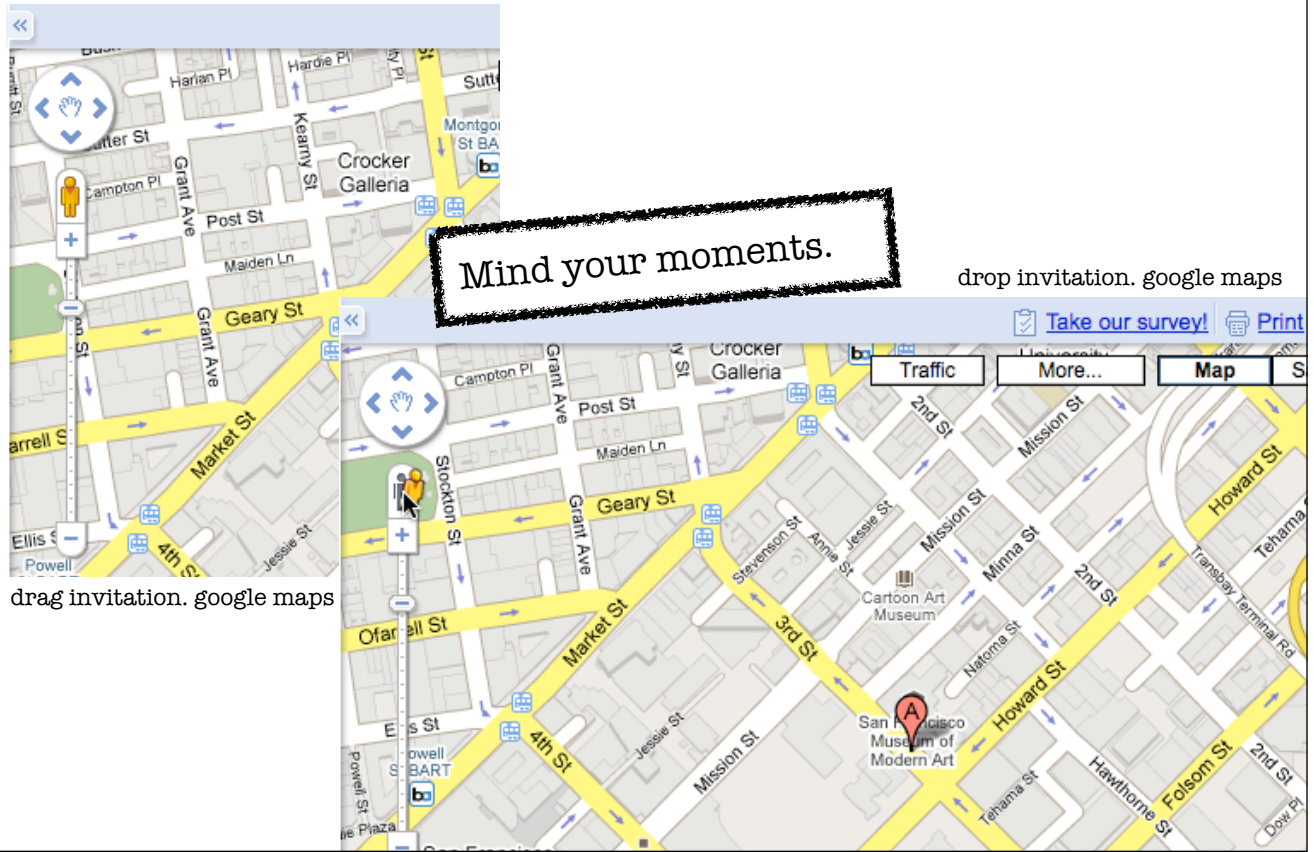
AnyChart is a flexible Flash based solution that allows you to create interactive and great looking flash charts.



meebo bar

The meebo bar does a great job with catching interesting moments for the drag and drop operation.

# Drag & Drop Invitation



57

Another great example is google maps. Pausing over the street view “man” will finally prompt you with an invitation to interact. Dragging him will invite you to drop him all along the way using a lightweight preview of where he will land.

# Invitations

Standard Fit



Standard fit (lightweight denim) jeans  
\$54.50



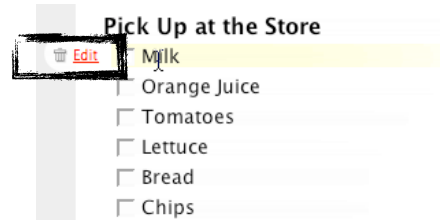
Standard fit (aged blue wash) jeans  
\$49.50



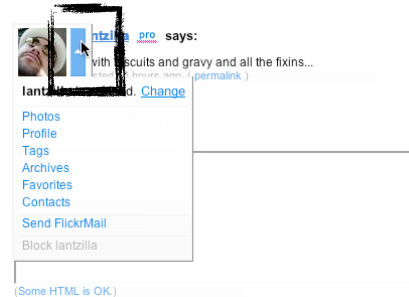
Standard fit (medium wash) jeans

button. the gap

Bridge new interaction styles  
with familiar idioms.



hyperlink. backpackit



drop down arrow. flickr

The Gap uses the mouse hover event to invite its shoppers to take a more detailed look at an item.

