

*

Lecture 28

Principles of Design and Practical Implications: Part 1

*

Course logo spider web photograph from [Morguefile](#) openstock photograph by Gabor Karpati, Hungary.

About This Lecture

- Is the lecture content dated?
 - Some of it.
- Do fundamental principles change?
 - Not Really!
- Do platforms & enabling tech change?
 - Absolutely!

So pay attention to dates and movement as this lecture bounces from 2009 to 2011 to 2016 and in particular try to spot what is transient and what is fundamental.

About Design Principles

- General concepts & recommendations
- Illustrated with examples
- Main topics:
 - Why a website – audience
 - Organization & Human Perception
 - Screen size and the use of Space
 - Color and layouts
 - Navigation

Why? To inform.

The screenshot shows a web browser window displaying the homepage of the League of Women Voters of the United States. The browser's address bar shows the URL <http://www.lww.org/AM/Template.cfm?Section=Home> and the search engine is set to Google. The website header features the LWV logo and navigation links: ABOUT US, SUPPORT US, JOIN US, CONTACT US, FIND A LOCAL LEAGUE, and LOGIN. A large banner image of a woman is on the left, with the text "LEAGUE OF WOMEN VOTERS Making Democracy Work® Grassroots leadership since 1920". To the right of the banner is a "Stay Informed" section with a sign-up form for an e-Activist. Below the banner is a blue navigation bar with links: NEWS AND EVENTS, PROJECTS, ISSUES, TAKE ACTION, LIBRARY, FOR MEMBERS, and a search bar with "Advanced Search" and a double arrow icon. The main content area is divided into three columns. The left column has a "Global Climate Change" section with links to "Join Us in Urging Action Against Climate Change" and "State of Climate Change Education Project", and a "Health Care" section with a link to "Join Our Efforts to Secure Quality, Affordable Health Care for All". The middle column is titled "The Latest" and contains three news items: "League Encourages Clean Energy Policy in Letter to Senate Committee Members", "2010 Census A Vital Civic Count Of All Americans", and "March 2009 LeaguE-Voice Newsletter". The right column features a "2009 Annual Fund" section with an American flag graphic and a "DONATE" button.

League of Women Voters of the United States | Home

<http://www.lww.org/AM/Template.cfm?Section=Home> Google

LWV LEAGUE OF WOMEN VOTERS®

ABOUT US SUPPORT US JOIN US CONTACT US FIND A LOCAL LEAGUE LOGIN

LEAGUE OF WOMEN VOTERS
Making **Democracy Work**®
Grassroots leadership since 1920

Stay Informed
Sign up to become an e-Activist and get all the latest news from the League!
your email: >>

NEWS AND EVENTS PROJECTS ISSUES TAKE ACTION LIBRARY FOR MEMBERS SEARCH: >>
Advanced Search

Global Climate Change
[Join Us in Urging Action Against Climate Change](#)
[State of Climate Change Education Project](#)

Health Care
[Join Our Efforts to Secure Quality, Affordable Health Care for All](#)

The Latest

League Encourages Clean Energy Policy in Letter to Senate Committee Members
The League sent a letter to members of the Senate Energy and Natural Resources Committee to convey strong support for clean energy policies.

2010 Census A Vital Civic Count Of All Americans
League of Women Voters is 2010 Census National Partner

March 2009 LeaguE-Voice Newsletter
Read about the League's efforts in our March 2009

LWV LEAGUE OF WOMEN VOTERS®
2009 Annual Fund
Donate to the Annual Fund today!
DONATE

Same Site 2006

The screenshot shows a web browser window with the URL `lww.org`. The page header includes navigation links: [HOME](#), [CONTACT](#), and [LEAGUEMANAGEMENT](#). Below the header is a search bar with the text "Quick Search" and a magnifying glass icon, followed by a link to [Advanced Search](#). The main navigation menu includes [OUR WORK](#), [BLOG](#), [NEWS & MEDIA](#), [SUPPORT](#), [GET INVOLVED](#), and [ABOUT](#). The League of Women Voters logo is prominently displayed on the left. The central banner features the text "MAKING DEMOCRACY WORK." in large, bold letters. To the right of the banner is a large red circular button labeled "DONATE". Below the banner is a featured article titled "To celebrate Women's History Month, the League of Women Voters pulled a few pictures from the archives and invites you to look back at 96 years of our history!". The article includes a photograph of women marching with signs that read "MEET Saturday 3 P.M. Women's Political Union", "VOTES FOR WOMEN MASS MEETING", and "VOTES FOR WOMEN". A red button labeled "START SLIDE" is positioned at the bottom of the article. On the right side of the page, there is a "GET INVOLVED" section with the subtext "Get Emailed News & Alerts". This section contains three input fields for "First", "Last", and "Email" names, a "CAPTCHA" section with a text box and a "This question is for testing whether you are a human visitor and to prevent automated spam submissions." message, and a "START" button.

