From Bland to Beautiful

Julie Steele and Susie Lu
From Bland to Beautiful | Who are we?

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From Bland to Beautiful | Today’s agenda

*Introduction*: From data to idea

*Part I*: Position is everything*

*Part II*: Color is difficult*

*Part III*: Labels are a black art*

*Part IV*: The devil is in the details

➔ *Exercises after each Part*

* with credit to Moritz Stefaner
Introduction: From data to idea

Overall drive
What is the most important message your data visualization is telling your audience?
Introduction:
From data to idea
| Overall drive

You Draw It:
How Family Income Predicts Children’s College Chances

Introduction: From data to idea
| Overall drive

You Draw It: How Family Income Predicts Children’s College Chances

Introduction: From data to idea | Overall drive

You Draw It: How Family Income Predicts Children’s College Chances


Moving up a single percentile on the family-income distribution makes enrolling in college about 0.7 percentage points more likely, up and down the distribution. Whether you’re a poor child getting a little bit less poor or a rich child getting slightly more rich, every step counts about the same.
Introduction: From data to idea

Sketching your ideas
Introduction: From data to idea | Sketching your ideas

Why sketch?

- Try many ideas very quickly
- Identify bad ideas and throw them out before investing a lot of time
- Refine a message without going into the weeds of implementation or design style
- Communicate with your collaborators
Introduction: From data to idea | Sketching your ideas

They can even be the end product.

Dear Data, Stefanie Posavec & Giorgia Lupi, http://www.dear-data.com/
They don’t need to be works of art.
Drawing Ideas
by Mark Baskinger & William Bardel
Part I: Position is everything
Part I: Position is everything

Relationships
Visualization is all about relationships

- Position should be used to encode the most important relationships in your data.
- Often, the most important relationship is a comparison — put the things to be compared as close together as possible.
Part I: Position is everything | Relationships

Visualization is all about relationships

Anscombe’s Quartet
http://en.wikipedia.org/wiki/Anscombe%27s_quartet
Part I: Position is everything | Relationships

Visualization is all about relationships

Anscombe's Quartet
http://en.wikipedia.org/wiki/Anscombe%27s_quartet
Part I: Position is everything

Gestalt principles
Part I: Position is everything | Gestalt principles

*Proximity*

*Similarity*

*Enclosure*

*Continuity*

*Closure*

*Figure ground*

*Common fate*

*Symmetry*
Part I: Position is everything | Gestalt principles

http://www.buzzfeed.com/samir/things-that-will-drive-your-ocd-self-insane
Part I: Position is everything

Format
Part I: Position is everything

Excel formats
Part I: Position is everything
Excel formats
Part I: Position is everything

3D is bad, mmkay?

http://blogs.guardian.co.uk/technology/Jobs_08_keynote_dsc_0143x.jpg
Part I: Position is everything | Format

Avoid round formats

The United States GDP for individual states as a contribution to the total US GDP. Fraction of the total US GDP per state was taken from Wikipedia and refers to 2010.
Part I: Position is everything

Fielding Cage, The Guardian

Original version: May 2012

http://www.theguardian.com/world/interactive/2012/may/08/gay-rights-united-states
Fielding Cage, The Guardian

Updated version: June 2015
http://www.theguardian.com/world/interactive/2012/may/08/gay-rights-united-states
Part I: Position is everything

Format

Custom can be beautiful

http://fiveless.deviantart.com/art/Periodic Table-of-the-Elements-147350318
Part I: Position is everything

Format

All about relationship

Nicholas Felton
http://feltron.com/FAR13_03.html
Introduction & Part I

Exercise
Critique:

- is a discussion, not a one-way street.
- has a specific goal in mind, and evaluates the success of the approach in reaching that goal.
- is difficult on both the giving and receiving end — practice, and be gracious!
Feedback and Critique

- **Identify your audience.**
  - Ask for feedback from folks who represent your end users

- **Within that audience, look for different test users.**
  - Make sure you’re covering the range of perspectives and associations represented in your user base
Feedback and Critique

