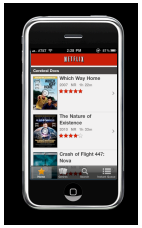
Designing for Mice & Men

Bill Scott, Netflix

1

Netflix Across Devices (in-house products)



2

Netflix Across Devices (in-house products)

Netflix Across Devices (in-house products)

Web

Tablet

Mobile

TV

Netflix Across Devices (in-house products)

HTML5

HTML5

HTML5

HTML5

4

Common Platform Across Devices

Web Browser

iOS Webkit

iOS Webkit

QT Webkit &
Skia Webkit

5

Why?

Why?

Server-driven dynamic UI

Why?

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Server-driven dynamic UI

Web-style release vs CE firmware updates

Why?

Server-driven dynamic UI

Web-style release vs CE firmware updates

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Web-style release vs CE firmware updates

Support A/B Testing

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Server-driven dynamic UI

Web-style release vs CE firmware updates

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Web-style release vs CE firmware updates

Support A/B Testing

Learn Fast/Fail Quickly

Why?

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Web-style release vs CE firmware updates

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Learn Fast/Fail Quickly

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Server-driven dynamic UI

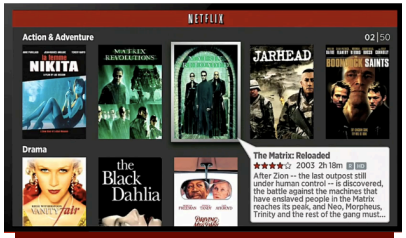
Web-style release vs CE firmware updates

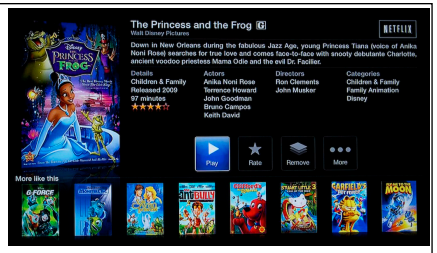
Support A/B Testing

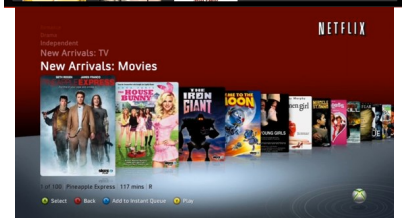
Learn Fast/Fail Quickly

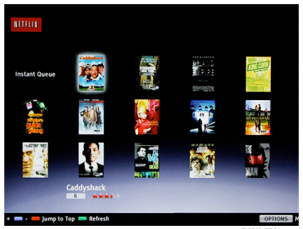
Chaos Otherwise

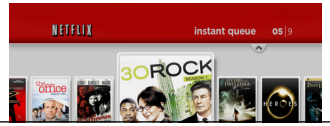
Chaos (400 SKUs)

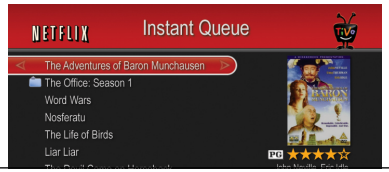












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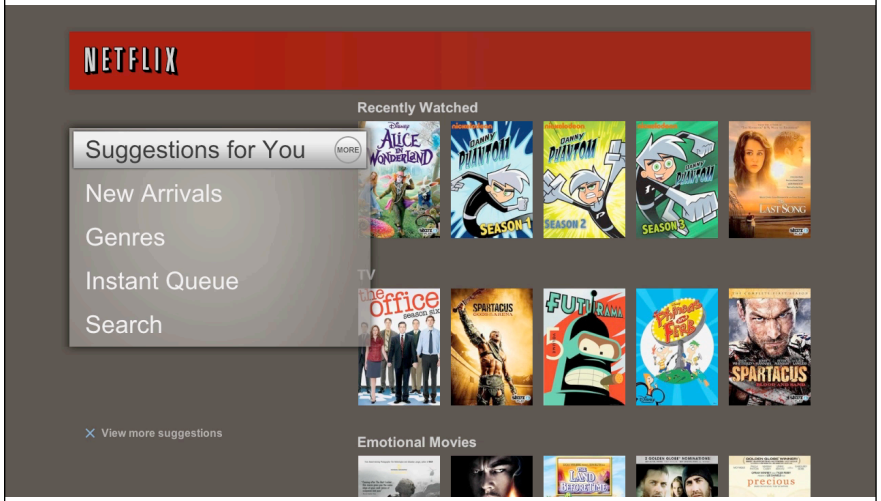
Controlled Variances



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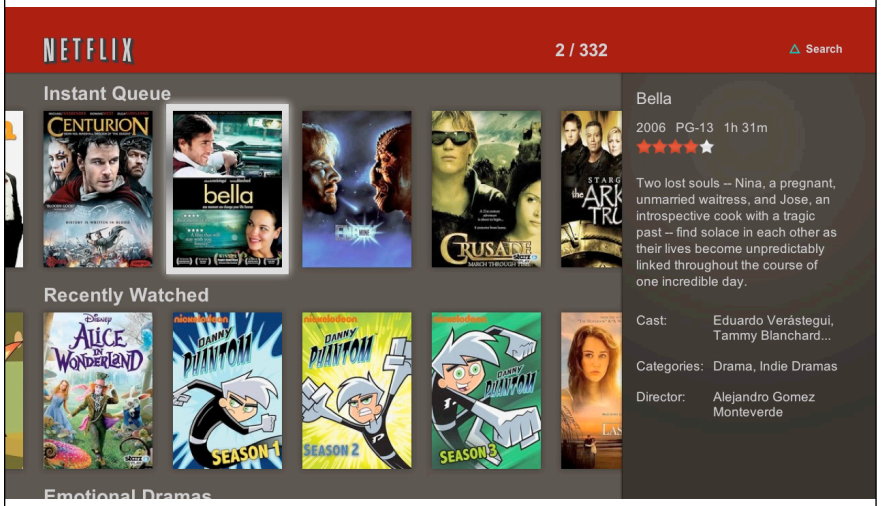
Controlled Variances



9

Managing Across Platforms

10

Managing Across Platforms

We chose a portability layer (html5)

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However, we vary the user experience across platforms (web, tv, mobile, tablet)

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We design for user posture, input capabilities, navigation styles and display capabilities

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Try to embrace the constraints (design for mobile first!)

10

Designing for Mice & Men

11

Designing for Mice & Men

Web

Input
Indirect. Pointer/keyboard
Navigation
Controls & windows
Posture
Stationary
Display
Hi-Rez, large, near

Designing for Mice & Men

Web

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TV

Input
Indirect. LRUD/OSK
Navigation
Panes
Posture
Lean Back
Display
Hi-Rez, far-away

Designing for Mice & Men

Web

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TV

Input
Indirect. LRUD/OSK
Navigation
Panes
Posture
Lean Back
Display
Hi-Rez, far-away

Mobile

Input
Direct. Gesture/OSK
Navigation
Panes
Posture
On-the-go
Display
Hi-Rez, small, near

11

Designing for Mice & Men

Web

Input
Indirect. Pointer/keyboard
Navigation
Controls & windows
Posture
Stationary
Display
Hi-Rez, large, near

TV

Input
Indirect. LRUD/OSK
Navigation
Panes
Posture
Lean Back
Display
Hi-Rez, far-away

Mobile

Input
Direct. Gesture/OSK
Navigation
Panes
Posture
On-the-go
Display
Hi-Rez, small, near

Tablet

Input
Direct. Gesture/OSK
Navigation
Panes
Posture
On-the-go, lean back shared
Display
Hi-Rez, medium, near

11

So what's common?

design principles
fundamental, universal ideas that underpin good design across different input methods, display capabilities and user posture

but the application of principles varies across **input, posture, navigation & display**

Three Principles

Three Principles

common design principles for
multiple platform design

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#1 Get Physical

14

The Illusion of Physicality

15

The Illusion of Physicality

+

15

The Illusion of Physicality

+

"Finger painting" "Paint on Paper"

"My finger is out of Purple!?"

15

Design for Physicality

16

Design for Physicality

Whenever possible, add a realistic, physical dimension to your application.

The more true to life your application looks and behaves, the easier it is for people to understand how it works and the more they enjoy using it.

- Apple HIG

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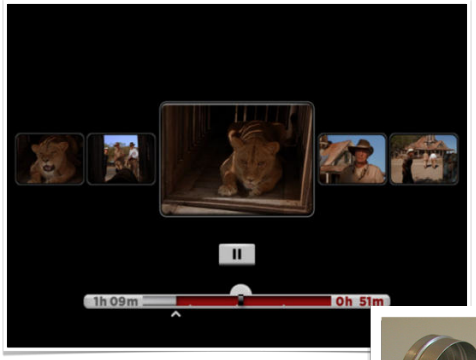
Use Metaphors to Embody Physicality

17

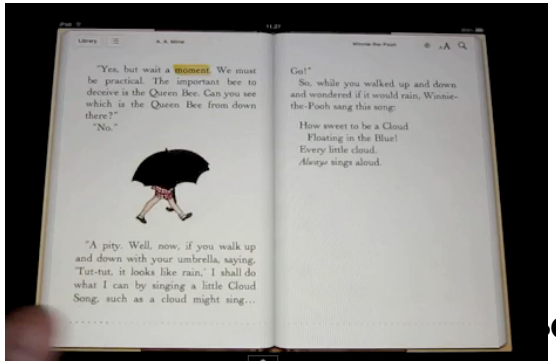
Physicality as Metaphor

Physicality as Metaphor



Film Strip

Physicality as Metaphor



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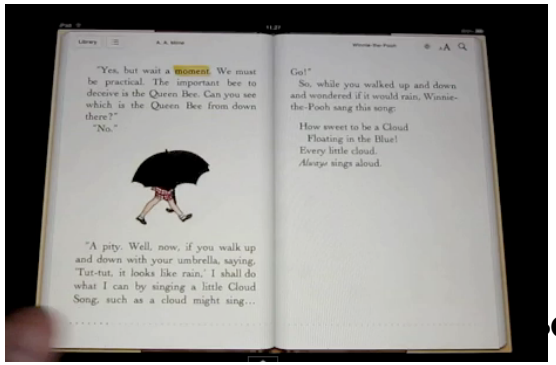
Physicality as Metaphor



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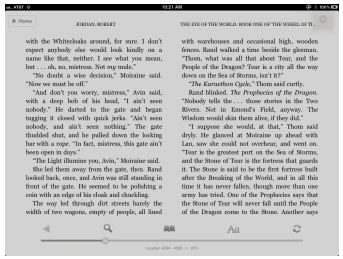
"Books have pages"

"Pages turn"

19

Anti-Pattern: Broken Metaphor



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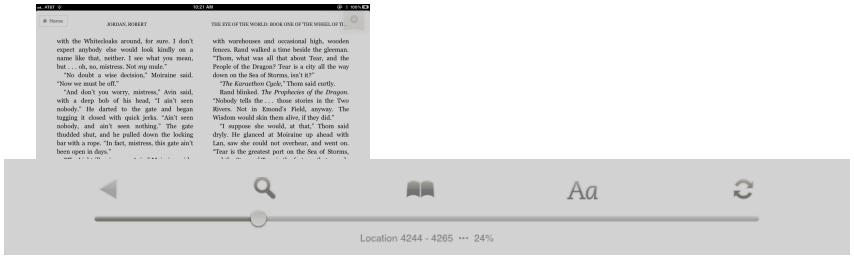

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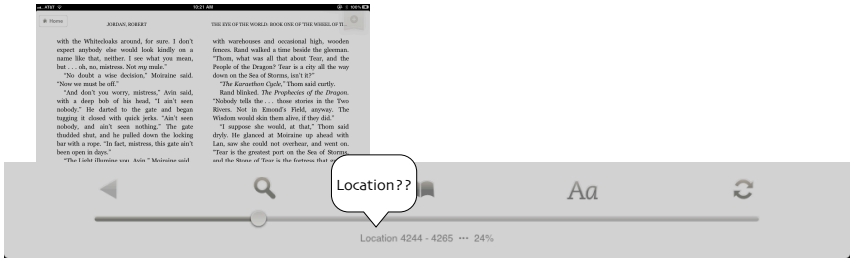


Anti-Pattern: Broken Metaphor

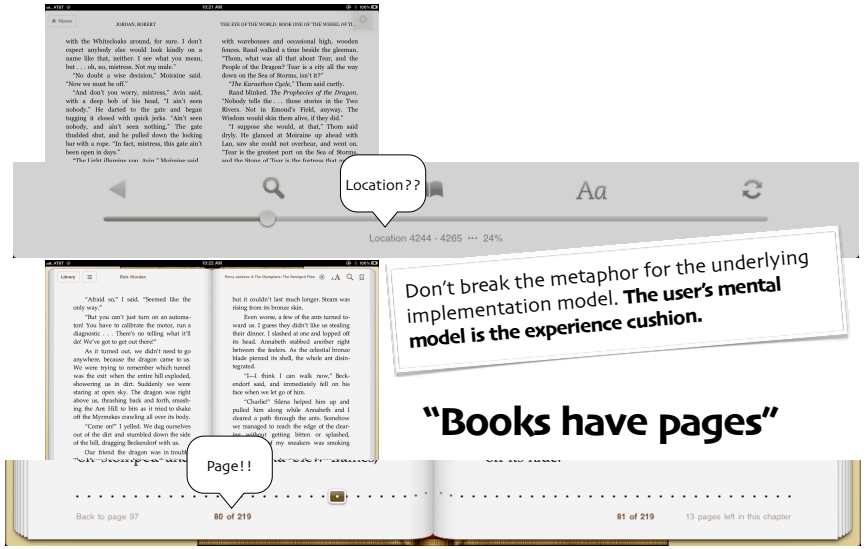
20

Anti-Pattern: Broken Metaphor

Anti-Pattern: Broken Metaphor

"Books have pages"