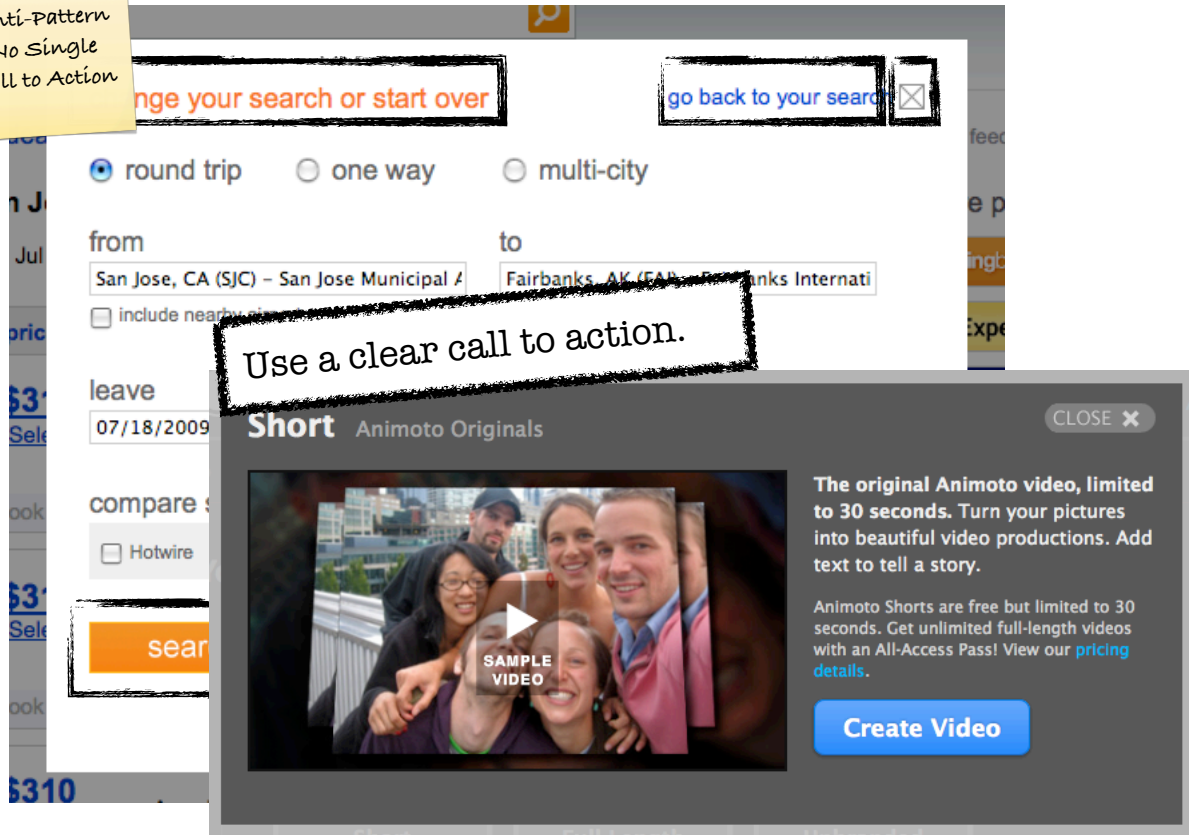
The button revealed uses inviting language. The term “Quick Look” makes it seem quick and easy. The button also looks like a button. The affordance of a button is clear; buttons have a clear connection with providing an action. It says to the user “click me” without saying it directly. The button also visually contrasts with the item hovered over. Finally, the proximity of the invitation removes all ambiguity.

Another nice touch is that the button changes visual depth when the mouse hovers over it. This detail hints that the button can be clicked. It gives a signal to what the next level of interaction should be—clicking the button. It provides a Hover Invitation.

Notice also that this employs the best practice we discussed in the last chapter: using familiar idioms to bridge the gap to new interactions.

# Call to Action

Anti-Pattern  
No Single  
Call to Action



59

Unlike the Bing Images dialog, Animoto provides a very clear call to action, "Create Video". Nice use of color & contrast.





Show transitions.

Transitions are powerful ways to communicate change in the interface.

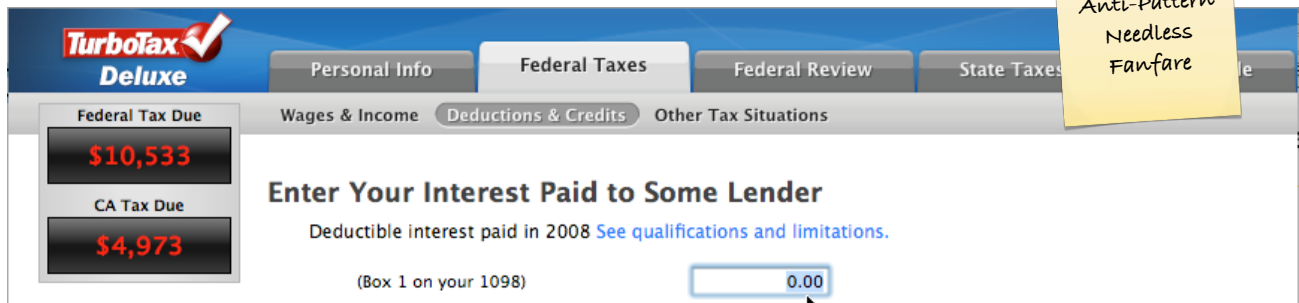
Credit: <http://www.flickr.com/photos/eyermonkey/>



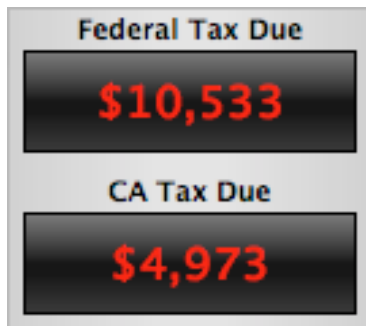


Last year tax time was troubling.

# Why?



anti-pattern. needless fanfare. macintosh turbo tax



again in slow-motion...



62

I mostly love Turbo Tax (except when it tells me I owe a tax payment :-). But here is one that I found to be very annoying and a good example of an anti-pattern Theresa & I write about in our book... Needless Fanfare.