Why? To Amuse (2009)

The screenshot shows a web browser window with the title "xkcd - A Webcomic - Matrix Transform". The address bar contains "http://xkcd.com/184/". On the left, a navigation menu lists "ARCHIVE", "FORUMS", "NEWS/BLAG", "STORE", and "ABOUT". The main content area features the xkcd logo and the text: "A WEBCOMIC OF ROMANCE, SARCASM, MATH, AND LANGUAGE. XKCD UPDATES EVERY MONDAY, WEDNESDAY, AND FRIDAY. THERE ARE SIGNED PRINTS IN THE STORE." Below this is the comic title "MATRIX TRANSFORM" and a set of navigation buttons: "<", "< PREV", "RANDOM", "NEXT >", and ">". The comic itself is a hand-drawn equation in a box:
$$\begin{bmatrix} \cos 90^\circ & \sin 90^\circ \\ -\sin 90^\circ & \cos 90^\circ \end{bmatrix} \begin{bmatrix} a_1 \\ a_2 \end{bmatrix} = \begin{bmatrix} 0 \\ 0 \end{bmatrix}$$

Same Site 2016

The screenshot shows a web browser window with the URL `xkcd.com/327/`. The page title is "xkcd: Exploits of a Mom". On the left, there is a navigation menu with links for "ARCHIVE", "WHAT IF?", "BLAG", "STORE", and "ABOUT". The main content area features the xkcd logo and a description: "A WEBCOMIC OF ROMANCE, SARCASM, MATH, AND LANGUAGE." Below this is a "PROTIP" about pruning the garden. The comic itself is titled "EXPLOITS OF A MOM" and consists of four panels. Each panel has a set of navigation buttons: "<", "< PREV", "RANDOM", "NEXT >", and ">".

ARCHIVE
WHAT IF?
BLAG
STORE
ABOUT

xkcd **A WEBCOMIC OF ROMANCE, SARCASM, MATH, AND LANGUAGE.**

PROTIP: IF YOU DON'T LIKE HOW YOUR GARDEN IS GROWING, YOU CAN CLICK TO PRUNE IT. COPY THE URL TO SAVE/SHARE (GARDEN WILL BE VIEW-ONLY FROM OTHER BROWSERS.)

EXPLOITS OF A MOM

< < PREV RANDOM NEXT > >

HI, THIS IS YOUR SON'S SCHOOL. WE'RE HAVING SOME COMPUTER TROUBLE.

OH, DEAR - DID HE BREAK SOMETHING?
IN A WAY-

DID YOU REALLY NAME YOUR SON Robert'); DROP TABLE Students;-- ?

OH. YES. LITTLE BOBBY TABLES, WE CALL HIM.

WELL, WE'VE LOST THIS YEAR'S STUDENT RECORDS. I HOPE YOU'RE HAPPY.

AND I HOPE YOU'VE LEARNED TO SANITIZE YOUR DATABASE INPUTS.

< < PREV RANDOM NEXT > >

Why? To Sell.

Welcome to Target

about target my account find a store photo pharmacy redcards help **shoppingcart**

GiftCards GiftGiving GiftRegistries TargetLists WeeklyAd

Women Men Baby Kids Shoes Home Bed + Bath Patio + Garden Furniture Toys Electronics See All

Search All Products Sign In | New Guest?

Weekly Ad **This week, it's only available online.** Enter for a chance to win a \$1,000 Target GiftCard™ > See Rules

Furniture >
Spend \$125, save 15%, plus select free shipping.

Women's >
Spend \$50, get free shipping on styles you crave.

Kitchen >
Free shipping on select gadgets and essentials.

Weekly Ad >

Nintendo DSi

Step into the next generation of gaming.

- 2 cameras with interactive "lenses" to creatively edit photos
- Music player and voice recorder to interact with music
- Downloadable games and applications
- Sleek design with bigger touch screen
- Free downloadable games from Nintendo DSi Shop included with purchase

Shop All Nintendo DSi >

Why? To Confuse – or not.



