

# Visual Structure in Graphical Design (with Application to UI and InfoViz)



CS 4460 - Information Visualization

Jim Foley

Last update: November 2016

# Goals



- Present principles of Gestalt Psychology
- Explain how those principles apply to the design of user interfaces and information visualizations
- Give examples - good and bad - of visual design and explain how they follow - or don't follow - the principles of Gestalt Psychology
- Emphasize the philosophy “Use Visual Design to Reinforce the Logical Design”

# The Gestalt Principles



- Proximity
- Closure
- Similarity
- Symmetry
- Continuity  
(aka Good Continuation)
- Common Fate
- Figure/Ground
- Connectedness



Max Wertheimer  
1880-1943

- German: *Gestalt* – "essence or shape of an entity's complete form"

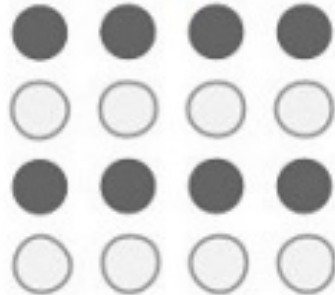
# Gestalt Principles in Images



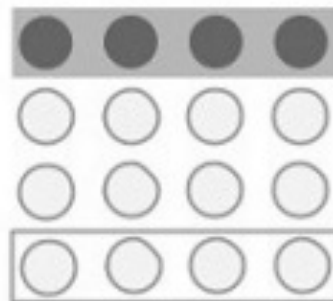
Proximity



Similarity



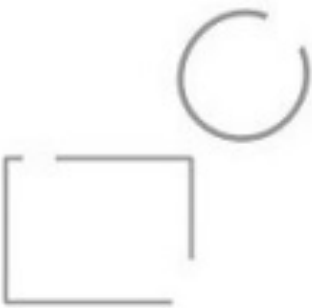
Enclosure



Symmetry



Closure



Continuity



Connection

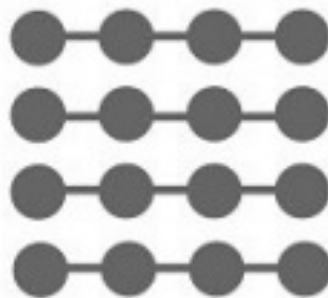


Figure & ground



# Proximity

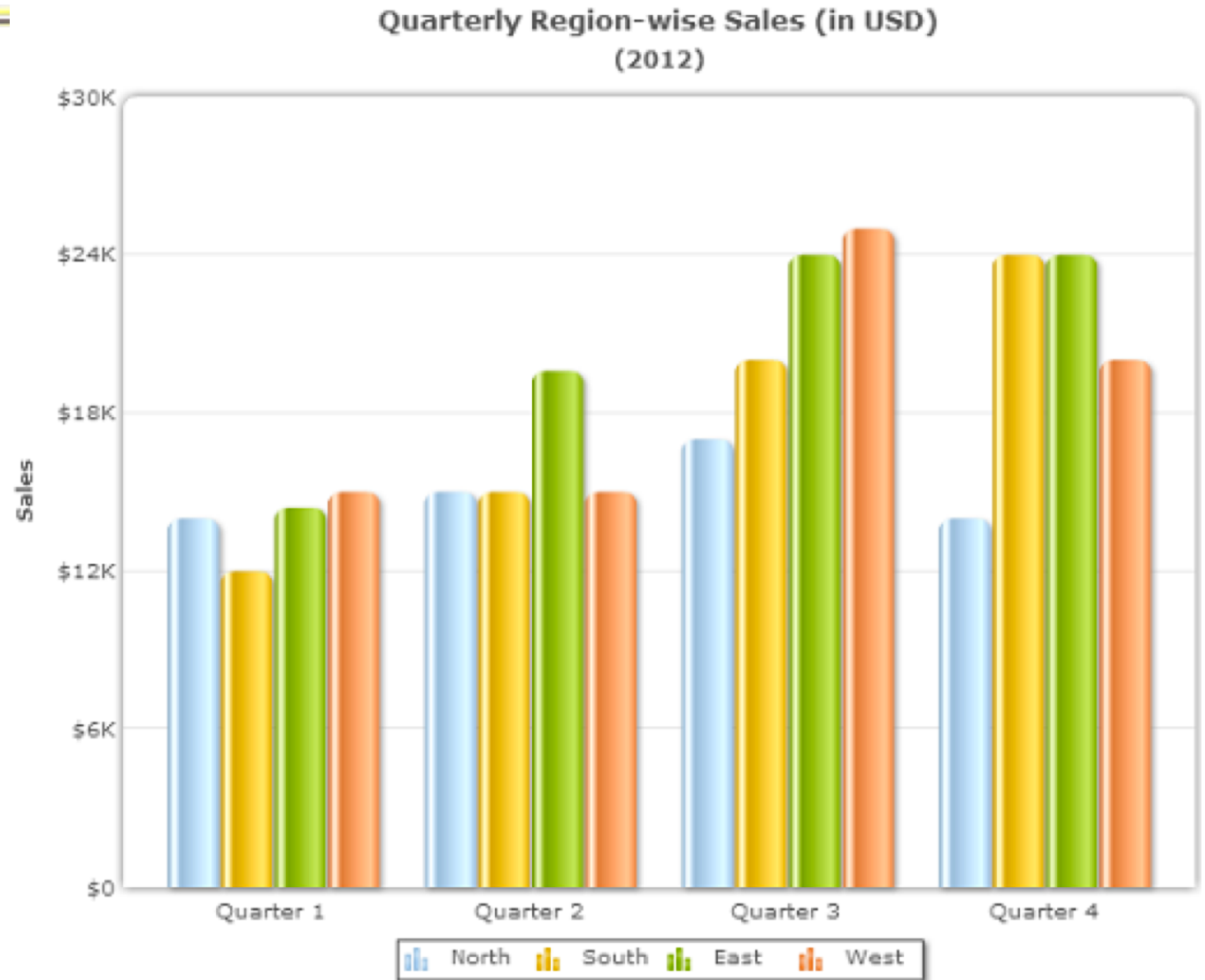


We group together  
'proximate' objects



# Proximity

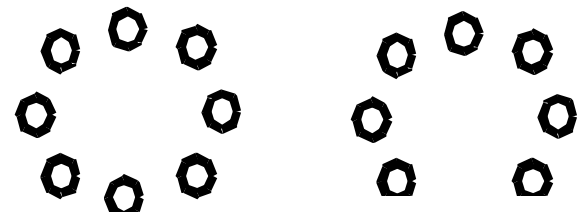
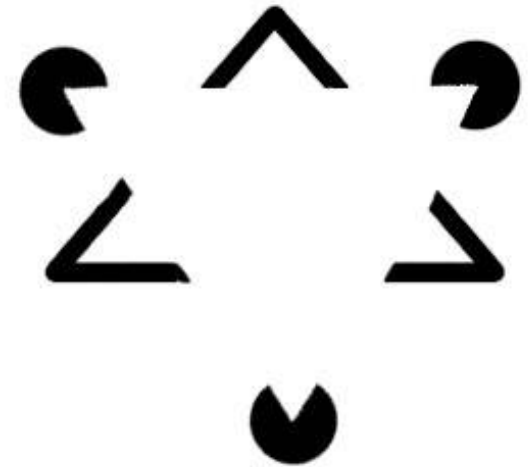
*M*



# Closure



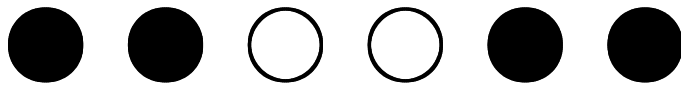
We try to see  
collections of objects as  
creating a larger, more  
complete object



