Design Theory for Designers The Vitruvian Triad

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R. Scott Granneman

Jans Carton

Notes & URLs for this presentation can be found...

» at files.granneman.com/presentations/webdev/ Design-Theory-for-Designers-The-Vitruvian-Triad.txt

» underneath the link to this slide on granneman.com

How do you judge the quality of a website?



nice 2 1 1 2 1

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man and a marte since a farmer of far about

Firmitas, Utilitas, & Venustas Marcus Vitruvius Pollio De architecture (The Ten Books of Architecture) 1st century BCE

Firmitas, Utilitas, & Venustas Firmness, Commodity, & Delight Sturdy, Useful, & Beautiful

REVISED AND EXPANDED EDITION

The Design of Everyday Things

"The Design of Everyday Things is even more relevant today than it was when first published."

Tim Brown, CEO, IDEO, and author of Change by Design

Donald A. Norman

Architecture?

Yes—website design is industrial design



Strong Design

Commodity

Delight

Firmess

Stability: Is the site responding & available?

site?

Compatibility: Does the site work across multiple systems & devices?

Accessibility: Can everyone & everything access the site's content who needs to?

Security: Can approved people & programs access the

Stability

Uptime % Nines Allowable Downtime Per Month

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99.999	5	0.43
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99.9	3	43 m
99	2	7.2 h

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Security

The C.I.A. triangle

» Confidentiality» Integrity» Availability

The C.I.A. triangle expanded

- » Confidentiality» Integrity» Availability
- » Privacy
- » Identification
- » Authentication
- » Authorization
- » Accountability



Compatibility

Standards





Authorization for Cine Rated Material



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This video is unavailable.

Adobe Flash Player or QuickTime is required for video playback. Get the latest Flash Player Get the latest version of QuickTime



Baby Got Back - Jonathan Coulton



Uploaded on Jan 12, 2009

I found this whilst flicking through my Jonathan Coulton albums.

Upload



Mix - Baby Got Back - Jonathan Coulton by YouTube



Q

Re: Your Brains by Jonathan Coulton with lyrics HQ by Brian Kilgore 448,284 views



Code Monkey by idleambition 750,178 views



Ikea by Jonathan Coulton (kinetic typography) by Peter Varadi 494,127 views



Ultimate Jonathan Coulton Playlist by kralcjgiarc





Ooh ooh child,

Jonathan Coulton and Felicia Day Still Alive at PAX 2008

by sepiolida 684,074 views

The Future Soon Lyrics by arbor7 199,080 views

Jonathan Coulton - First of May

1,166,537





Code to standards, not browsers or non-Web native technologies

Design for mobile first

Use Responsive Web Design



1983 Wintel - 25% 100% hare of Personal Computing Platforms by Operating Systems (%) 90% 80% 70% 60% Atari **TRS-80** 50% 40% 30% 20% Other 10% Market S Commodore 0%

1975 1977 1979 1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009 2011





Testing

Touch & non-touch Different screen sizes



Live, Web-Based Browser Testing Instant access to all desktop and mobile browsers. Say goodbye to your setup of virtual machines and devices.



View our full feature overview 🕚

Free Trial	No credit card required. We promise.	
L Full Name		
Email		
Password		
Sign up for free		
Get Instant access to 700+ desktop and mobile browsers on different Windows, Mac & mobile OS flavors.		







Accessibility

On the Web, accessibility is for all people *and* for programs

Separation of Concerns

focusing on a specific resource

Structure: HTML

Presentation: CSS

Behavior: JavaScript

Divide computer program into separate concerns, each



Headings, from biggest (most important) to smallest (least important)

CHARACTER HTML

- <h1>Heading 1</h1>
- <h2>Heading 2</h2>
- <h3>Heading 3</h3>
- <h4>Heading 4</h4>
- <h5>Heading 5</h5>
- <h6>Heading 6</h6>
- Paragraph