The screenshot shows a web browser window with the address bar displaying "http://www.factcheck.org/". The website header features the "FACTCHECK.ORG" logo with a magnifying glass over the word "CHECK" and the text "ANNENBERG POLITICAL FACT CHECK". A search bar is located in the top right corner. A navigation menu includes links for "Home", "Archive", "About Us", "Privacy", "Copyright", and "Contact Us".

The main content area is divided into several sections:

- Ask FactCheck**: A red button with the text "You Ask the Questions".
- Hot Topics**: A yellow starburst icon, the text "Hot Topics Questions we're asked most often.", and a link "Read The FAQs »".
- Today's Question**: A question about Snopes.com, a "NEW" tag, a paragraph of text, and a link "Read Full Answer »".
- Special Reports**: A red button with the text "Our Disinformed Electorate".
- Holding Politicians Accountable**: A large banner image of the US Capitol building with an American flag overlay.
- Recent Postings**: A red button.
- Hot Air on Wind Energy**: A wind turbine image, the title "Hot Air on Wind Energy", the date "April 10, 2009", a "NEW" tag, and a snippet of text starting with "Don't expect wind power to replace coal...".
- Specter's Scorched-Earth Slip-Ups**: A small image of a television, the title "Specter's Scorched-Earth Slip-Ups", and the date "April 2, 2009".

Consider your audience!

- Small
- Large
- Young
- Old
- Restricted
- Broad

The screenshot displays two overlapping browser windows. The top window, titled "CT 310 Homepage", shows the course website for "CT 310: Web Development" at Colorado State University. The page includes a navigation menu with links for Home, Syllabus, Progress, Assignments, Resources, and Colvin. The main content area provides an overview of the course, listing the instructor as Ross Beveridge and the GTA as Thomson Comer. The bottom window, titled "Blackboard Learning System", shows the course interface for "CT-310-001-2009SP Web Development". It features a "Course Tools" sidebar with options like Course Content, Assignments, Chat, and Discussions. The main content area displays a link to "CT 310 TOP - Look Beyond RamCT". The footer of the Blackboard window includes session time, IP address, user information, and a W3C XHTML 1.0 logo.

CT 310 2016

CT 310 Web D
Computer Science
Spring 2016
CT 310 : H

Home Syllabus Progress Ass

CT 310 is a one semester course on web development. Emphasis is placed on the essentials needed to create fully functional websites including rich graphical content and dynamic content. The course will cover HTML, Cascading Style Sheets and graphical content. Dynamic web pages will be developed using JavaScript. MySQL and SQLite are introduced for website data management. Asynchronous JavaScript (AJAX) is introduced for fine-grained client-server interaction. Students will develop their own dynamic websites to manage authentication, transactions and user updates.

This course's web presence has a public side which you are viewing as well as a private side managed through CSU's Canvas system. General information concerning lectures, schedule, assignment posting, etc. are managed through the public side. Student specific information such as grading, quizzes, etc. are managed through Canvas.

Sprint 7:30 PM 94%

cs.colostate.edu

CT 310 Web Development
Computer Science Department
Spring 2016
CT 310 : Homepage

Instructor:
[Ross Beveridge](#)
Office: 348 CS Building
Office Hours: Tue 1-2PM, Fri 10-11AM
Email: ross.beveridge@colostate.edu

GTA:
[Darshan Gulur Srinivasa](#)
Office: CSB 120 Lab
Office Hours: Tue 8-10AM, Wed 10-11AM, Thu 3-4PM
Email: dasriniv@mail.colostate.edu

Lecture Time and Place:
9:00-9:50, MWF, CSB Room 130

Recitation 1 Time and Place:

Site Organization: Hierarchical

Amazon.com: Hobbies - helicopter: Toys & Games

amazon.com Hello, J R Beveridge. We have [recommendations](#) for you. (Not J?) [Earth Day Savings: Pro-Planet & Wa](#)

J's Amazon.com Today's Deals Gifts & Wish Lists Gift Cards Your Account

Shop All Departments Toys & Games




Search **Hobbies** helicopter GO Cart Your Account

Browse Categories & Characters Bestsellers Hot New Releases Building Sets Dolls Electronics For Kids Games Preschool

Toys & Games > "helicopter" > Hobbies

Related Searches: [helicopter remote control](#), [rc helicopter](#), [remote control helicopter](#).