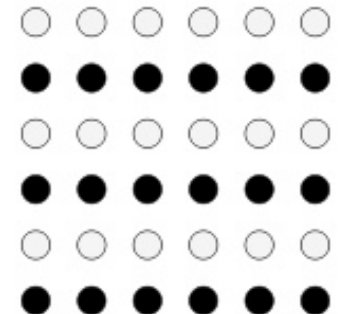
# Similarity



We group similar objects together



**AAaaAA**





# Similarity

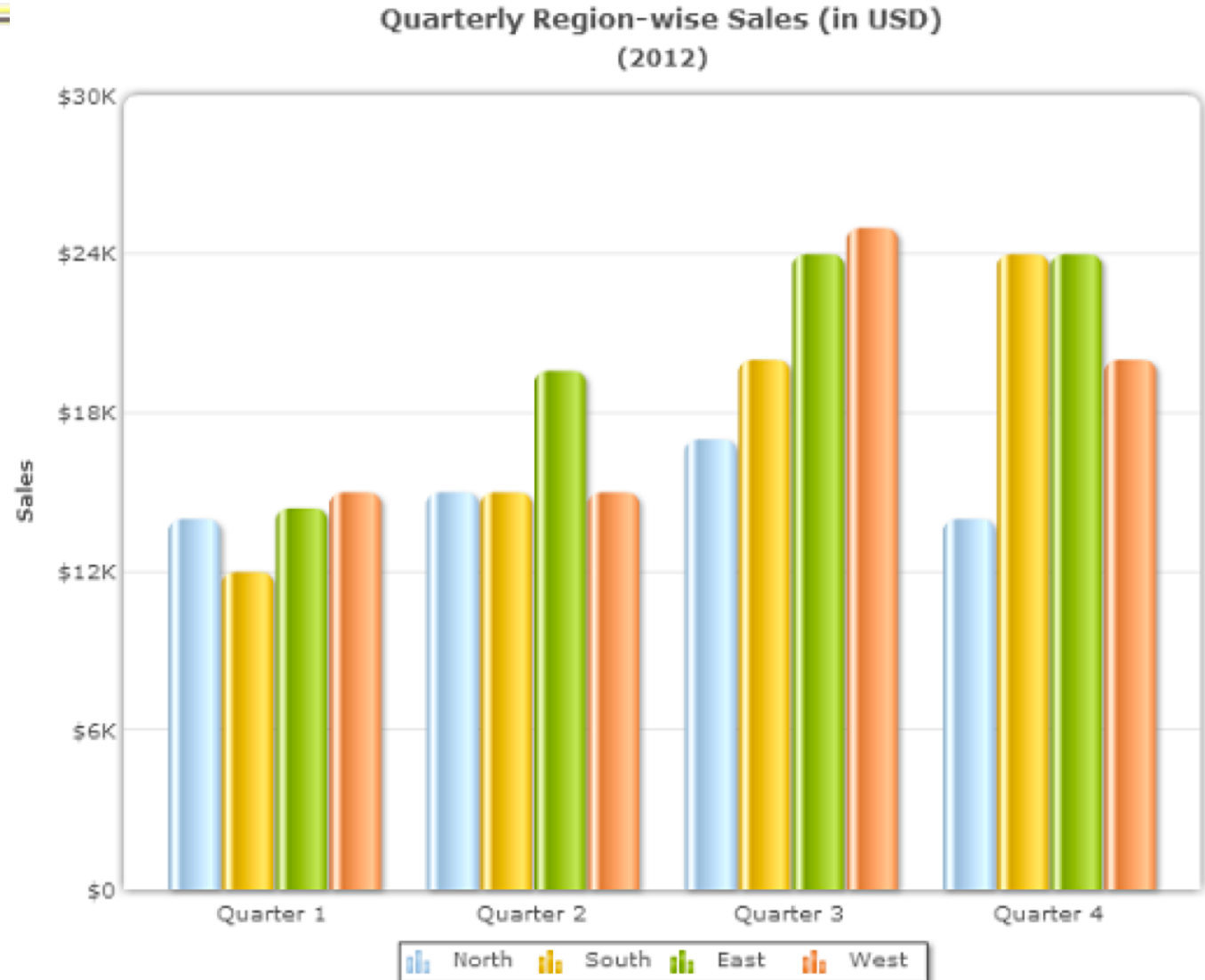
---

Channel-wise Revenue Breakup (in %)  
2012

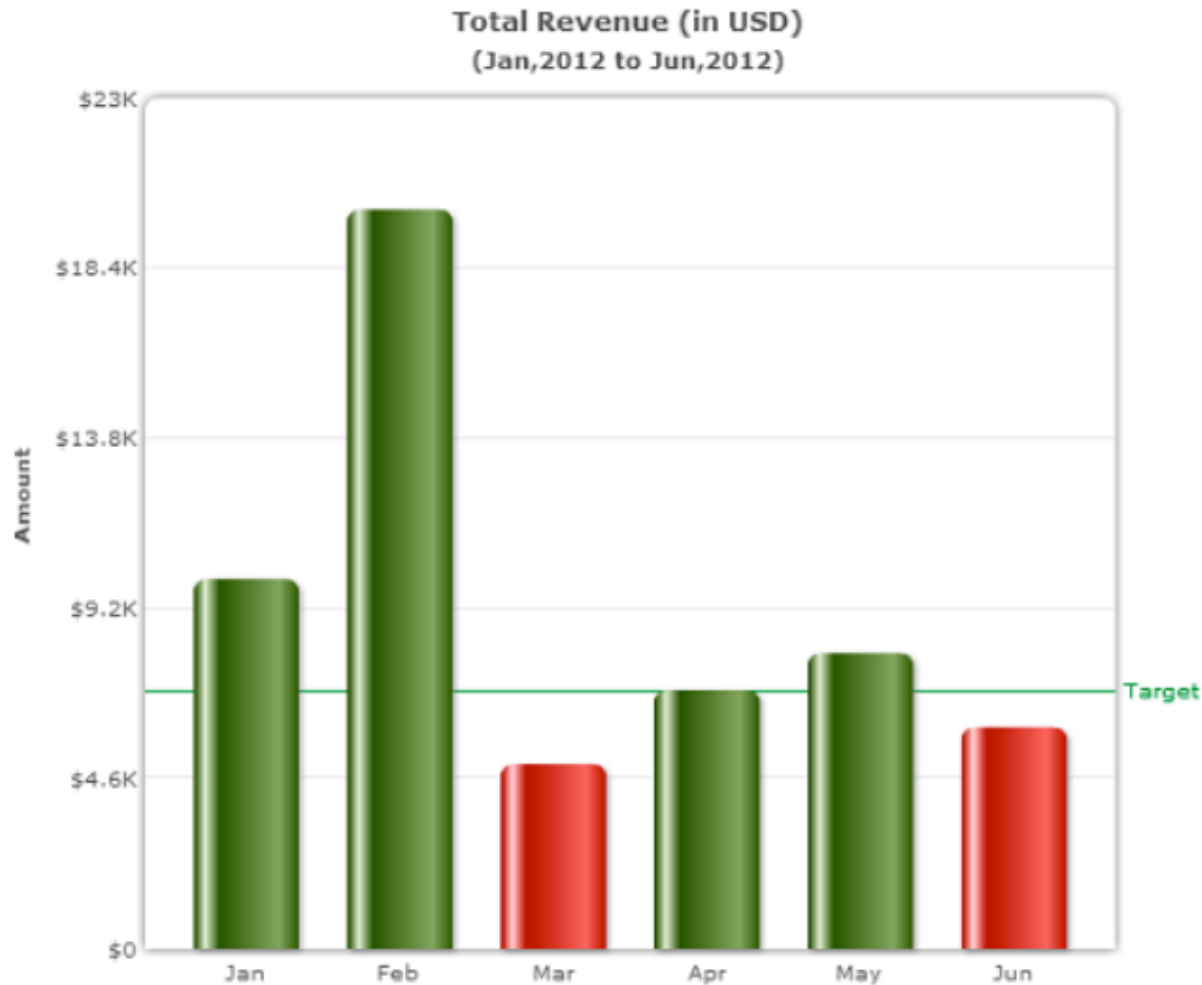


# Similarity (Colors => Grouping)

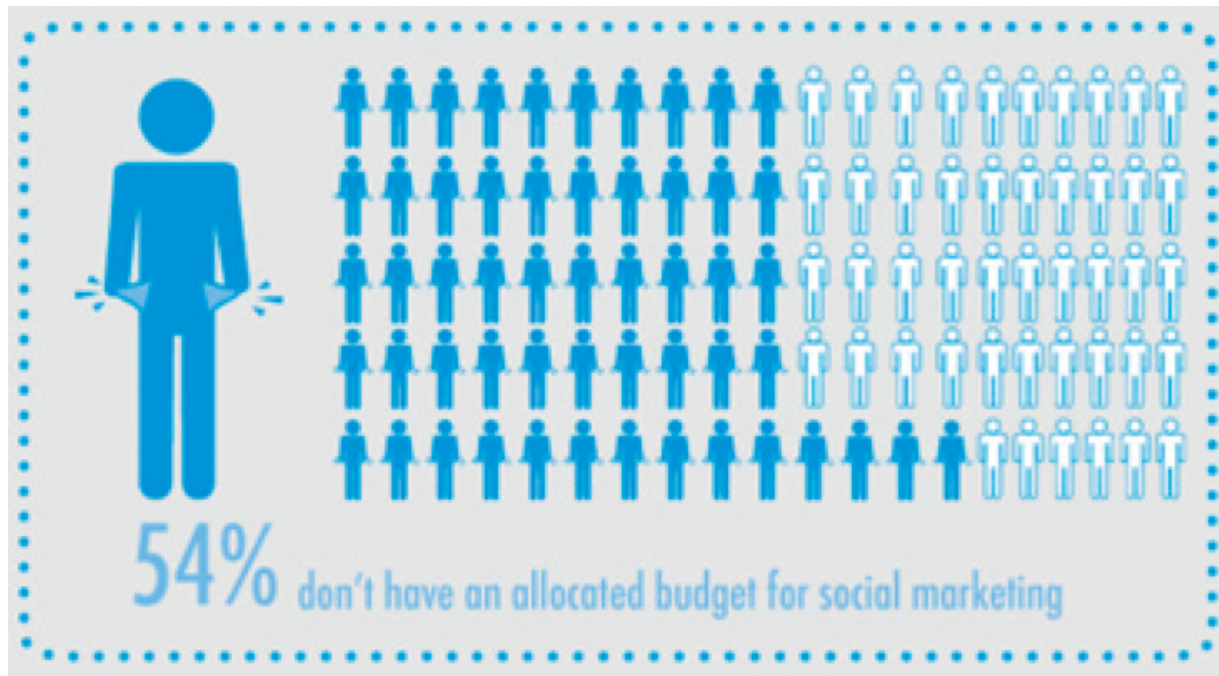
*Handwritten mark*



# Similarity – Above/below Target



# Similarity (and Closure)



# Symmetry



We group together  
objects that are  
symmetrical one to  
another

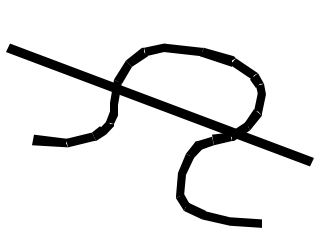
( ) [ ] { } / \ [ ] \ /

( ) [ ] { } / \ [ ] \ /

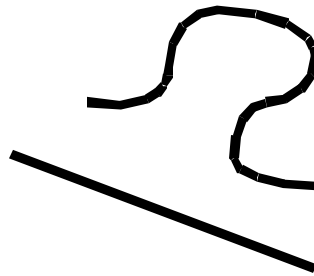
# Continuity (Good Continuation)



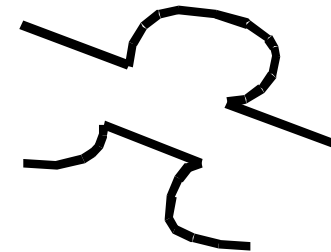
We separate (parse) overlapping objects to give them a 'smooth' interpretation



a



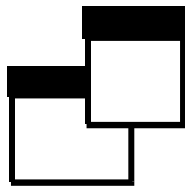
b



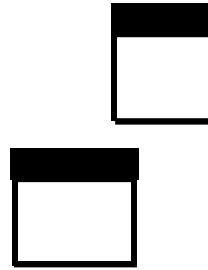
c

How do we interpret the left figure (a)? Is it (b) or is it (c)?  
Most of use will interpret (a) as having the two elements shown in (b).

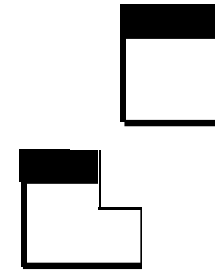
# Continuity Example



(d)



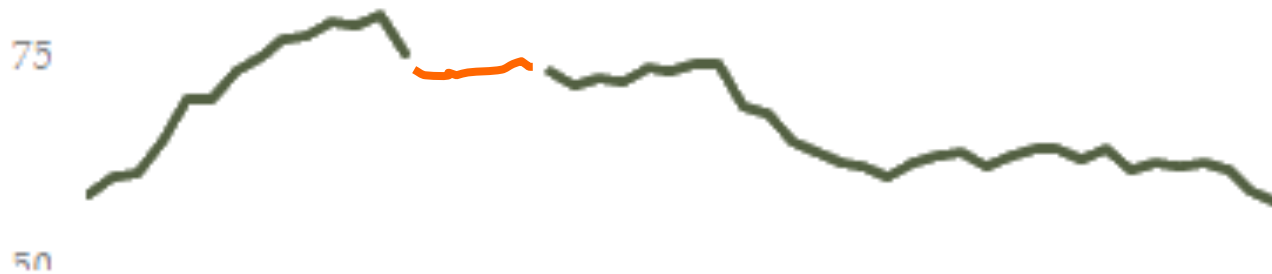
(e)



(f)

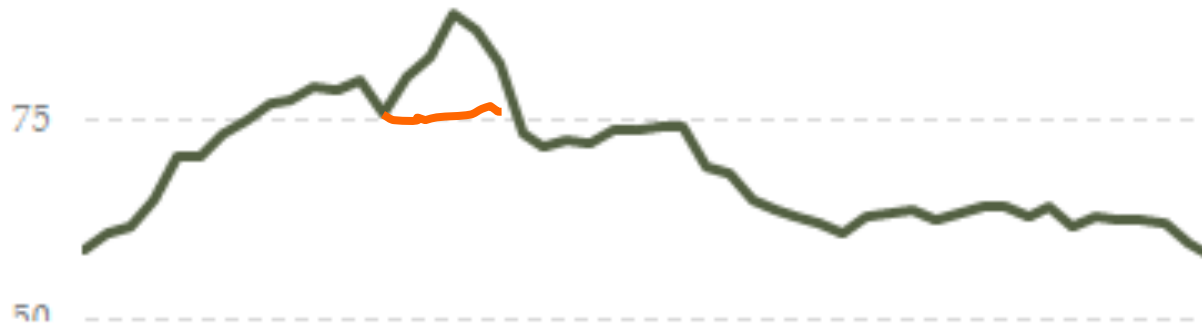
In each example, we give the left overlapping objects the center interpretation, not the right-most interpretation

# Continuity – “Fill in the Blanks”





# “Fill in the Blank” Might be Wrong



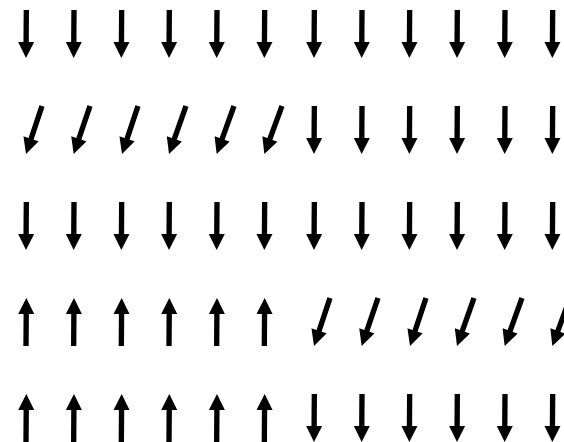
# Common Fate



We group together objects seen to be **moving** in the same direction (having a 'common fate')