봤 문문

Heading 1 Heading 2 **Heading 3** Heading 4 **Heading 5**

Heading 6

* 53 0 ж 23

CSS 🗱 JS

- Paragraph

<h1>

Title of the webpage for humans to see Use it only once per page (usually)

You should never use images for headers—you want search engines, screen readers, & bots to see the text in a header

However, you can both have your text in a header AND replace it with a responsive image

🛱 HTML

<h1>Boeing</h1>



<u> ※ 탄</u>감

<h2>

Generally used as the most important label in a non-
<body> section



By default, the same font size as

Use as many headers per page as you'd like

Search engines give text in so use good keywords

Search engines give text inside headers extra weight,

Nest headers correctly Do not skip or jump levels


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Heading 3

Heading 3

Heading 4





Heading 2



Heading 1

Heading 3

Heading 2

Heading 4

Heading 3

Heading 4

"h1-h6 elements must not be used to markup subheadings, subtitles, alternative titles and taglines unless intended to be the heading for a new section or subsection."

http://www.w3.org/html/wg/drafts/html/CR/ common-idioms.html#sub-head

✿ HTML	
<pre>1 <div class="good"> 2 <div></div> 3 <section> 4 <h2></h2></section></div></pre>	
5 Title <small>Subtitle</small> 6 7	
<pre>Ph'nglui mglw'nafh Cthulhu R'lyeh wgah'nagl fhtagn!</pre>	
<pre>></pre>	
<pre>13 <div class="bad"> 14 <div></div> 15 <section> 16 <h2>Title</h2> 17 <h3>Subtitle</h3> 18 19 Ph'nglui mglw'nafh Cthulhu</section></div></pre>	
CSS 👁	•

Ж №3



Title Subtitle

Ph'nglui mglw'nafh Cthulhu R'lyeh wgah'nagl fhtagn!

ж 53 ж 83

₽JS



Title Subtitle

Ph'nglui mglw'nafh Cthulhu R'lyeh wgah'nagl fhtagn!



Comprehension

Use clear & simple language

headings, paragraphs, & lists

Supplement text with graphic or auditory materials

Place distinguishing information at the beginning of



Usefulness: Is my website useful?

do, & do it well?

Usability: Does my website do what it is designed to

Maintainability: *How easy is it to use and maintain?*

Usefulness

Information & features must be valuable to users

Users must be able to perf to the website to perform

Users must be able to perform the tasks that they came

Tasks people commonly perform on websites

- » Get information
- » Take action
- » Collaborate
- » Entertainment

The Web is an active medium

Know your visitor's goals & tasks







Enable Disable: Enable

Cancel



Usability is a quality attribute user interfaces are to use

Usability is a quality attribute that assesses how easy

Learnability

Efficiency

Memorability

Errors

Satisfaction

Learnability

How easy is it for users to accomplish basic tasks the first time they encounter the design?

Disease enter	r your noumant information below. The info
	r your payment information below. The info Required fields are indicated with .
Bill Shinnir	ng Charges to: 🔃
	(xxxxxx7833 🔷 🛟 🔶
	Shipper's UPS Account 🗊
Use Anothe	r UPS Shipper Account 🛟 🔶
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A Review Sh	nipping details, including price, before com

information you enter will be transmitted using a secure

Don't have a UPS Account?

Open a UPS Account (You will leave the shipping screens)

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ompleting this shipment

Start Over Next »



................................ Instructor Review Copy Request

In order to best serve your needs, please select the appropriate category below. Please note, you must be an instructor at an accredited high school, vocational career center, community college, or university and be considering this title for use in your class in order to be eligible to receive an evaluation copy.

- US College & Career Institutes
- US High School
- US Corporation/Organization
- All Other Institutions

























Use preview mode to test configuration scen

faq's



Please select a product





When it comes to learnability, novelty is your enemy



Jakob Nielsen's Law of the Web User Experience "Users spend most of their time on other websites."

