



Visual Display

Examples

By

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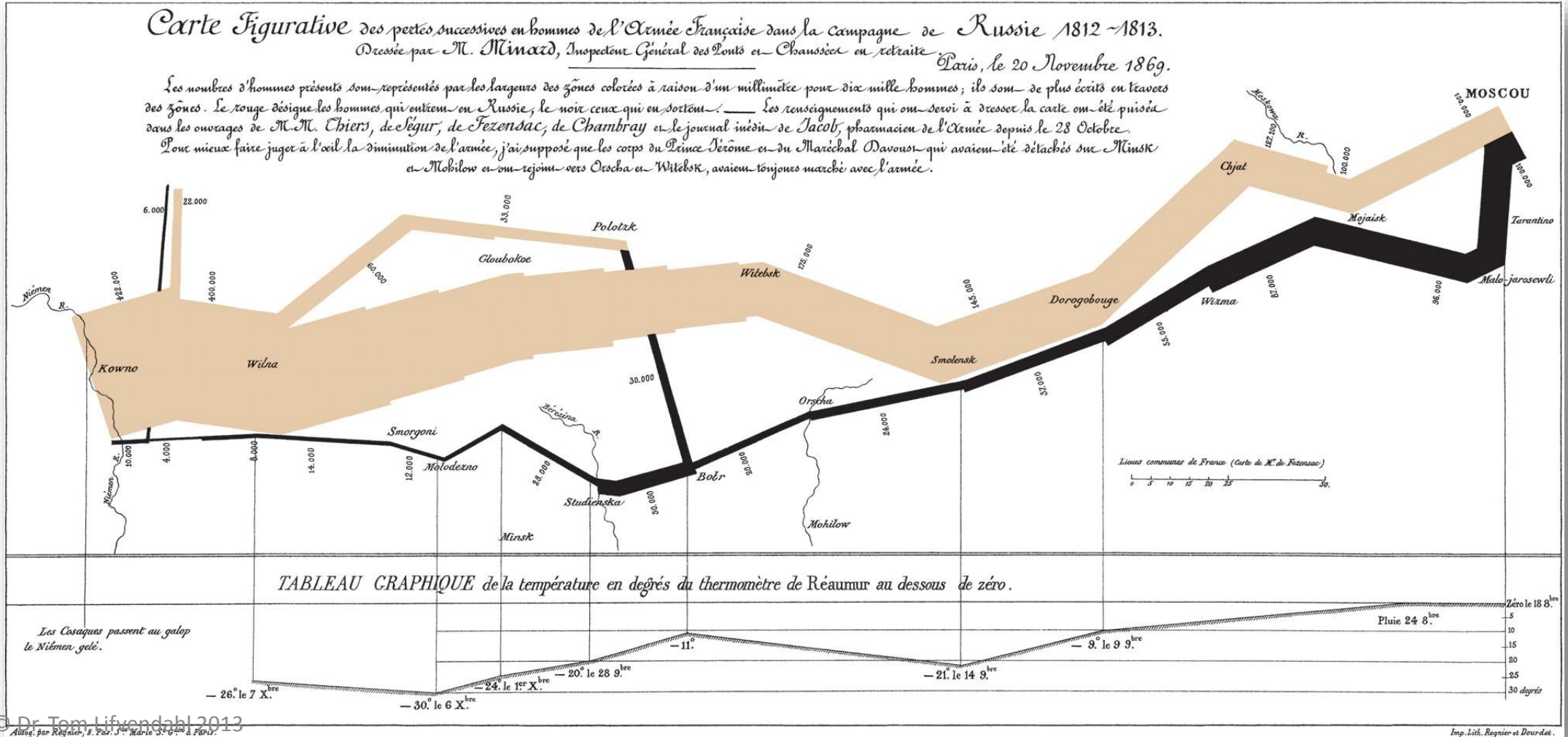
Carte Figurative



Carte Figurative des pertes successives en hommes de l'Armée Française dans la campagne de Russie 1812-1813.

Dressée par M. Minard, Inspecteur Général des Ponts et Chaussées en retraite Paris, le 20 Novembre 1869.

