

## Lecture 6: Perception and Design

In Lecture 5, we illustrated the complex, highly contextual nature of vision. Because we spend a long time discussing the project, we didn't get into any of the specifics proposed in the previous prep. In this lecture, we will describe the basic visual principles used in visualization, and relate them to design principles used in visualization.

The Few reading does this application for the business graphics that are his focus. He also takes this opportunity to discuss Tufte's data/ink ratio, which was introduced in VDQI (*The Visual Display of Quantitative Information*) chapter 1 (Lecture 2). We include the second VDQI chapter here, which talks about Graphical Integrity, including Tufte's Lie Factor.

### Goals for the lecture

By the end of the class, you will be able to:

- Explain preattentive processing, its strengths and its limits
- Describe the Gestalt principles of visual perception and their application to visualization
- Understand how the Bertin semiotics (visual language) for encoding quantity is applied to visualization. (not covered in the reading, but will be discussed in lecture)
- Describe basic models for color and contrast (detail in later lectures)
- Relate these principles to design techniques for visualization.

During practicum, we will:

- View and discuss some of the visualizations handed in for the Assignment 2 (Vis Critique)
- Demonstrate some techniques for collecting data from the web

### Reading Assignment

Few, *Show Me the Numbers*, Chapters 7 & 9

Tufte, *The Visual Display of Quantitative Information*, chapter 2, Ch.2, Graphical Integrity. ([http://courses.washington.edu/info424/readings/TufteVisualDisplay\\_ch1.pdf](http://courses.washington.edu/info424/readings/TufteVisualDisplay_ch1.pdf))

Things to consider as you read

1. Chapter 7 is Few's application of Tufte's principles of Excellence, both of which are based on perceptual principles. Try to make the connections as you read.
2. Chapter 9 addresses many of the same issues as VDQI 2. Again, think about the connections as you read.

### Reflection questions

The questions below are to help you think more broadly about what you've read and its relationship to the class. It is optional, but strongly encouraged, that you answer them and email your answers to [info424@gmail.com](mailto:info424@gmail.com) to aid in discussion in class. Email must be received by 7 am on the day of the class.

1. Few makes (I hope) a persuasive case for avoiding 3D in static graphs. Would the problem be as severe if you could interactively manipulate the graph?