About

Academics

Prospective Students

Worship & Formation

Bexley 😽 Seabury An Episcopal Center for Learning & Discipleship



CAMPUS COMMUNITIES

Campus Communities The Bexley Seabury Federation offers

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{ Doctor of Ministry

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• Living A Spirit-Filled Life: Free Online Course with the Rev. Albert Cutie

FROM THE PRESIDENT

Doing Scripture through the Prayer Book In the next several weeks, the entire Bexley



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FROM THE PRESIDENT

Doing Scripture through the Prayer Book In the next several weeks, the entire Bexley







Efficiency

Once users have learned the design, how quickly can they perform tasks?

Establish Profile Information

Account I	nformation
-----------	------------

All fields required.

Date of Birth ?

02







Avoid needless animation, no matter how short The question is, what's needless?

Memorability

When users return to the design after a period of not using it, how easily can they reestablish proficiency?



Products ~ Learn & Plan 🗸

Overview

Saved Quotes

Online Billing

Policies

Billing Account Summary

Payments

Make a Payment

View/Edit Payments

Automatic Payments

Financial Information

Set Up New Payment Method

View/Edit Payment Methods

Manage Billing Accounts

Due Date Reminder

Register Billing Account

Unregister Billing Account

Help

FAQs

Contact Billing

Enter Payment Information - Verification Verify Enter Payment Confirm Please verify that the information below is correct. If you need to make changes, click "Edit." To proceed, click "Submit." Billing Account: 007-592-614-45 \$551.00 Payment Amount: Payment Method Name: MasterCard Payment Date: 04/05/2010 Submit Edit Cancel







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Billing Account Summary

Payments

Make a Payment

View/Edit Payments

Automatic Payments

Financial Information

Set Up New Payment Method

View/Edit Payment Methods

Manage Billing Accounts

Due Date Reminder

Register Billing Account

Unregister Billing Account

Help

FAQs

Contact Billing

Enter Payment Informa

Enter Payment
Verify
Confirm

To make a payment, please complete the
• indicates required information

Billing Account: 007-592-614-4

Statement Date:

Due Date:

Payment Amount: ? •

Payment Date: ? •



Previous



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Company Identification

Next

Call us any time at 1-800-MYAMFAM (1-800-692-6326)

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5		22	View Bill 👔
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04/21/2010			
O Minimum Due	\$45.99		
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Other	\$		
MasterCard View	/Edit Payment Methods	Set Up New Payment Me	thod
04/05/2010	1		



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Errors

How many errors do users make? How severe are these errors? How easily do they recover?









Network Neighborhood



Inbox

1dows95	1	<u>P</u> rograms	•	📻 Accessories
				🕞 StartUp
		<u>D</u> ocuments	•	🜃 MS-DOS Prompt
	.	<u>S</u> ettings	•	🔍 Windows Explorer
		<u>F</u> ind	•	
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	Start			

📻 Games

📻 Internet Tools

- 📻 Multimedia
- 📻 System Tools
- 🔜 Calculator
- 🌍 Character Map



- 😰 Dial-Up Networking
- Direct Cable Connection
- 📄 HyperTerminal
- 🖉 Notepad



🙈 Online Registration





🥎 Phone Dialer



🃑 WordPad





Warn users before, not after


Welcome back Ralph Granneman! Not Ralph? Click here.





Password must contain at least 7 characters

Password must not be the same as username

Password can not have 3 of the same consecutive characters, nor 4 of the same

Back

Save and continue



Welcome back Ralph Granneman! Not Ralph? Click here.



Search		Ask Anna!	My account My shopping cart My shopping list			
ren's IKEA	Textiles & Rugs	For Business		Departments		
nstructio	ons below.					
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word must con word must con word must not word can not h acters through max. length f	tain at least 7 charact tain at least 1 digit tain at least 1 letter be the same as usern ave 3 of the same cor out. ••••••• or Password is 10 cl •••••• or password is 20 cl	haracters.	s, nor 4 of the same			
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		Back	Save and cont	inue		



Welcome back Ralph Granneman! Not Ralph? Click here.