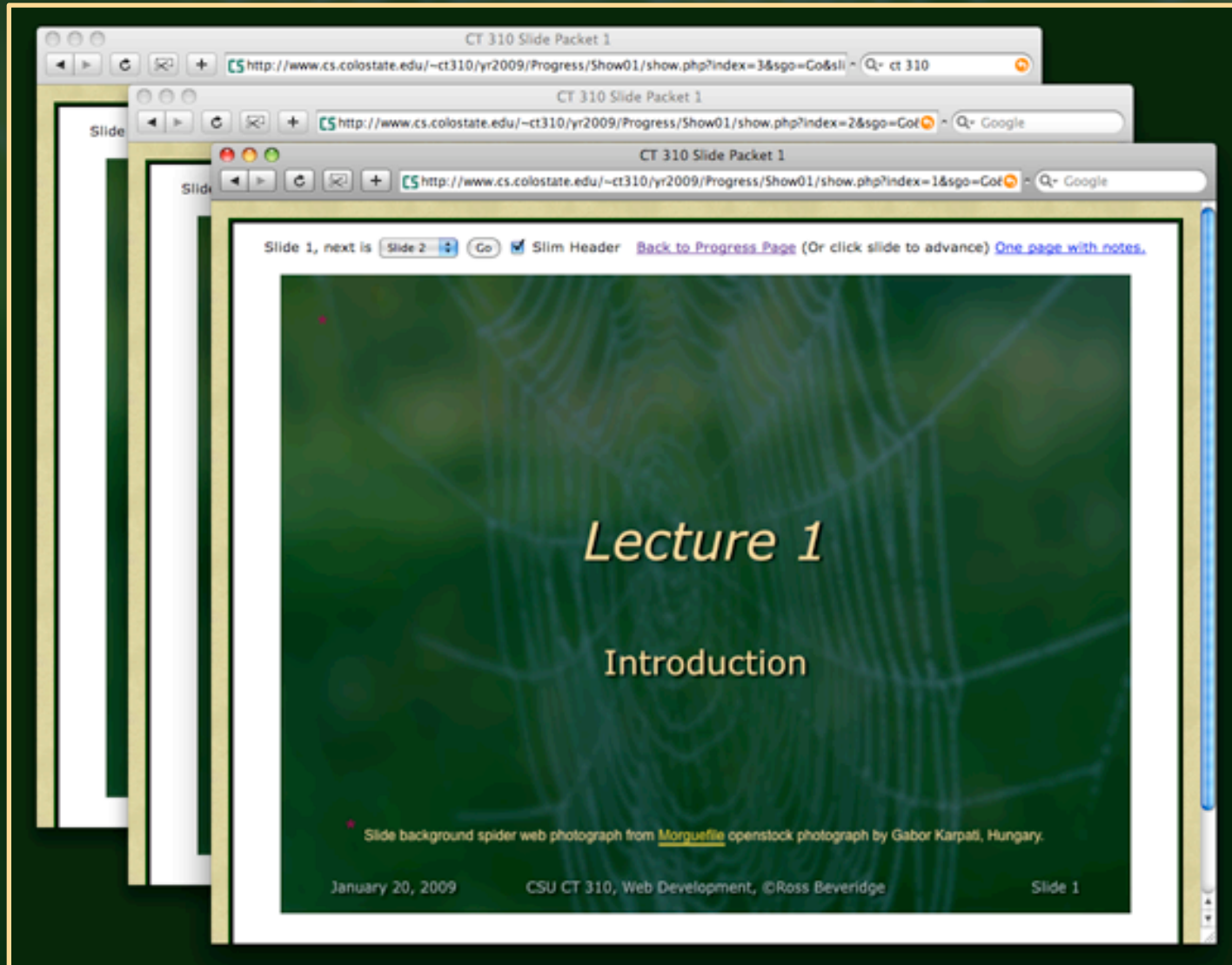
Showing 1 - 24 of 4,810 Results

1.  2.  3. 