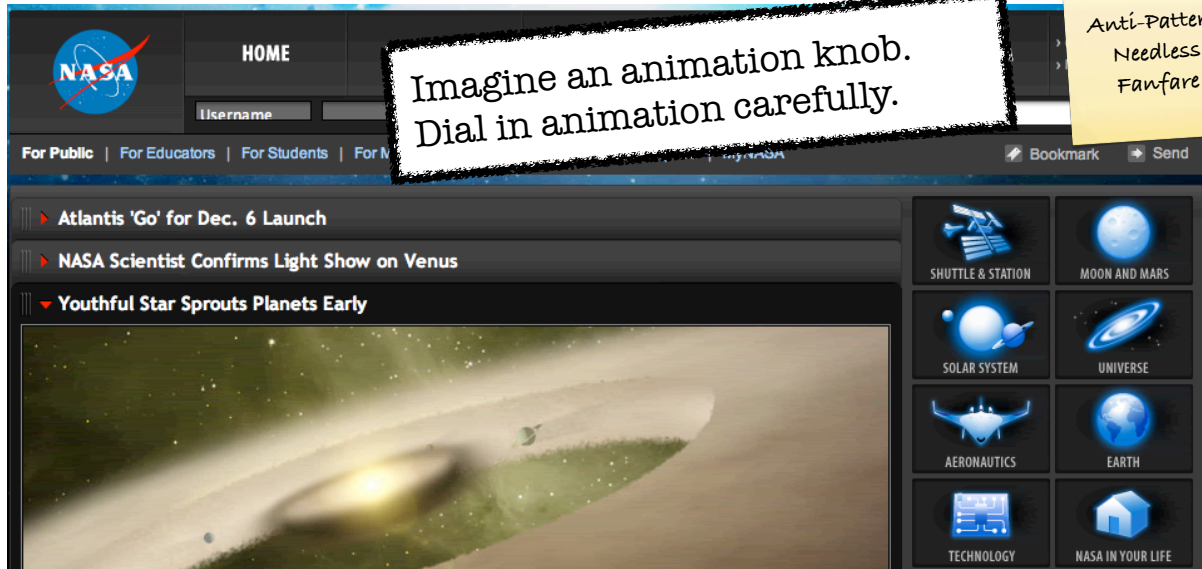
While doing my taxes back in April I was constantly going back and re-entering information that would hopefully bring my tax payment down (numbers below are not my actual tax payment :-)

When turbo tax recalculates your tax burden it plays the Biggest Loser TV show's game of running the values up & down in a random fashion. The change in the videos below is from \$10,533 down to \$9,177. However at one point it goes all the way up to \$98,000! Now we all know that "inside the computer" calculations are not done this way. Someone thought this would be cool way to call attention to the change happening.

But let me tell you this is a horrible experience. It gave me a heart attack as it ran up & down playing with "my money" till it finally said "ok, ok it went down". But because it does this nonsense it makes it hard to see what change actually happened (a variation on change blindness).

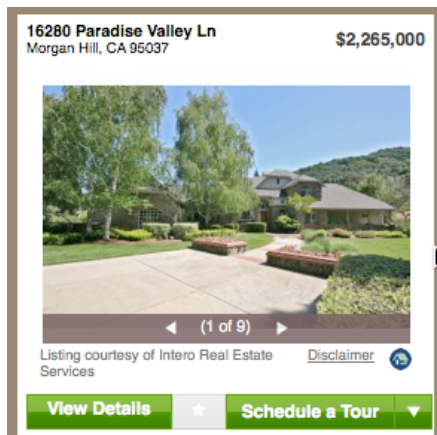
Ask yourself why you add anything to the interface.

# Imagine - No Animation

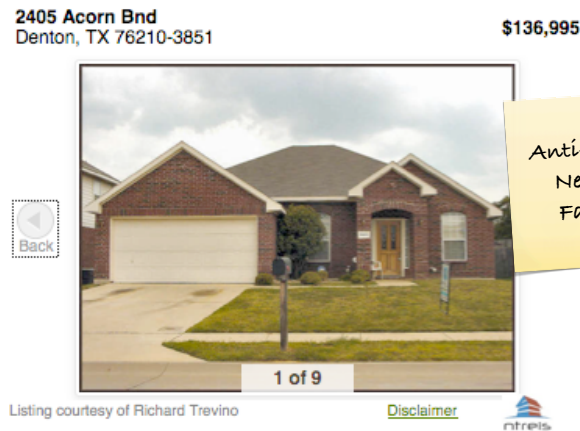


anti-pattern. needless fanfare. nasa.gov

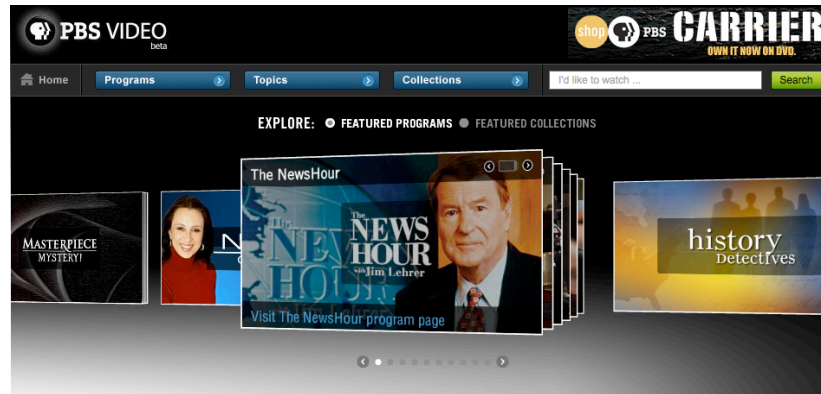
Needless fanfare is everywhere. Another example is nasa.gov's menus. Why do so many people think this is a good idea?



anti-pattern. needless fanfare. roost.com



anti-pattern. needless fanfare. roost.com



anti-pattern. needless fanfare. pbs.org

And yet more needless fanfare. Putting the delay between house pix helps nothing. The newer version (of roost) tries to fix this but I don't even need the slide effect. Make it snappy. Just flip between them without animation.

The PBS Video video "carousel" is gratuitous at best. You can't tell what video you are serving up when you click on of the "cards" in the stack. Its a pick a card, any card technique.

# Animation Can Be Overdone



anti-pattern. animation gone wild. behr paint

Designing Visual Interfaces. Kevin Mullet & Darrell Sano

65

Good book recommend. Designing Visual Interfaces: Kevin Mullet & Darrell Sano. The talk about refactoring visual interfaces. In this case the problem is the animation. But the solution is the same. Remove it and turn it back on with the minimal transitions needed.