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r	p	d	5	5	V	V	U	F	u

- Password must contain at least 7 characters
- Password must contain at least 1 digit
- Password must contain at least 1 letter
- Password must not be the same as username
- Password can not have 3 of the same consecutive characters, nor 4 of the same characters throughout.

•••	
•••••	
•••••	

- The max. length for Password is 10 characters.
- 2 Save my new password

Back

Save and continue

New To Zazzle

Psst... we can't move for

Email Address: Your identification at

scott@granneman.com

Verify Email:

scott@granneman.com

Password: Must be at least 6 character

The password you entered mu please reenter.

Verify Password:

Are you age 13 or older? Yes No

We just need a little more info to create your account...

ward 'til you fix the errors below.	
Zazzle	
rs	
at he hotween 6 and 20 characters	
st be between 6 and 20 characters,	



Make computers do the grunt work, not humans

The page at https://www.chevrontexacocards.com says:

You have entered an invalid date. Please enter a valid date in mm/dd/yyyy format.















steve@unixwiz.net



Payment Method	
Payment Type: Visa	
Name on Card:	Expiration Date: (exp Month
Payment Card Number:	Card Identification Nu view ex
No dashes or spaces	
Set as default payment	t card



piration date is not required for Costco Credit Card).



umber:

xample

Enter pay statement information

Company

Social Security # (no dashes)

Check number



We recently changed our loan format to 10 digits. If you don't have your 10 digit loan number, enter your 7-digit number with three zeroes added before the first digit. For example, if your loan number is 1234567, enter 0001234567.

Loan Number (10 digits):

Wording should be clear

We're sorry

User not exists or is not logged in.



lesources View all		Alert https://www.mozypro.com/ Transferring to the same just doesn't make sense.		WebSanity		» <u>W</u>	
Purchase Resources							
Billing Information		ОК					
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- **Organizations**
- Power, Energy & Industry Applications
- Scientific Tools and Discoveries
- Signals
- Standardization
- Transportation

Organizational Units

- IEEE Regions
- IEEE Sections
- IEEE Societies

IEEE History Center

- About History Center
- <u>About IEEE History</u> <u>Committee</u>
- History Center Staff
- <u>About IEEE Global</u> <u>History Network</u>

Tools

- What links here
- Related changes
- Special pages
- Printable version
- Permanent link
- Random Page
- Wikitext Formatting and Style Guide

Dennard was born in Terrell, Texas, on 5 September 1932. He received his B.S. and M.S. degrees in Electrical Engineering from Southern Methodist University, Dallas, in 1954 and 1956, respectively He earned a Ph.D. from Carnegie Institute of Technology in Pittsburgh, Pennsylvania, in 1958.

A Fellow of the IEEE, Dr. Dennard has earned dozens of awards and honors including the U.S. National Medal of Technology from President Ronald Reagan for his work on the one-transistor dynamic memory cell. He was also elected to the U.S. National Academy of Engineering. Dr. Dennard received the IEEE Cledo Brunetti Award, the IRI Achievement Award from the Industrial Research Institute, and Harvey Prize from Technion, Haifa, and the IEEE Edison Medal in 2001 'For the invention of the 1-transistor DRAM cell, and contributions to the development of the MOSFET device scaling principles.' He was inducted into the U.S. National Inventors Hall of Fame and is a member of the American Philosophical Society in addition to being named the 2009 recipient of the IEEE Medal of Honor "For invention of the single transistor Dynamic Random Access Memory and for developing scaling principles for integrated circuits."

Interview

FAIL (the browser should render some flash content, not this).

Category: Components, circuits, devices & systems

some flash content, not this).

Log in



Enter both words below, separated by a space. Can't read the words below? Try different words or an audio captcha.