Age Range
Any Age Range
2 to 4 Years (1)
5 to 7 Years (12)
8 to 11 Years (37)
12 to 15 Years (9)
Grownups (2)

Department
< Any Department
< Toys & Games
Hobbies
Radio Control (4,553)
Die-Cast (76)
Models (159)

Organization – Linear (2009)



Linear Updated

Think about 2 ways to see more content

1. Scroll down the page
2. Push/click to see next

Here are examples of linear (scrolling)

CT 310 Web Development
Computer Science Department
Spring 2016
CT 310 Slide Packet 27

Lecture 27
HTML5 Drawing Canvas and Video

The Canvas

- > A general purpose drawing canvas
- > Many of the standard capabilities:
 - > Curves, filled solids, text, effects, ...
- > Learning curve probably depends,
 - > Conventions look standard to one familiar with multiple graphic APIs.
- > Brief introduction here through a redo of the animated spinnny.

CT 310 PHP Lec 25 Example 01

Spinnny in JavaScript and HTML5.

This is an example of using timed events to set an animation in motion.

Outwardly the Same. Inwardly very different!

Slashdot: News for nerds, stuff that matters

Learn to Build 14 X Websites with 28 Hours of Instruction on HTML, JavaScript, MySQL & More for \$14

Forget Needing A Weapon
The military recently released technology that is now available to the public. Get yours before they run out - limited stock in the US

Slashdot Deals

MINI LINUX COMPUTER || \$39

Winner of BEST OF 2016

My p follow

A

K

V

E

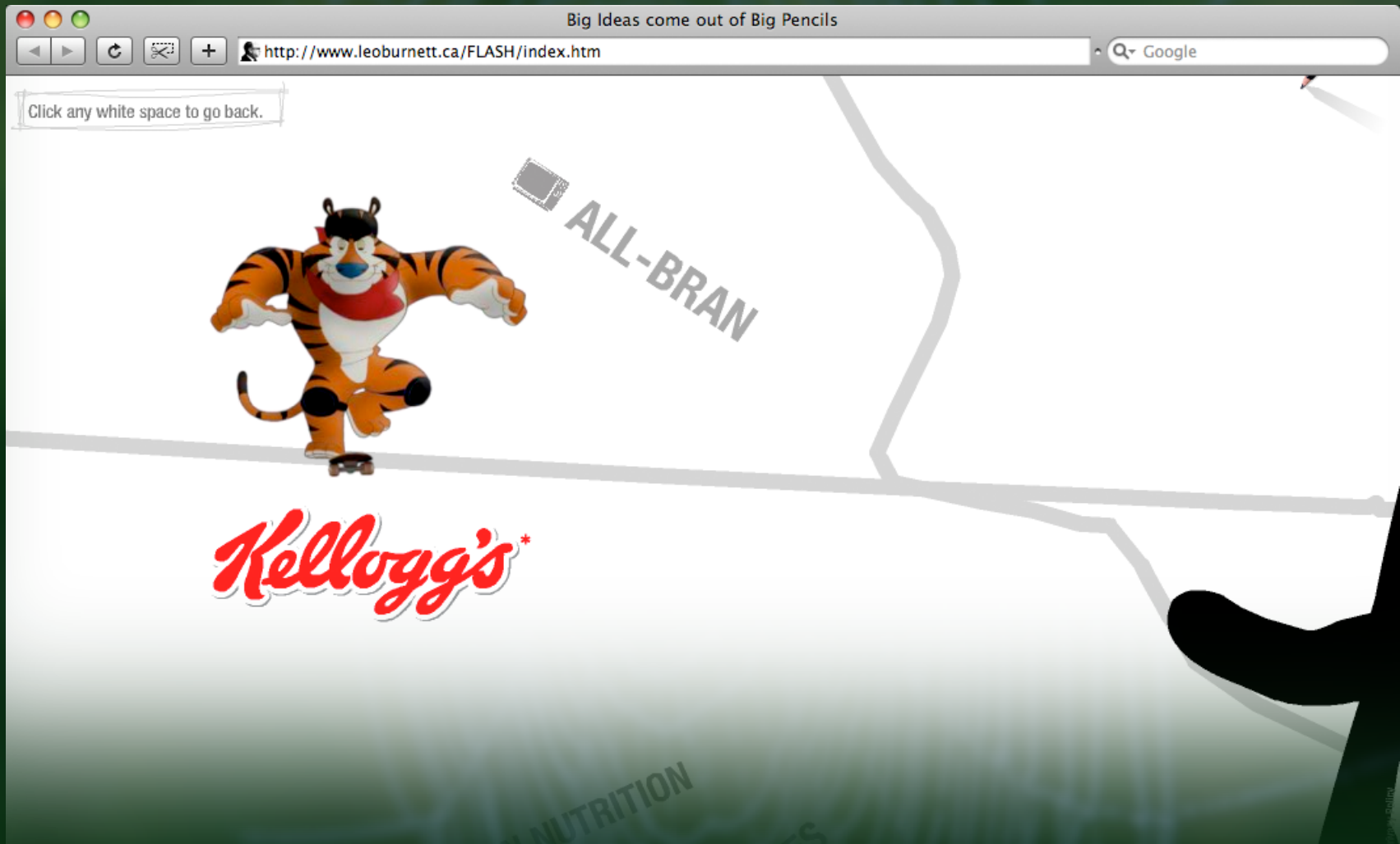
Tizen

Symbian

Other

Gracefully handling width changes is still a challenge in 2016.