Anti-Pattern: Broken Metaphor



Don't break the metaphor for the underlying implementation model. **The user's mental model is the experience cushion.**

"Books have pages"

Break the Metaphor with Magic

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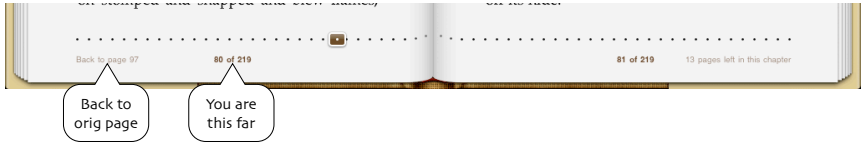

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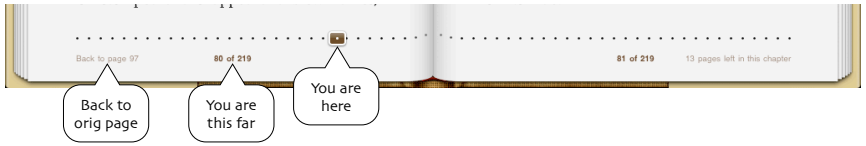

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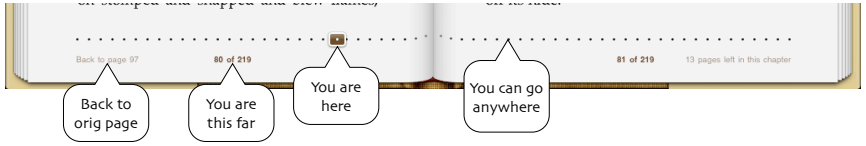

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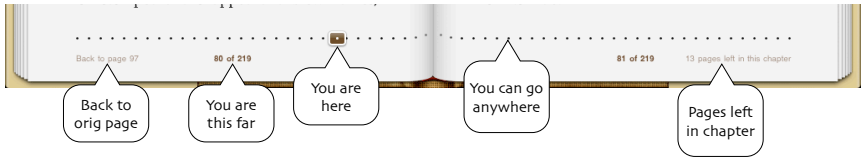

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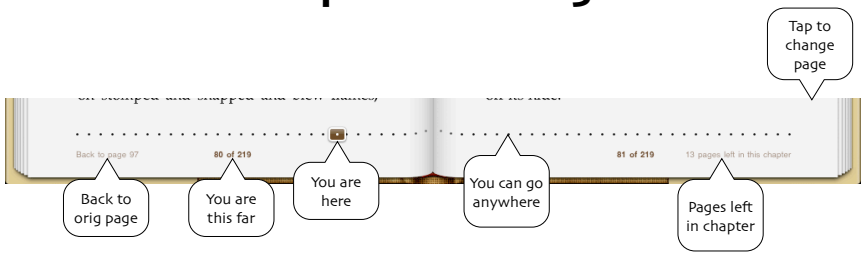

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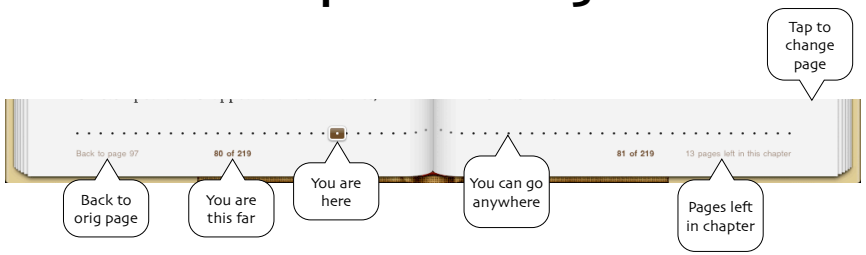
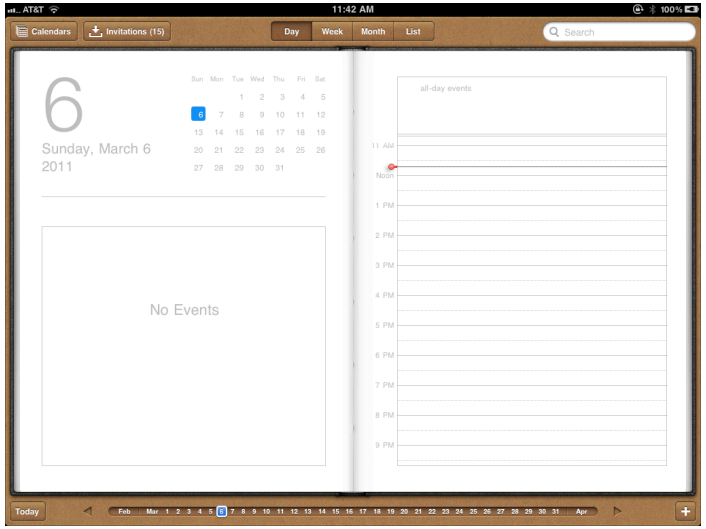


Strict physicality is hard work. Use magic to simplify the real world.

21

To Flick or not to Flick



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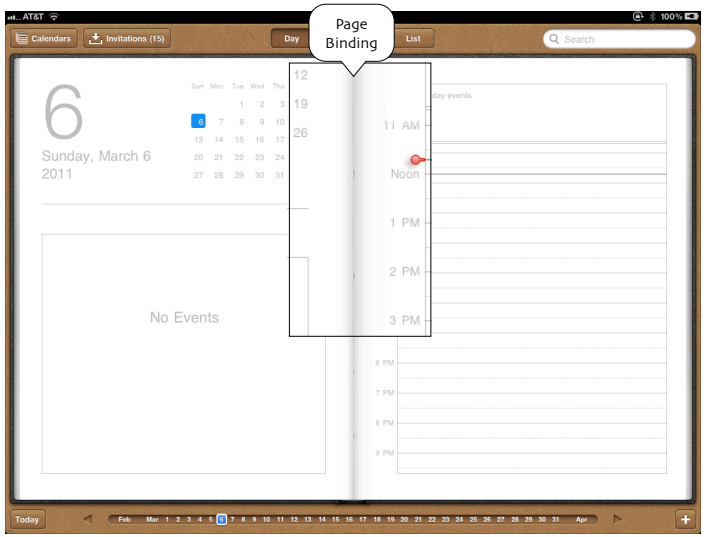

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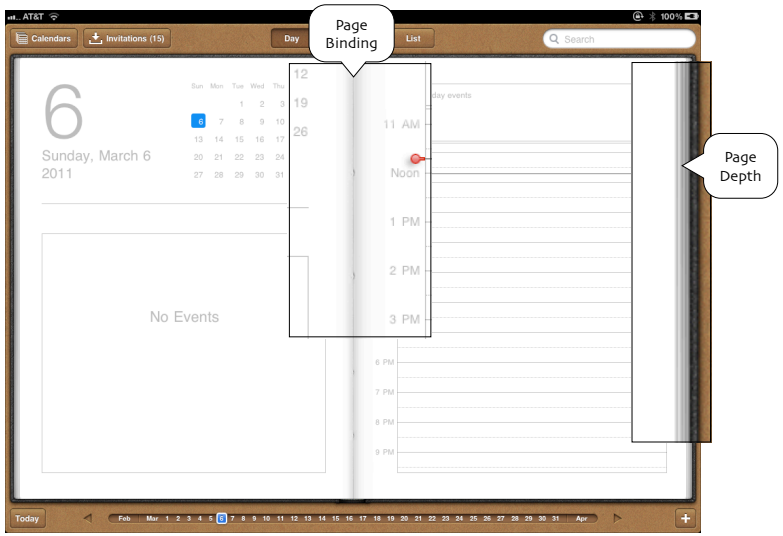

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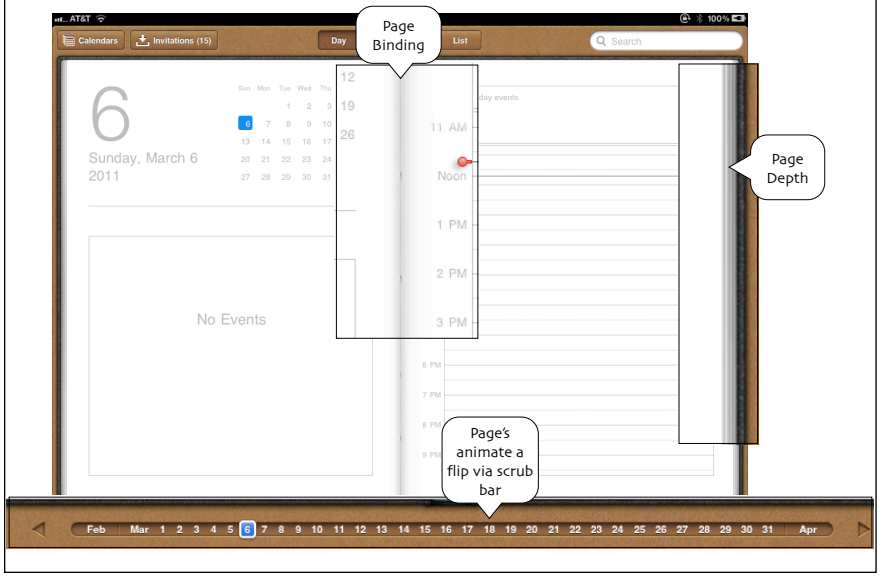

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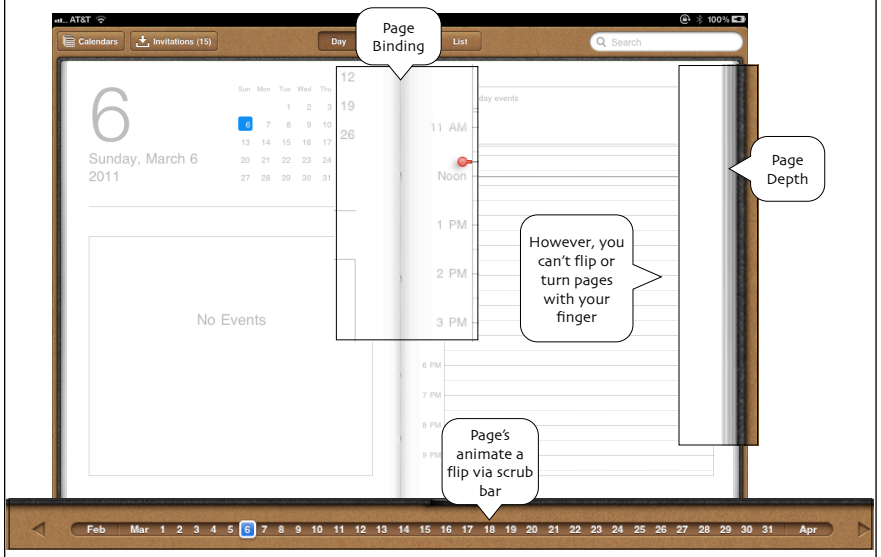

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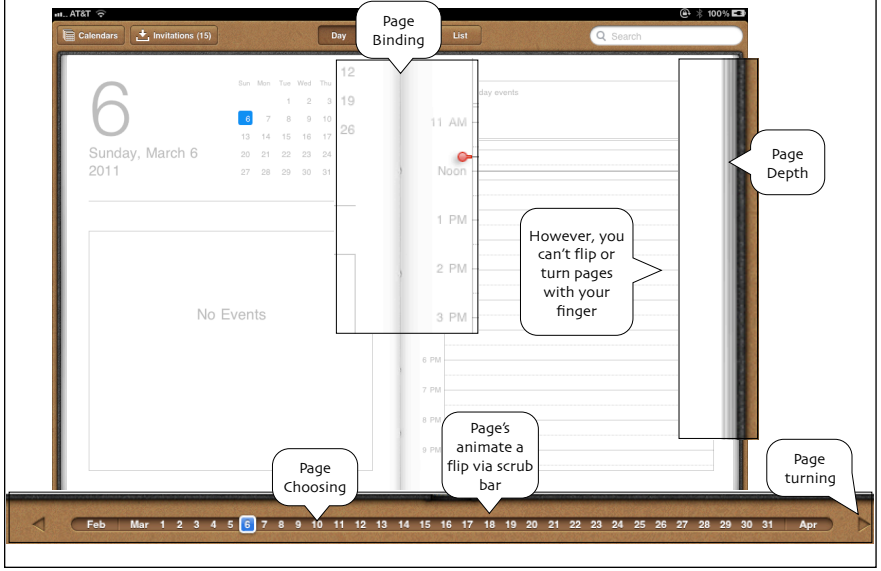
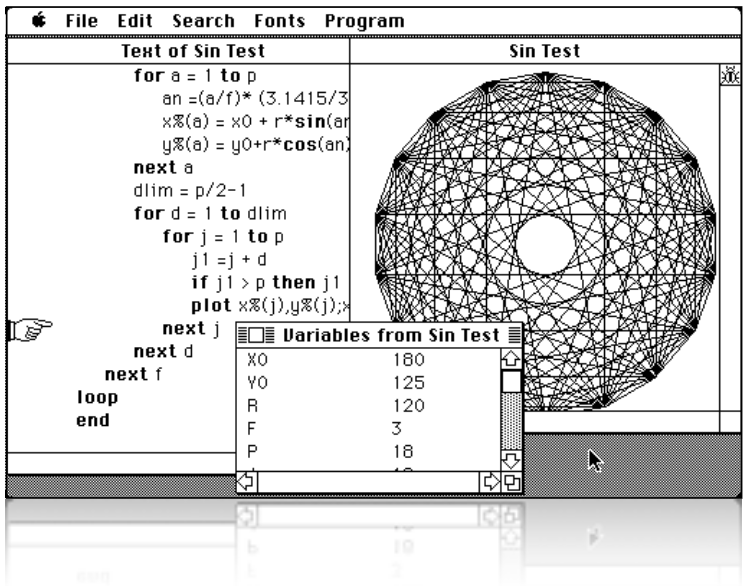