Also applies to movement toward perspective vanishing point

Imagine groups of planes



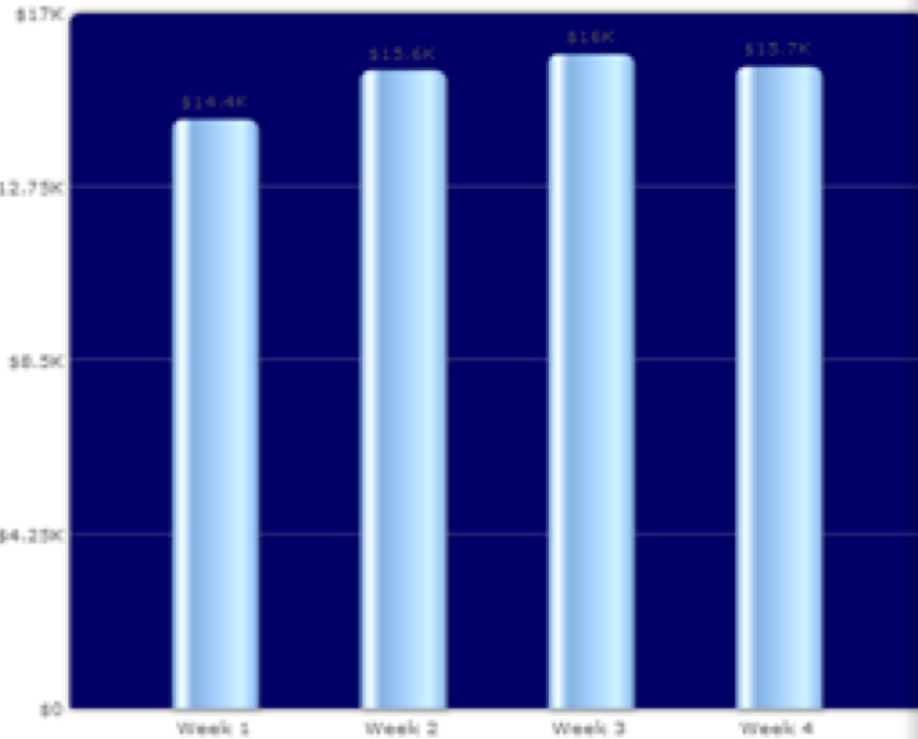
# Figure/Ground



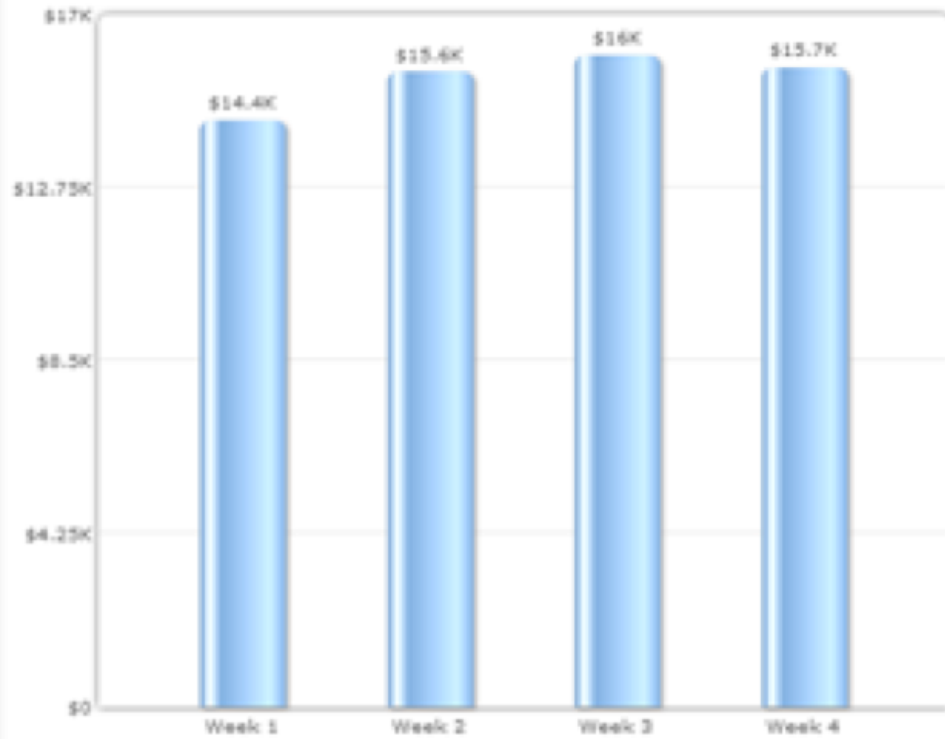
# Figure/Ground



Weekly Sales Summary (in USD)  
(April, 2013)



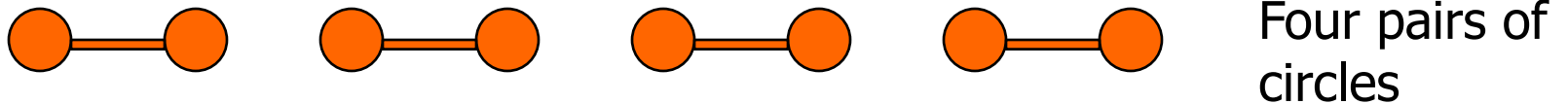
Weekly Sales Summary (in USD)  
(April, 2013)



# Connectedness



- Connected visual elements are seen as a whole



# Proximity Example



- Items close together appear to have a relationship
- Distance implies no relationship

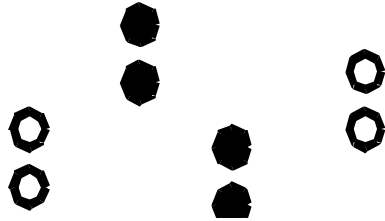
Time:

Time:

# Combining Gestalt Principles



- Several Principles can be combined
  - Proximity reinforces similarity



- Proximity reinforces closure/symmetry



- Proximity opposes closure/symmetry



# Combine Similarity and Connectedness

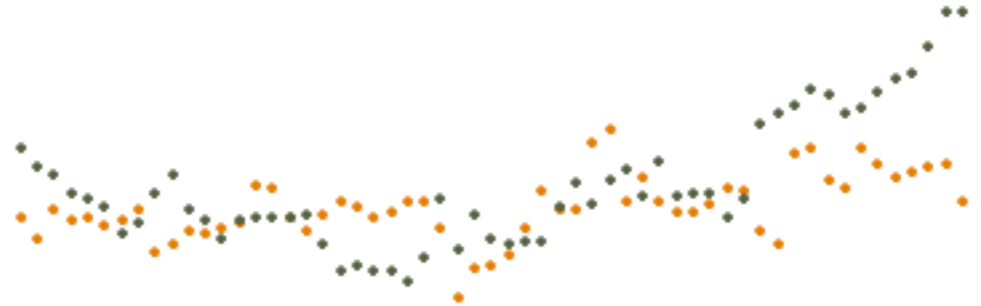
Note use of proximity 😊



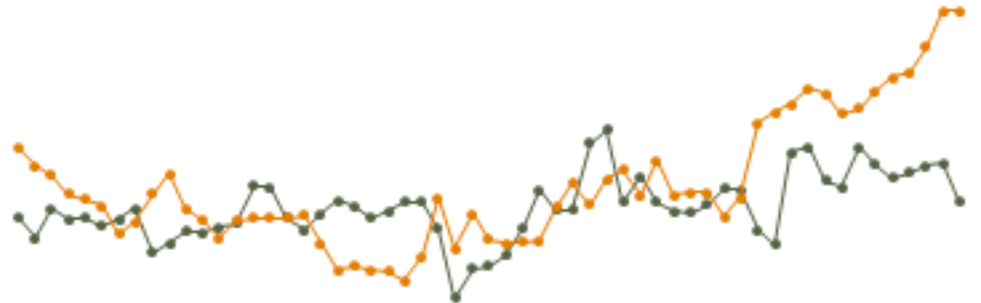
A bunch of dots:  
no visual structure



Colored dots:  
visual structure emerges



Colored & connected dots:  
strong visual structure



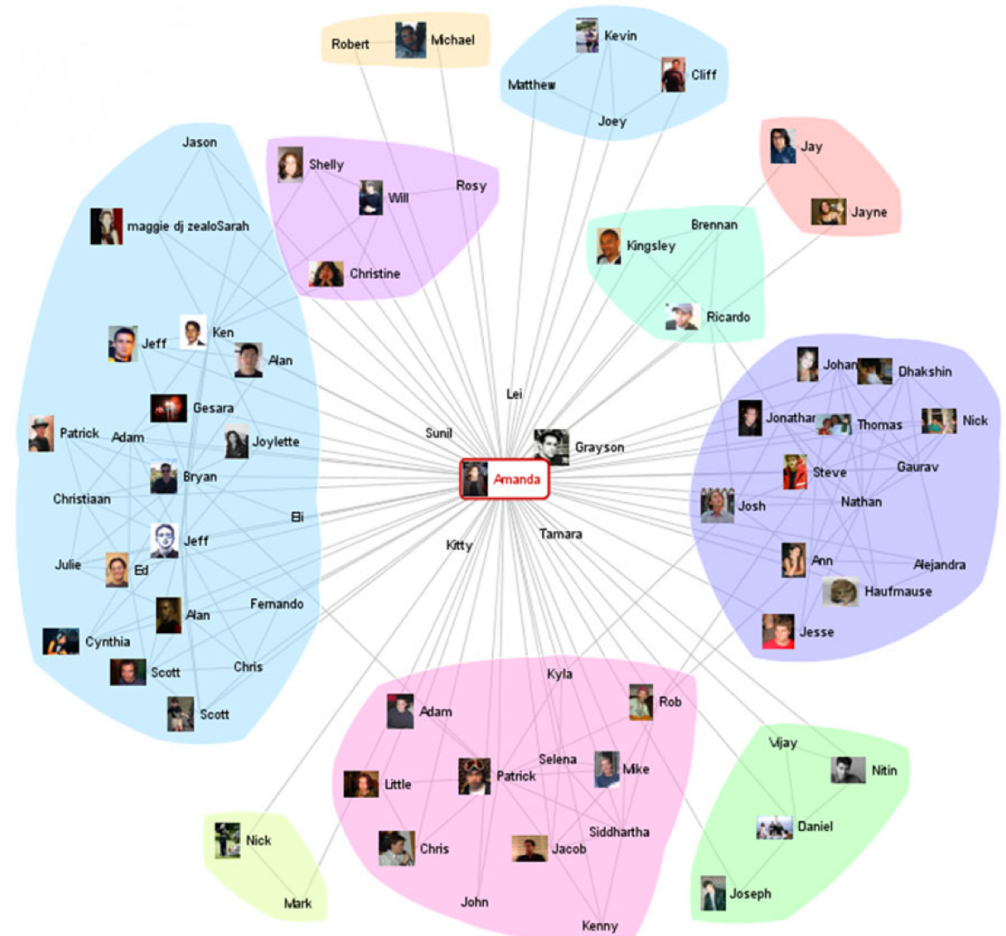


# Combine Proximity & Similarity



Grouping created by

- Proximity
- Similar background



# Proximity + Similarity



- Proximity + Similarity reinforce one another
- Similar to redundant (double) coding idea
- Proximity stronger than similarity



# Mantra: Use Visual Structure to Reinforce Logical Structure



- Proximity reinforces alphabetization

ATE  
BAT  
BIT  
CAT  
DOG  
EAT  
FAR  
FAT

GET  
GOT  
HAT  
HIT  
HOT  
LAP  
MAP  
PAT

ATE BAT BIT CAT DOG EAT  
FAR FAT GET GOT HAT HIT  
HOT LAP MAP PAT

# Visual Structure Fights Logical



- Proximity counters alphabetization

<b>ATE</b>	<b>BAT</b>
<b>BIT</b>	<b>CAT</b>
<b>DOG</b>	<b>EAT</b>
<b>FAR</b>	<b>FAT</b>
<b>GET</b>	<b>GOT</b>
<b>HAT</b>	<b>HIT</b>
<b>HOT</b>	<b>LAP</b>
<b>MAP</b>	<b>PAT</b>

# Visual Structure Fights Logical



- Proximity counters alphabetization

ATE	BAT
BIT	CAT
DOG	EAT
FAR	FAT
GET	GOT
HAT	HIT
HOT	LAP
MAP	PAT

No one would  
be so stupid  
as to actually  
do this, right?