Organization - Random



➤ Webby – best visual design 2006

Structure And Organization

- Structure doesn't happen naturally
- Explicitly planned and designed
 - People naturally try to find order and structure, even if none was intentionally designed
- Must help the user build a model!
 - Content structure matches expectation.
 - Visual layout guides and reinforces.

For Visual layout Use Gestalt principles to create structure...

How is Content Structured?

Home

Syllabus

Progress

Assignments

Resources

Show

Show

Show

Gestalt Grouping Principles

- Proximity
- Similarity
- Continuity
- Closure
- Area
- Symmetry



The screenshot shows the Wikipedia page for "Gestalt psychology". The page title is "Gestalt psychology" and it is part of the "en.wikipedia.org/wiki/Gestalt_psychology" page. The article text is as follows:

Gestalt psychology or **gestaltism** (German: *Gestalt* [ɡɛˈʃalt] "shape, form") is a theory of mind of the **Berlin School of experimental psychology**. Gestalt psychology tries to understand the laws of our ability to acquire and maintain meaningful perceptions in an apparently chaotic world. The central principle of gestalt psychology is that the mind forms a **global whole** with self-organizing tendencies.

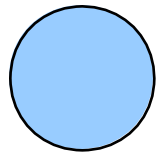
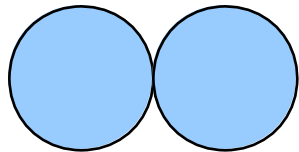
This principle maintains that when the human mind (perceptual system) forms a percept or gestalt, the whole has a reality of its own, independent of the parts. The original famous phrase of Gestalt psychologist Kurt Koffka, "The whole is *other* than the sum of the parts" is often incorrectly translated^[1] as "The whole is *greater* than the sum of its parts," and thus used when explaining gestalt theory, and further incorrectly applied to **systems theory**.^[2] Koffka did not like the translation. He firmly corrected students who replaced "other" with "greater". "This is not a principle of addition" he said.^[3] The whole has an independent existence.

In the domain of **perception**, Gestalt psychologists stipulate that perceptions are the products of complex interactions among

The screenshot also shows the Wikipedia navigation sidebar on the left, including links for Main page, Contents, Featured content, Current events, Random article, Donate to Wikipedia, Wikipedia store, Interaction, Help, About Wikipedia, Community portal, Recent changes, Contact page, Tools, What links here, Related changes, Upload file, Special pages, Permanent link, Page information, Wikidata item, and Cite this page. On the right, there is a sidebar for "Psychology" with a list of sub-fields and a "Lists" section.