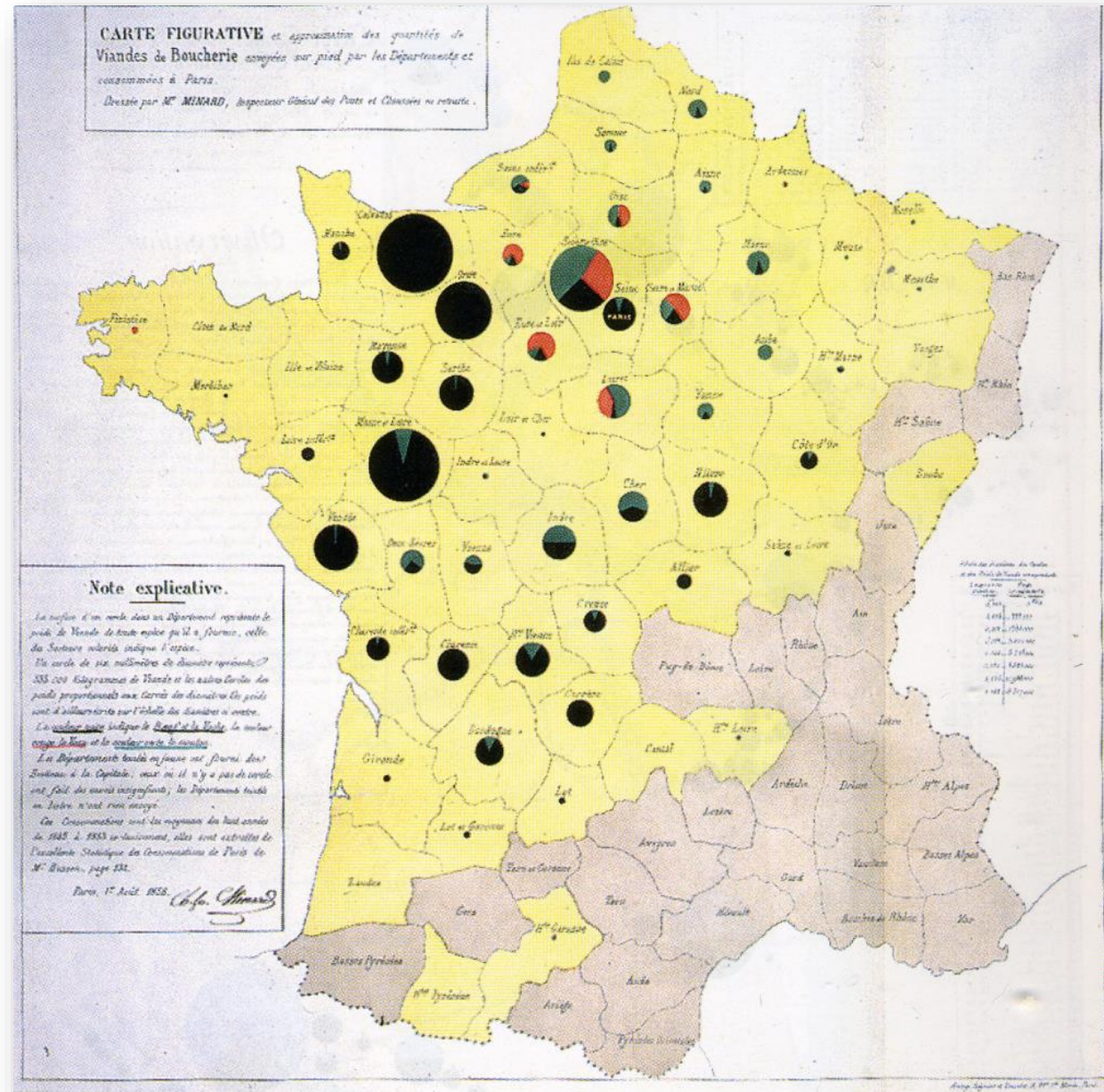
Les nombres d'hommes présents sont représentés par les largeurs des zones colorées à raison d'un millimètre pour dix mille hommes; ils sont de plus écrits en travers des zones. Le rouge désigne les hommes qui entrent en Russie, le noir ceux qui en sortent. Les renseignements qui ont servi à dresser la carte ont été puisés dans les ouvrages de M. M. Chiers, de Legur, de Fezensac, de Chambray et le journal intime de Jacob, pharmacien de l'Armée depuis le 28 Octobre. Pour mieux faire juger à l'œil la diminution de l'armée, j'ai supposé que les corps du Prince Jérôme et du Maréchal Davout, qui avaient été détachés sur Minsk et Mohilow et ont rejoint vers Orscha et Witebsk, avaient toujours marché avec l'armée.



Charles Joseph Minard

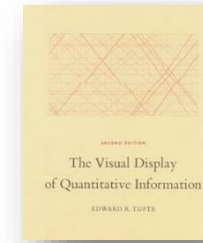


c. 1858



The Visual Display of Quantitative Information

by Edward R. Tufte

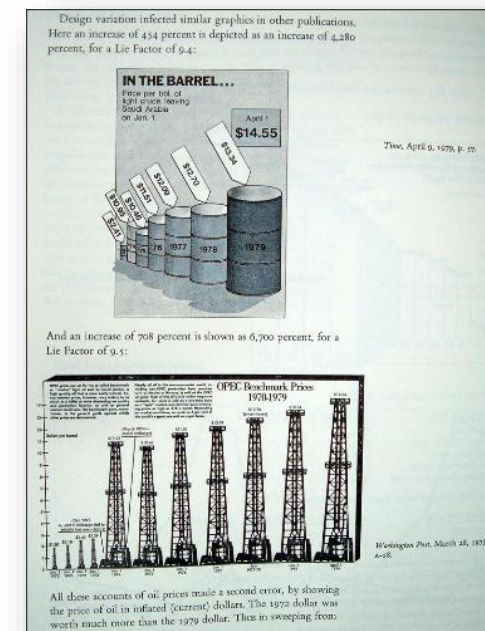


- **Critiques statistical information display by noting that:**

- Redundant information tends to obscure relevant facts
- Excellence in graphic display requires clear, precise and efficient use of data

- **Six Principles**

- Number Size = Display Proportion
- Label Clearly
- Vary Data not Design
- Display Money (Costs) in a standardized way
- Information Variables = Data Dimensions
- Never Quote Data out of Context



Atlas of the Real World



HIGHEST AND LOWEST LONG-TERM UNEMPLOYMENT RATES

Rank	Territory	%*
1	Slovakia	5.4
2	Poland	4.3
3	Italy	2.2
4	Greece	2.0
5	Spain	2.0
6	Germany	2.0
7	Czech Republic	1.9
8	Belgium	1.6
9	France	1.4
10	Turkey	1.1
21	Switzerland	0.40
22	Luxembourg	0.40
23	Canada	0.39
24	New Zealand	0.38
25	Netherlands	0.28
26	United States	0.25
27	Iceland	0.20
28	Norway	0.13
29	South Korea	0.03
30	Mexico	0.00

* % of total population registered as long-term unemployed, 2002 (OECD members only)

200 Long-Term Unemployed

The size of each territory indicates the number of people there who have been out of work and looking for work for one year or longer. The highest rates of long-term unemployment are found in European territories.

In 2002 almost 11 million long-term unemployed people were living in OECD territories. (The map reflects the position in those territories that are part of the OECD; most non-OECD territories do not pay unemployment benefits, which means that data on numbers of registered unemployed are not available.)

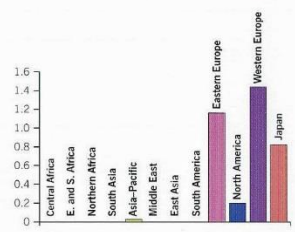
In Slovakia 5.4% of the total population are long-term unemployed; and since some

members of the population are too young, too old or not able to work, the percentage of long-term unemployed as a fraction of the potential active workforce is even higher – nearly 10%.