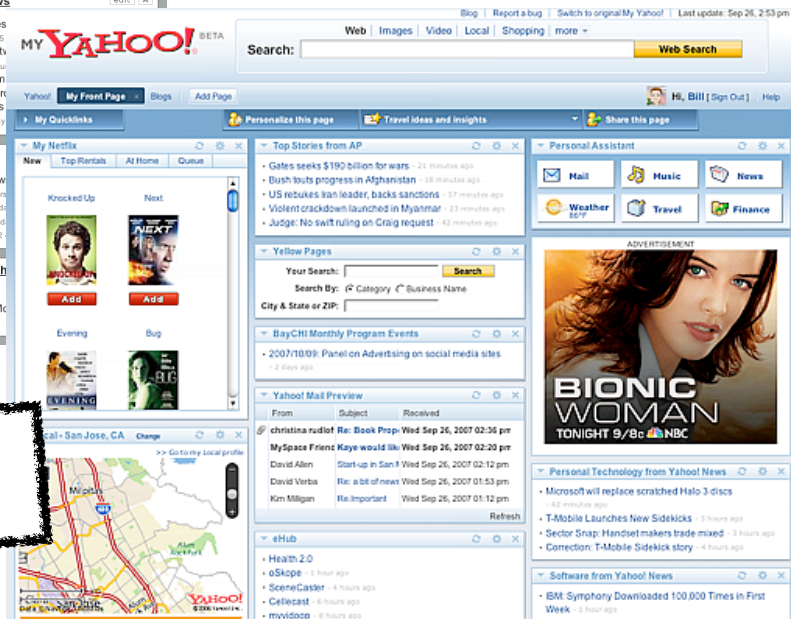
I love both Occam's quote as well as Tufte's principle. This holds us in good stead.





original. animation on drop. my yahoo!

Use the "cut it in-half"  
rule of thumb.



current. no animation on drop. my yahoo!

While discussing the art of motion graphics with a practitioner from the field, I learned a simple rule of thumb about downplaying special effects. To avoid over-emphasizing a luminance effect or timing transition just cut the effect's values in half.

Applying this rule to transitions, when calculating animation timing (or other transition effects), arrive at the best guess for timing. Then simply cut the effect in half. And maybe half it again.

It is too easy to get focused solely on the effect and forget the overall interaction story you are trying to create. This simple rule is a nice way to keep transitions in check.

After defining a transitional effect, simplify it by making another pass to cut the effect's values in half.

In the current version of My Yahoo!, the dropping modules process uses no animation at all.

When a module is dropped, no animation is used to show where the object went.

Why? Well in many ways the animation is gratuitous. The user has positioned the object for dropping. There is plenty of feedback right before the drop, so animating it into place just makes the interface feel slower and doesn't communicate anything new to the user.

I do feel the current my yahoo drag ghost is lame (just a rectangle).

# Animation Can Be Good

## Used car locator

[Back to Used cars homepage](#)

My search

☆ My favourites

Setup your search, enter your location and click 'search now'

### 1. Chosen models:

#### To ADD a model:

Simply click a model on the right.

#### Please note.

You can add more than one model to your search.

#### Once added:

Click the 'model image' for more options that allow you to select only specific model variations & trims.

#### OR

Click the 'remove' button to delete the model from your search.

### 2. Fine-tune your search:

### 3. Must haves:

4. Search type: ☒ Available stock ☐ Coming soon stock

5. Enter your postcode or location:

Search now

### Model selection

Lupo  £2,990 to £8,990	Fox  £4,685 to £8,995	Polo  £3,995 to £14,995	Golf  £4,995 to £27,000	Golf GTI  £6,492 to £29,990
Golf Plus  £6,995 to £19,995	New Beetle  £5,980 to £22,490	Bora  £3,995 to £7,999	Jetta  £6,995 to £19,995	Eos  £12,250 to £28,990
Scirocco  £18,990 to £26,995	Passat  £4,295 to £37,000	Passat CC  £16,950 to £32,494	Touran  £6,995 to £23,490	Sharan  £8,450 to £23,995
Tiguan  £16,290 to £27,995	Touareg  £14,999 to £52,980	Phaeton  £12,999 to £39,990		

View: ☒ All ☐ Hatchbacks ☐ Saloons ☐ Estates ☐ Coupe/Cabrio ☐ Executives ☐ MPVs ☐ 4x4s

Animation must reinforce the interaction.

Animation can tell what just happened. In this car locator, animation shows the selection gets added to the 5 step process on the left.

# Animation Can Be Really Good

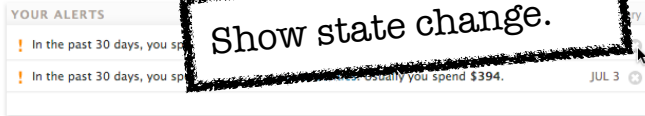


68

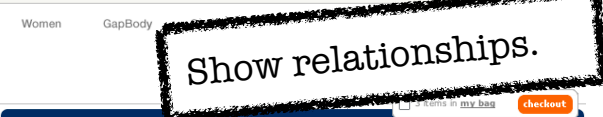
The iBook store for the iPad is a beautiful example of animations supporting a physical metaphor (taking book off of shelf and opening it to read).



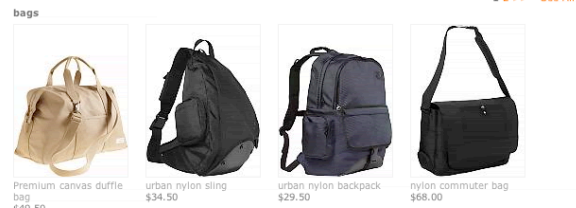
# Moments Communicate



mint.com



Shoes, Belts & More



the gap



flickr organizer

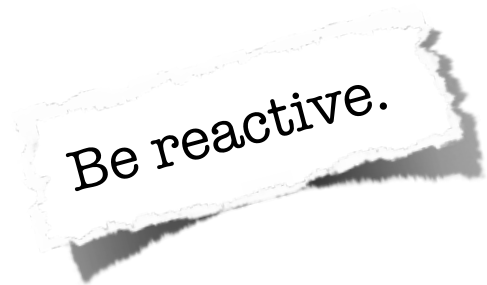


**Speed up time.**



earlier version of my yahoo!

Transitions can speed up time (making a slow process feel faster), slow down time (explain what just happened), focus attention to something that is happening, show relationships between objects. Finally they can reveal state change.



70

One of the ways intelligence is measured is in relevant responsiveness. If I talk to you and you never respond I may think you are dead or unintelligent.