• Use open-ended instead of leading questions.
  ○ Ask people to explain your design to you

• Identify the level of critique you’re looking for:
  ○ Overall concept
  ○ User flow
  ○ Look and feel
  ○ Subtle suggestion
Feedback and Critique

- Identify what is working, and what isn’t.
  - What to keep is as important as what to refine
- Fork your design if you need to.
  - You may receive conflicting feedback and need to A/B test iteratively
  - Not everyone will be happy
Introduction & Part I: Position is everything | Exercise

Guide

- Don’t lock yourself into the visual design before you solidify your purpose.
- What is the most important message your data visualization is telling your audience?
- Explore layouts that aren’t the norm for the type of data you have
- Sketch at least three different layout options before deciding on the final one.
Part II: Color is difficult
Three classic color pitfalls:
- Spectrums
- Meaning
- Palette choice
Color is not naturally ordered.

*(which is bigger, yellow or purple?)*
Part II: Color is difficult | Spectrums
Part II: Color is difficult

Spectrums

Random thought on visualization that I stumbled into the other day. Sometimes, it is immediately obvious that 'red' is the low value. Because in finance (for example) red is a loss, green or black is a gain.

Other times, it's obvious that 'red' is the high value. When you heat something up, it turns red; when you cool it down, we connote that by blue.

Which mostly suggests ... don't use a one-end-red colormap by default.
Part II: Color is difficult | Not everyone sees it the same way

Red-blind

Green-blind

Part II: Color is difficult | Meaning

What will your colors signify to your audience?

- Life, plants, money, Excel
- Water, sky, Twitter
- Eggplant, Barney the Dinosaur
- Sunshine, MacDonald’s
- Danger, war, love, luck
- Romance, Barbie
Part II: Color is difficult | Color properties

Hue

Saturation

Lightness
Part II: Color is difficult | Color properties

Hue
Saturation
Lightness

Part II: Color is difficult | Don’t confuse your audience by being clever

http://awesome.good.is/transparency/web/1101/census-data/flat.html
Part II: Color is difficult | Palettes

Monochrome

http://www.smashingmagazine.com/2010/02/08/color-theory-for-designer-part-3-creating-your-own-color-palettes/
Part II: Color is difficult | Palettes

Analagous

http://www.smashingmagazine.com/2010/02/08/color-theory-for-designer-part-3-creating-your-own-color-palettes/
Part II: Color is difficult | Palettes

Complementary

http://www.smashingmagazine.com/2010/02/08/color-theory-for-designer-part-3-creating-your-own-color-palettes/
Part II: Color is difficult | Palettes

Split Complementary

http://www.smashingmagazine.com/2010/02/08/color-theory-for-designer-part-3-creating-your-own-color-palettes/
Part II: Color is difficult | Palettes

wesandersonpalettes.tumblr.com
Part II: Color is difficult | Palettes

Simple color rules

- Don’t use pure black: it is too strong; use a dark grey
- Avoid overly-saturated colors unless it’s a minimally-used accent color
- Include neutral colors in your color palette
- Limit the number of colors you use — as a rule of thumb, no more than six
- Use color consistently throughout the visualization
Part II: Color is difficult

Exercise
Part II: Color is difficult | Exercise

Guide

- Do the properties of color match the data you’re encoding with it?
- What emotions are you trying to evoke with your color scheme?
- Does your use of color represent a sense of hierarchy?
- Are any colors unnecessary?
- Just based on color, are the interesting data points highlighted in your vis?

Resources

colorbrewer2.org
paletton.com
www.iamcal.com/toys/colors/
wesandersonpalettes.tumblr.com
Part III: Labels are a black art
“Type can’t be understood if it can’t be read. That’s not as obvious as it sounds.”