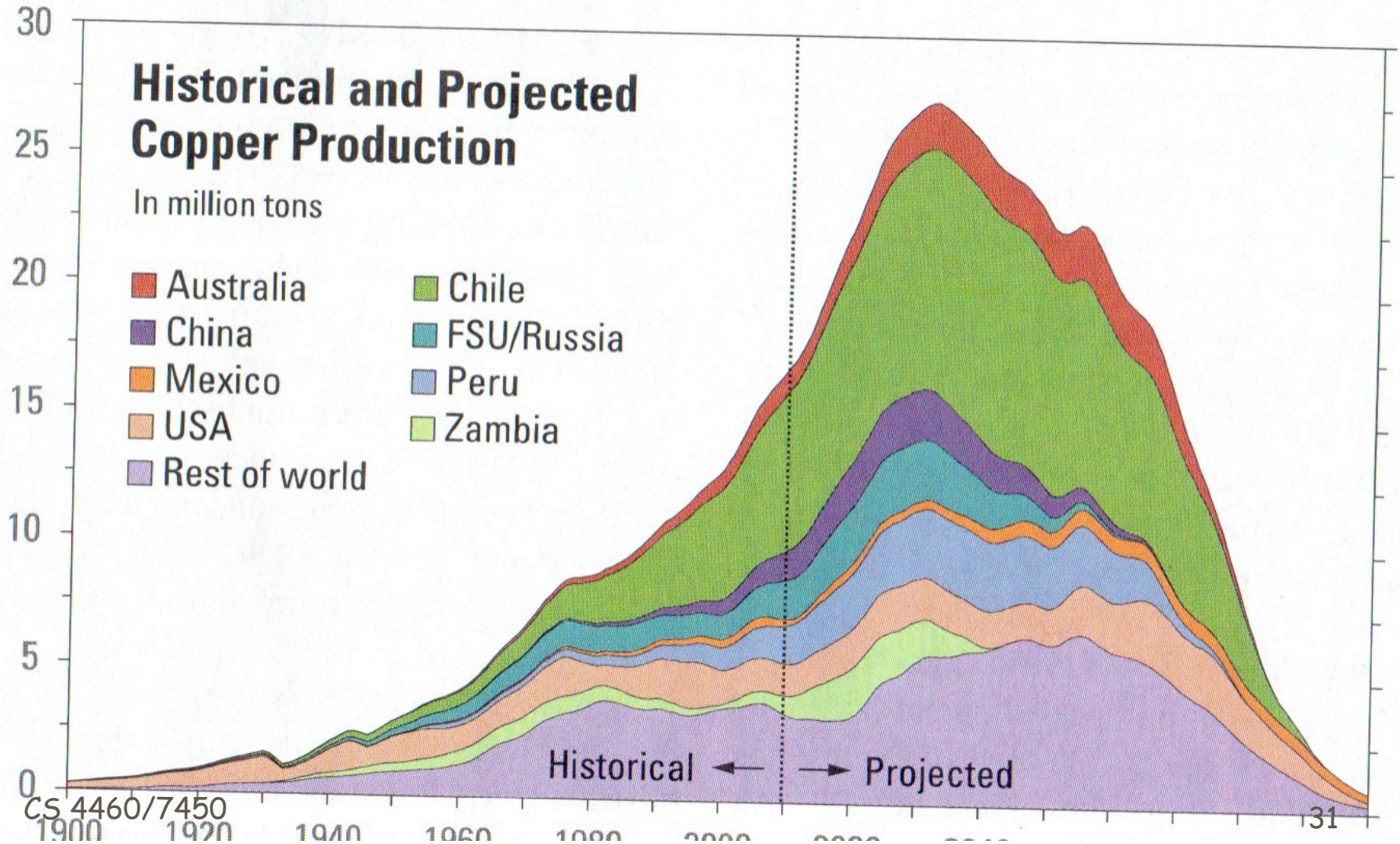
# Visual Structure Fights Logical



**Train Show Quick Search** ▼ Click on a link below to run a search ▼

<a href="#">Alabama</a> (1)	<a href="#">Arizona</a> (4)	<a href="#">Arkansas</a> (1)
<a href="#">California</a> (11)	<a href="#">Colorado</a> (4)	<a href="#">Connecticut</a> (9)
<a href="#">Delaware</a> (3)	<a href="#">Florida</a> (15)	<a href="#">Georgia</a> (2)
<a href="#">Idaho</a> (1)	<a href="#">Illinois</a> (3)	<a href="#">Indiana</a> (7)
<a href="#">Iowa</a> (4)	<a href="#">Kansas</a> (3)	<a href="#">Kentucky</a> (2)
<a href="#">Maine</a> (2)	<a href="#">Maryland</a> (26)	<a href="#">Massachusetts</a> (11)
<a href="#">Michigan</a> (15)	<a href="#">Minnesota</a> (1)	<a href="#">Missouri</a> (5)
<a href="#">Montana</a> (6)	<a href="#">New Hampshire</a> (1)	<a href="#">New Jersey</a> (20)
<a href="#">New York</a> (22)	<a href="#">North Carolina</a> (5)	<a href="#">Ohio</a> (22)
<a href="#">Oklahoma</a> (3)	<a href="#">Ontario</a> (3)	<a href="#">Pennsylvania</a> (46)
<a href="#">Quebec</a> (1)	<a href="#">South Carolina</a> (3)	<a href="#">Tennessee</a> (3)
<a href="#">Texas</a> (4)	<a href="#">Vermont</a> (3)	<a href="#">Virginia</a> (4)
<a href="#">Washington</a> (8)	<a href="#">West Virginia</a> (8)	<a href="#">Wisconsin</a> (9)

# What's Wrong Here?



CS 4460/7450  
1900 1920 1940 1960 1980 2000 2020 2031

# Which Example Works Best?



Excel screenshot showing a table with columns A-E and rows 1-4. Cell D12 is selected. The table data is as follows:

	A	B	C	D	E
1	Products	Q1	Q2	Q3	Q4
2	Monitors	90.7	81.5	87.2	49.6
3	Desktops	72.8	65.4	37.9	77.8
4	Laptops	30.2	59.7	22.3	77.4

Excel screenshot showing a table with columns A-E and rows 1-4. Cell B11 is selected. The table data is as follows:

	A	B	C	D	E
1	Products	Q1	Q2	Q3	Q4
2	Monitors	22.4	59.4	49.4	57.4
3	Desktops	67.3	41.4	15.9	62.2
4	Laptops	57.7	36.8	11.0	27.0

Excel screenshot showing a table with columns A-E and rows 1-4. Cell F7 is selected. The table data is as follows:

	A	B	C	D	E
1	Products	Q1	Q2	Q3	Q4
2	Monitors	94.8	42.5	82.4	76.9
3	Desktops	15.8	62.0	30.2	89.5
4	Laptops	70.6	42.9	81.9	1.5

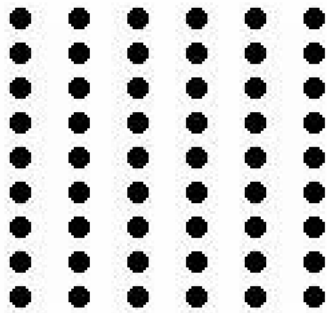
Excel screenshot showing a table with columns A-E and rows 1-4. Cell E10 is selected. The table data is as follows:

	A	B	C	D	E
1	Products	Q1	Q2	Q3	Q4
2	Monitors	83.37	2632.32	82.08	33.18
3	Desktops	7477.03	40.51	7686.99	3170.48
4	Laptops	8473.57	9934.58	7936.84	2872.00

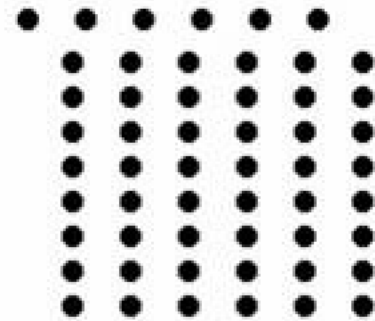
<http://xlcubedblog.wordpress.com/2008/05/09/applied-gestalt-laws-table-alignment/>



	A	B	C	D	E
1	Products	Q1	Q2	Q3	Q4
2	Monitors	90.7	81.5	87.2	49.6
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	A	B	C	D	E
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3	Desktops	15.8	62.0	30.2	89.5
4	Laptops	70.6	42.9	81.9	1.5



	A	B	C	D	E
1	●	●	●	●	●
2	●	●	●	●	●
3	●	●	●	●	●
4	●	●	●	●	●

	A	B	C	D	E
1	●	●	●	●	●
2	●	●	●	●	●
3	●	●	●	●	●
4	●	●	●	●	●

# Emphasizing the previous point

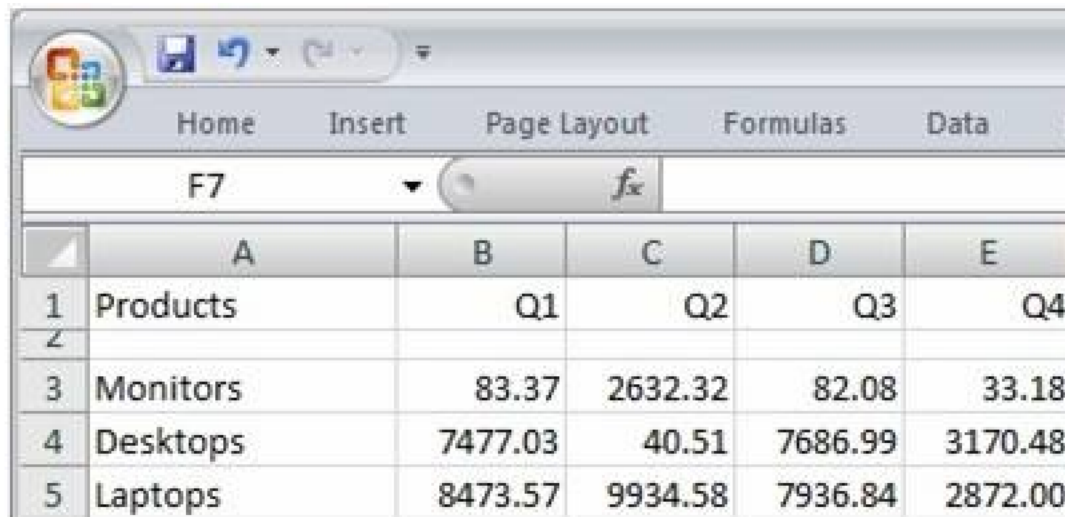


The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E
1	█	█	█	█	█
2	██	█	█	█	█
3	███	█	█	█	█
4	█	█	█	█	█

<http://xlcubedblog.wordpress.com/2008/05/09/applied-gestalt-laws-table-alignment/>

# Get Rid of “Chart Junk” 😊



The screenshot shows the Microsoft Excel interface. The ribbon includes Home, Insert, Page Layout, Formulas, and Data. The active cell is F7. The data table is as follows:

	A	B	C	D	E
1	Products	Q1	Q2	Q3	Q4
2					
3	Monitors	83.37	2632.32	82.08	33.18
4	Desktops	7477.03	40.51	7686.99	3170.48
5	Laptops	8473.57	9934.58	7936.84	2872.00

Products	Q1	Q2	Q3	Q4
Monitors	83.37	2632.32	82.08	33.18
Desktops	7477.03	40.51	7686.99	3170.48
Laptops	8473.57	9934.58	7936.84	2872.00

# Grouping



No visual structure

**Rotate X**  
**Rotate Y**  
**Rotate Z**  
**Zoom In**  
**Zoom Out**

Grouping created by

Visual separation between clusters  
Proximity within clusters

Hierarchy created by

Indentation (common fate)

**Rotate**  
**X**  
**Y**  
**Z**  
  
**Zoom**  
**In**  
**Out**

# Grouping



Even more visual structure

Grouping created by

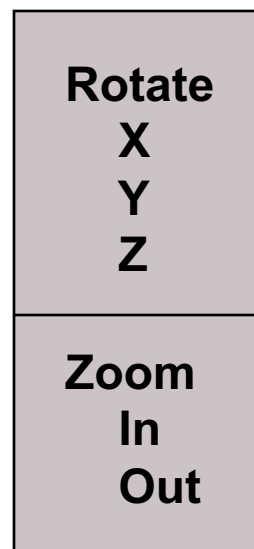
- Visual separation between clusters

- Proximity within clusters

- Boxes around each cluster

Hierarchy created by

- Indentation (common fate)



# Grouping: WordPress Admin Page

<http://cs4460infovis.wordpress.com/wp-admin/> (and check out InfoViz)



### Right Now

CONTENT	DISCUSSION
1 Post	3 Comments
6 Pages	1 Approved
1 Category	0 Pending
0 Tags	2 Spam

Theme **Zoren** with **2 Widgets**

Akismet has protected your site from **489 spam comments** already.  
There are **2 comments** in your spam queue right now.

