

Data Visualization

Hands-On: R ggplot2 / R shiny

BMI701 Introduction of Biomedical Informatics
Lab Session 7

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HMS DBMI — MGH LCS



R Graph Gallery



THE R GRAPH
GALLERY

♥ 257

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DATA ART

Welcome to the R graph gallery! Looking for inspiration or help concerning data visualisation with R? Here you will find lots of plots made using it, always with the associated code! I hope you will find the information you are looking for. There are several ways to use the website:

about how you could improve your graphics? Several themes are presented below!

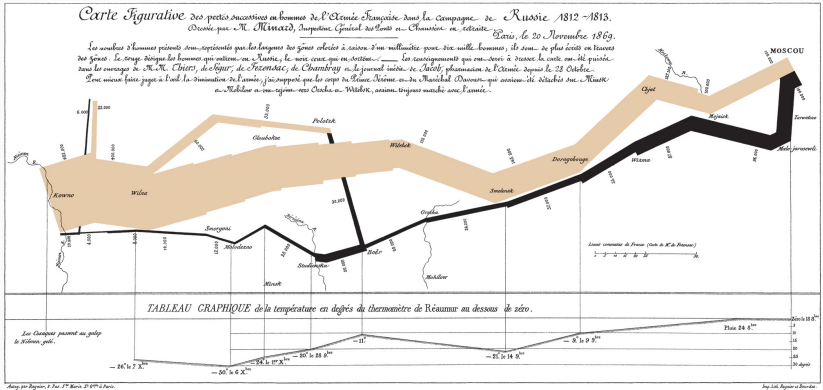
Search by R function: You need to understand how an R function works? Type its name in the re-search tool below! If the function is used in the

Browse in the **All graph page**: This one presents all the graphs available in this gallery. You will find the one you're searching for and maybe get some new ideas!

Contribute! Don't forget to make the website

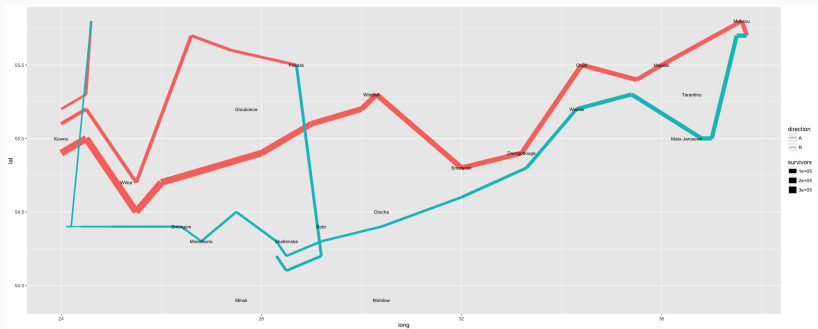
R Graph Gallery

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)
```

- 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`

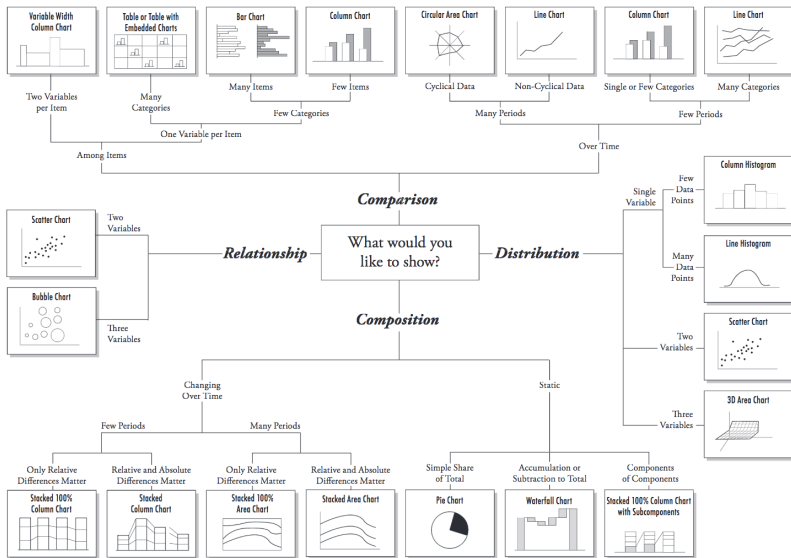
- How to? Use R Markdown!
- Let's try it (Courtesy by Dr. Yi-Ju Tseng)

- Shiny code (Courtesy by Dr. Mujeeb Basit)



# How to Select? (Abela)

## Chart Suggestions—A Thought-Starter



# 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    |
|---------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| <b>Text</b><br><br>Graphs don't contain much text, so existing text must encapsulate your message and pack a punch. | <b>6-12 word descriptive title is left-justified in upper left corner</b><br>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 |
|                                                                                                                     | <b>Subtitle and/or annotations provide additional information</b><br>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 |
|                                                                                                                     | <b>Text size is hierarchical and readable</b><br>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 |
|                                                                                                                     | <b>Text is horizontal</b><br>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 |
|                                                                                                                     | <b>Data are labeled directly</b>                                                                                                                                                                                                                                                                                                                                          | 2 1 0 n/a |

# Take Home Message

- ggplot2
- R slides
- Visualization checklist
- Contact
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