Credit: <http://www.flickr.com/photos/spencereholtaway/1411877351/in/photostream/>

### Late Night Comedies

Based on your interest in

[National Lampoon's Pledge This!](#)

[The Stoned Age](#)

[Team America: World Police](#)

Set this genre

Late Night Comedies

☐
☒
☐ Sometimes watch

[Humboldt County](#)

Add

☐ ☐ ☐ ☐ ☐ ☐

[Revenge of the Nerds: Panty Raid Edition](#)

Add

☐ ☐ ☐ ☐ ☐ ☐

[The Onion Movie](#)

Add

☐ ☐ ☐ ☐ ☐ ☐

[A Dirty Shame](#)

Add

☐ ☐ ☐ ☐ ☐ ☐

experiment on home page

[Bill Scott](#) | [Your Account](#) | [Buy / Redeem Gift](#) | [Help](#)

[Browse DVDs](#)
[Watch Instantly](#)
[Your Queue](#)
[Movies You'll ♥](#)

[Suggestions \(1435\)](#)
[Rate Movies](#)
[Taste Preferences](#)
[Movies You've Rated \(608\)](#)

**Rate Movies you've seen to discover movies you'll love**

Rating Movies in All Genres

RATED MOVIES

608

Miss Congeniality

Add

Big Momma's House

Add

Hitch

Add

Taxi Driver

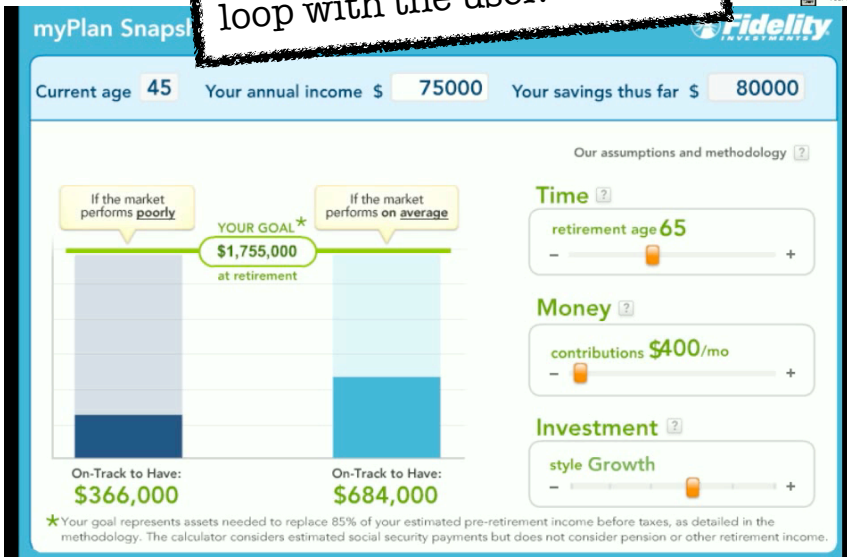
Add

dedicated area

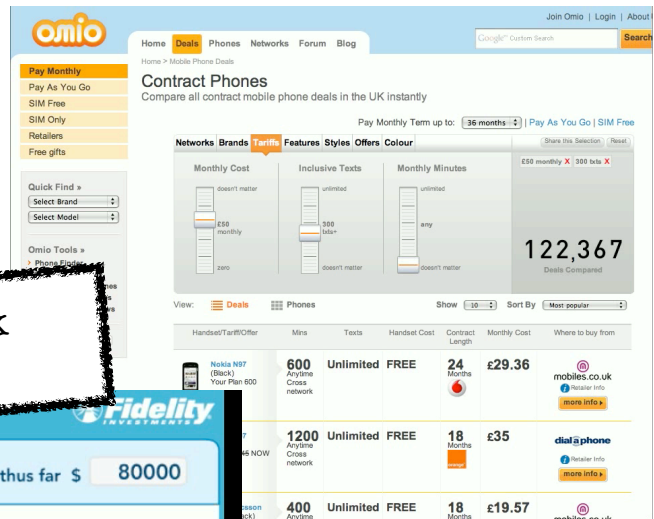
At Netflix we tested a feature called rate & replace. It worked so well that when we tested on new members our web analytics revealed they rated more movies but unfortunately consumed less movies and therefore retention dropped (more people canceled). Once we found the right home for the feature (more with existing members who understood the value of the service) it increased taste input, consumption and retention.

# Live Feedback

Create a tight feedback loop with the user.



live feedback. fidelity

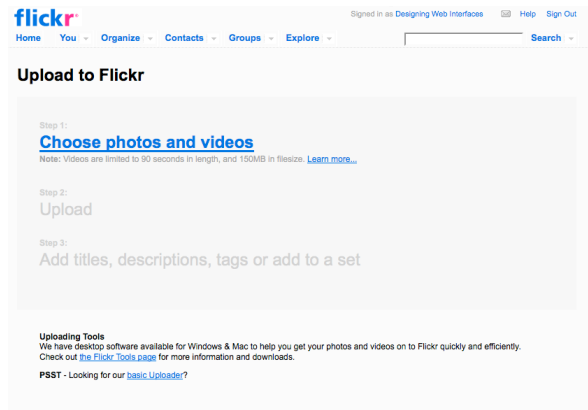


live feedback. omio

A tight feedback loop creates a satisfying effort/reward and tinker/understand set of feedback loops. Both omio and fidelity do a good job of creating interactive what-if tools.

# Live Feedback

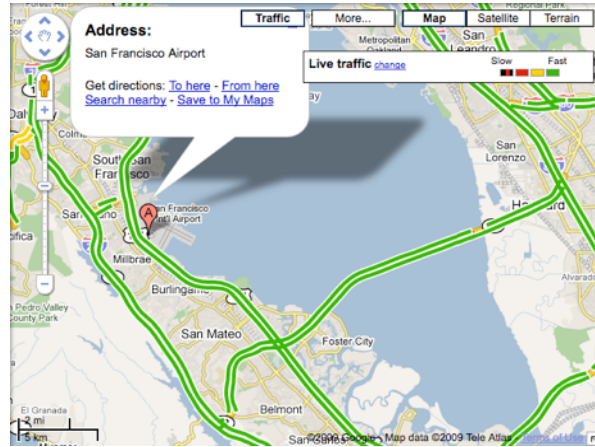
Create a tight feedback loop with the user.



live feedback. flickr



live feedback. wundrbar



live feedback. google maps

73

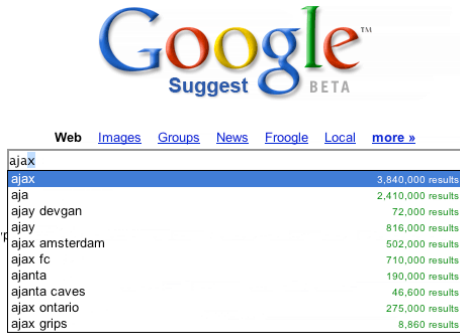
Wundrbar.com is an example of an interface that reacts immediately (Figure 14-1). Wundrbar provides a search layer to a number of third-party services such as purchasing flight tickets, renting cars, or checking gas prices in Des Moines.

