Data Visualization
Hands-On: R ggplot2 / R shiny

BMI701 Introduction of Biomedical Informatics
Lab Session 7

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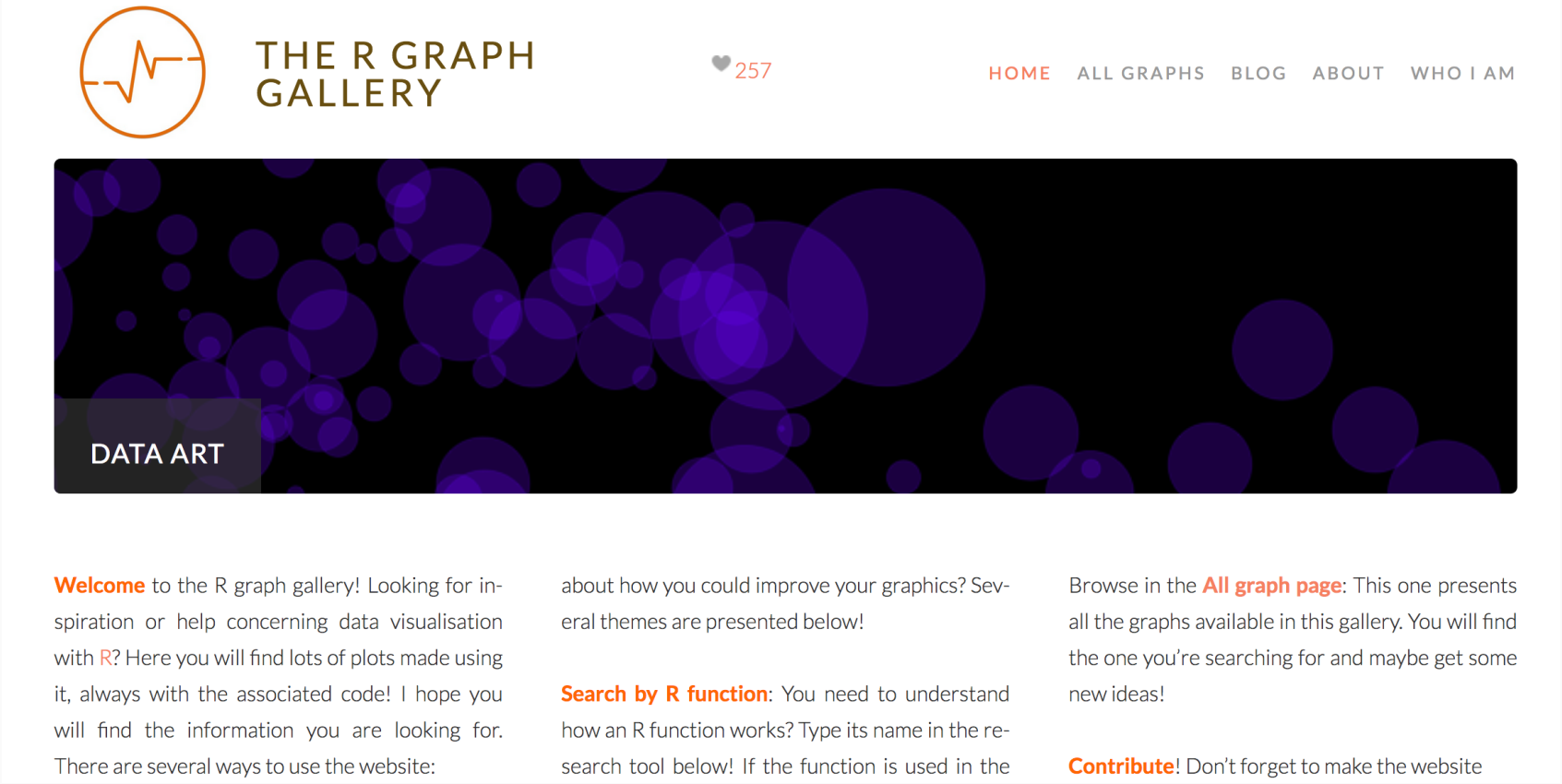
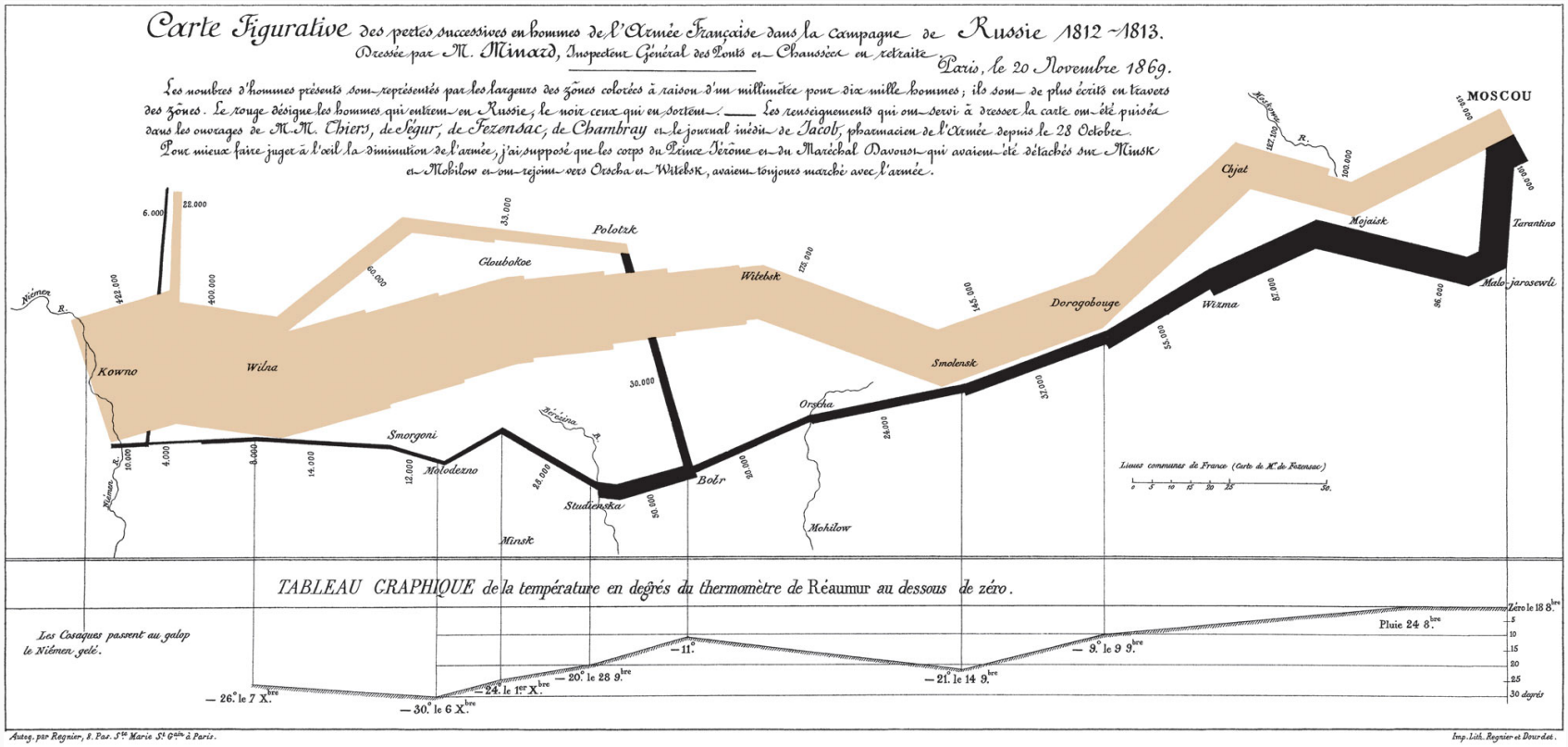
December 1, 2016