Use Directness to Simulate Physicality

23



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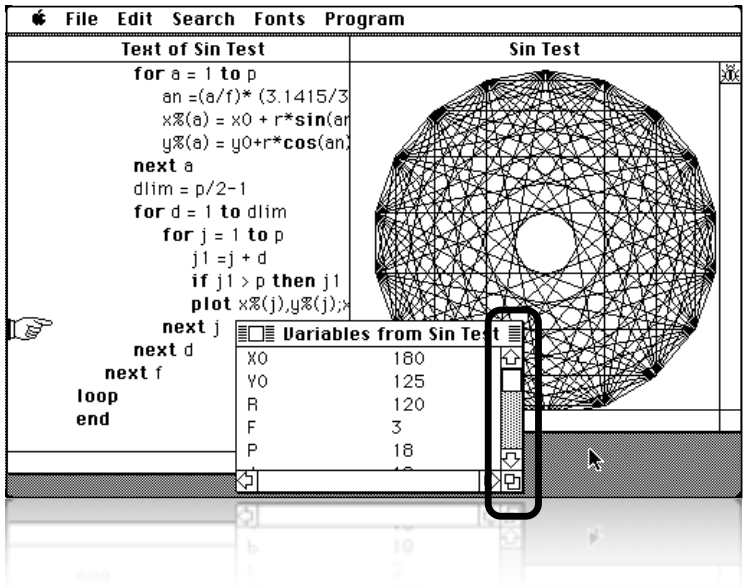

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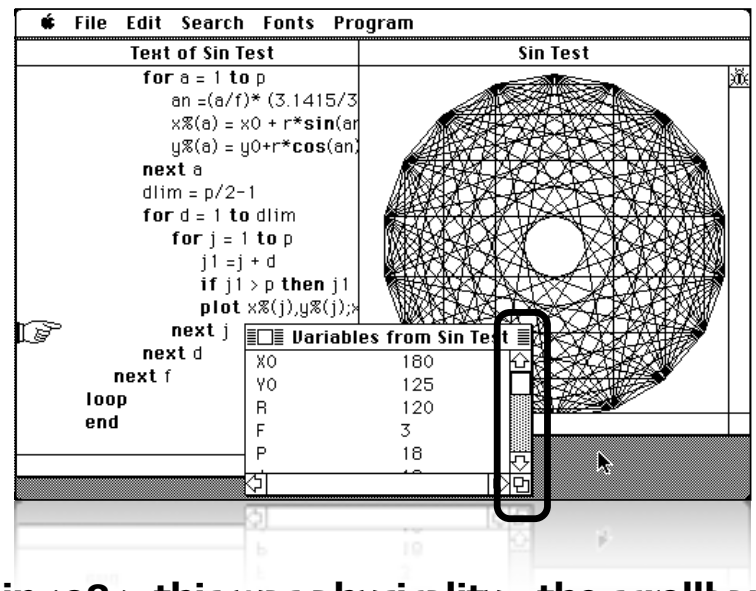
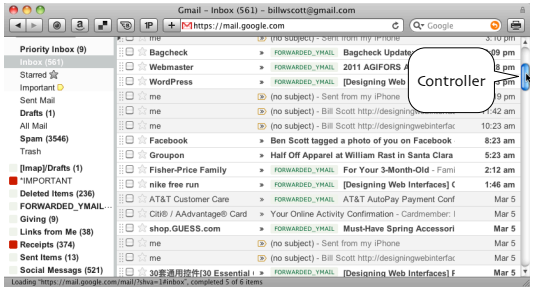


in 1984, this was physicality - the scrollbar

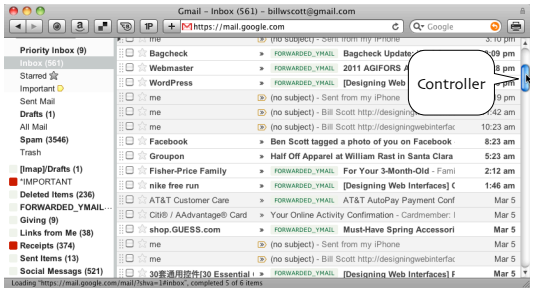
24

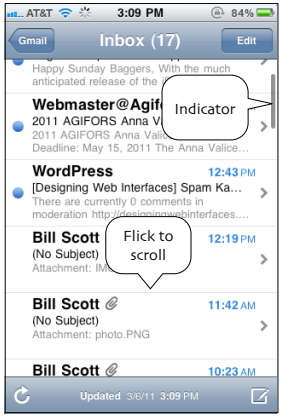
Scrollbar Evolution



Scrollbar Evolution

From Controller to Indicator
Content is scrolled instead of scrollbar





Thumbwheel is an evolution as well

It must feel real

It must feel real

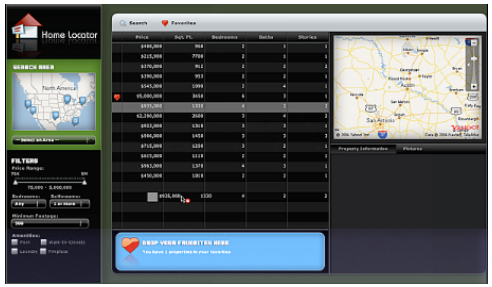
Make sure event handling is consistent

It must feel real

Make sure event handling is consistent

Remember fingers are fat. Real estate is limited

Anti-Pattern: Mismatched Metaphor



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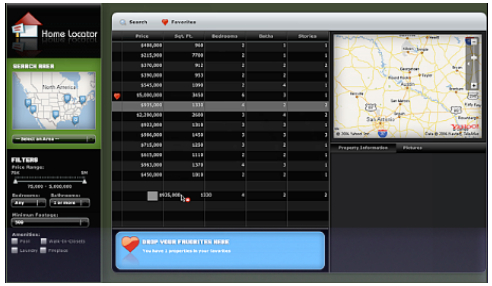

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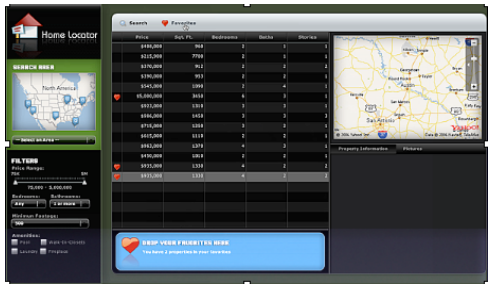

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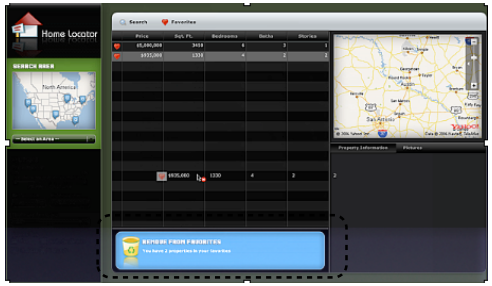
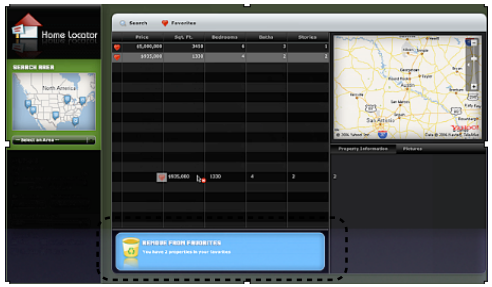


anti-pattern: artificial construct

Anti-Pattern: Mismatched Metaphor



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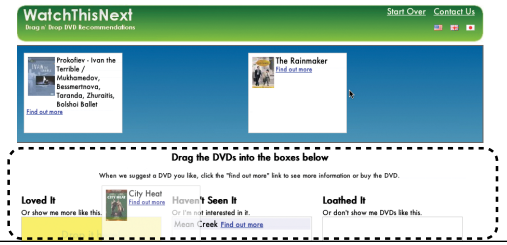

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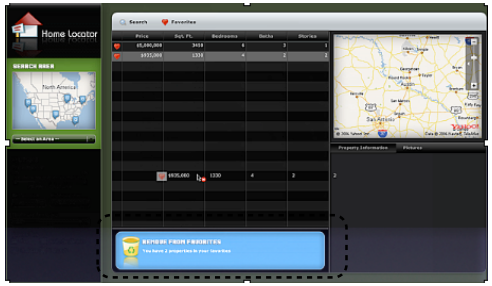
Anti-Pattern: Mismatched Metaphor



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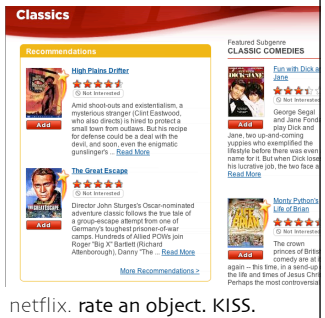
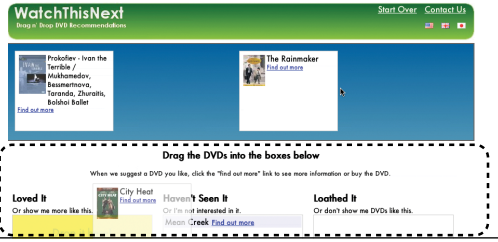
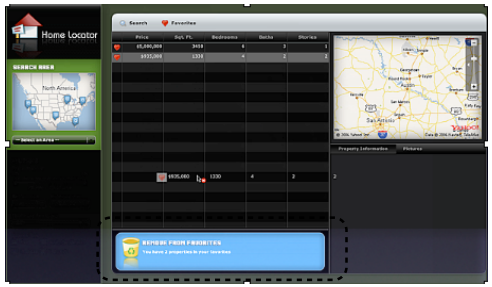


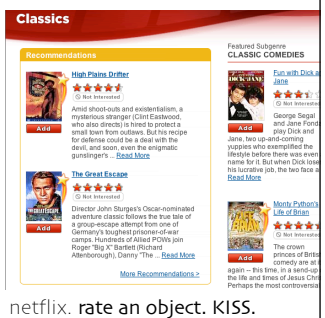
netflix. rate an object. KISS.



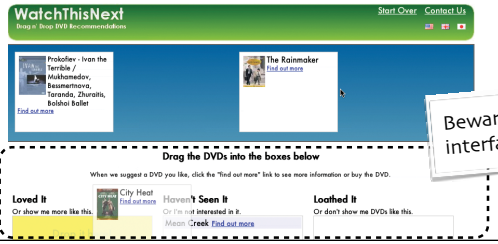
Anti-Pattern: Mismatched Metaphor



anti-pattern: artificial construct



netflix. rate an object. KISS.



Beware of constructing artificial visual interfaces to support drag and drop

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How Fat is Your Input?

	Targeting Size
Web (Pointer)	16 pixels (but accurate as 1 pixel)
Mobile/Tablet (Finger)	44 pixels*
Remote (LRUD)	44 pixels
Remote (Pointer)	44 pixels

* Joe Clark's recommendation - Tapworthy

Physicality Across Platforms

	Input
Web	Pointer Indirect Fine-grained (pixel)
Tablet	Finger Direct Course-grained (finger)
Mobile	Finger Direct Course-grained (finger)
TV	Remote Control Indirect Course-grained (1 object at a time)

Physicality Across Platforms

	Input	Posture
Web	Pointer Indirect Fine-grained (pixel)	Stationary (can support sovereign apps)
Tablet	Finger Direct Course-grained (finger)	On-the-go (Single Purpose Apps)
Mobile	Finger Direct Course-grained (finger)	On-the-go (Single Purpose Apps)
TV	Remote Control Indirect Course-grained (1 object at a time)	Leisure (supports consumption, media apps)

Physicality Across Platforms

	Input	Posture	Navigation
Web	Pointer Indirect Fine-grained (pixel)	Stationary (can support sovereign apps)	Windows Menus, Tabs & Links
Tablet	Finger Direct Course-grained (finger)	On-the-go (Single Purpose Apps)	Panes Buttons & Gestures
Mobile	Finger Direct Course-grained (finger)	On-the-go (Single Purpose Apps)	Panes & Buttons
TV	Remote Control Indirect Course-grained (1 object at a time)	Leisure (supports consumption, media apps)	Panes & Content

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Physicality Across Platforms

	Input	Posture	Navigation	Display
Web	Pointer Indirect Fine-grained (pixel)	Stationary (can support sovereign apps)	Windows Menus, Tabs & Links	Large size High resolution Near
Tablet	Finger Direct Course-grained (finger)	On-the-go (Single Purpose Apps)	Panes Buttons & Gestures	Medium size High resolution Near
Mobile	Finger Direct Course-grained (finger)	On-the-go (Single Purpose Apps)	Panes & Buttons	Small size High resolution Near
TV	Remote Control Indirect Course-grained (1 object at a time)	Leisure (supports consumption, media apps)	Panes & Content	Large size High resolution Far away

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#2 Maintain Flow

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Exploratorium Exhibit

31

Spot the differences

32

Spot the differences

32

Now try again...

33

Now try again...

33

Now try again...