---

### STORAGE SPACE

<b>3,072MB</b> Space Allowed	<b>130.77MB</b> Space Used (4%)
------------------------------	------------------------------------

### QuickPress

Have you tried our new home page quick post form yet? [Try it now](#) →

Enter title here

Add Media Add Poll Add Contact Form

Tags (separate with commas)

### Recent Drafts

There are no drafts at the moment

### Recent Comments

From **Mr WordPress** on **About the Course #**  
Hi, this is a comment.To delete a comment, just log in, and view the posts' comments, there you will have ...

[All](#) | [Pending \(0\)](#) | [Approved](#) | [Spam \(2\)](#) | [Trash \(0\)](#)

### Stats

Date	Stats
Oct 25	290
Oct 26	20
Oct 27	20
Oct 28	20
Oct 29	110
Oct 30	190
Oct 31	60
Nov 1	110
Nov 2	100
Nov 3	20
Nov 4	30
Nov 5	130
Nov 6	110
Nov 7	50

# Common region Gestalt Principle

Original BBC page

BBC page without common region

**BBC i** CATEGORIES TV RADIO COMMUNICATE WHERE I LIVE INDEX SEARCH

Text only | MAKE THIS YOUR HOMEPAGE **BBC i** Monday 16th December 2002

### SEARCH THE WEB

the Web  BBCi only

POPULAR SEARCHES RIGHT NOW ARE:  
top gear  
teenies  
travel

Why search the web with BBCi?



### A Dynamite Christmas

Does Ms Dynamite pack enough power to win Radio 1's Top Tune of the Year? **Cast your vote.**

It's also time to vote for what you think has been the **best live set** on Lamacq Live.

Ask James King a question to bag a year's cinema pass for two.

#### NEWS



Foster denies targeting Blair  
Fire review urges radical reform  
Man convicted of 1975 family murders

News in 43 languages  
فارسی|عربی

#### WHERE I LIVE

For local information, enter your postcode or town name

e.g. HR4 9AR or Hereford

#### BBCi DIRECTORY

A	B	C	D	E	F	G	H	I	J	K	L	M
N	O	P	Q	R	S	T	U	V	W	X	Y	Z

**Business & Money**  
Small Business, Money, News, Programmes, Work & Careers...

**Lifestyle**  
Christmas, DIY, Food, Gardening, Competitions...

**Children's**  
CBBC: Art, Games Newsround, CBeebies: Fimbles, Games, Stories...

**Music**  
News, Reviews, TV/Radio, Gigs/Concerts, Listen...

**Education & Learning**  
Schools, Colleges, Revision, Languages, Subject Listing...

**Entertainment**  
Comedy, Drama, Films, Soaps, Teens...

**Science & Nature**  
Animals, Birds, Dinosaurs, Space, Human Body...

**Health**  
Healthy Living, Medical Conditions, Parenting, Pregnancy, Relationships...

**History**  
Ancient History, History Games, Time Flyers, WW1, WW2...

**Sport**  
Cricket, Football, Motorsport, Other Sports...

[View all categories...](#)

#### SPORT



Ronaldo wins European honour  
Rossi 'subject of terrorist threat'  
Crunch time for Venables

#### Weather for London



cloudy  
min 3°C max 6°C

[View the 5 day forecast](#)

#### National sites:

England  
Scotland  
Wales/Cymru  
N. Ireland



#### TV

BBC TV schedules  
Digital TV  
A-Z of BBC  
programme websites

#### RADIO

All BBC radio  
Launch radio player  
Radio schedules

#### What's On locally:

**Cinema, Clubs, Music, Comedy, Theatre, more...**

Local TV and Radio Schedules

Schools  
**National league tables**

#### WORLD SERVICE

News in 43 languages  
فارسی|عربی

Arabic	Hindi	Urdu
Chinese	Russian	Others...
English	Spanish	

#### COMMUNICATE

**Your thoughts, your views**  
Has your DIY project turned into a nightmare? Find out how to sort it out on the **DIY message board**.

#### YOUR BBC

 <b>BBC Shop</b> Buy BBC products	 <b>CBBC</b> Access your favourite shows	 <b>WebWise</b> Get to grips with the Internet	 <b>Learning</b> BBC Learning resources for all
-------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------

#### DON'T MISS



#### YOUR BBC

Contact us Help

Jobs at the BBC  
About the BBC

#### MAKE THIS YOUR HOMEPAGE

**BBC i** CATEGORIES TV RADIO COMMUNICATE WHERE I LIVE INDEX SEARCH

Text only | MAKE THIS YOUR HOMEPAGE **BBC i** Monday 16th December 2002

### SEARCH THE WEB

the Web  BBCi only

POPULAR SEARCHES RIGHT NOW ARE:  
top gear  
teenies  
travel

Why search the web with BBCi?



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#### WHERE I LIVE

For local information, enter your postcode or town name

e.g. HR4 9AR or Hereford

#### BBCi DIRECTORY

A	B	C	D	E	F	G	H	I	J	K	L	M
N	O	P	Q	R	S	T	U	V	W	X	Y	Z

**Business & Money**  
Small Business, Money, News, Programmes, Work & Careers...

**Lifestyle**  
Christmas, DIY, Food, Gardening, Competitions...

**Children's**  
CBBC: Art, Games Newsround, CBeebies: Fimbles, Games, Stories...

**Music**  
News, Reviews, TV/Radio, Gigs/Concerts, Listen...

**Education & Learning**  
Schools, Colleges, Revision, Languages, Subject Listing...

**Entertainment**  
Comedy, Drama, Films, Soaps, Teens...

**Science & Nature**  
Animals, Birds, Dinosaurs, Space, Human Body...

**Health**  
Healthy Living, Medical Conditions, Parenting, Pregnancy, Relationships...

**History**  
Ancient History, History Games, Time Flyers, WW1, WW2...

**Sport**  
Cricket, Football, Motorsport, Other Sports...

[View all categories...](#)

#### SPORT



Ronaldo wins European honour  
Rossi 'subject of terrorist threat'  
Crunch time for Venables

#### Weather for London



cloudy  
min 3°C max 6°C

[View the 5 day forecast](#)

#### National sites:

England  
Scotland  
Wales/Cymru  
N. Ireland



#### TV

BBC TV schedules  
Digital TV  
A-Z of BBC  
programme websites

#### RADIO

All BBC radio  
Launch radio player  
Radio schedules

#### What's On locally:

**Cinema, Clubs, Music, Comedy, Theatre, more...**

Local TV and Radio Schedules

Schools  
**National league tables**

#### WORLD SERVICE

News in 43 languages  
فارسی|عربی

Arabic	Hindi	Urdu
Chinese	Russian	Others...
English	Spanish	

#### COMMUNICATE

**Your thoughts, your views**  
Has your DIY project turned into a nightmare? Find out how to sort it out on the **DIY message board**.

#### YOUR BBC

 <b>BBC Shop</b> Buy BBC products	 <b>CBBC</b> Access your favourite shows	 <b>WebWise</b> Get to grips with the Internet	 <b>Learning</b> BBC Learning resources for all
---------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------

#### DON'T MISS



#### YOUR BBC

Contact us Help

Jobs at the BBC  
About the BBC

#### MAKE THIS YOUR HOMEPAGE

# Proximity Example – Info Viz



Poorer – key separated

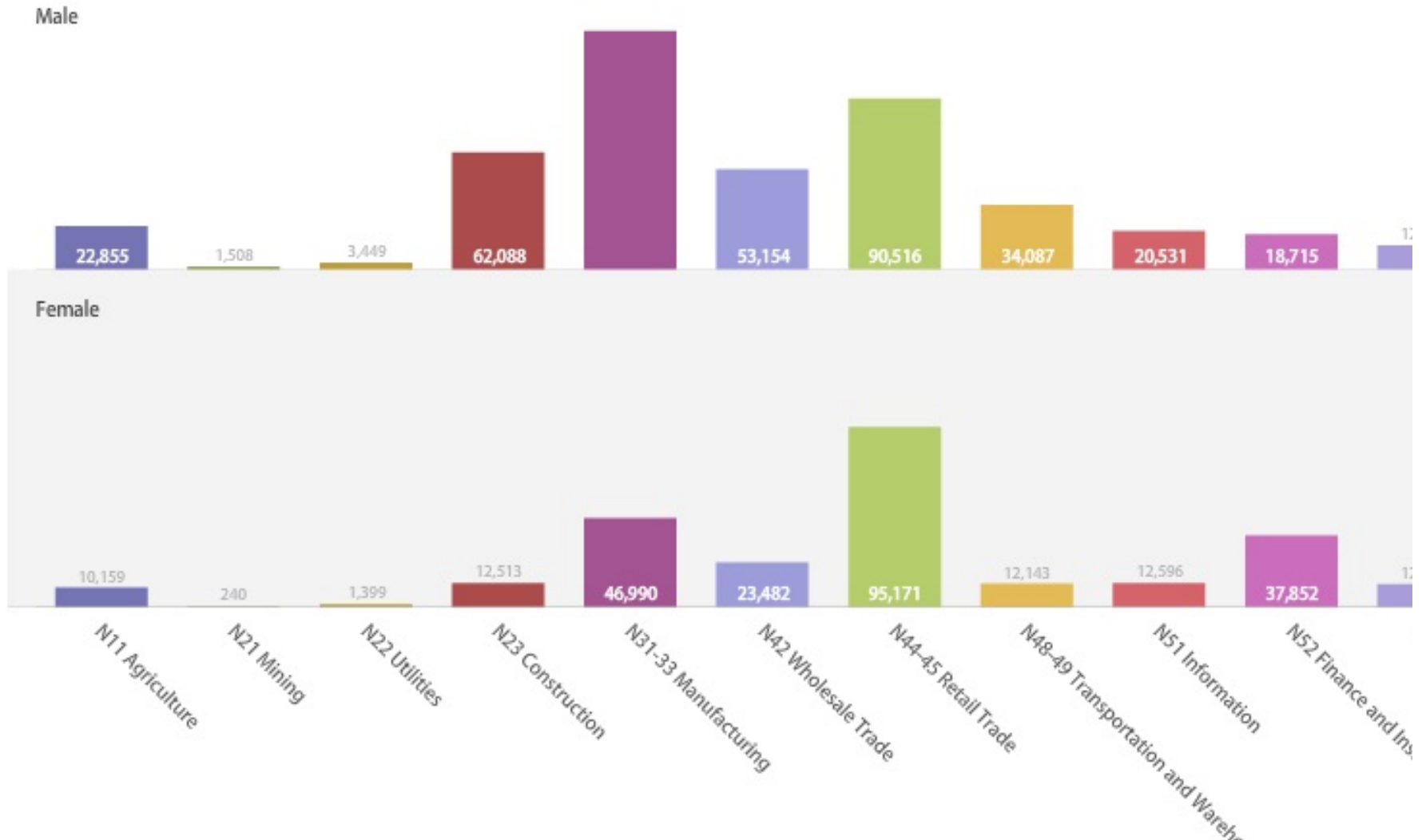


Better – no key, just labels by the trend lines

Follow the eyes!!