HMS DBMI — MGH LCS

R Graph Gallery

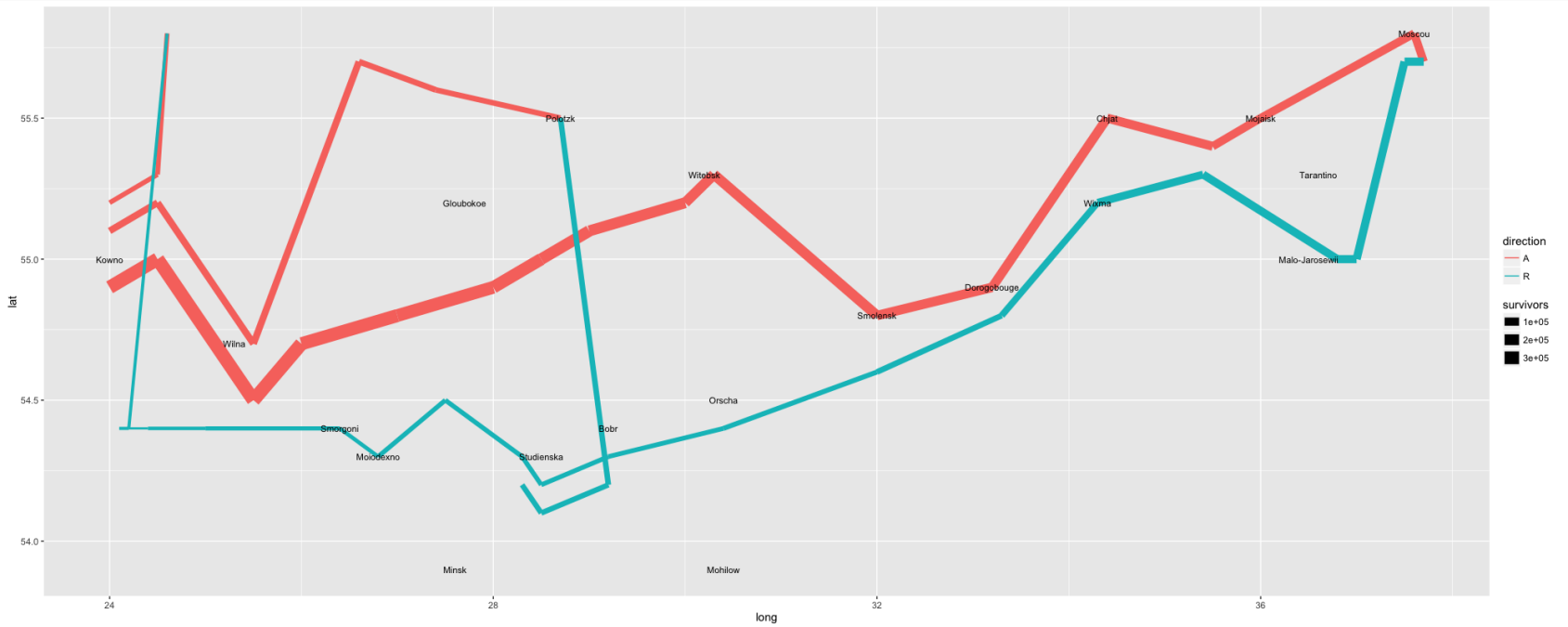


Minard's graphic of Napoleon in Russia



Wikipedia

Minard's graphic of Napoleon in Russia



Minard's graphic of Napoleon in Russia

- ```
  ggplot(Minard.troops, aes(long, lat)) +
  geom_path(aes(size=survivors, color = direction,
  group = group, lineend="round")) +
  geom_text(aes(label = city), size = 3, data =
  Minard.cities)
  ```
  ```

Grammar

- Aesthetics
  - `order`, `color`, `shape`
- Geoms
  - `geom_point`, `geom_line`, `geom_bar`, `geom_polygon`
- Scale
  - `scale_x_log10`, `scale_colour_gradient`, `scale_size`
- Stat
  - `count`, `mean`, `regression`
- Facet
  - `facet_wrap`, `facet_grid`
- Coordinate system
  - `coord_cartesian`, `coord_polar`, `coord_map`

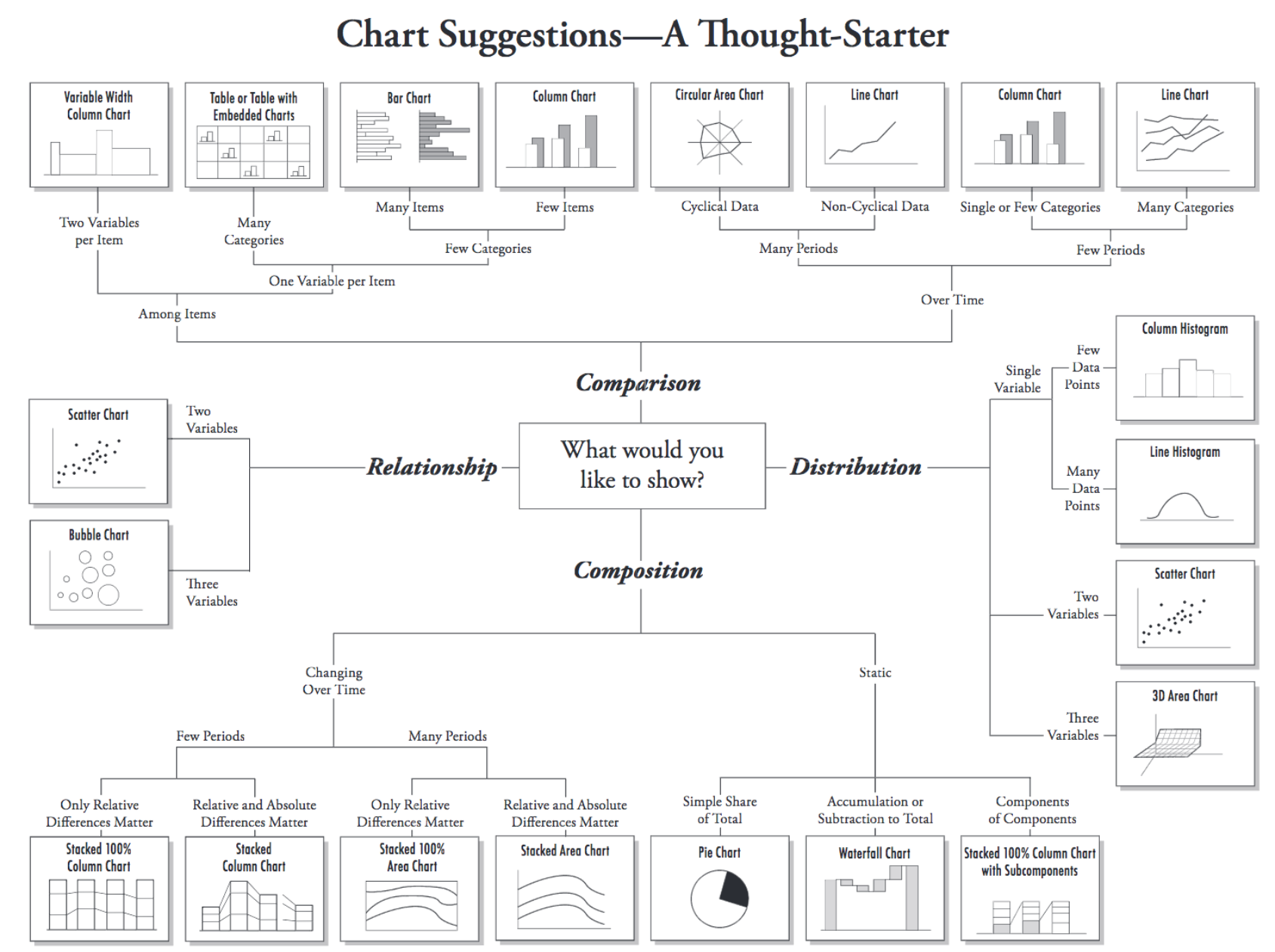
Using R Slides...

- How to? Use R Markdown!
- Let's try it (Courtesy by Dr. Yi-Ju Tseng)

R shiny

- Shiny code (Courtesy by Dr. Mujeeb Basit)

How to Select? (Abela)



How to Select? (Evergreen & Emery)

Data Visualization Checklist

by Stephanie Evergreen & Ann K. Emery
May 2014

This checklist is meant to be used as a guide for the development of high impact data visualizations. Rate each aspect of the data visualization by circling the most appropriate number, where 2 points means the guideline was fully met, 1 means it was partially met, and 0 means it was not met at all. n/a should not be used frequently, but reserved for when the guideline truly does not apply. For example, a pie chart has no axes lines or tick marks to rate. Refer to the Data Visualization Anatomy Chart on the last page for guidance on vocabulary.

	Guideline	Rating
Text Graphs don't contain much text, so existing text must encapsulate your message and pack a punch.	**6-12 word descriptive title is left-justified in upper left corner** Short titles enable readers to comprehend takeaway messages even while quickly skimming the graph. Rather than a generic phrase, use a descriptive sentence that encapsulates the graph's finding or "so what?" Western cultures start reading in the upper left, so locate the title there.	2 1 0 n/a
	Subtitle and/or annotations provide additional information Subtitles and annotations (call-out text within the graph) can add explanatory and interpretive power to a graph. Use them to answer questions a viewer might have or to highlight one or two data points.	2 1 0 n/a
	Text size is hierarchical and readable Titles are in a larger size than subtitles or annotations, which are larger than labels, which are larger than axis labels, which are larger than source information. The smallest text - axis labels - are at least 9 point font size on paper, at least 20 on screen.	2 1 0 n/a
	Text is horizontal Titles, subtitles, annotations, and data labels are horizontal (not vertical or diagonal). Line labels and axis labels can deviate from this rule and still receive full points.	2 1 0 n/a
	Data are labeled directly	2 1 0 n/a

Take Home Message

- `ggplot2`
- R slides
- Visualization checklist
- Contact
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