– Ronnie Lipton

The Practical Guide to Information Design

@ronnielipton
Appendix: Resources | Typographical hierarchies

Thinking with Type
by Ellen Lupton

The Practical Guide to Information Design
by Ronnie Lipton
Part III: Labels are a black art

Creating typographical hierarchies
Part III: Labels are a black art | Typographical hierarchies: things to consider*

- Typeface
- Size
- Line length
- Style (roman, italic, bold, etc.)
- Alignment
- Spacing

* with credit to Lupton and Lipton: @ellenlupton and @ronnielipton
Part III: Labels are a black art | Typographical hierarchies: typeface
Part III: Labels are a black art
| Typographical hierarchies: typeface

Thomas Blanc and Florian Amoneau,
the Comic Sans Project
Part III: Labels are a black art | Typographical hierarchies: typeface
Part III: Labels are a black art | Typographical hierarchies: size

Do I look fat in this paragraph?

These letters are all the same point size, but they have different x-heights, line weights, and proportions.

nice \textit{x}-height

Every typeface wants to know, “Do I look fat in this paragraph?” It’s all a matter of context. A font could look perfectly sleek on screen, yet appear bulky and out of shape in print. Helvetica isn’t fat. She has a big x-height.

Ellen Lupton, Thinking with Type
Part III: Labels are a black art | Typographical hierarchies: line length
Part III: Labels are a black art | Typographical hierarchies: style

Creamy and Extra Crunchy | Differences within a single family
Univers 47 Light Condensed and Univers 67 Bold Condensed

Sweet Child of MINE | Differences within a SUPERFAMILY
Quadraat Regular and Italic; Quadraat Sans Bold

Noodles with Potato Sauce | Bland and blander
Helvetica Neue 56 Medium and Helvetica Neue 75 Bold

TYPE CRIME
These typefaces are from the same family, but they are too close in weight to mix well.

Ellen Lupton, Thinking with Type
Part III: Labels are a black art | Typographical hierarchies: style
Part III: Labels are a black art | Typographical hierarchies: alignment

What does alignment tell you about relationships?

- Whales
- Cars
- Walls
- Trees
- Drinks
- Paintbrushes
- Computers
- Sticks
- Wallets
- Lights
- Stars
- Grasses
- Legs
- Horses
- Fish
- Bass
- Trout
- Marlin
- Salmon
- Furniture
- Beds
- Tables
- Chairs
- Sofas
- Animals
- Dogs
- Cats
- Cows
Part III: Labels are a black art | Typographical hierarchies: spacing

Ellen Lupton, *Thinking with Type*
Part III: Labels are a black art | Typographical hierarchies

left: MTA map
right: Eddie Jabbour, KICKmap
Part III: Labels are a black art

Annotation
Part III: Labels are a black art | Annotation

Annotation

- Explain interesting points and outliers to the audience
- Help the audience understand how to read your visualization
- Legends and labels
Part III: Labels are a black art | Annotation

The New York Times

Part III: Labels are a black art

Annotation

John Nelson
http://uxblog.idvsolutions.com/2012/12/five-years-of-traffic-fatalities.html
Part III: Labels are a black art

Exercise
Part III: Labels are a black art | Exercise

Guide

Resources
google.com/fonts — open source
typekit.com/ — license
hoftype.com/fonts — purchase
practicaltypography.com/

- What do you want to evoke with your typeface, line length, style, alignment, and spacing?
- Does your text alignment and font size have a logical and clean hierarchy?
- Can you be any more concise with your words without losing the necessary meaning?
Part IV: The devil is in the details
Part IV: The devil is in the details

“Simplicity is clarity is kindness.”

– Sha Hwang
@shashashasha
Part IV: The devil is in the details | Simplicity is clarity is kindness

**Simple design rules:**

- Reduce overlapping items
- Avoid shadows
- Avoid gradients
- Align components
- Space, let things breathe
- Balance and visual unity

**Note: there are always exceptions to break the rules :)**
Part IV: The devil is in the details

Bringing it together
Part IV: The devil is in the details | Balance

Unbalanced
Part IV: The devil is in the details | Balance

Balanced
Part IV: The devil is in the details

Balance

History of Rock in 100 Songs
http://svds.com/rockandroll/
Part IV: The devil is in the details | Balance