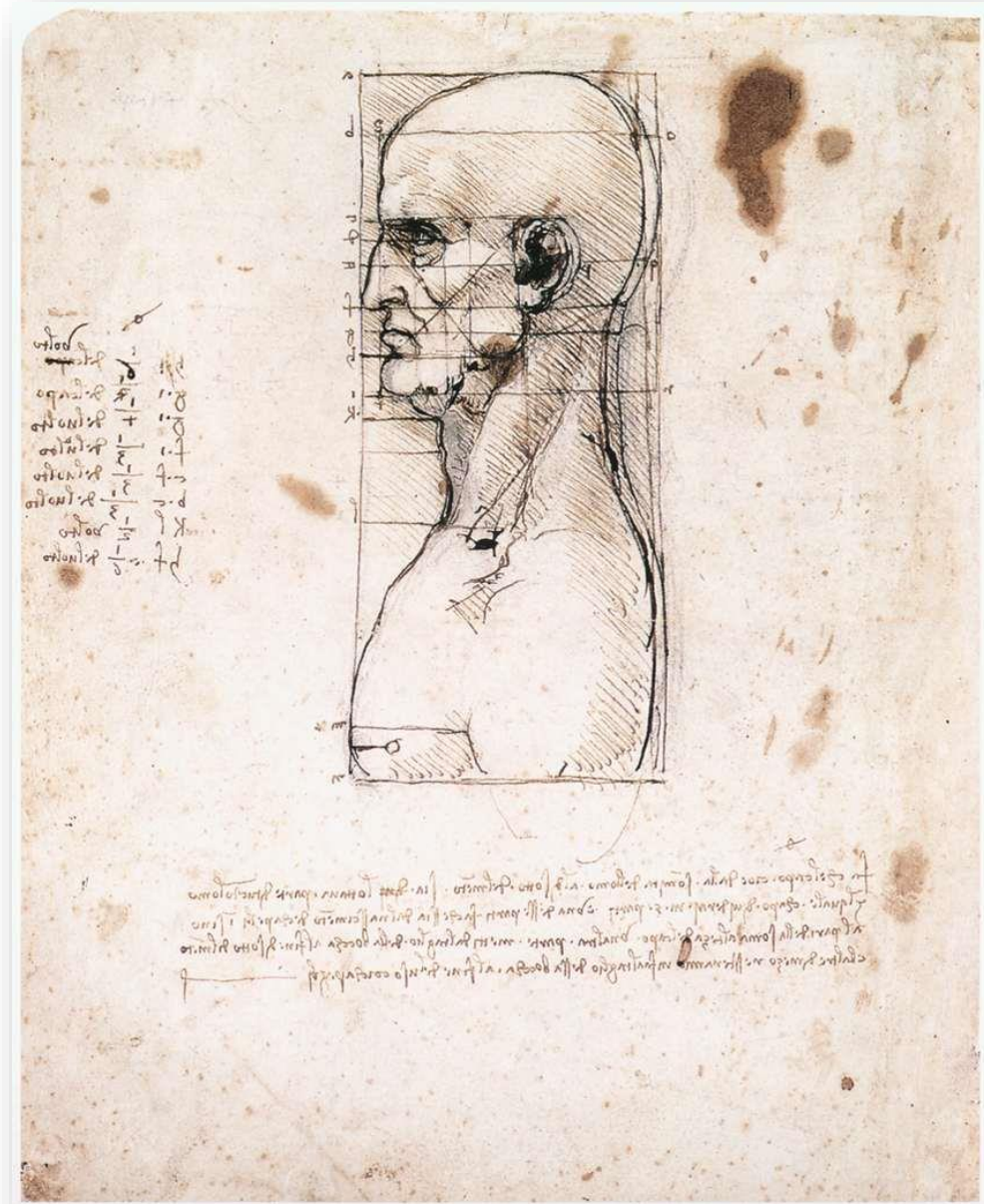
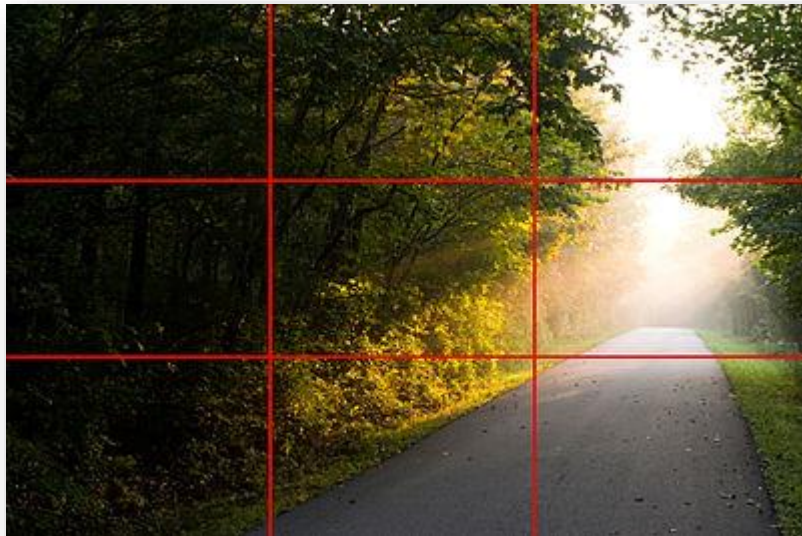
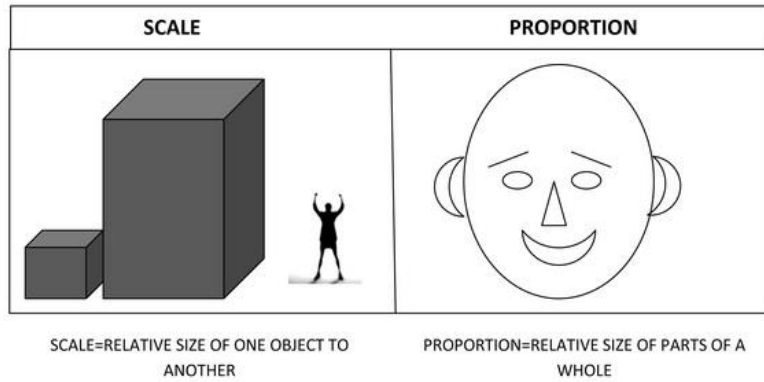
The lowest long-term unemployment rate among the OECD countries is in Mexico, which traditionally has offered relatively little social support to unemployed people.