33

Reduce Page Switching to Maintain Flow

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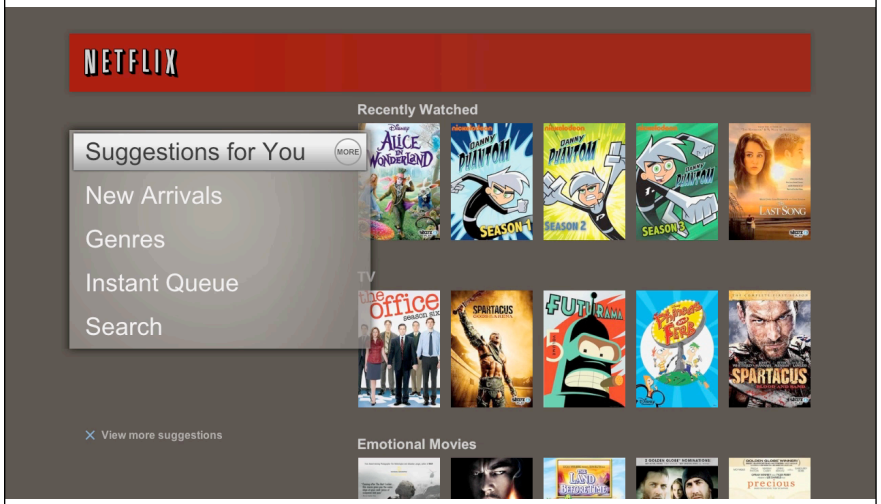
"Special" Experience



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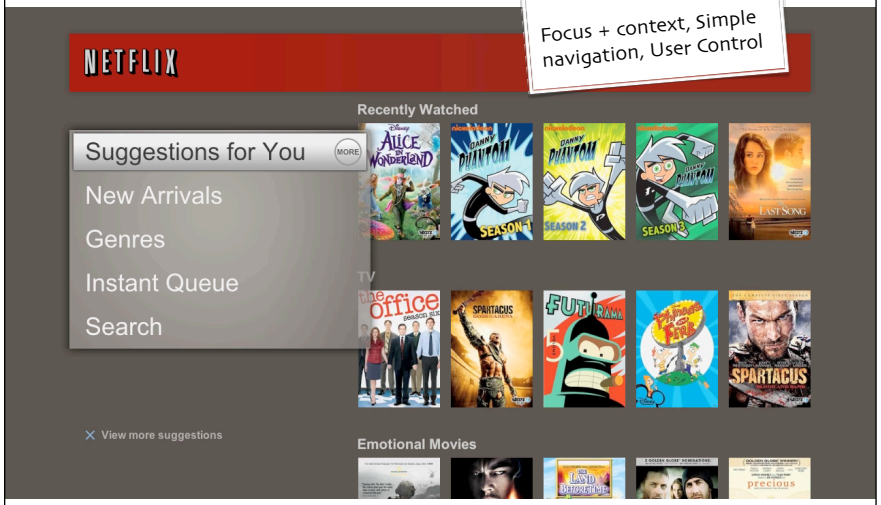
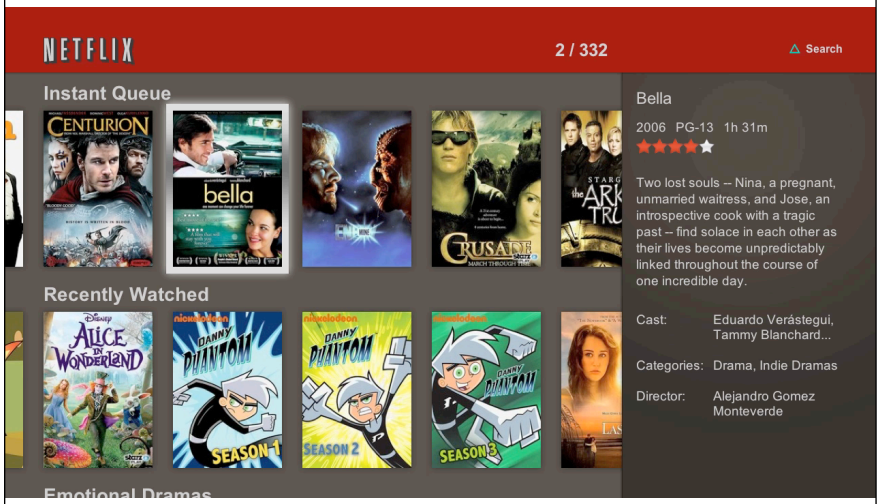
"Special" Experience

Principles followed:

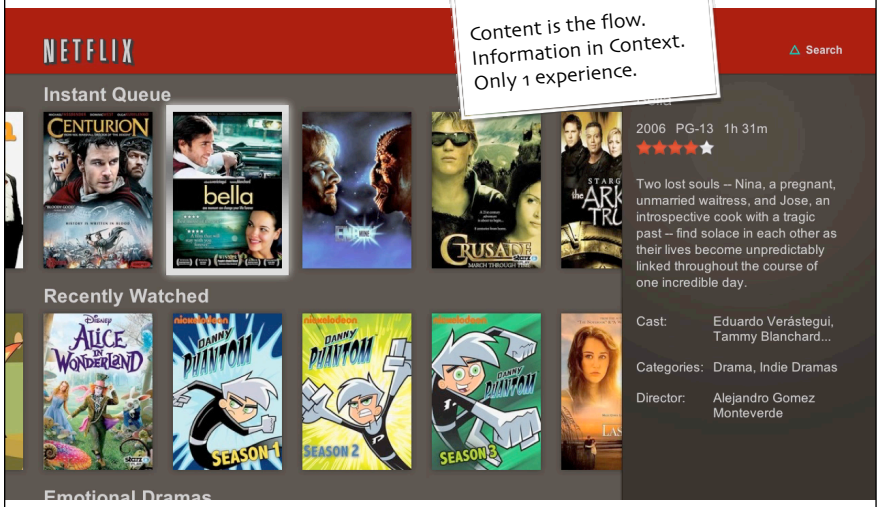
Focus + context, Simple navigation, User Control



"Plus" Experience



"Plus" Experience



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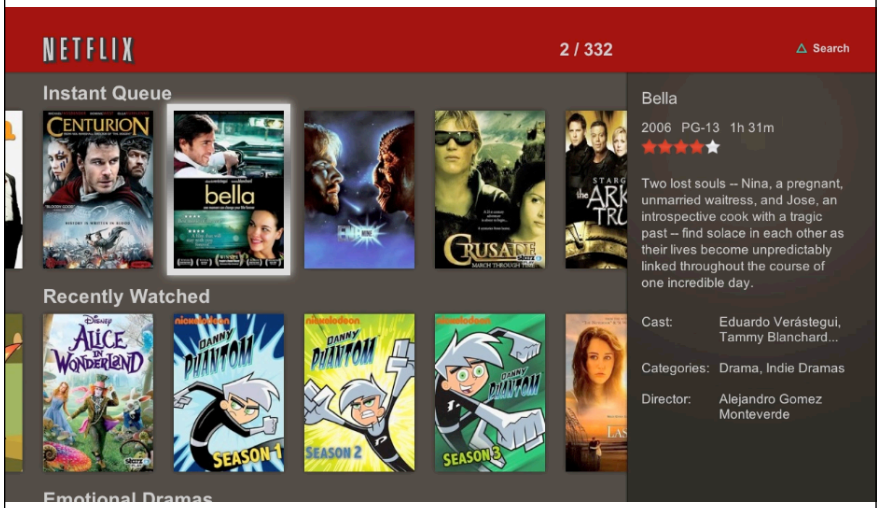
Which Won?

37

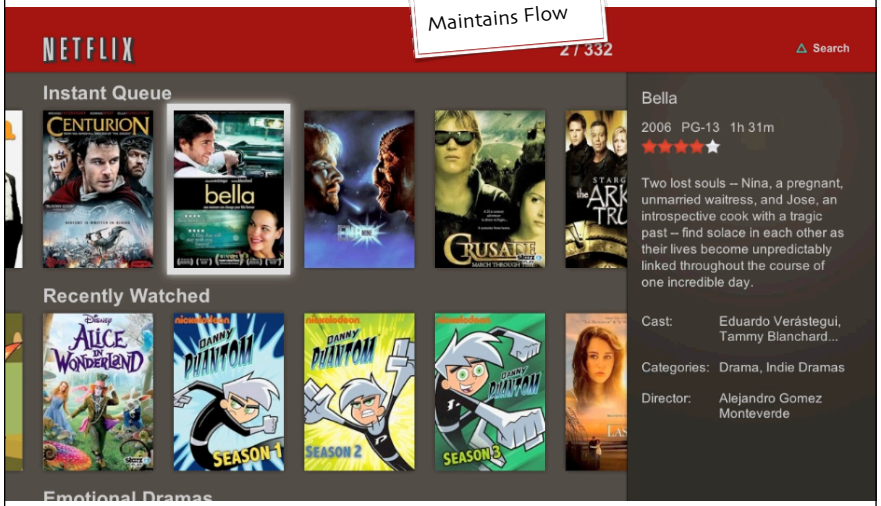
Which Won?



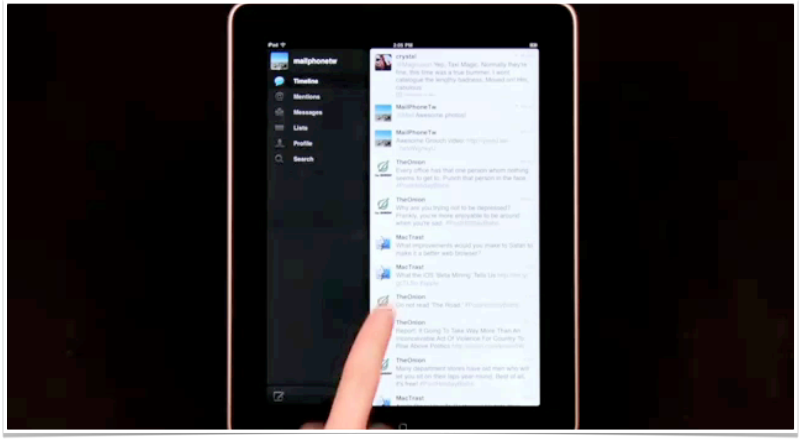
Which Won?

"plus" experience.

Maintains Flow

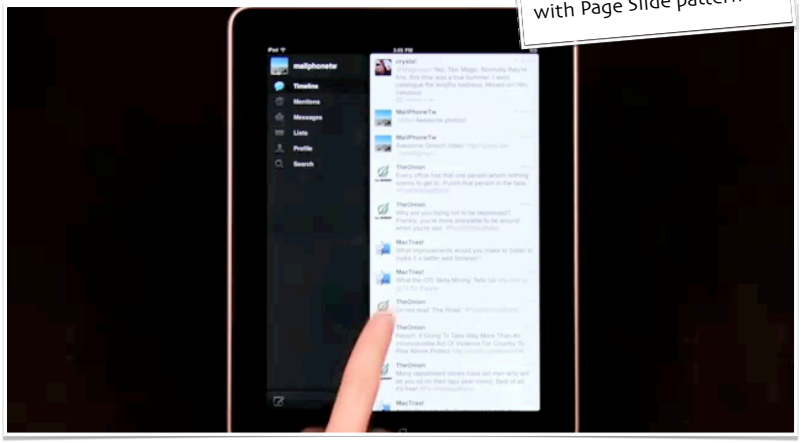


Twitter as iPad App

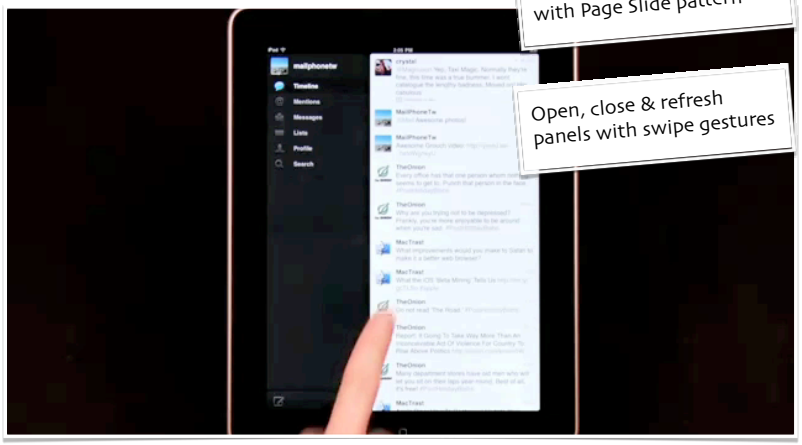


Twitter as iPad App

Minimize page transitions with Page Slide pattern



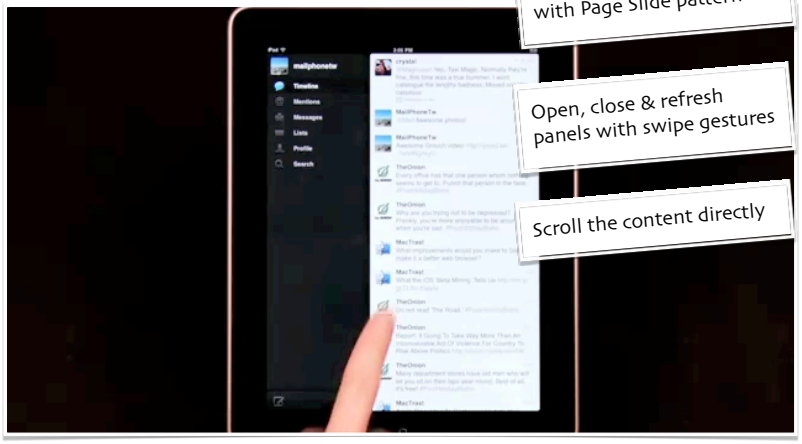
Twitter as iPad App



Minimize page transitions with Page Slide pattern

Open, close & refresh panels with swipe gestures

Twitter as iPad App

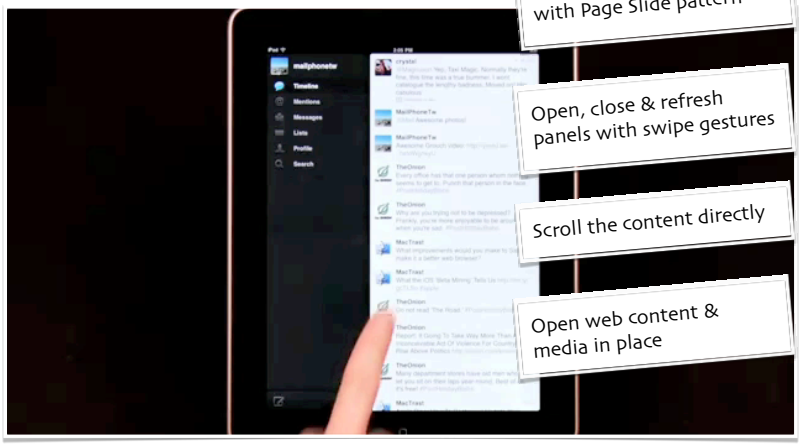


Minimize page transitions with Page Slide pattern

Open, close & refresh panels with swipe gestures

Scroll the content directly

Twitter as iPad App



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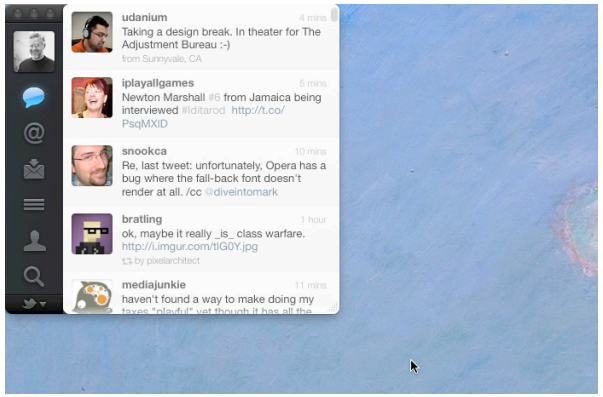
Twitter as Mac App