Flickr provides feedback on the overall upload as well as individual files. A nice touch rarely seen in most apps.

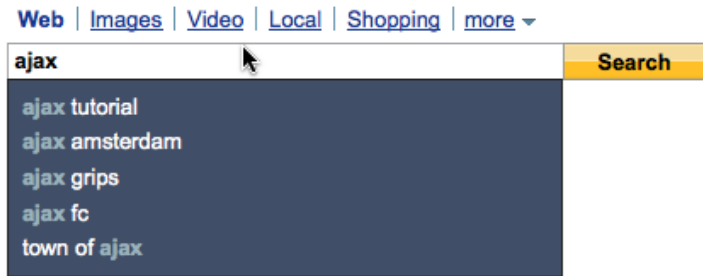
Google maps lets you change the time of day to look at traffic giving you historical view of traffic patterns.



# Live Suggest

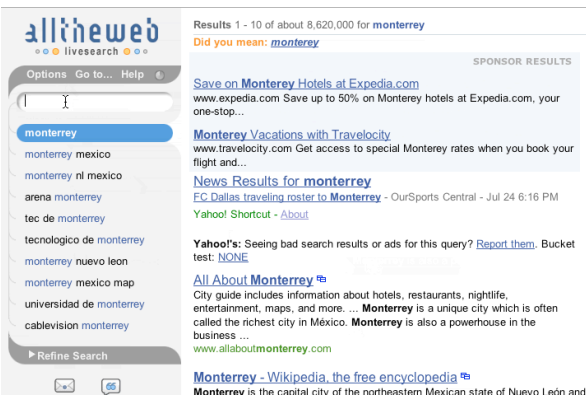


live suggest. google (early version)



live suggest. yahoo search

live suggest. early yahoo search experiment



Narrow toward a goal rather than distract from it.

A key to being reactive is to make the feedback support the user reaching their goal. They must narrow (or feel they are) narrowing to the goal. The opposite would be to provide distractions that lead the user away from finding a solution.

# Live Filtering

The screenshot displays the Bing Tweets dashboard. At the top, the 'bing tweets' logo is visible with the tagline 'Fusing Twitter Trends with Bing Insights'. Below this, there are sections for 'trending topics' (listing names like Carl Crawford, Chuck Norris, etc.), 'tweets' (showing recent tweets with user avatars and text), and 'search results' (for the query 'Carl Crawford'). The search results section includes a sidebar with filters like Biography, Quotes, Jersey, etc., and a main area showing a table of statistics for Carl Crawford, a Tampa Bay Rays player. A callout box with a hand-drawn border points to the search bar area, containing the text: 'Reduce search effort with live filtering.'

bing tweets  
Fusing Twitter Trends with Bing Insights

trending topics  
Popular Now People Places Products

Carl Crawford Chuck Norris Dash Snow Dave Chappelle Joe Buck Lamar Odom Mariano Rivera Michael Jackson Obama Orrin Hatch Pujols Ryan Higa Ryan Howard Sonia Sotomayor Wendy Williams

tweets  
@lokirk1: CQ Politics | Craig Crawford's Trail Mix - Smiling GOPers Ought to ...  
<http://u.mavrev.com/o2tw>  
Jul 15, 2009 10:58am

@reality: At a minimum, Papelbon should but Crawford a rolex.  
Jul 15, 2009 10:57am

TheLuckyLadybug: Win the Tutu's Take... Meaningful Beauty by Cindy Crawford  
Review (GIVEAWAY!) | theohanamama.com - Source: [@theohanamama](http://bit.ly/O1le4)  
Jul 15, 2009 10:57am

StPeteSpirits: Wednesday's

search results  
Web Images Videos Shopping News Maps More MSN Windows Live

Carl Crawford

ALL RESULTS  
1-20 of 6,860,000 results · Advanced

Carl Crawford LF, #13 Tampa Bay Rays

	OPP	AB	R	H	HR	RBI	BB	K	SB
Jul 10	Oak, W6-0	4	0	1	0	1	1	0	0
Jul 11	Oak, L2-7	3	0	0	0	0	1	2	0
Jul 12	Oak, L3-7	1	0	0	0	0	0	1	0

Jul 17 · Rays at Royals · 8:10 PM ET  
Season: GP 88 · AVG .309 · HR 8 · RBI 39 · Runs 58 · SB 44

Player Stats · FOX Sports on MSN · Statistics provided by STATS, Inc. © 2009

RELATED SEARCHES  
Ryan Howard  
Jimmy Rollins

refining search. bing tweets

75

Bing Tweets provides a live dashboard to tweets, trending topics and search results. There is little effort to monitor the dashboard.



# Live Previews

## New Beetle

Starts at \$18,290\*

### Overview

#### Gallery

Plates

360°

### Features

#### Highlights

Complete Specs

Price List

Warranty

Configure Maintenance

### Build

#### Shopping Tools

Find A Dealer

Get A Quote

Schedule A Test Drive

Special Offers

Financial Options

Brochures

\*Lease disclaimer



Black

exterior

interior

Black

White

Light Green

Light Yellow

Light Blue

Red

Yellow

Interior

Black

White

Light Green

Light Yellow

Light Blue

Red

Yellow

Click and Drag the Car or

Spin Now

Use live previews.

live preview. volkswagen car configurator

ads

Support

Search

Copyright © 2009 20th Century Fox

## Trailer

### Standard

Small

Medium

Large

for your iPod ▶

HD

480p

34 MB

720p

101 MB

1080p

164 MB



live suggest. apple search

Live previews are great for auto complete and car configurators, etc. Instead of tinker/wait/view, it is just tinker/view. So the feedback loop is tight. Learnings & rewards are high.

# Live Forms



**Find a domain name:**

www.

(ex. widgetdesigns.com)

live forms. yahoo! small business

**Required information for Google account**

Your current email address:

e.g. myname@example.com. This will be your username and sign-in.