LONG-TERM UNEMPLOYED IN OECD TERRITORIES

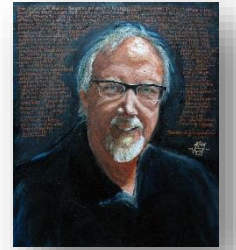
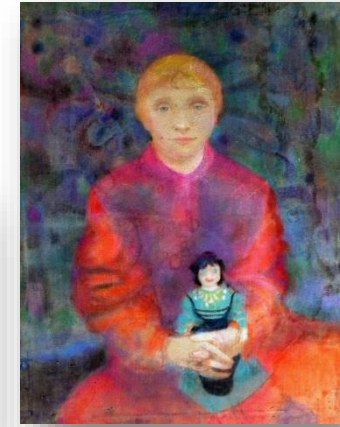
% of regional population unemployed and living in an OECD territory



Design Elements



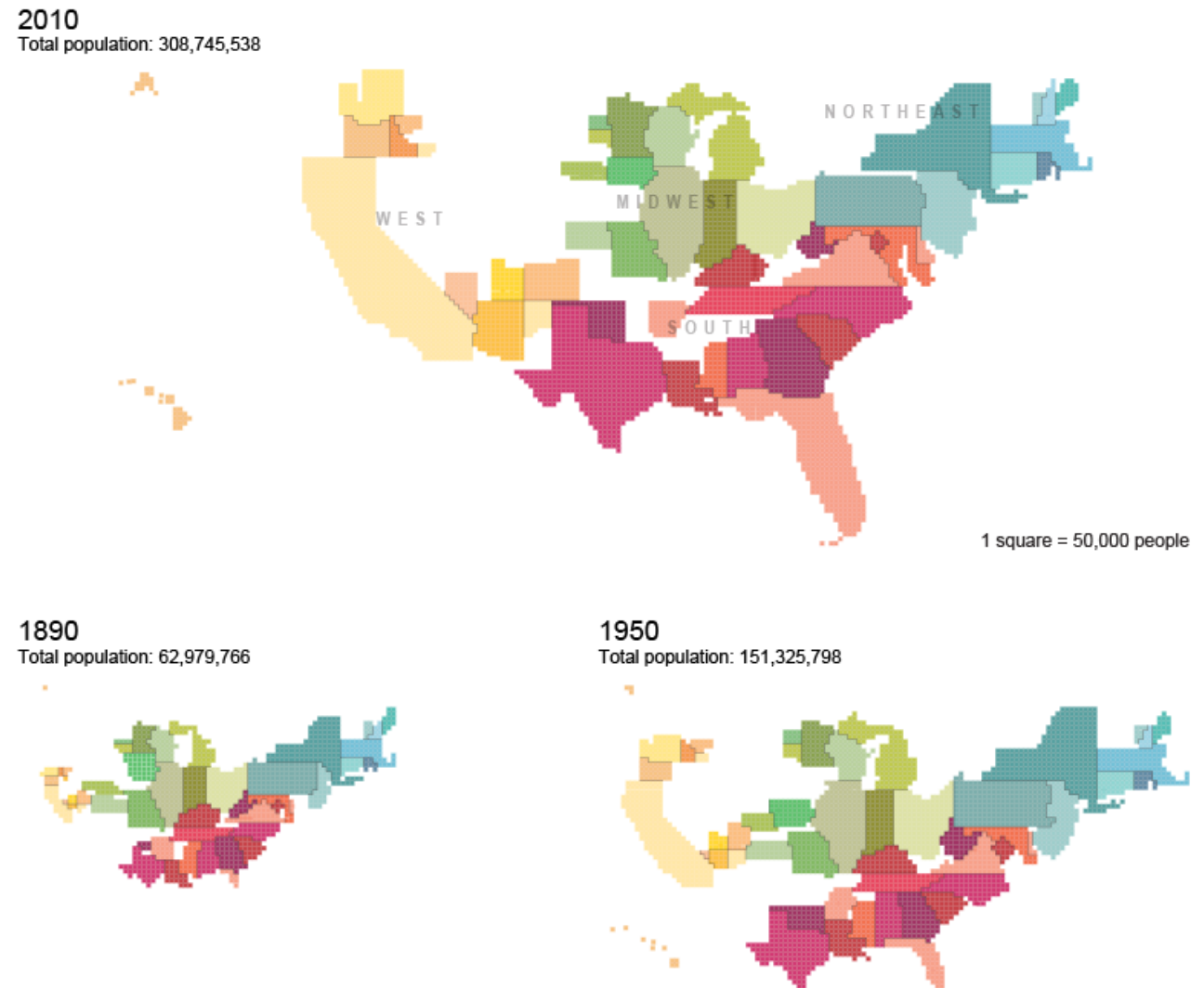
Art and Design



Examples

- The following graphics display complex information in simple ways
- Judge each by:
 - Content
 - Depth of Information
 - Purpose of Display
 - Outcome Desired for the Reader

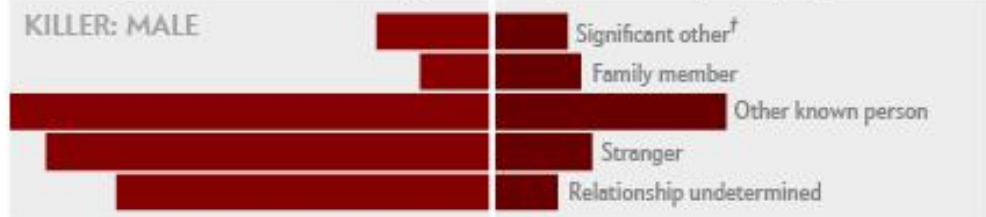
<http://www.census.gov/dataviz/visualizations/021/>