Poor layouts increase errors

mozypro

Admin Console

Partners Search / List Partners

Users

Search / List Users Search / List Machines Add New User

Configuration

Account Details Edit Client Version Client Configuration

Admine and Crew

Configuration View all

▼ Account Details



Name: WebSanity (change)

Username/Email: admin@websanity.com (change)

Password: Current Password:

N

Receive Mozy Pro Newsletter? Yes (change)

Receive Mozy Email Notifications? Yes (change)

Receive Mozy Account Statements? No (change)

v Password:	Confirm Password:	Submit





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Warn users

Allow users to recover from errors

Add, edit and delete additional templates in your site.



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	Add
alendarPopup 💲	
elete Edit	

Add, edit and delete additional templates in your site.



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Satisfaction

How pleasant is it to use the design?



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	Current Passw	ord:	•••••		
	New Passw	ord:			
	Re-enter Passw	ord:			
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A design that promotes usability is simple, clear, & predictable

Familiar

Obvious

Consistent

Grouped

Labeled

User Testing

» Representative users
» Representative tasks
» Observe behavior

Maintainability



Effort

Cost

Timeliness

Scalability



Delight

Aesthetics: Does my website look good? Enjoyment: Do people enjoy using it?



Aesthetics

1st Impressions Matter



For all the times you work too much and play too little. For every reason. For no reason. Indulge your passion for Cycling with LongsCycle Brand-Name Prestige Cycling Apparel.



















AND LUXURIA THIS IS AN INCREDIB











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CLICK HERE





ALL YOUR CYCLING APPAREL NEEDS

Cycling jerseys, Cycling shorts, Cycling Bib-Shorts, Cycling arm warmers, Cycling Gloves, Cycling Coolmax Socks, Cycling Jackets, Cycling Vests, Cycling Leg Warmers, Cycling Headbands, Cycling facemasks, Cycling Skull Caps, Cycling Tights, <u>are all her for you!</u>

useit.com: Jakob Nielsen's Website

Permanent Content

Alertbox

Jakob's column on Web usability

Progress in Usability: Fast or Slow? (February 22) Over the past decade, usability improved by **6% per year**. This is a faster rate than most other fields, but much slower than technology advances might have predicted.

iPhone Apps (February 10) Testing Expert Users (January 25) 10 Best Intranets of 2010 (January 4) Anybody Can Do Usability (December 21)

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Agile usability Application design showcase: 10 best App UIs

News

Usability Week 2010 Conference

- > Atlanta, GA: February 22-26
- » New York, NY: March 22-26
- Schicago, IL: April 19-24
- London, UK: May 16-21
- San Francisco, CA: June 14-19

3-Day Camp: Usability in Practice (Chicago only)

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Biden Speech



Hillary Speech

Election "Obama Lawyer Asks for Probe Into Vote-Fraud Claims (Update1)." ... "Robert

Bauer, general counsel to the [2008 Election Democratic Presidential Candidate Barack] Obama campaign, wrote to Attorney General Michael Mukasey a day after the Associated Press, citing unidentified law enforcement officials, reported that the Federal Bureau of Investigation was investigating ACORN. The name is short for Association of Community Organizations for Reform Now." ... "A special prosecutor appointed by Mukasey already is looking into whether improper political considerations influenced the firings of nine U.S. attorneys. At least one prosecutor was fired following Republican complaints that he didn't aggressively pursue allegations of voter fraud against ACORN." ... "Bauer said the news leaks are part of a coordinated effort by [2008 Election Republican John] McCain's presidential campaign and Republicans. They are "fomenting specious vote-fraud allegations and there are disturbing indications of official involvement or collusion," Bauer said." ... ""It is apparent," he wrote, that law enforcement officials are serving "improper political objectives" that could inhibit voter participation in the [2008 November] Nov. 4 election. The aim is to suppress the vote and to unduly influence investigations and prosecutions," Bauer wrote. " -By Jeff Bliss -Bloomberg