# Proximity Example – Info Viz



# Grouping: Poor Dialogue Box Design



## Align Objects

Left sides

L/R Centers

Right sides

Tops

T/B Centers

Bottoms

# Grouping: Somewhat Better Dialogue Box Design



Align Objects

<input checked="" type="checkbox"/> Left sides	<input type="checkbox"/> L/R Centers	<input type="checkbox"/> Right sides
<input type="checkbox"/> Tops	<input type="checkbox"/> T/B Centers	<input checked="" type="checkbox"/> Bottoms

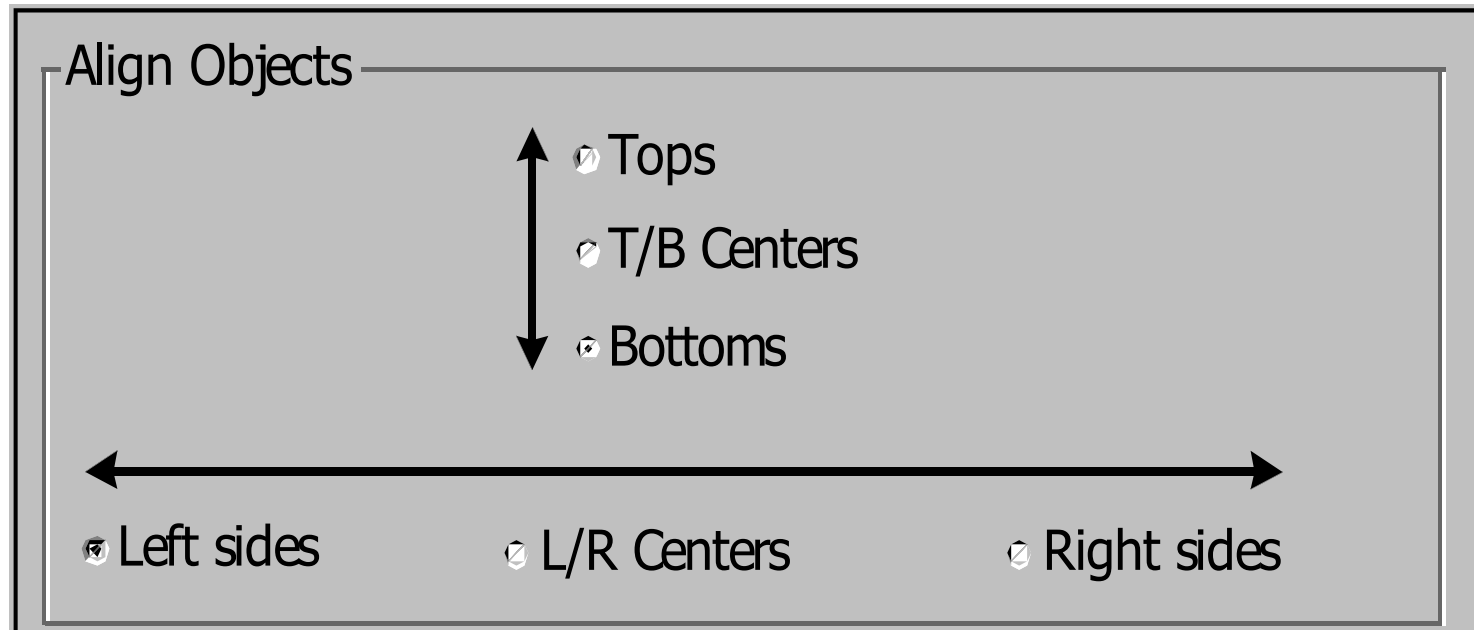
# Grouping: Better Dialogue Box Design



Align Objects

<input checked="" type="checkbox"/> Left sides	<input type="checkbox"/> L/R Centers	<input type="checkbox"/> Right sides
<hr/>		
<input type="checkbox"/> Tops	<input type="checkbox"/> T/B Centers	<input checked="" type="checkbox"/> Bottoms

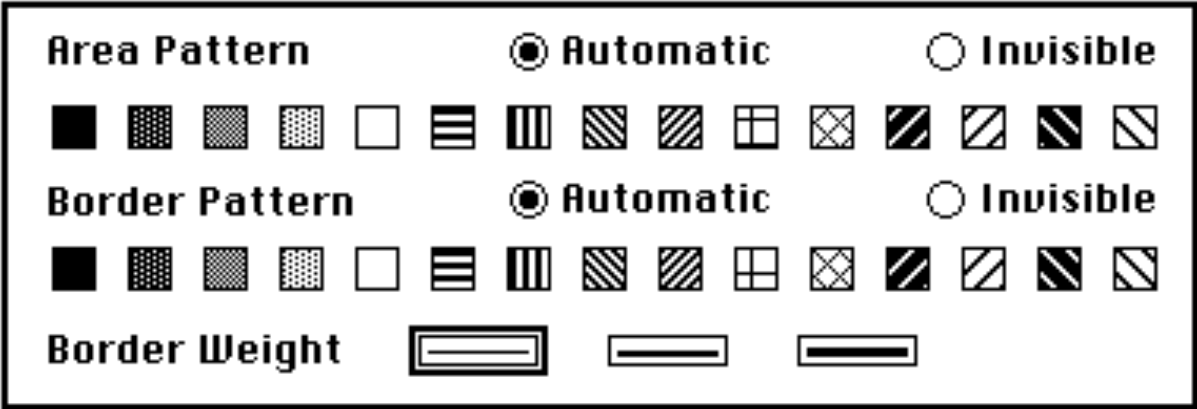
# Grouping: Much Better Dialogue Box



# Grouping: Poor Dialogue Box



- Weak visual structure



# Grouping: Improved Dialogue Box



- Strong visual structure

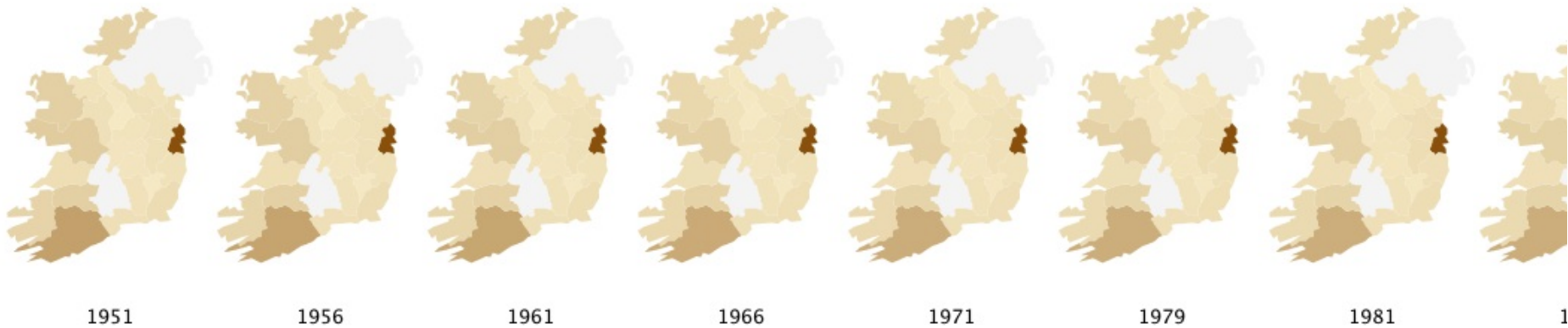
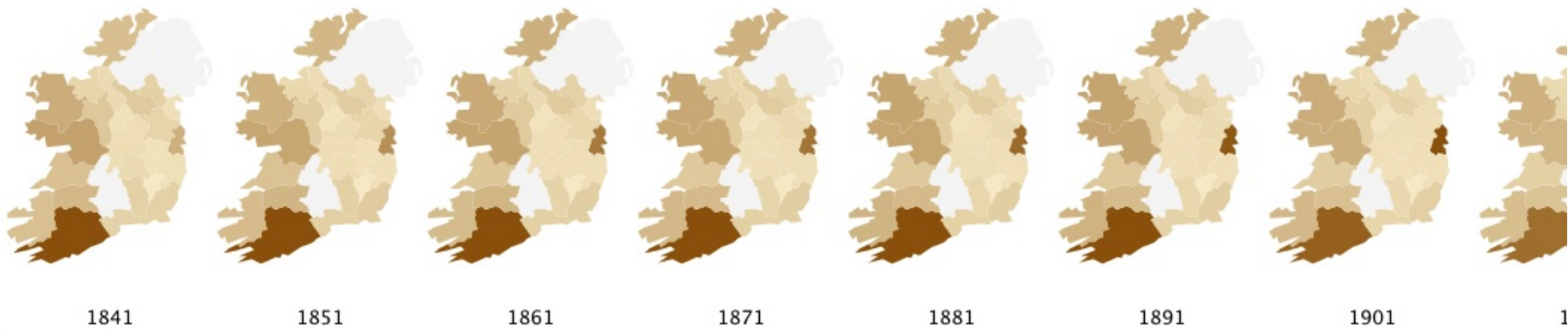
The diagram illustrates a grouped dialogue box with three distinct sections, each enclosed in a separate rounded rectangle within a larger container:

- Area Pattern:** Features a title bar and two radio buttons labeled "Automatic" (selected) and "Invisible". Below are 15 pattern swatches: solid black, various grid and dot patterns, white, horizontal and vertical lines, diagonal lines (top-left to bottom-right and top-right to bottom-left), a 2x2 grid, a cross-hatch pattern, and four diagonal line patterns with different orientations and colors.
- Border Pattern:** Identical in layout and options to the Area Pattern section.
- Border Weight:** Features three visual representations of different line thicknesses: a thick double-line border, a medium single-line border, and a thin single-line border.

# Poor Label Placement



- Horizontal line helps...





# Grouping: Gratuitous Proximity



What purpose does proximity serve?

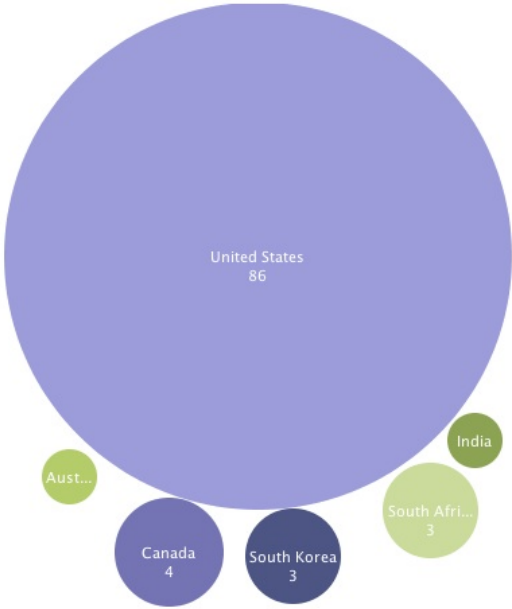
## Visualizations : Pointe Viven: percentage of blog pageviews by country

Uploaded by: [Pointe Viven](#) Created at: Tuesday September 07 2010, 01:18 PM  
Description: Pointe Viven rounded percentage of blog pageviews by country for Aug 31 to Sept 7, 2010  
Tags: [visitors](#) [audience](#) [taste](#) [food](#) [liberating](#) [organic](#) [baking](#) [cookies](#) [Viven](#) [Pointe](#)