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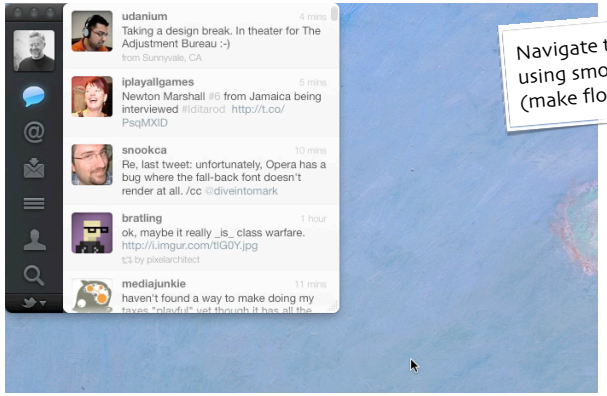
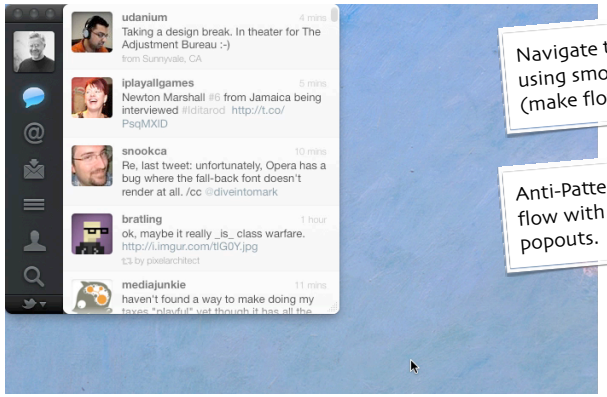
Twitter as Mac App



Navigate to other areas using smooth transitions (make flow visible)

Twitter as Mac App

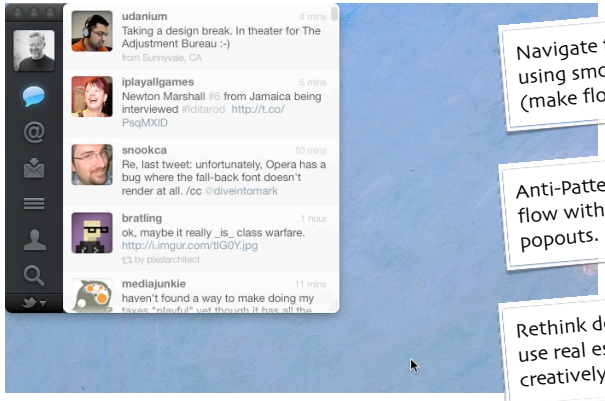


Navigate to other areas using smooth transitions (make flow visible)

Anti-Pattern: breaking the flow with menus & popouts.

39

Twitter as Mac App



Navigate to other areas using smooth transitions (make flow visible)

Anti-Pattern: breaking the flow with menus & popouts.

Rethink desktop apps to use real estate more creatively

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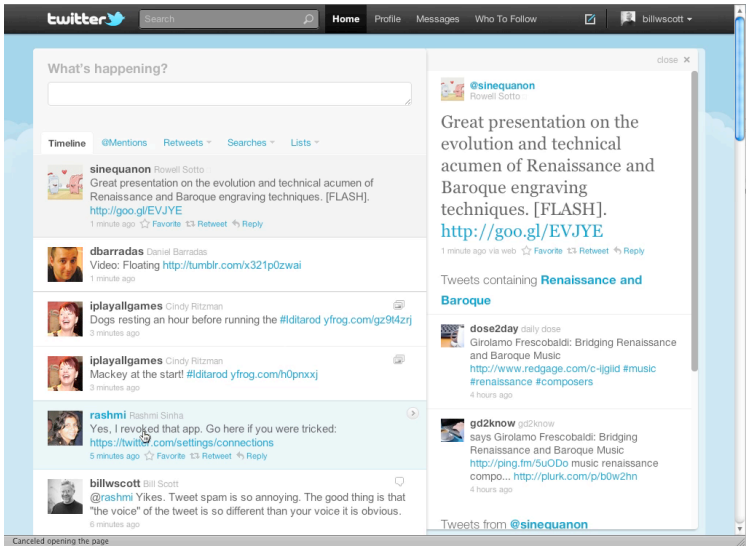
Twitter as Web App



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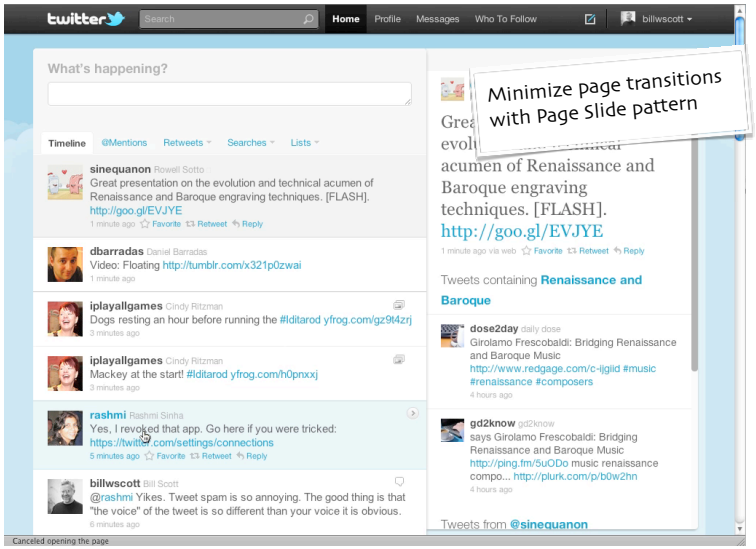
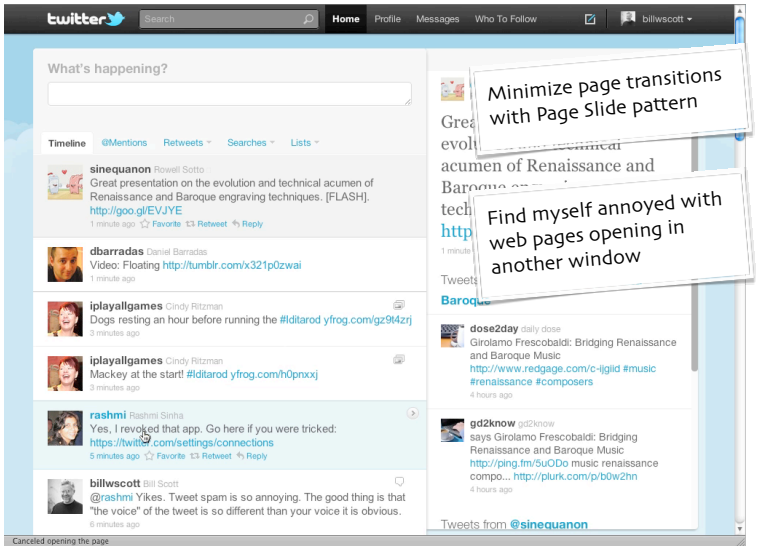
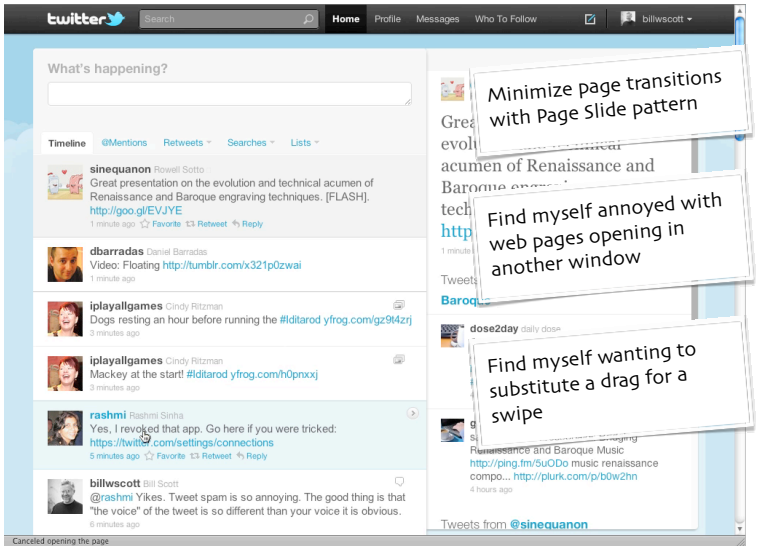
Twitter as Web App



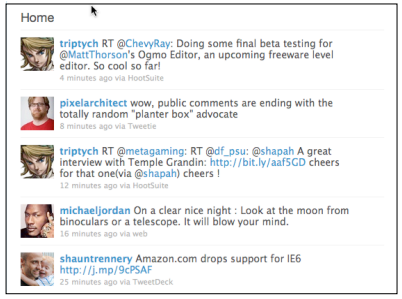
Twitter as Web App



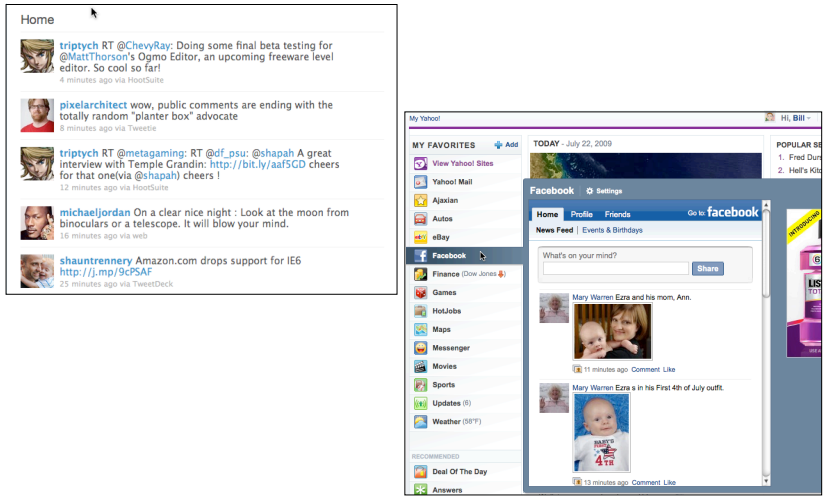
Twitter as Web App



Vs Hover & Cover



Vs Hover & Cover



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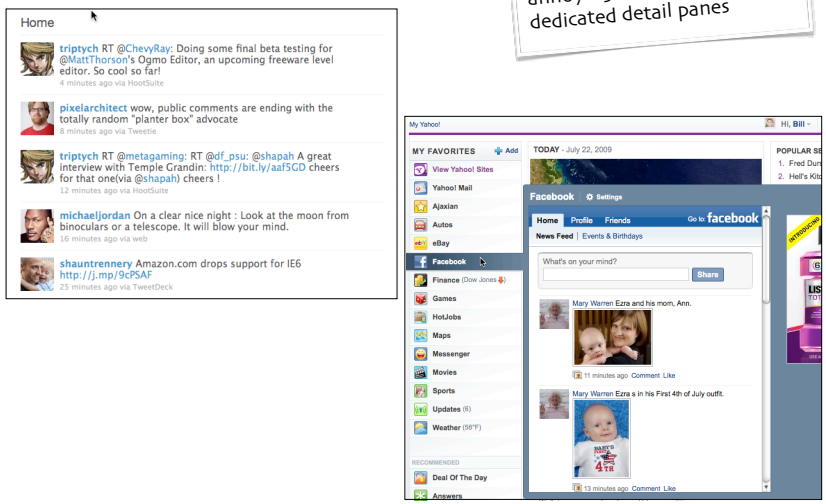
Vs Hover & Cover



Where possible replace annoying hover details with dedicated detail panes

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Keep Navigation Simple to Maintain Flow

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Mobile Navigation

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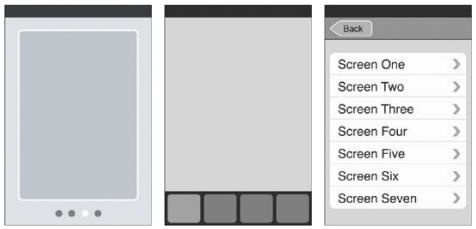
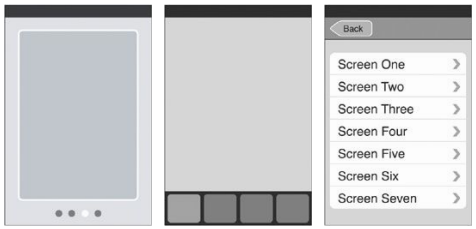
Mobile Navigation