Choose a password:

[Password strength:](#) Too short

Minimum of 6 characters in length.

live forms. google account creation

Prevent errors beforehand with live forms.

77

A Live Preview gives the users a glimpse beforehand of how the application will interpret their input once submitted.

We mentioned Jakob Nielsen's Error Prevention principle earlier. This principle says:

Even better than good error messages is a careful design which prevents a problem from occurring in the first place.\*

Benjamin Franklin seemed to be speaking about the same principle when he uttered the famous quote, "An ounce of prevention is worth a pound of cure."

# Auto Complete

The screenshot shows the Kayak flight search interface. At the top is the Kayak logo and the tagline "Search with us, book with them,™". Below this are navigation links for "Flights", "Hotels", "Cars", "Deals", and "Best". The "Flights" section is active, showing options for "Round-trip", "One-way", and "Multi-city". The "From" field is the focus, with a dropdown menu open showing "Dallas, TX" as the selected option. Other options visible include "Dallas, TX (DFW)", "Dallas, TX (DAL)", "Dallas, TX (Love Field)", "Dallas, TX (MDFW)", "Dallas, TX (MDF)", "Dallas, TX (MDFX)", "Dallas, TX (MDFY)", "Dallas, TX (MDFZ)", "Dallas, TX (MDFW)", "Dallas, TX (MDF)", "Dallas, TX (MDFX)", "Dallas, TX (MDFY)", "Dallas, TX (MDFZ)". The "To" field is empty. The "Leave" date is "2/15/2006" and the "Return" date is "2/22/2006". The "Time" dropdown is set to "Anytime". The "Travelers" dropdown is set to "1" and the "Cabin" dropdown is set to "Economy". A checkbox for "Prefer Nonstop" is present. A button labeled "Search multiple sites" is at the bottom, with a link to "hundreds of airlines."

Reduce user effort by  
autocompleting correctly.

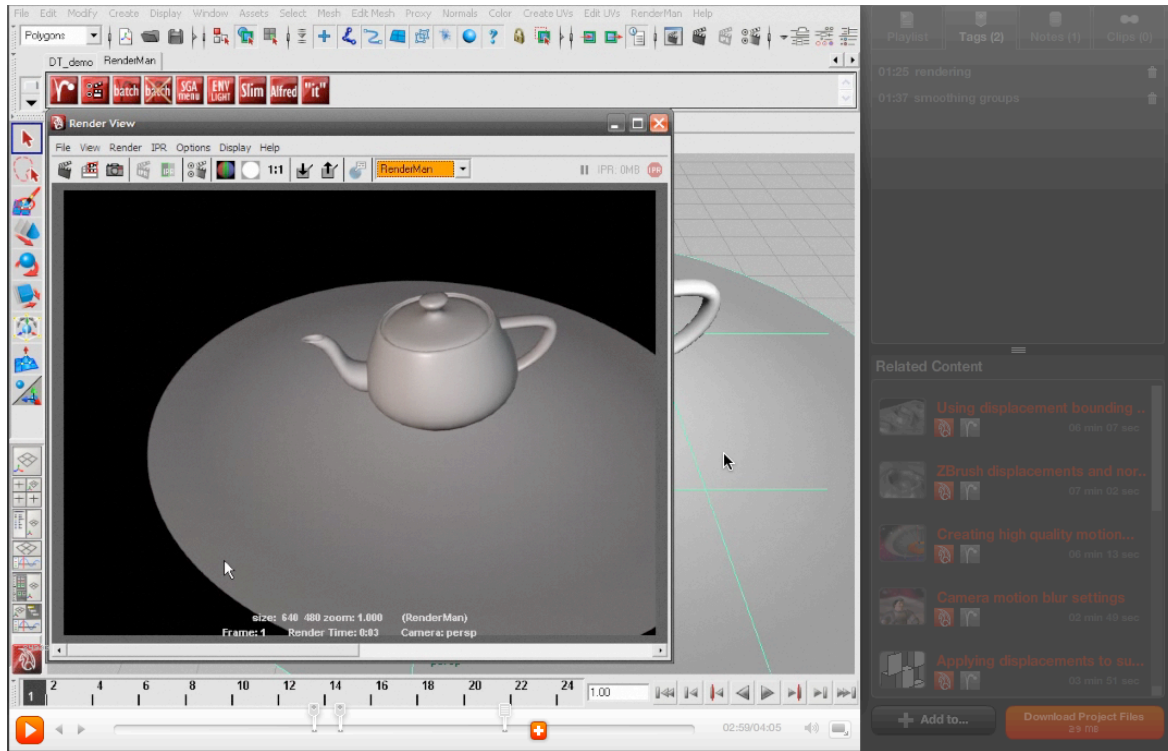
auto complete. kayak

78

Kayak.com is a good example of getting typing, matching, and selecting right for Auto Complete. In Figure 13-3, the user wants to fly to Dallas, TX. He isn't sure what the air- port code is, but he wants the one in Dallas/Fort Worth. Typing "dall" gets two matches: DFW and DAL (Love Field). Realizing that DFW is the correct airport and seeing that it is already highlighted, he hits the Tab key. It enters the correct value for the DFW airport in the input field.

The only critique of this system is the use of light yellow for the selection color. In most cases it is too subtle. However, unlike Farechase, Kayak just does the right thing when the user hits the Tab or Enter key. There's no need to use the down arrow key to select the first item: just press the Tab or Enter key to accept the match.