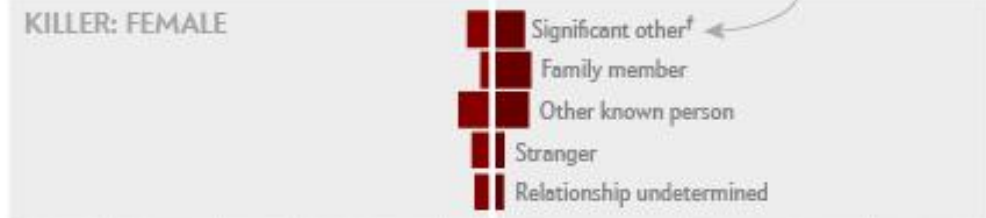
People Kill with Guns More Than Any Other Weapon



Men use guns more often than any other weapon on nearly every type of victim



Women are more likely not to use a gun when killing a significant other



2,000 1,000 0 1,000 2,000
Number of Killers*

*Numbers may not correlate exactly because some incidents may involve multiple offenders or victims

† Spouses, partners, girlfriends or boyfriends

Men and Women Primarily Kill People They Know



When a man kills another man with a gun, it is most often a friend or acquaintance



When a man kills a woman with a gun, she is most likely to be his significant other



2,000 1,000 0 1,000 2,000
Number of Victims*

Graphic By Scientific American; SOURCE: PERISCOPE (data from FBI's Uniform Crime Reports, Supplementary Homicide Report, 2010)

Interactive Map

If you go the listed Website you can click on each planet type and see its position in either the Southern or Northern Hemisphere

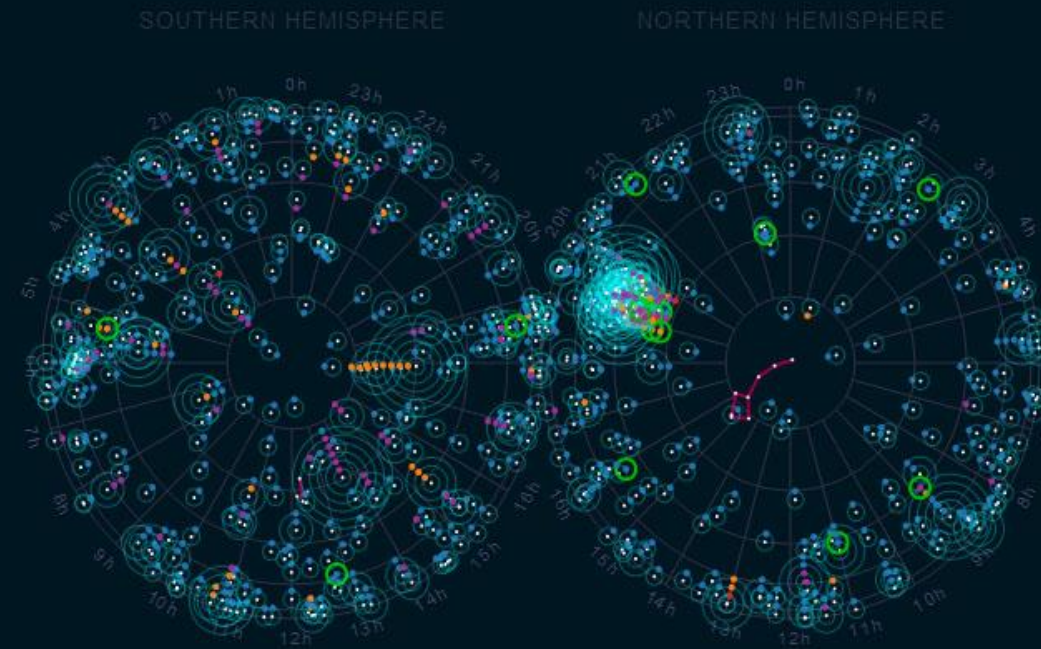


Select planet type:

- Kepler telescope discovery
- Gas Giants
- Super-Earth
- Neptunian
- Terrestrial

Select layout:

- Position in the sky
- Distance from the sun
- Animated transition



- Host stars
- Planet in habitual zone

http://www.scientificamerican.com/article.cfm?id=exoplanets-cosmic-map-extraterrestrial-life&WT.mc_id=SA_printmag_2013-07

Confirmed exoplanets by April, 2013 (star, planet and orbit size not to scale)