Pageviews by...  
Click to select,  
Ctrl-Click: multi...  
Shift-Click: range

Percentage of Visitors (rounded)  
Disks colored by Pageviews by Countries

- United State
- Canada
- South Korea
- South Africa
- Australia
- India



Search>>

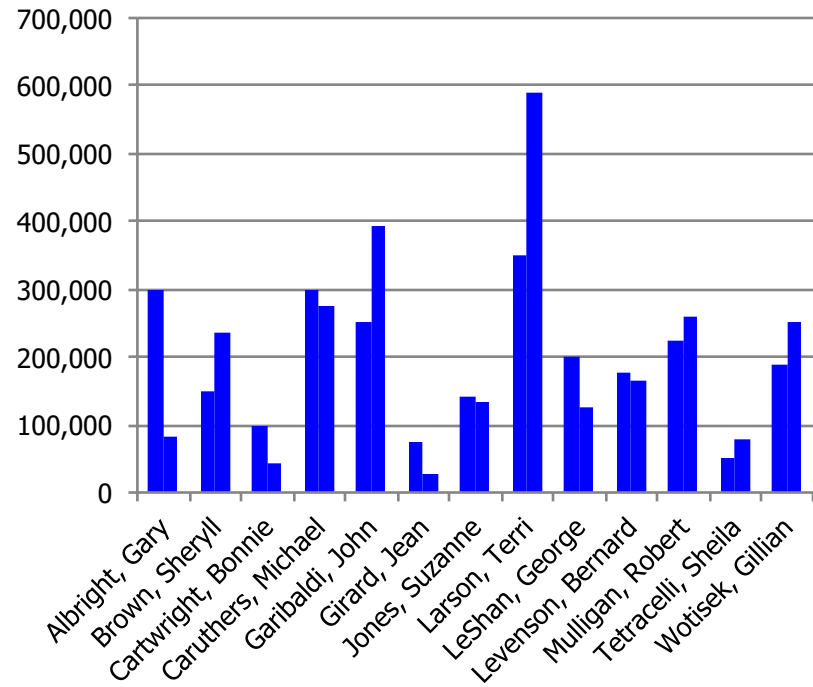
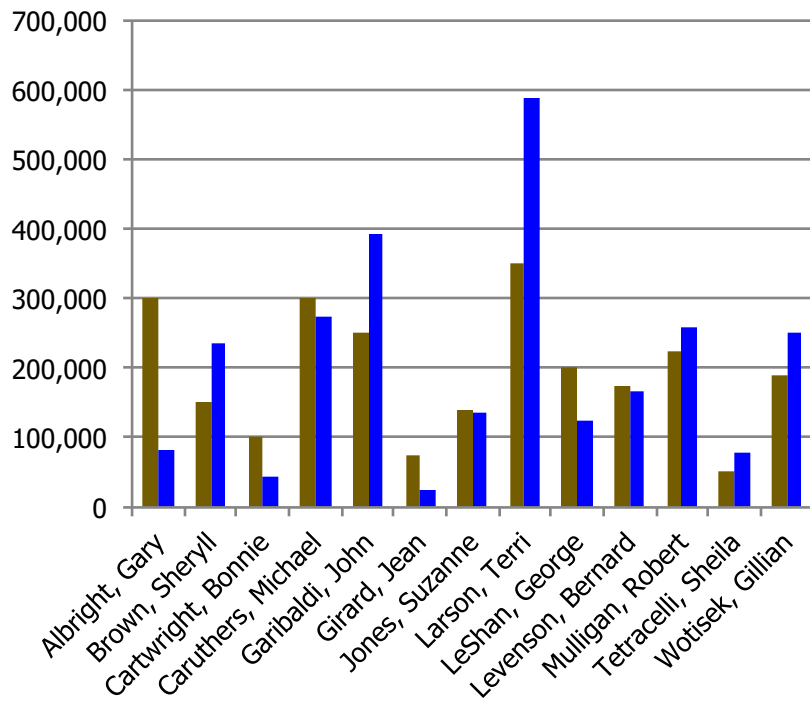
Color Pageviews by Countries

# Color Similarity Creates Groupings



Which is better?

Why?



# Gestalt: Proximity to Create Structure



Name

Addr1

Addr2

City

State

Phone

Fax

Name

Addr1

Addr2

City

State

Phone

Fax

Name

Addr1

Addr2

City

State

Phone

Fax

# Gestalt: Application of Principles to Screen Format



## Before

PART NUMBER FILE:	MISCELLANEOUS BRACKETS
PART: 0926431X	LH BRONZE STUD BRACKET
GROUP: B	BUDGET GROUP: 2413
CLASS: R	SUB-ACCOUNT: 92
UNITS: DOZENS	DEPRECIATION PERIOD 15
ACTION_____	PRODUCT STATUS: NOT YET ALLOCATED
ADDITION DATE:	1 DEC 75 F. BRIGGS DES 9
LAST AMENDED:	14 MAY 75 R. SMITH PROC 11
DELETION DATE:	NONE
MAIN SUPPLIER:	J. BLOGGS & SON, ROTHERHAM

T. Stewart,  
Displays and the  
Software Interface,  
*Applied  
Ergonomics*, 1976,  
pp. 137-146

# Gestalt: Application of Principles to Screen Format



## After

PART NUMBER FILE: MISCELLANEOUS BRACKETS	
PART: 0926431X LH BRONZE STUD BRACKET	
GROUP: B	BUDGET GROUP: 2413
CLASS: R	SUB-ACCOUNT: 92
UNITS: DOZENS	DEPRECIATION PERIOD: 15
ACTION_____	PRODUCT STATUS: NOT YET ALLOCATED
ADDITION DATE:	1 DEC 75 F. BRIGGS DES 9
LAST AMENDED:	14 MAY 75 R. SMITH PROC 11
DELETION DATE:	NONE
MAIN SUPPLIER:	J. BLOGGS & SON, ROTHERHAM

# Gestalt: Application of Principles to Screen Format



## Even Later (use upper & lower case)

Part Number File:	Miscellaneous Brackets
Part: 0926431X	LH Bronze Stud Bracket
Group: B	Budget Group: 2413
Class: R	Sub-account: 92
Units: Dozens	Depreciation Period: 15
Action_____	Product Status: Not Yet Allocated
Addition Date:	1 Dec 75 F. Brigs Des 9
Last Amended:	14 May 75 R. Smith Proc 11
Deletion Date:	None
Main Supplier:	J. Bloggs & Son, Rotherham

# Gestalt: Application of Principles to Screen Format



## Even Later (Font differentiates data from labels)

Part Number File:	Miscellaneous Brackets
Part: 0926431X	LH Bronze Stud Bracket
Group: B	Budget Group: 2413
Class: R	Sub-account: 92
Units: Dozens	Depreciation Period: 15
Action_____	Product Status: Not Yet Allocated
Addition Date:	1 Dec 75 F. Brigs Des 9
Last Amended:	14 May 75 R. Smith Proc 11
Deletion Date:	None
Main Supplier:	J. Bloggs & Son, Rotherham

# Using Gestalt Principles is REALLY Important



- Use visual structure to reinforce the underlying logical structure



# Typographical Hierarchy

---



**This is a level 1 heading**

**This is a level 2 heading**

**This is a level 2 heading**

**This is a level 3 heading**

**This is a level 2 heading**

# Typographical Hierarchy plus Indentation



**This is a level 1 heading**

**This is a level 2 heading**

**This is a level 2 heading**

**This is a level 3 heading**

**This is a level 2 heading**

# Hierarchy

TODAY'S PAPER VIDEO MOST POPULAR

U.S. | International | 中文网

jasfoley ▼ | Help

SHOP  
MARC JACOBS.COM  
PHONE ACCESSORIES

## The New York Times

Wednesday, November 6, 2013 Last Update: 7:45 PM ET



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- POLITICS
- NEW YORK
- BUSINESS
- DEALBOOK
- TECHNOLOGY
- SPORTS
- SCIENCE
- HEALTH
- ARTS
- STYLE
- OPINION

- Autos
- Blogs
- Books
- Cartoons
- Classifieds
- Crosswords
- Dining & Wine
- Education
- Event Guide
- Fashion & Style
- Home & Garden
- Jobs
- Magazine
- Media

### Twitter Prices Its Initial Offering at \$26 Per Share

By VINDU GOEL 6:50 PM ET

The offering, which values the company at roughly \$18 billion, is a sign of maturity for the social network, which has become an influential public forum.

Comments

### Obama, Speaking in Dallas, Pressures Texas on Health Law

By JACKIE CALMES 25 minutes ago

During a visit Wednesday, the president said Texas was a prime example of a state that could benefit from the health care law but has not taken advantage of it.

- Sebelius Rejects Bipartisan Calls for Delay in Health Law
- Notes Show Chaotic White

### ELECTION 2013



Damon Winter/The New York Times

VIDEO

### In Mayor's Race, a Mantra That Resonated

With his theme of "A Tale of Two Cities," Bill de Blasio captured voters' concerns about inequality in the city.

NEWS ANALYSIS

### New de Blasio Reality: Deficit and Union Raises

By MICHAEL M. GRYNBAUM and THOMAS KAPLAN

When Bill de Blasio succeeds Michael R. Bloomberg as New York City's next mayor, he will be tested immediately.

331 Comments

- De Blasio Takes His First Steps to Reshape New York 4:32 PM ET
- Milestones: Bill de Blasio

ELECTION RESULTS

### The Opinion Pages

OP-ED CONTRIBUTOR

### I Lost It on Election Night

By ALLAN RIPP

How can we have an electoral process that is so hopelessly antiquated?

FIXES | JASON SILVERSTEIN

### Treating the Village to Cure the Disease

Administering drugs to the sick, and the well, can stop a parasitic disease.



- Editorial: New Chance for the Budget Compromise
- Edsall: Keeping Black Voters in Their Place
- Room for Debate: Does U.S. Have Too Many Generals?
- Bittman: On Becoming China's Farm Team
- Taking Note: Sympathy for the Devil Worshipers?

OP-ED COLUMNISTS

- Dowd: Lost Art of Loyalty
- Friedman: Too Big to Breathe?

MARKETS » At close 11/06/2013

S.&P. 500	Dow	Nasdaq
1,770.49	15,746.88	3,931.95
+7.52	+128.66	-7.92
+0.43%	+0.82%	-0.20%

GET QUOTES My Portfolios »

Stock, ETFs, Funds Go



The Completely

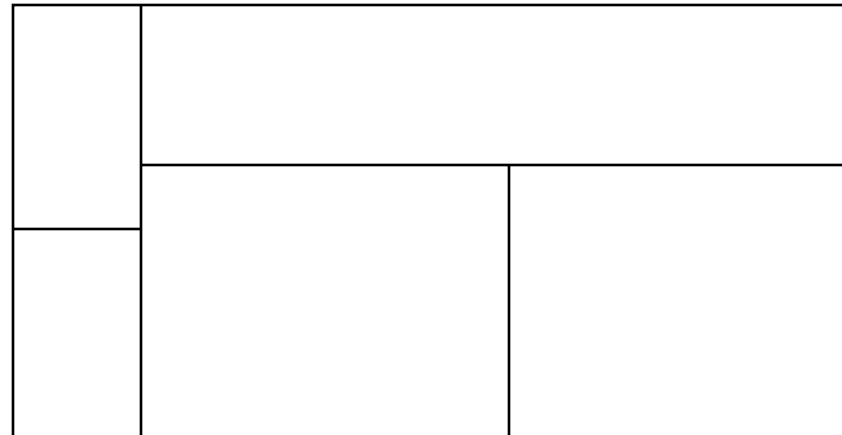
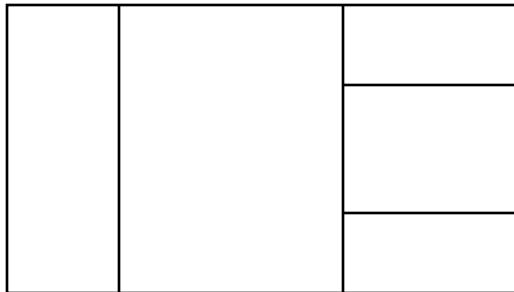


# Use Grids



- What?
  - (Hidden) horizontal and vertical lines to help locate window components
  - Align related things
- Why?
  - Grouping related items by similarity – being aligned on same grid lines – helps viewer understand the logical structure

# Grids: Examples



# Grid Alignment



- **Grid:** the invisible, underlying structure of a site
- Grid: essential – you must use one

The screenshot displays a web browser window with the following elements:

- Browser Title:** Fraunhofer IMK - Media Arts and Research Studies
- Address Bar:** http://www.imk.fraunhofer.de/sixcms/detail.php?template=&id=1007
- Navigation Bar:** Back, Forward, Stop, Refresh, Home, AutoFill, Print, Mail
- Search Bar:** google, webmail, amazon.com, Merriam-Webster, Internet Explorer, atlanta
- Website Content:**
  - Fraunhofer IMK** logo and text: Institut Medienkommunikation
  - Forschungsgruppe Media Arts and Research Studies** with a list of links: Kompetenzen, Projekte und Produkte, MitarbeiterInnen, Publikationen
  - Wer wir sind** section with a photo of a control room and text: Die Forschungsgruppe Media, Arts and Research Studies (MARS) wurde 1997 gegründet. Ihr Ansatz ist, künstlerische Strategien für die Entwicklung von Medientechnologien und umgekehrt medientechnologische Forschung für die Kunst und ihre angewandten Bereiche produktiv zu machen.

# Grid Alignment



- **Grid:** communicates underlying structure
- Essential – you must use one

Fraunhofer IMK - Media Arts and Research Studies

Address: <http://www.imk.fraunhofer.de/sixcms/detail.php?template=&id=1007>

google webmail amazon.com Merriam-Webster Internet Explorer atlanta

Fraunhofer IMK

Fraunhofer IMK  
Abteilungen  
■ MARS  
Fraunhofer-Gesellschaft

Fraunhofer IMK  
Institut  
Medienkommunikation

Forschungsgruppe Media  
Arts and Research Studies

- ▶ Kompetenzen
- ▶ Projekte und Produkte
- ▶ MitarbeiterInnen
- ▶ Publikationen

Wer wir sind

Die Forschungsgruppe Media Arts and Research Studies (MARS) wurde 1997 gegründet. Ihr Ansatz ist, künstlerische Strategien für die Entwicklung von Medientechnologien und umgekehrt medientechnologische Forschung für die Kunst und ihre angewandten Bereiche produktiv zu machen.

