

LA Dataviz Meetup - Information Visualization Reference

To create a visual representation of set of data or ideas

Why

Explore Research & Discovery
Explain Communicate

Process

Acquire get the data
Parse structure data categorically
Filter remove all but data of interest
Analyze descriptive statistics
Represent choose a visual model (bar, dot, tree, etc)
Refine iteration: maximize data/ink, clarity
(Interact) bonus round

Principles

Efficiency Low distortion, no distraction from data
Clarity make data stand out, avoid superfluity & overlap
Accuracy show all data, all features, all change, don't lie
Lie Factor size of effect in graphic / size of effect in data
Data/Ink Ratio eliminate redundancy, 1 is goal
Weber's Law small features are more easily compared

Elements

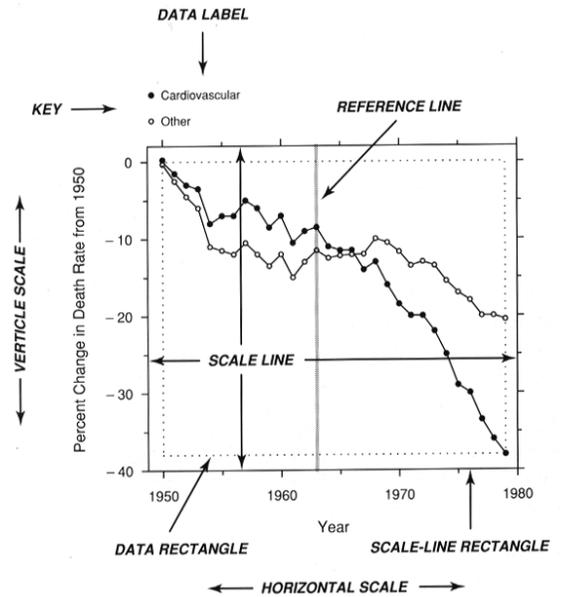
Position Precise w/ common baseline
Length Precise only w/ baseline & grid lines. Weber's law.
Slope Imprecise. Avoid steep lines (bank to 45 deg)
Angle Imprecise. Baseline nearly impossible (Pie Chart)
Scale Precise. 50 percent rule. Typically 5-15 tickmarks.
Color Use Hue, Saturation, Density explicitly.
Area imprecise, perception underestimates comparisons (^2)
Volume imprecise, perception underestimates comparisons (^3)
Time

Graph types

line graph uses: time series, continuous change, small variation, many datapoints
 caution: large variation (noisy), lines can argue w/ other features
scatter plot uses: related asynchronous values, independent data (no single x for y)
 caution: overlapping points, too clustered
column uses: discreet non-continuous categorical data, relatively small datasets
 caution: histograms are continuous range, column graphs are categorical
dot-chart uses: categorical on Y, independent on X
 caution: almost always sort the data
stacked bar uses: subcategorical unity, 100% w/ bounding box, better than pie chart
 caution: subcategories have varying baseline, hard to compare w/ precision
pie chart uses: occasionally OK for a single snapshot
 caution: no common baseline, imprecise, seek to avoid
area chart uses: much like stacked bar
 caution: no common baseline
bubble chart uses: scatterplot w/ radii, useful for 3 variables
 caution: involves use of areas
grids

evenly spaced
rectilinear
curved
contours
marching squares
values w/ edges
isolines & isocurves

Interpolation
delany triangulation
Vornoi
Surface Plot



TITLE
 ↓
 Figure 19. AGE-ADJUSTED DEATH RATE. The data are the percent changes from 1950 in death rate in the United States due to cardiovascular disease and other diseases.
 ↑
CAPTION