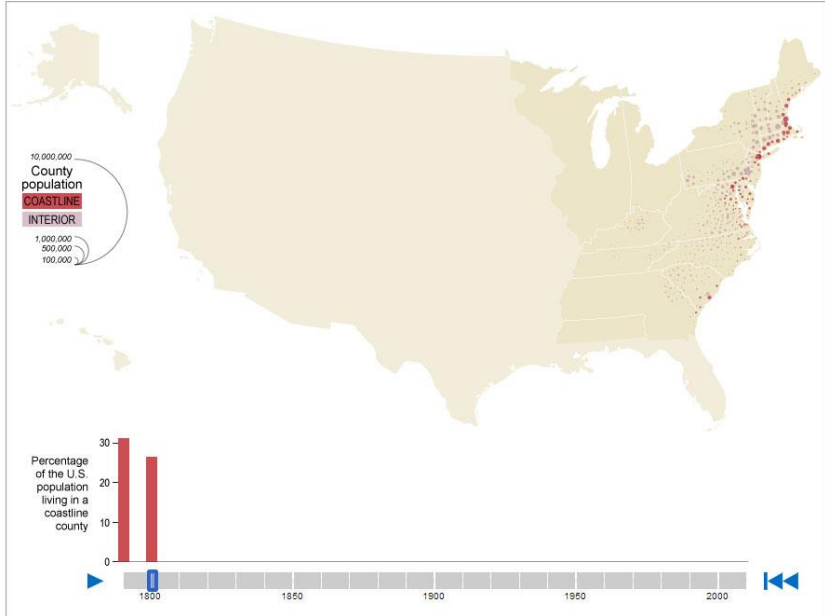
Comparing Data Sets

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Coastline County Population

September 6, 2012

Twitter Facebook Pinterest



<http://www.census.gov/dataviz/visualizations/039/>

<< Previous

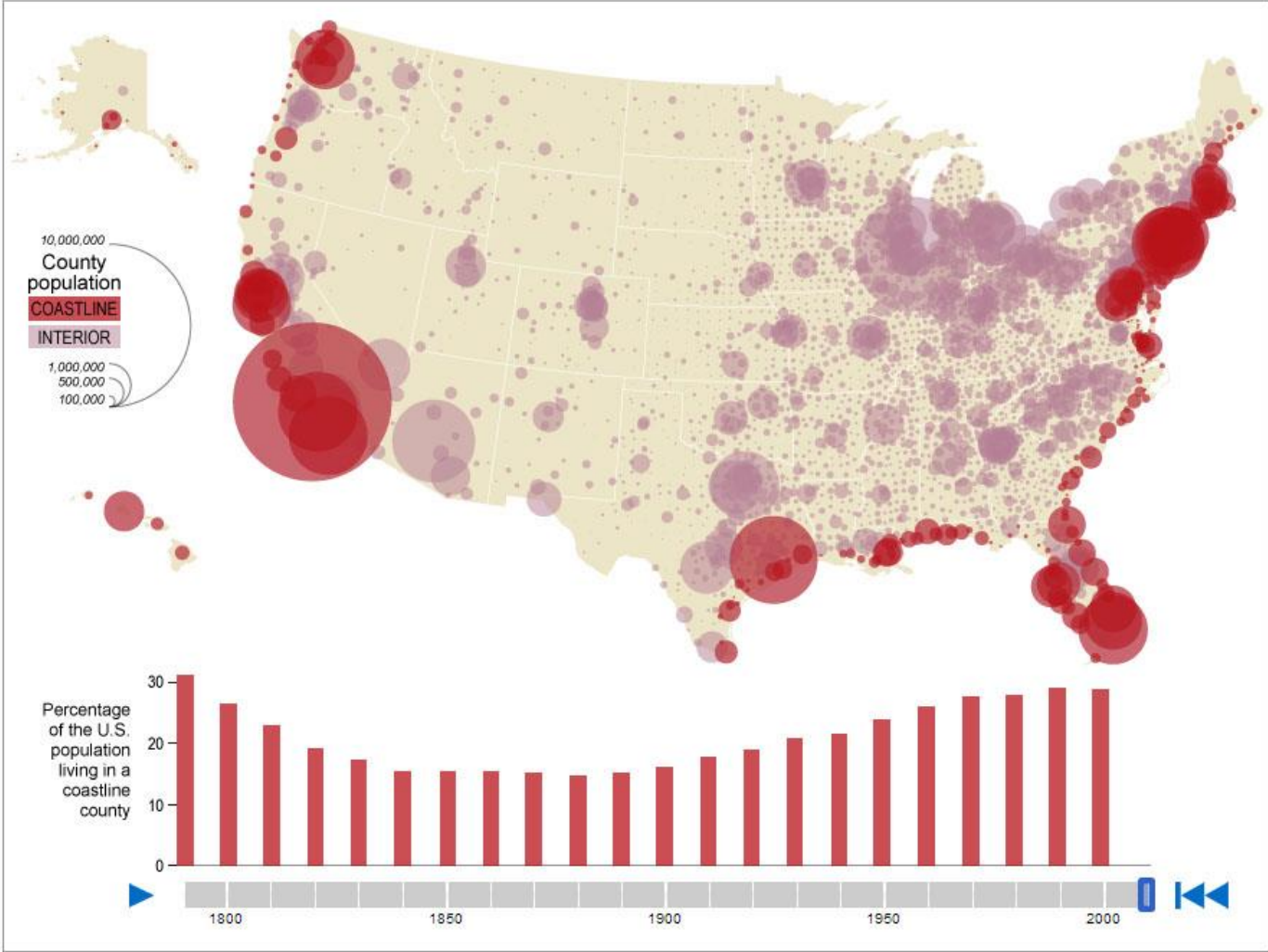
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Coastline County Population

September 6, 2012



Using Typography to Denote Size

Top 20 Cities
Highest Ranking Cities, 1790 to 2010
July 19, 2012

City and State	1790 rank	1800 rank	1810 rank	1820 rank	1830 rank	1840 rank	1850 rank	1860 rank	1870 rank	1880 rank	1890 rank	1900 rank	1910 rank	1920 rank	1930 rank	1940 rank
Philadelphia, PA	2	2	2	2	3	4	4	2	2	2	3	3	3	3	3	3
New York, NY	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Baltimore, MD	5	3	3	3	2	2	2	4	6	7	7	6	7	8	8	7
Boston, MA	3	4	4	4	4	5	3	5	7	5	6	5	5	7	9	9
Washington, DC	0	0	14	9	11	13	18	14	12	14	14	15	16	14	14	11
New Orleans, LA	0	0	7	5	5	3	5	6	9	10	12	12	15	17	16	15
Detroit, MI	0	0	0	0	0	0	0	19	18	18	15	13	9	4	4	4
Chicago, IL	0	0	0	0	0	0	0	9	5	4	2	2	2	2	2	2
San Francisco, CA	0	0	0	0	0	0	0	15	10	9	8	9	11	12	11	12
Milwaukee, WI	0	0	0	0	0	0	0	20	19	19	16	14	12	13	12	13
Pittsburgh, PA	0	0	0	0	17	17	13	17	16	12	13	11	8	9	10	10
Cincinnati, OH	0	0	0	14	8	6	6	7	8	8	9	10	13	16	17	17
St Louis, MO	0	0	0	0	0	0	8	8	4	6	5	4	4	6	7	8
Cleveland, OH	0	0	0	0	0	0	0	0	15	11	10	7	6	5	6	6
Buffalo, NY	0	0	0	0	0	0	16	10	11	13	11	8	10	11	12	14