The Beatles
1960 - 1970
George Harrison, John Lennon, Paul McCartney, Ringo Starr

History of Rock in 100 Songs
http://svds.com/rockandroll/
Part IV: The devil is in the details | Balance

Song Stats

She Said, She Said (1966)
Tomorrow Never Knows (1966)
A Day in the Life (1967)
Let It Be (1970)

Selected band's songs compared to all songs

History of Rock in 100 Songs
http://svds.com/rockandroll/
Part IV: The devil is in the details

| Unity |
Part IV: 
The devil is in the details
| Unity

Redesigned

Hans Rosling — Gapminder.org
Part IV: The devil is in the details

Usability
Part IV: The devil is in the details | Usability

**User testing**

- Be empathic to your users
- Find areas of confusion
- How can you reduce complexity?
  - Allow drill-downs for more detail
  - Hover behavior
  - Walkthrough with explanations
Part IV: The devil is in the details | Reduce complexity

Part IV: The devil is in the details | Reduce complexity

The Medical Economy

The middle-wage industries that have added jobs are overwhelmingly in health care. Labs, home-care providers and dentist offices all pay between $18 and $29 an hour on average — and all have grown. But these gains have not offset losses in other middle-wage industries, such as airlines and construction.

Part IV: The devil is in the details | Reduce complexity

Eating & Drinking

- **Full-service restaurants**
  - Recovered and grown
  - Current Jobs: 5,023,300
  - Average Salary: $27,665

- **Limited-service restaurants**
  - Recovered and grown
  - Current Jobs: 3,920,200
  - Average Salary: $21,840

- **Supermarkets and other grocery stores**
  - Relatively unaffected
  - Current Jobs: 2,466,600
  - Average Salary: $28,952

- **Snack and nonalcoholic beverage bars**
  - Recovered and grown
  - Current Jobs: 557,100
  - Average Salary: $24,338

- **Food contractors for airlines, cafeterias, concessions**
  - Recovered
  - Current Jobs: 428,200
  - Average Salary: $33,571

- **Bars and nightclubs**
  - Recovered
  - Current Jobs: 355,500
  - Average Salary: $28,874

- **Specialty food stores**
  - Recovered
  - Current Jobs: 234,400
  - Average Salary: $30,141

- **Caterers and mobile food services**
  - Recovered
  - Current Jobs: 168,300
  - Average Salary: $35,214

- **Convenience stores**
  - Recovered and grown
  - Current Jobs: 106,300
  - Average Salary: $24,378

- **Beer, wine and liquor stores**
  - Recovered
  - Current Jobs: 147,000
  - Average Salary: $29,370

- **Cafeterias, grill buffets and buffets**
  - Has not recovered
  - Current Jobs: 125,400
  - Average Salary: $22,606

- **Vending machine operators**
  - Has not recovered
  - Current Jobs: 39,600
  - Average Salary: $36,379

Part IV: The devil is in the details

Exercise
Part IV: The devil is in the details | Exercise

Guide

- Does your design feel balanced and evoke a sense of unity?
- Are there areas of confusion? Can you help by reducing complexity?
- Who represents the audience you’re after, and what are their backgrounds?
- What is the goal of your visualization? Is your current approach achieving it?

Resources
http://www.aiga.org/how-to-survive-a-critique/
Show and Tell: Before and after

#bland2beauty

Julie Steele  
@JSteeleEditor

Susie Lu  
@DataToViz
Burning Questions: Ask us anything

Tomorrow 12:20 - 12:50
Exhibit hall

Julie Steele
@JSteeleEditor

Susie Lu
@DataToViz
Appendix: Resources

Go forth and visualize!
Appendix: Resources | General awesomeness

Other resources:

http://www.color-blindness.com/coblis-color-blindness-simulator/
colorbrewer2.org
paletton.com
www.iamcal.com/toys/colors/
wesandersonpalettes.tumblr.com
practicaltypography.com/
http://www.aiga.org/how-to-survive-a-critique/