Mobile Navigation



Three types of iPhone navigation: Flat, Tab, Tree

- Jeff Clark (Tapworthy)

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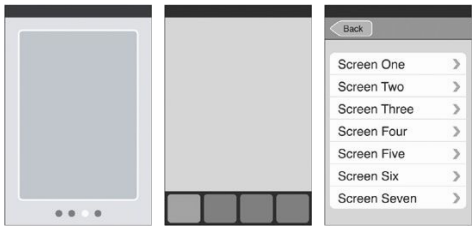
Mobile Navigation



Three types of iPhone navigation: Flat, Tab, Tree

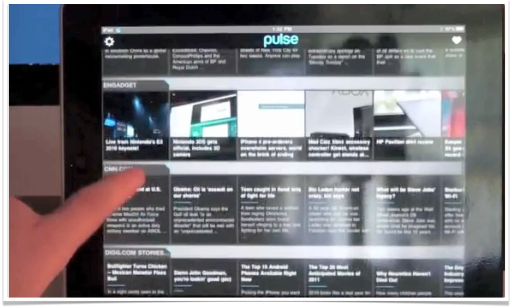
- Jeff Clark (Tapworthy)

Gowalla: Tab + Flat

- Jeff Clark (Tapworthy)

Source: Tapworthy by Josh Clark

Pulse & Flipboard iPad Apps



Pulse & Flipboard iPad Apps

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Maintaining Flow Across Platforms

	Navigation
Web	Page, Tab, Back Button
Mobile	Flat, Tab & Tree. 1 level back.
Tablet	Flat, Tab, Master/Detail. 1 level-back
TV	Flat, Tab, Tree, Master/Detail

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Maintaining Flow Across Platforms

	Navigation	Paging
Web	Page, Tab, Back Button	When page content changes or step by step flow Avoid too many page changes
Mobile	Flat, Tab & Tree. 1 level back.	For content, steps in flow
Tablet	Flat, Tab, Master/Detail. 1 level-back	Swiping through pages Avoid too many page changes
TV	Flat, Tab, Tree, Master/Detail	When page content changes or step by step flow

Maintaining Flow Across Platforms

	Navigation	Paging	Scrolling
Web	Page, Tab, Back Button	When page content changes or step by step flow Avoid too many page changes	Better than paging (easier on web than on touch)
Mobile	Flat, Tab & Tree. 1 level back.	For content, steps in flow	Question scrolling, prefer Flat
Tablet	Flat, Tab, Master/Detail. 1 level-back	Swiping through pages Avoid too many page changes	Short scrolling or for Sliding content
TV	Flat, Tab, Tree, Master/Detail	When page content changes or step by step flow	Avoid

Maintaining Flow Across Platforms

	Navigation	Paging	Scrolling	Content Slide
Web	Page, Tab, Back Button	When page content changes or step by step flow Avoid too many page changes	Better than paging (easier on web than on touch)	Carousels for media or short relevancy lists
Mobile	Flat, Tab & Tree. 1 level back.	For content, steps in flow	Question scrolling, prefer Flat	Limit use of in-page sliding content
Tablet	Flat, Tab, Master/Detail. 1 level-back	Swiping through pages Avoid too many page changes	Short scrolling or for Sliding content	Nice way to bring in more in-page content
TV	Flat, Tab, Tree, Master/Detail	When page content changes or step by step flow	Avoid	Avoid

Maintaining Flow Across Platforms

	Navigation	Paging	Scrolling	Content Slide	Panel Slide
Web	Page, Tab, Back Button	When page content changes or step by step flow Avoid too many page changes	Better than paging (easier on web than on touch)	Carousels for media or short relevancy lists	Nice way to extend real estate
Mobile	Flat, Tab & Tree. 1 level back.	For content, steps in flow	Question scrolling, prefer Flat	Limit use of in-page sliding content	Avoid (except as transition to replace page)
Tablet	Flat, Tab, Master/Detail. 1 level-back	Swiping through pages Avoid too many page changes	Short scrolling or for Sliding content	Nice way to bring in more in-page content	Nice way to extend real estate
TV	Flat, Tab, Tree, Master/Detail	When page content changes or step by step flow	Avoid	Avoid	Nice way to extend real estate

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Use Transitions/ Animations to Create Responsiveness

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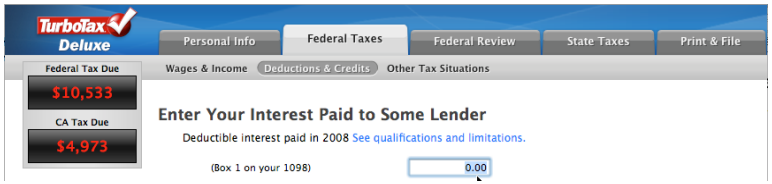
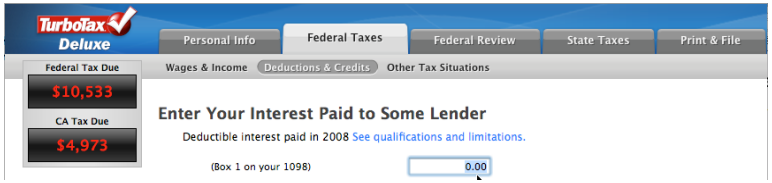
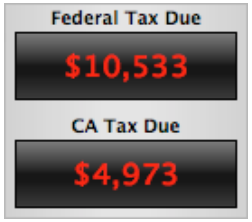
Animation Can...

Animation Can...



Animation Can...





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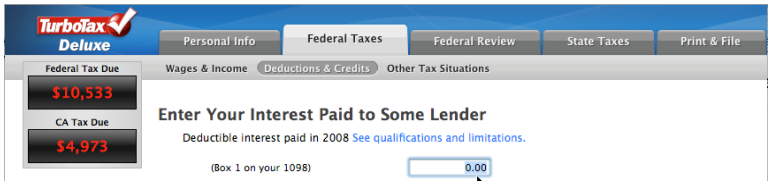
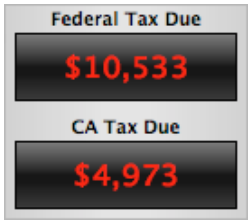
Animation Can...





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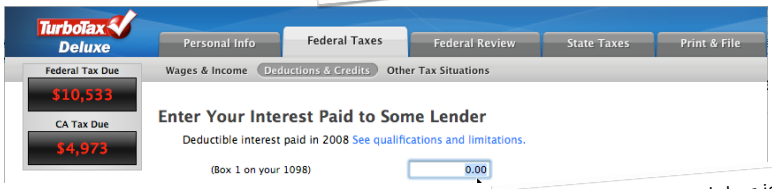
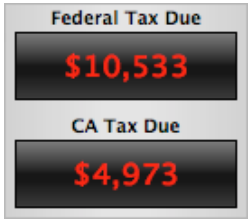
Animation Can...

Be really, really annoying





What can be done with less is done in vain with more.

- Occam

Make all visual distinctions as subtle as possible, but still clear and effective.

- Tufte "Smallest Effective Difference"

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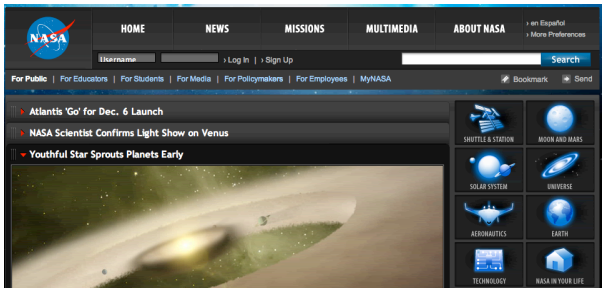
Web Apps Seem Prone to This



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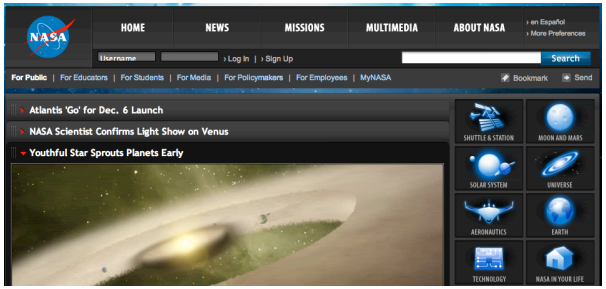
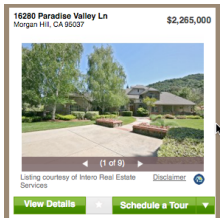
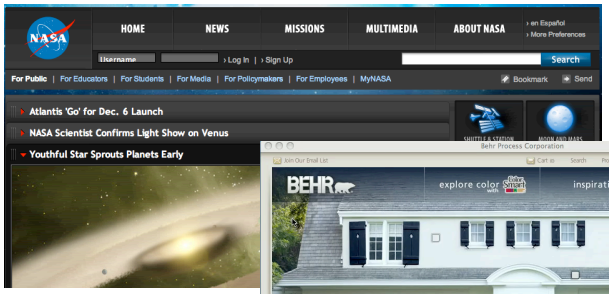
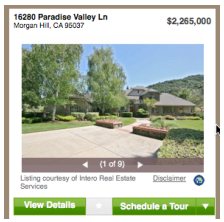
Web Apps Seem Prone to This

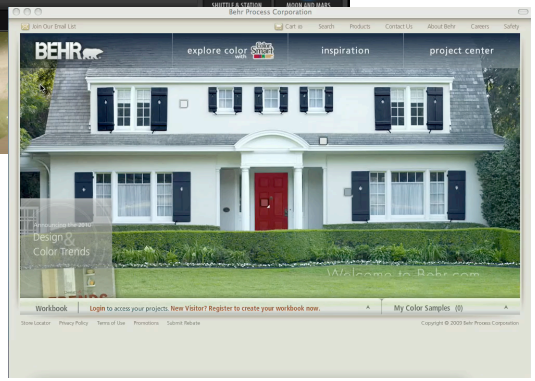




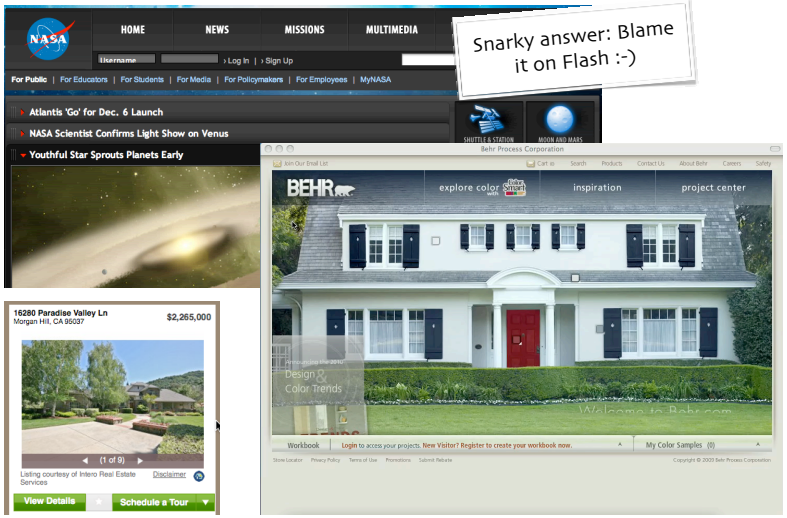
Web Apps Seem Prone to This





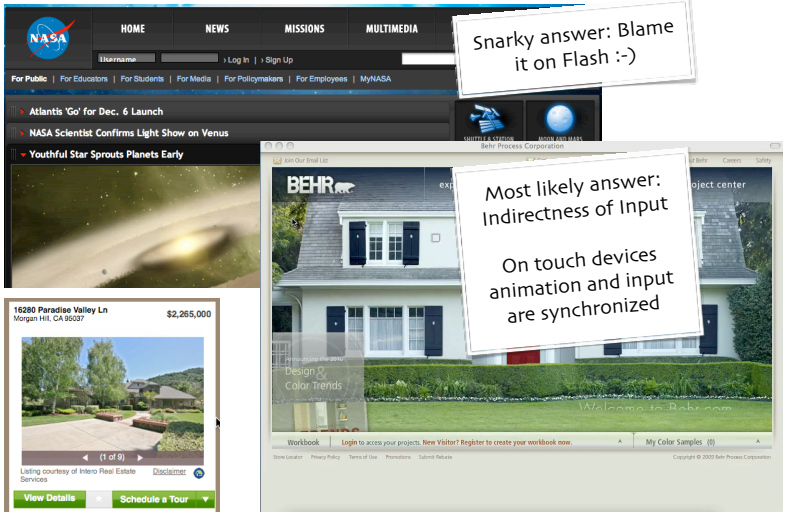


Web Apps Seem Prone to This



Snarky answer: Blame it on Flash :-)

Web Apps Seem Prone to This



Snarky answer: Blame it on Flash :-)