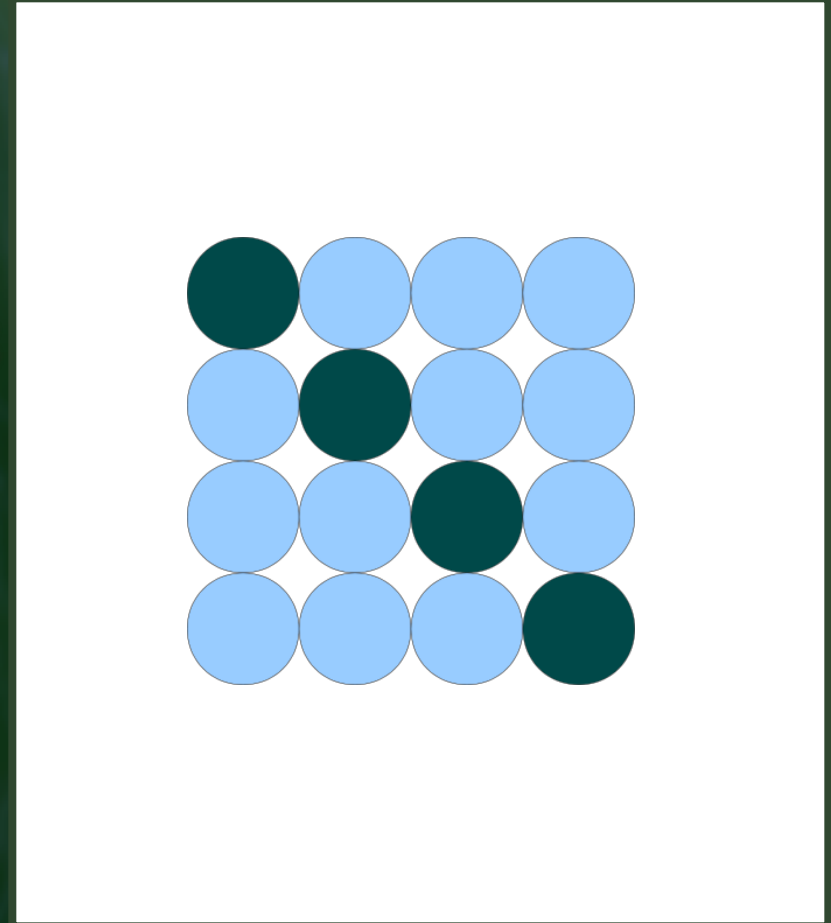
Proximity

Individual elements associated more strongly with nearby elements than with those further away.



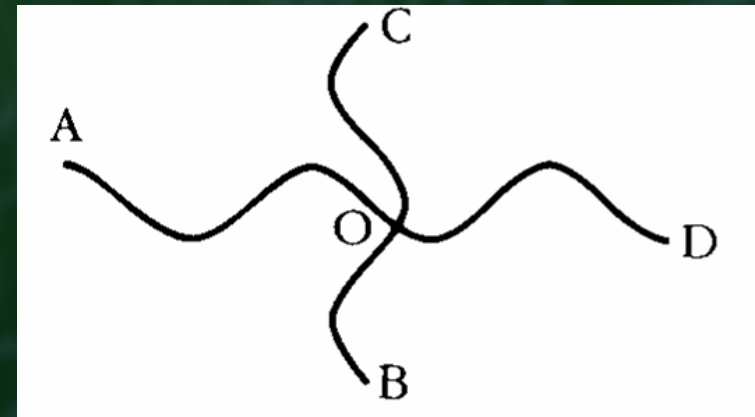
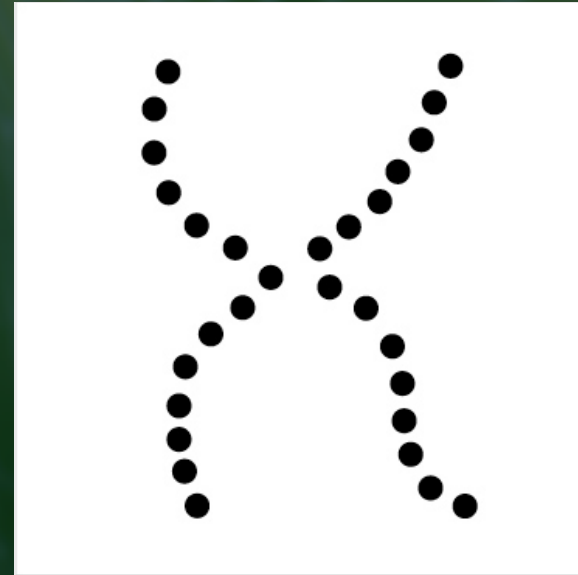
Similarity

- Elements associated more strongly when they share basic visual characteristics
 - Shape
 - Size
 - Color
 - Texture
 - Orientation



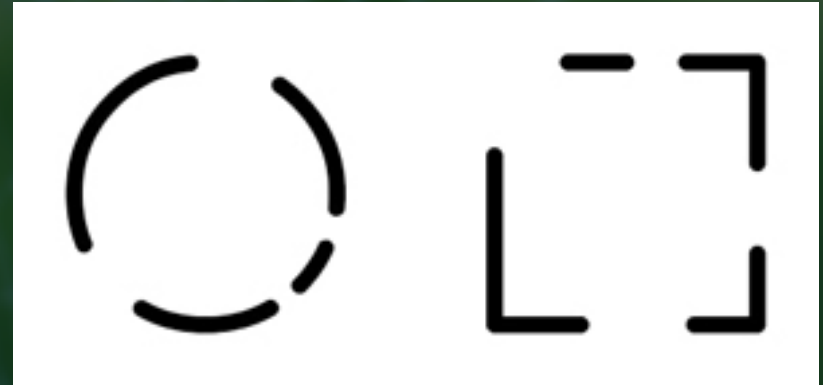
Continuity

- Our Visual system prefers continuous, unbroken contours
- We will seek out simplest possible explanation for abstract drawings
- Even if several, plausible combinations exist