# React in Mutiple Dimensions



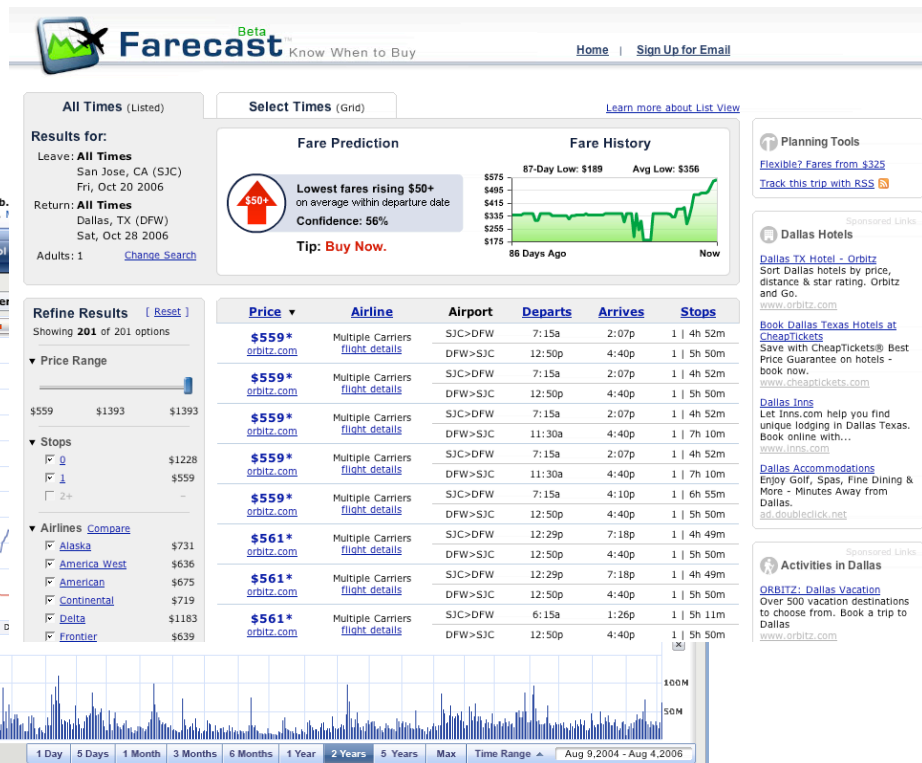
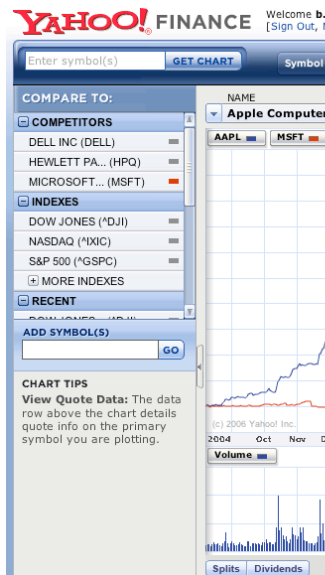
79

digital-tutors does a nice job of showing the video and all of the edits together in the same simple interface.

# React in Mutiple Dimensions

farecast.com

yahoo! finance



80

Xerox developed a principle called context + focus. Both farecast and yahoo finance provide a lot of context and then in context to that a lot of detail. This is powerful as you learn how the system works.

Input where you output.

Maintain flow.

Require a light footprint.

Invite interaction.

Show transitions.

Be reactive.

# Putting it All Together



Delete Messages. iPad Mail

This is a great example of applying all 6 principles into a single interface.



# Resources

“About Face 3: The Essentials of Interaction Design”  
Alan Cooper, Robert Reimann, David Cronin 2007

“Designing Web Interfaces: Principles and Patterns for Rich Interactions”  
Bill Scott and Theresa Neil, O’Reilly Press 2009

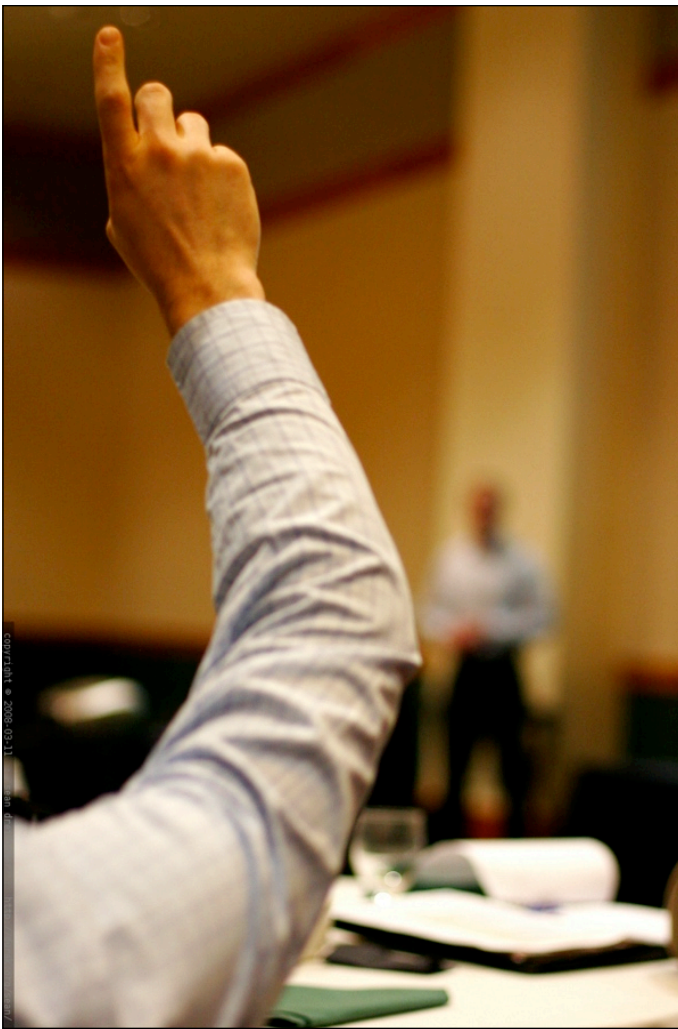
“Designing Interfaces: Patterns for Effective Interface Design”  
Jenifer Tidwell, O’Reilly Press 2006

“The Design of Everyday Things”  
Donald Norman 2002

“The Designers Guide to Web Applications, Part 1”  
Hagan Rivers, Two Rivers Consulting

“Web Form Design: Filling in the Blank”  
Luke Wroblewski, Rosenfeld Media 2008

Designing For Flex by Rob Adams  
[http://www.adobe.com/devnet/flex/articles/fig\\_pt1.html](http://www.adobe.com/devnet/flex/articles/fig_pt1.html)



## Flickr Credits

<http://tr.im/t6Ew>

## Presentation

[billwscott.com/share/presentations/2010/wamsd](http://billwscott.com/share/presentations/2010/wamsd)

## Blog

[looksgoodworkswell.com](http://looksgoodworkswell.com)

## Web username

[billwscott](http://billwscott.com)



## Book

[designingwebinterfaces.com](http://designingwebinterfaces.com)  
O'Reilly