Noteworthy

Barack Obama - Jejohn



3

presidential candidate Sarah Palin said the Alaska governor was unaware of a visit by Russian energy officials to Anchorage [Alaska] on Monday." ... "Eight high-level officials from Gazprom, Russia's statecontrolled energy conglomerate, traveled to Anchorage earlier this week to meet with the Alaska Department of Natural Resources and the chief executive of ConocoPhillips to discuss energy projects and the possibility of expanding into new markets." ... "But the campaign said the governor did not know that the Gazprom delegation was meeting with the commissioner of the Alaska Department of Natural Resources, who is a Palin appointee." -By Peter Hamby - CNN

20081010 Politics US - Global - S€E¥ Economic - History -Belgium - 🔘 "Ex-president Carter slams Bush on market crisis."

"Former [Democratic] President Jimmy Carter said on Friday the "atrocious economic policies" of the Bush administration had caused the worst global financial crisis since the Great Depression of the 1930s." ... "Carter told reporters on a stopover in Brussels [Belgium and EU's capital] that "profligate spending," massive borrowing and dramatic tax cuts since President George W. Bush took office in 2001 were behind the market turmoil and economic crisis." ... "Eight years ago, the United States had a budget surplus, low inflation and a stable, strong economy, he said." ... "Carter said he was astonished that the United States



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Barack Obama - +2008 Election - A Federal - A Law - M Politics - M Investigation -💶 Colorado - 🞯 Indiana - 📨 Ohio - 🏧 Michigan - 🌌 Nevada - 🖬 North Carolina - 🏭 New Hampshire Wisconsin

"Obama Campaign: Count Every Vote." ... "Republicans have been raising a huge stink about voter fraud in recent days, but the much bigger question on Election Day [2008] is whether every vote (or at least most of them) will actually be counted." ... "The New York Times published a shocking story last week, reporting that "tens of thousands of eligible voters in at least six swing states have been removed from the rolls or have been blocked from registering in ways that appear to violate federal law."" ... "The article continued: "Although much attention this year has been focused on the millions of new voters being added to the rolls by the candidacy of Senator Barack Obama, there has been far less notice given to the number of voters being dropped from those same rolls." The paper looked at six swing states: Colorado, Indiana, Ohio, Michigan, Nevada and North Carolina. "Michigan and Colorado are removing voters from the rolls within 90 days of a federal election, which is not allowed except when voters die, notify the authorities that they have moved out of state, or have been declared unfit to vote. Indiana, Nevada, North Carolina and Ohio seem to be improperly using Social Security data to verify registration applications for new voters."" ... "The net effect: in Michigan 33,000 voters were removed from the rolls in August and in Colorado 37,000 voters were purged in three weeks since mid-July. Imagine this scenario--on Election Day thousands of voters will show up to the polls, only to be told they're not registered, leading to chaos and confusion, perhaps in large enough numbers to swing the states # #145 - ---- the sector and and the 10000 Floates Descently Descharted Conditions



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20081014 OPINION



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Playful lion goes a little too far

A carload of filmmakers is having a grand time with this inquisitive guest until the cat begins to show its strength. 'Uh-oh' » 1 – 5 of 65 🕕



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\$330M yacht

Beyonce's Pantless Pic May Answer All Our Divorce Questions

Is Beyonce Sending Marital Messages In Her Clothes? Saturday, Beyonce posted a pantless picture of herself that may hold all the answers to our questions about her and Jay's marriage. Rumors of Bey and Jay's impending split have been running **ET Online**

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Damon Rich will moderate a panel at MIT Museum on the mortgage crisis in conjunction with Red Lines, Death Vows, Foreclosures, Risk Structures. More_

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Design Theory for Designers The Vitruvian Triad

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R. Scott Granneman

Jans Carton

Changelog

2015-01-16 1.3: Added cars with oval tires, Nielsen quote, & \equiv to Learnability; changed "Device Testing" to "Testing" & added screenshot of BrowserStack 2015-01-15 1.2: Created slides just for designers; added & moved content 2014-08-09 1.1: Moved content to new format

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