Top 20 Cities
Highest Ranking Cities, 1790 to 2010
July 19, 2012



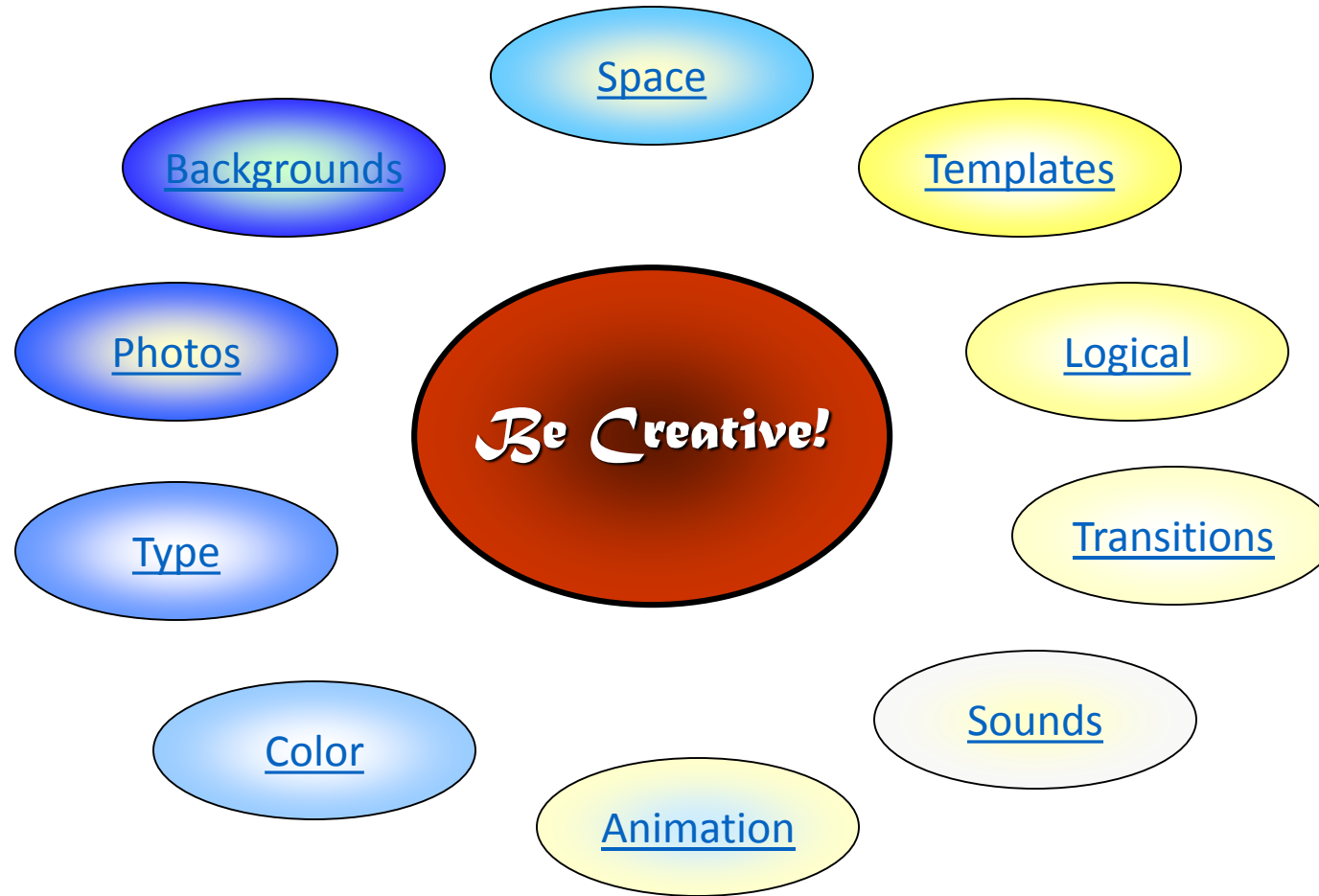
<http://www.census.gov/dataviz/visualizations/007/508.php>

every time you make a powerpoint



edward tufte kills a kitten

Tips for Making PowerPoint Presentations



To Return to this Slide click on

Tip One

- Use all the space but balance with “no space”.
- Make the slide information large enough to read in any setting.



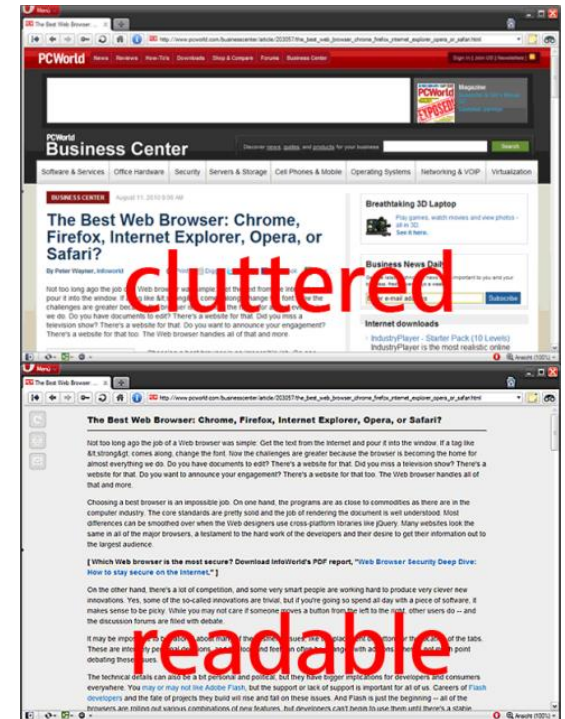
Tip Number Two

- Basic guideline numbers:
 - No more than 6 lines per slide.
 - No more than 7 words per line of text.
- Try and think 3/6/7 = Three Thoughts, Six Lines, Seven Words.
- This is an “open standard” ...remain flexible.