Most likely answer: Indirectness of Input

On touch devices animation and input are synchronized

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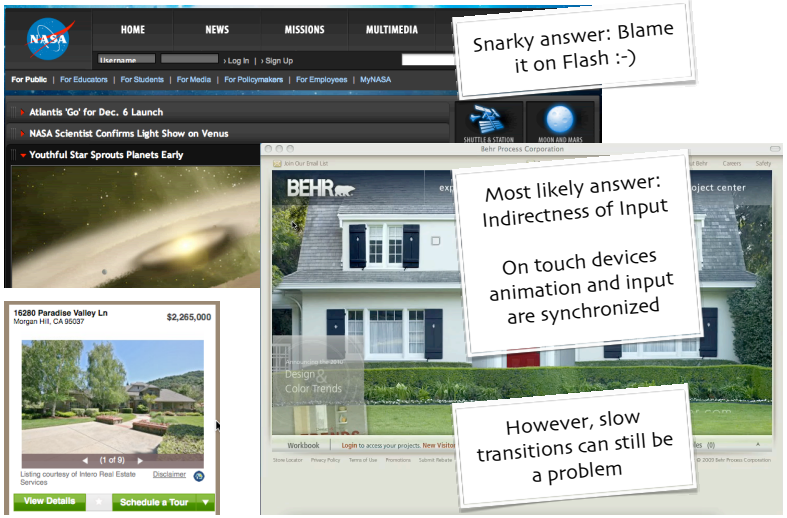
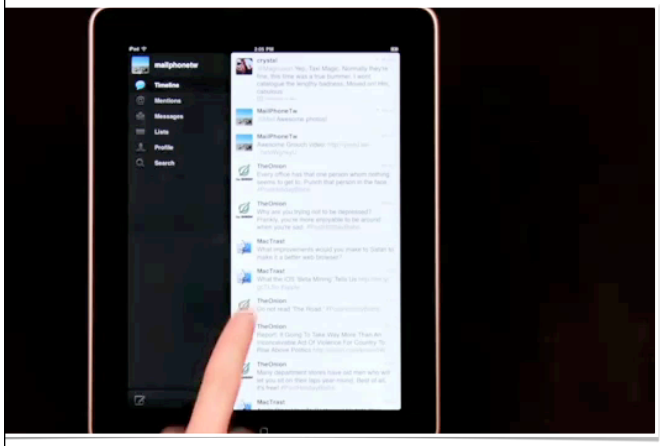
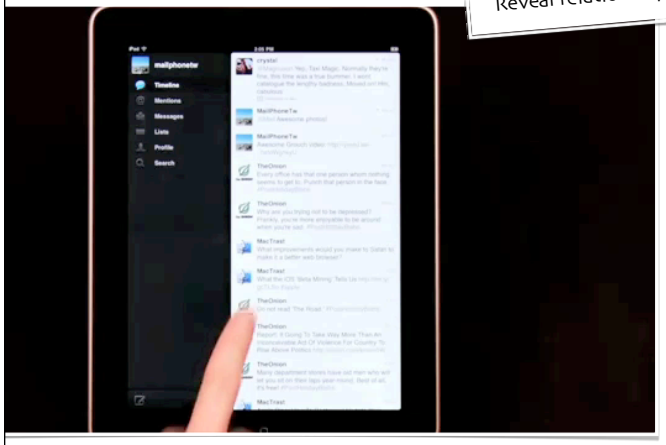
Web Apps Seem Prone to This



Animation Can...



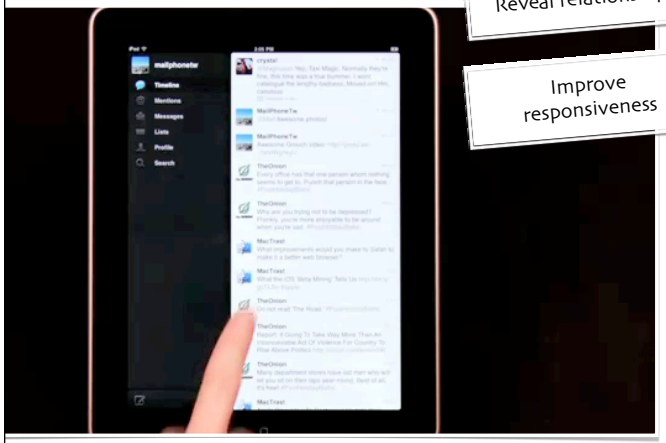
Animation Can...



Reveal relationships

50

Animation Can...

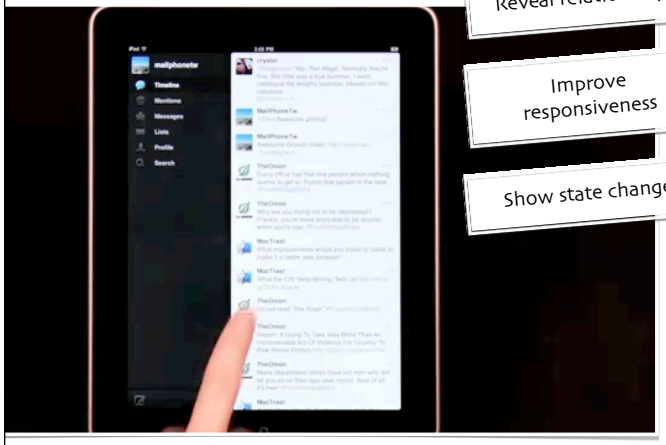


Reveal relationships

Improve responsiveness

50

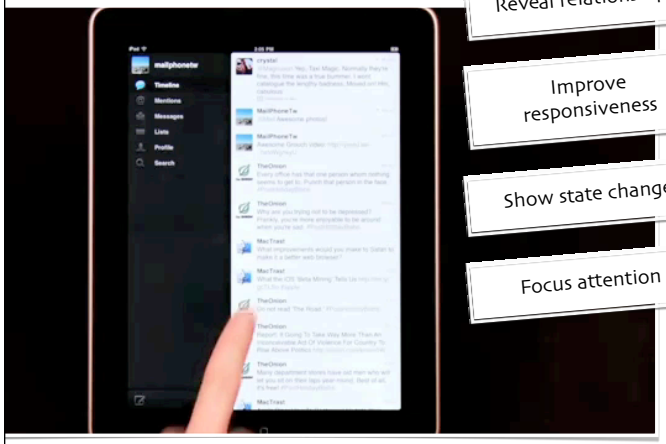
Animation Can...



- Reveal relationships
- Improve responsiveness
- Show state change

50

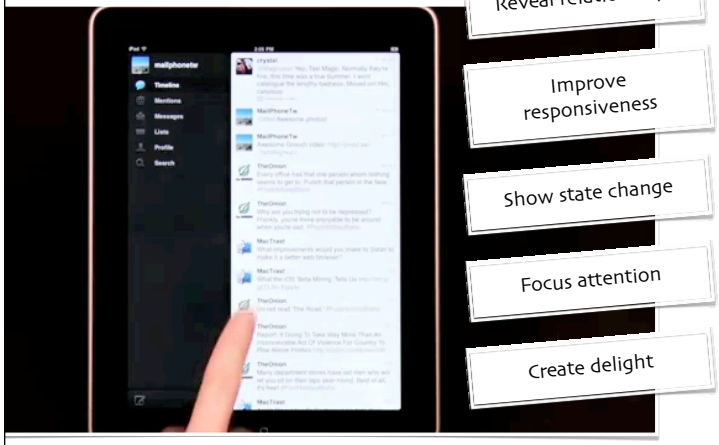
Animation Can...



- Reveal relationships
- Improve responsiveness
- Show state change
- Focus attention

50

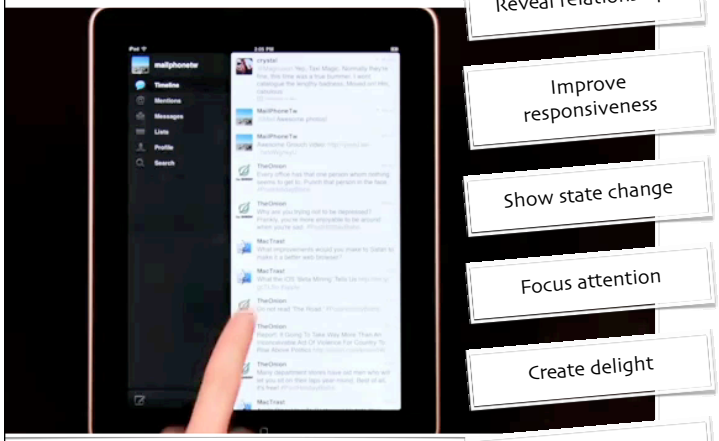
Animation Can...



- Reveal relationships
- Improve responsiveness
- Show state change
- Focus attention
- Create delight

50

Animation Can...



- Reveal relationships
- Improve responsiveness
- Show state change
- Focus attention
- Create delight
- Simulate physicality

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Use Invitations to Create Responsiveness

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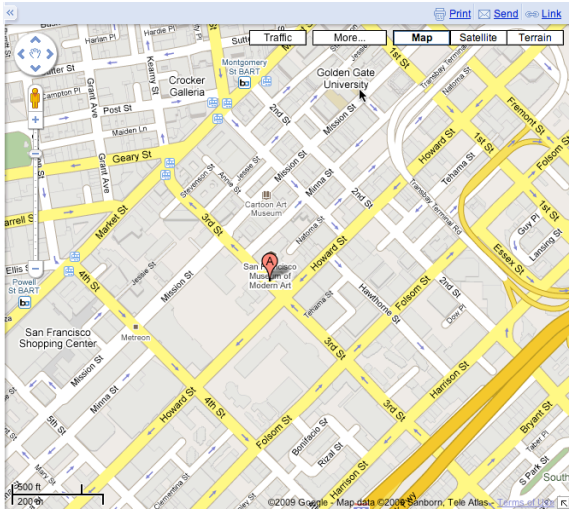
Just in Time Invitations at Drag Moments



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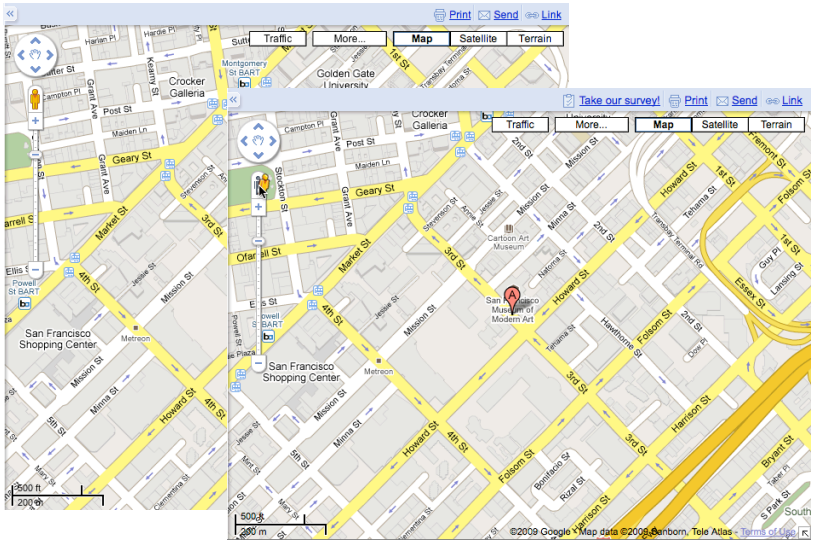
Just in Time Invitations at Drag Moments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Mission St
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Harrison St
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4th St
2nd St
1st St
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Stockton St
Fremont St
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Turk St
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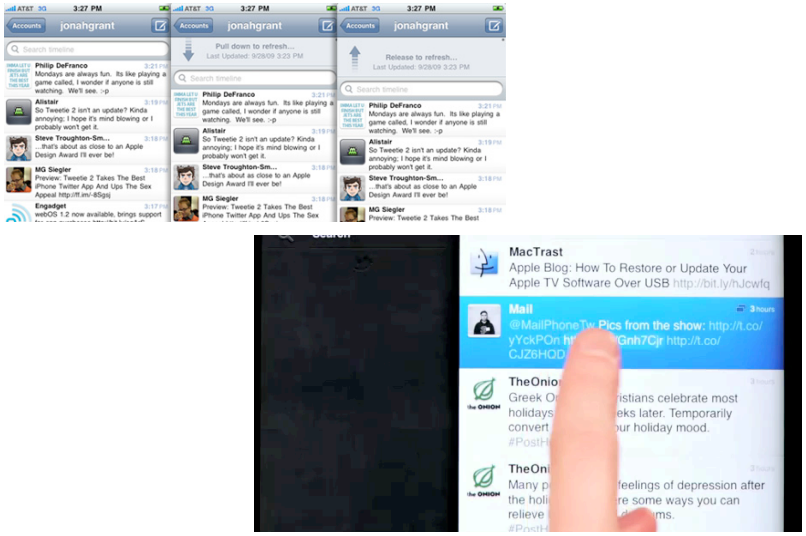
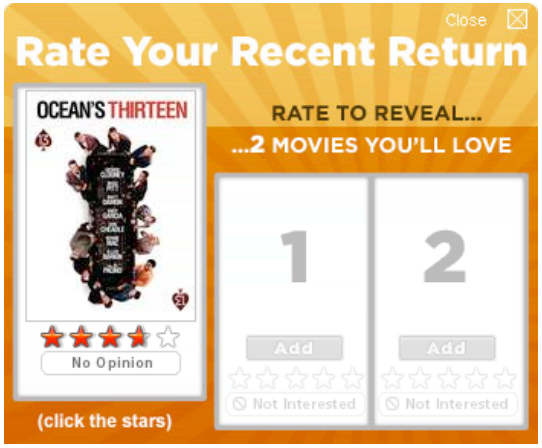
Fulton St
Grove St
Hayes St
Oak St
Page St
Haight St
Waller St
Beulah St
Clayton St
Ashbury St
Cole St
Shrader St
Stanyan St
Willard St
Arguello Blvd