Closure

- Visual system will “fill in holes” to create a complete picture
- Will close figures when information absent



Area

- Figure is element that is interpreted as object of interest
- Ground is area on which figure rests
- Principle of area suggests that smaller of two overlapping elements seen as the figure while larger element is seen as ground
- Also, darker objects appear more often as figure with lighter areas seen as ground

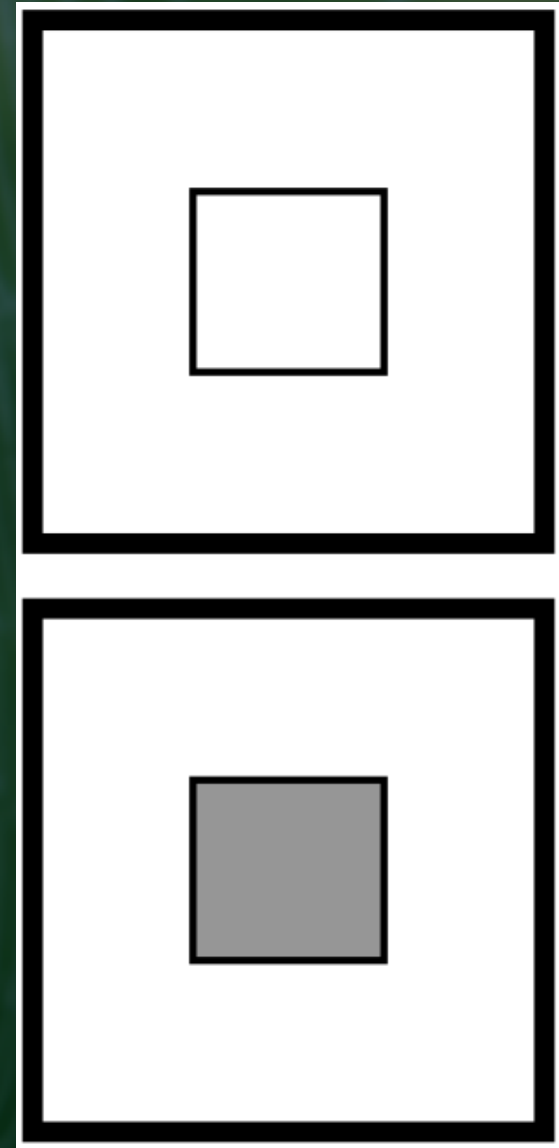
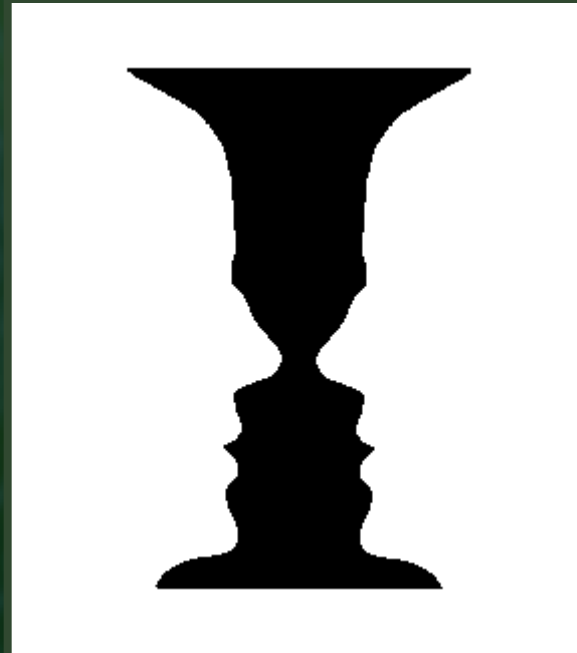


Figure Ground (Reversal)

Competing
visual
interpretations



Face it, you are seeing a vase 😊

Symmetry

- We prefer symmetry
- The greater the symmetry, the more we ascribe meaning, relationships in the composition
- Symmetrical, unconnected elements are integrated into one coherent object