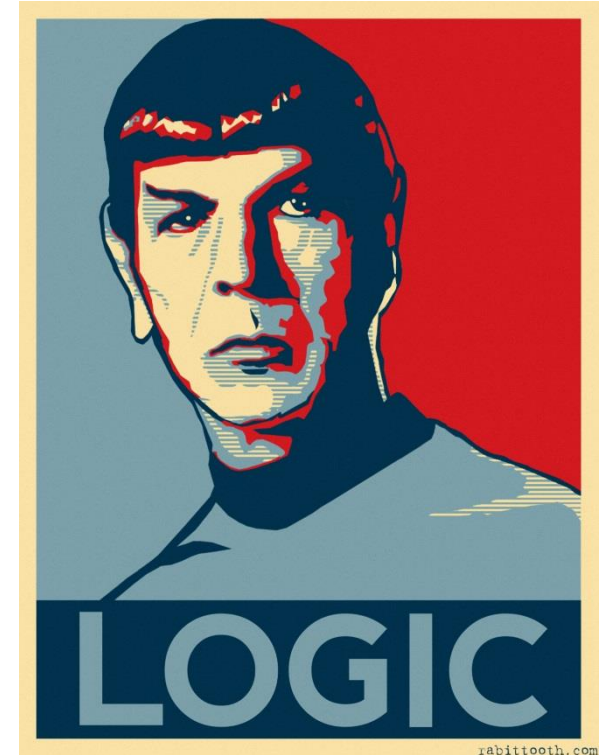
Tip Number Three

- When in doubt use the Microsoft Templates, they are professionally designed.
- Choose fonts carefully, readability is all important (more to come).



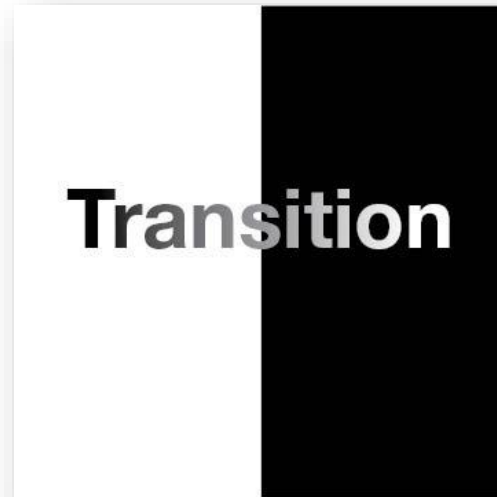
Tip Number Four

- Make sure your slides are logical.
- Introduce:
 - The subject.
 - Provide clear content.
 - Summarize succinctly.
- Give viewer control.



Tip Number Five

- Stick to only one or two transitions.
- Make sure they are not distracting from your presentation.
- Be consistent.



Tip Number Six

- Use sound affects sparingly.
- If you use them, they should have a specific purpose.
- Tie them to custom animations, these tend to need sound support but do not distract from the presentation.



Tip Number Seven

- Animate in moderation, only with a specific purpose in mind.
- Animate only specific text fonts, and do this every time.
- Animate graphical changes when telling complex information.



Tip Number Eight

- Color increases visual effectiveness and motivation.
- Color eases learning.
- Color “professionalizes” the presenter and adds sophistication.
- Color is so powerful it must be used sparingly.



Tip Eight = Color Wheel



- Primary colors (outside).
- Secondary colors (inside – combine adjacent primary colors).



Tip Eight cont'd

- Color creates relationships between seemingly unrelated items.
- **Red** – **Orange** are deemed “warm” = close.
- **Blue** – **Green** are deemed “cold” = distant.



Tip Eight = Color Temperatures

- If using color blend ones that are easy to look at.
- Cool colors (blues, greens) – use for background.
- Warm colors (reds, yellows) – use for foreground elements.

GOOD

This shows warm foreground color on a cool background color

POOR

This shows cool foreground color on a warm background color



Tip Eight = Color Contrasts

- Greatest contrast – pairs of primary colors.
- Least contrast – pairs of secondary colors.

GOOD
This pair of primary colors has good contrast

POOR
This pair of secondary colors has poor contrast



Tip Eight = Complimentary Contrasting Pairs

- Secondary color + primary color that falls opposite on the wheel.



Tip Number Nine

- Use both Positive and **Negative** type.
- Positive type “expands” on a white background.
- **Negative** type “contracts” on a dark background.
- Always use opposites to increase contrast between each type.



Tip Nine = Typography Details

- Body Text – Minimum of 24 point.
- Title Text – Minimum of **36** point.
- Fonts should be common and easy to read.
- *This font is hard to read and should not be used.*
- Sans Serif fonts are easier to read on screen.
- Serif fonts are easier to read on paper (usually).
- Text should be mixed case or Title Case where necessary.
- NOT ALL CAPS – too much emphasis poorly received.



Tip Number Ten (Photos)

- Use carefully.
- Place on either side of slide.
- Balance picture size to type space.
- Image should be fresh (thirst quenching) and memorial.



Tip Number Ten (Photos)

- Black backgrounds enhance color of a picture.
- The brightness of the image increases in relation to the focused photons of light.
- White backgrounds cause ambient light to “mix” with the image and lessen its visual impact.



References

Krieger, S. (2005). 12 Tips for Creating Better Presentations. Microsoft Corporation.

<http://www.microsoft.com/atwork/getworkdone/presentations.mspx#ELAA>

PowerPoint 2003 Overview, Microsoft Corporation, Published May 31, 2003.

<http://www.microsoft.com/office/powerpoint/productinfo/overview.mspx#ECAA>

Sherman, S. (2005). *Making Effective Presentations: Using Color, Images, and Other Elements Effectively*. Washington State University.