Das MARS Lab ist organisiert in interdisziplinären Teams von Architekten, Künstlern, Designern, IT-Experten, Medien- und

# Grid Alignment



- **Grids**
  - Help locate dialogue box components
  - Align related things to group them together
  - Avoid disconcerting irregularities



# Grid Alignment



- **Grids**

- Help locate dialogue box components
- Align related things to group them together
- Avoid disconcerting irregularities

# Grid Alignment



- **Grids**

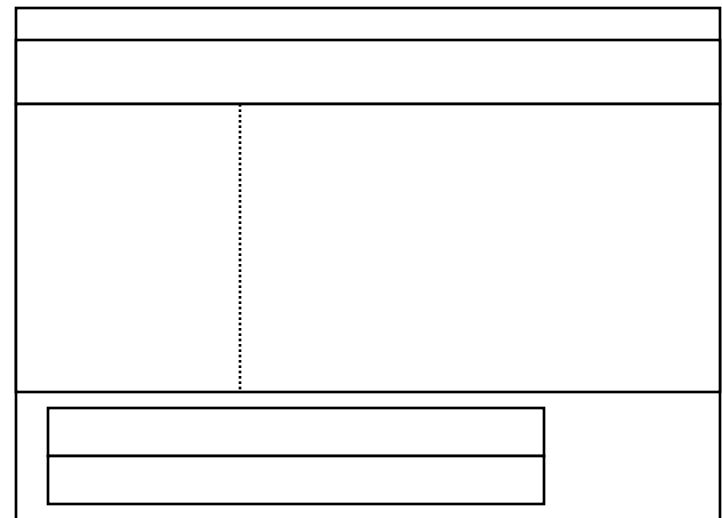
- Help locate dialogue box components
- Align related things to group them together
- Avoid disconcerting irregularities like this

# Yahoo! – Grid and Hierarchy



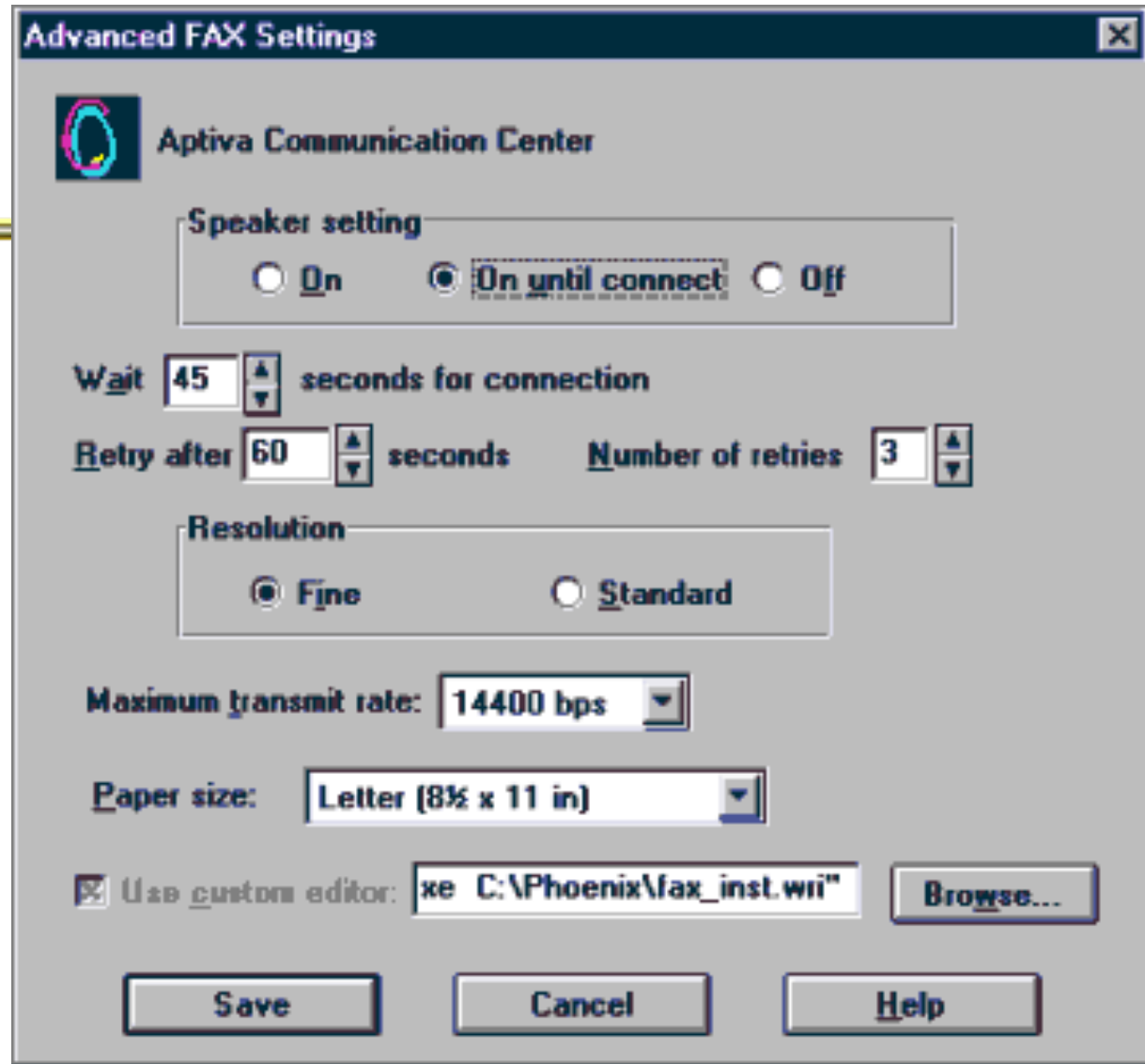
- Yahoo! has good gridding and a visual hierarchy
- <http://www.yahoo.com/>

# Grid Example



# Bad Example

- No gridding
- Inconsistent use of visual cues for grouping
- Inconsistent space between label and data



# Bad Example

# What's wrong? How fix?



**RegEx (1)**  R  
Match   
Replace   
 Include Ext.

**File (2)**  R  
Name  Keep

**Repl. (3)**  R  
Replace   
With   
 Match Case

**Case (4)**  R  
Same   
Excep.

**Remove (5)**  R  
First n  Last n   
From  to   
Chars  Words   
Crop  Before   
 Digits  High  Trim  
 D/S  Accents  Chars  
 Sym. Lead Dots  Non

**Move/Copy (6)**  R  
 None  1   
 None  1  Sep.

**Add (7)**  R  
Prefix   
Insert   
at pos.   
Suffix   
 Word Space

**Auto Date (8)**  R  
Mode  None   
Type  Creation (Cur   
Fmt  DMY   
Sep.  Seg.   
Custom   
 Cent. Off.

**Append Folder Name (9)**  R  
Name  None  Sep.  Levels

**Numbering (10)**  R  
Mode  None  at   
Start  Incr.   
Pad  Sep.   
Break   Folder  
Type  Base 10 (Decimal)   
Roman Numerals  None

**Extension (11)**  R  
Same

**Selections (12)**  R  
Filter   Folders  Hidden  
 Match Case  Files  Subfolders  
Name Len Min  Max   
Path Len Min  Max

**New Location (13)**  R  
Path    
 Copy not Move

**\*\* Working on multiple computers? Synchronize your files across computers with ViceVersa PRO. [Click Here To Find Out More ...](#)**

0 Objects (0 Selected)

# Bad Example



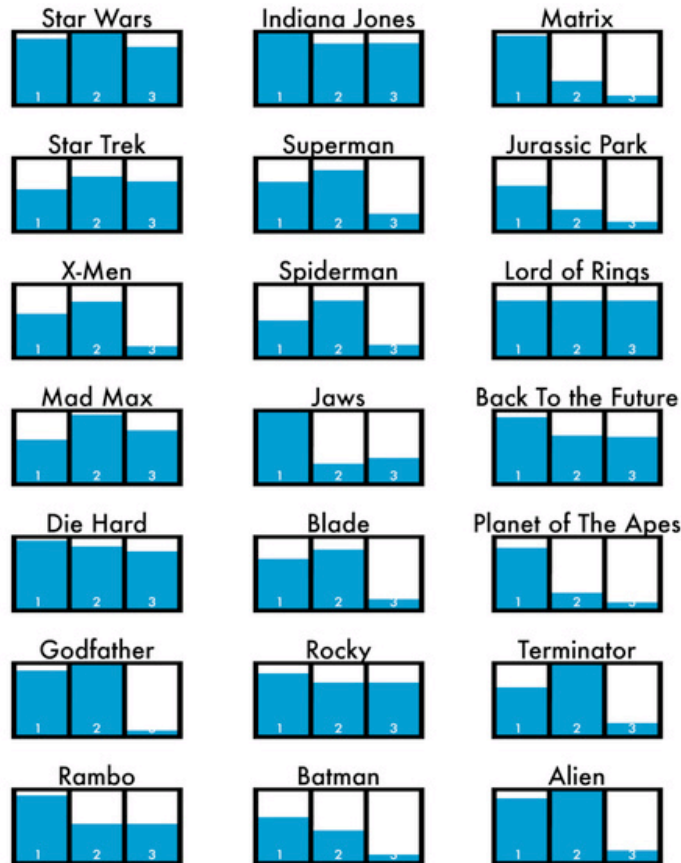
Form Title -- (appears above URL in most browsers and is used by 'www' search engines)		Background Color:
Q&D Software Development Order Desk		FFFBF0
Form Heading -- (appears at top of Web page in bold type)		Text Color:
Q&D Software Development Order Desk <input checked="" type="checkbox"/> Center		000080
E-Mail responses to (will not appear on page)	Alternate (for mailto forms only)	Background Graphic
dversch@q-d.com		
Text to appear in Submit button	Text to appear in Reset button	<input type="radio"/> Mailto
Send Order	Clear Form	<input checked="" type="radio"/> CGI
Scrolling Status Bar Message (max length = 200 characters)		
****WebMania 1.5b with Image Map Wizard is here!****		
<input type="button" value=" &lt;&lt; Prev Tab"/>		<input type="button" value=" Next Tab &gt;&gt;"/>

- Hint: Yellow fields are labels
- So-so visual grouping
- So-so logical grouping

# Imagine if this were not gridded!



## THE TRILOGY METER



#1 In A Series of Pop Cultural Charts

DANMETH.COM

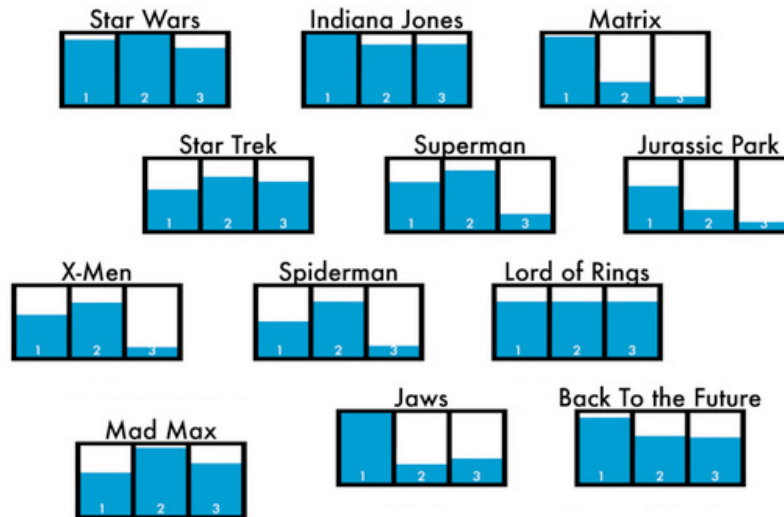
<http://danmeth.com/post/77471620/my-trilogy-meter-1-in-a-series-of-pop-cultural>



# Lovely 😊



## THE TRILOGY METER



Etc.

# Two Foley Mantras



- Use Visual Structure to Reinforce Logical Structure
- Follow the Eyes to help find logical structure