Invitations at Touch-Hold Moments

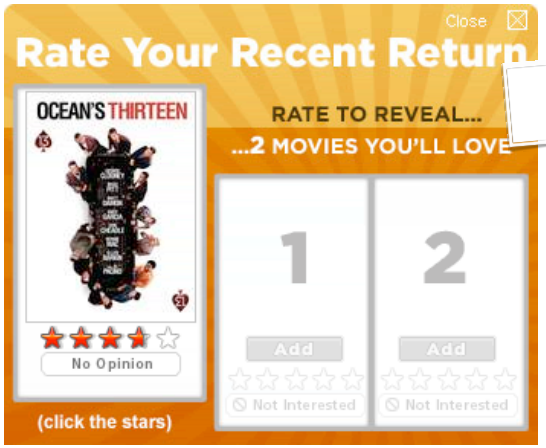


Invitations at Reward Moments

Invitations at Reward Moments



Invitations at Reward Moments

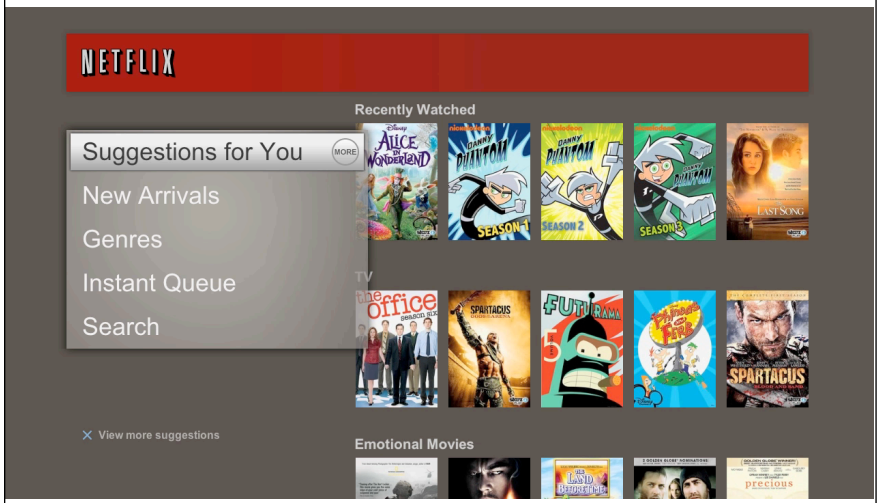


Major source of obtaining ratings

Be Snappy
to
Be Responsive

55

Performance is Not Always a Given



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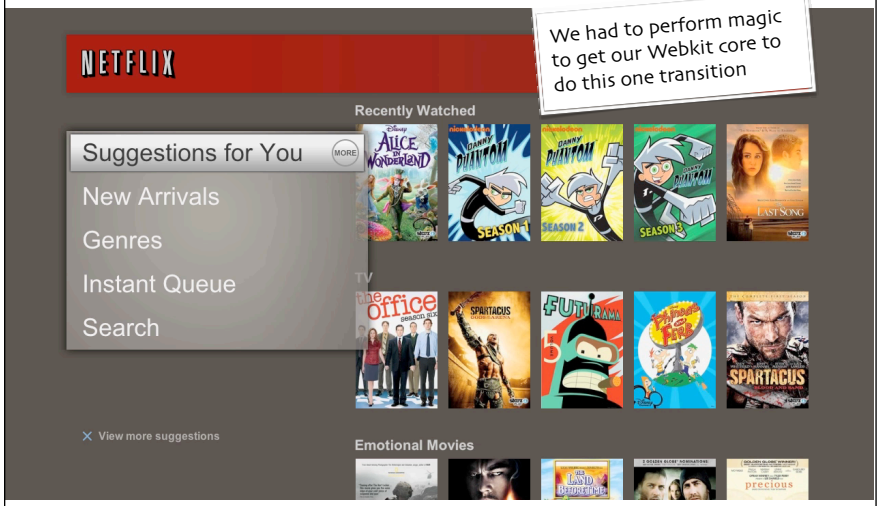
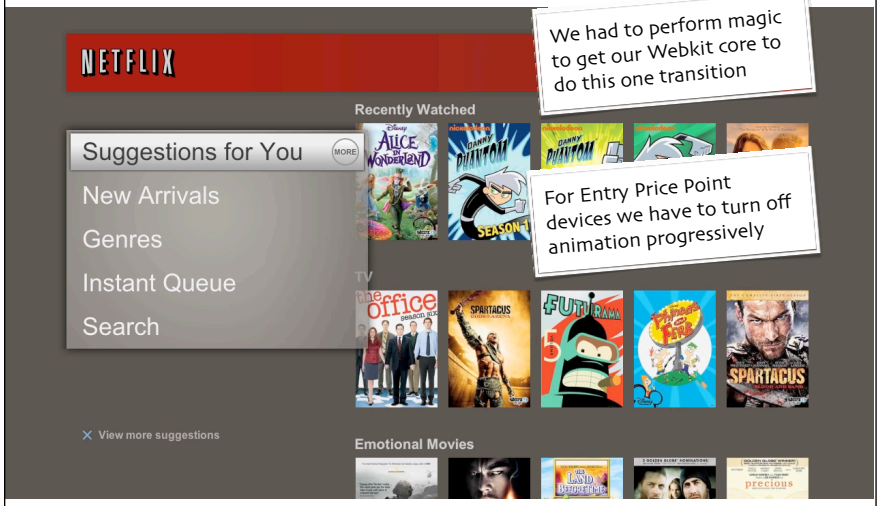
Performance is Not Always a Given



Performance is Not Always a Given



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Responsiveness Across platforms

	Input
Web	Pointer Indirect
Tablet/ Mobile	Fingers Direct
TV	Remote Indirect

Responsiveness Across platforms

	Input	Animation
Web	Pointer Indirect	Make Indirect Input Feel More Direct
Tablet/ Mobile	Fingers Direct	Make Direct Input Feel Real
TV	Remote Indirect	Make Indirect Input Feel More Direct Reinforce the Cinematic

Responsiveness Across platforms

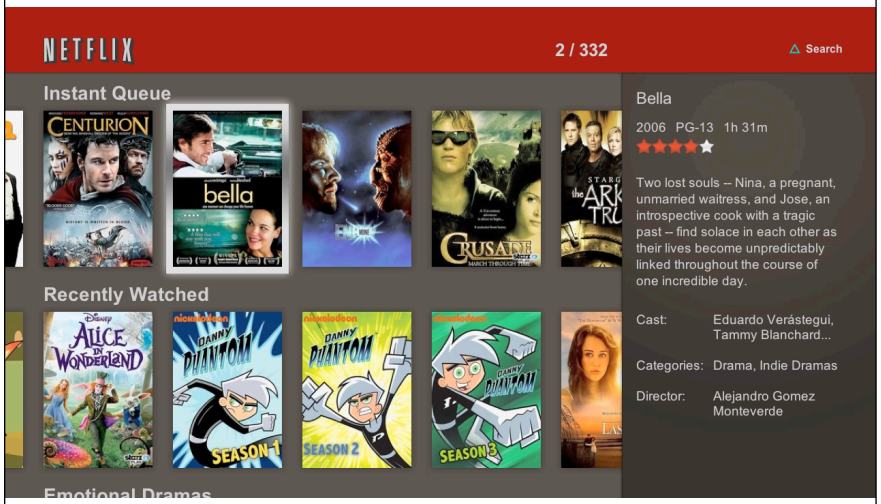
	Input	Animation	Invitations
Web	Pointer Indirect	Make Indirect Input Feel More Direct	On hover
Tablet/ Mobile	Fingers Direct	Make Direct Input Feel Real	At touch/hold endpoints
TV	Remote Indirect	Make Indirect Input Feel More Direct Reinforce the Cinematic	Static hints (usually once an item is selected)

Responsiveness Across platforms

	Input	Animation	Invitations	Performance
Web	Pointer Indirect	Make Indirect Input Feel More Direct	On hover	Less of a consideration
Tablet/ Mobile	Fingers Direct	Make Direct Input Feel Real	At touch/hold endpoints	Can be a consideration
TV	Remote Indirect	Make Indirect Input Feel More Direct Reinforce the Cinematic	Static hints (usually once an item is selected)	Definitely an issue on some low-end devices

TV Experiences...

TV Experiences...



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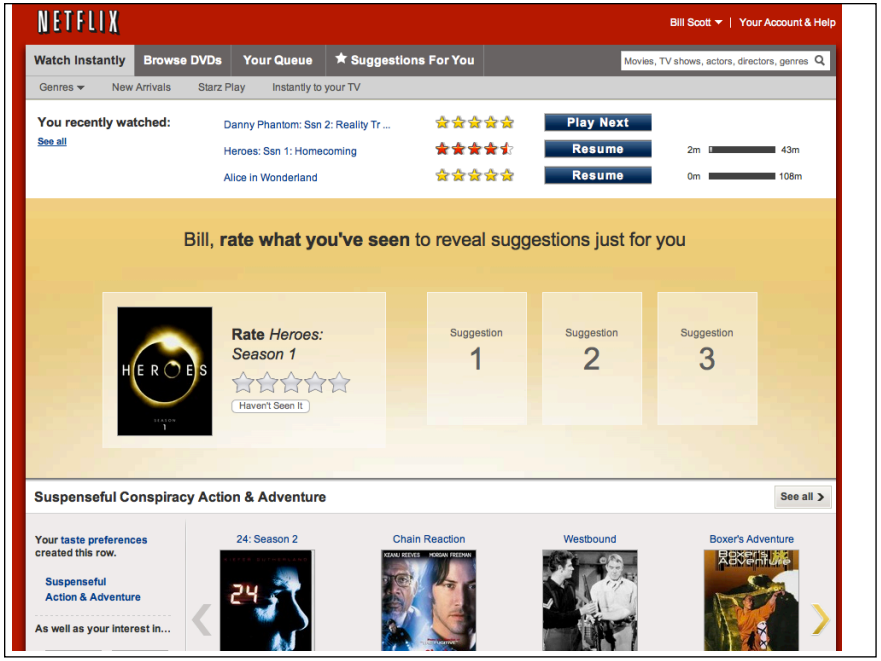
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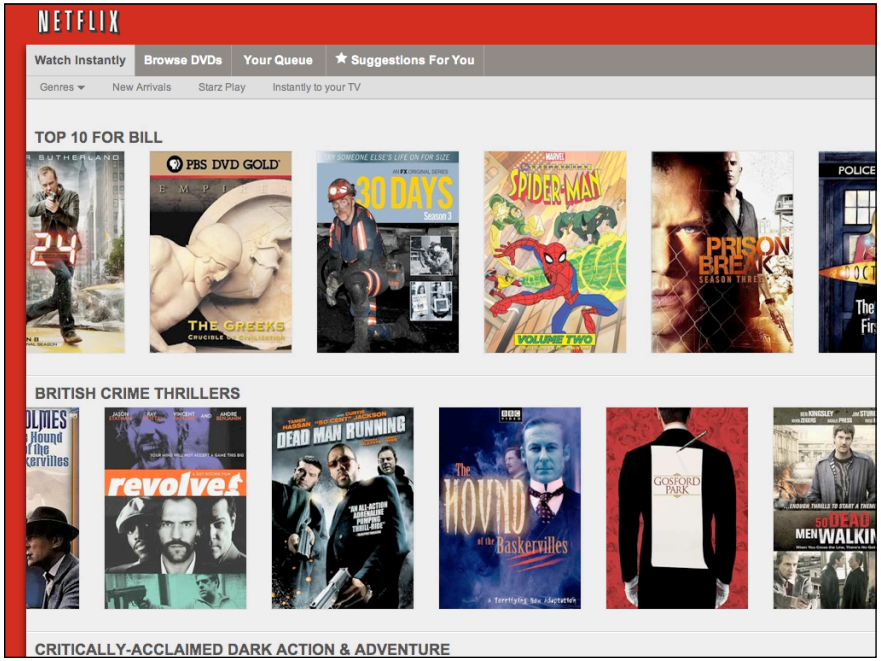
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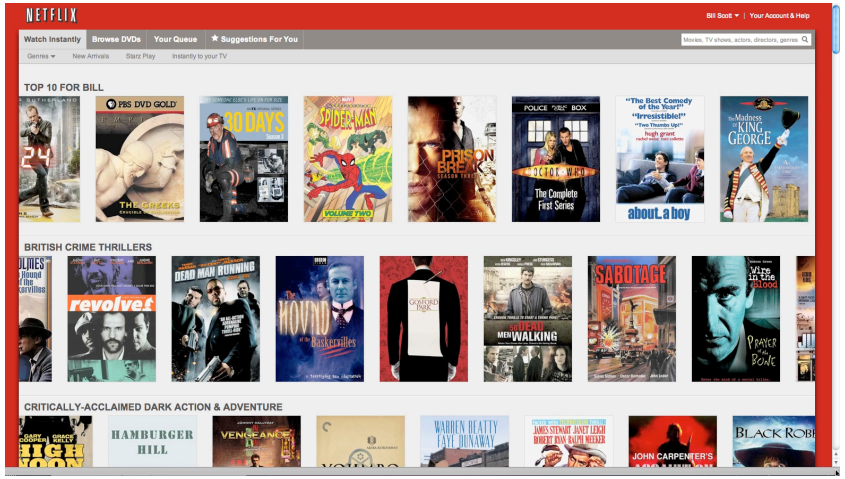

Can Influence Website Experience

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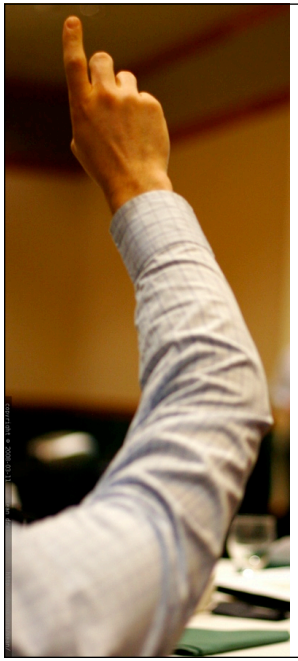

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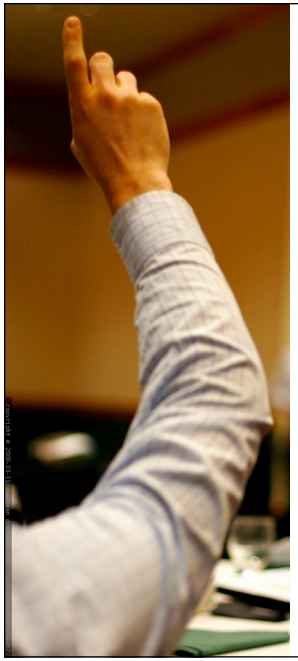

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