

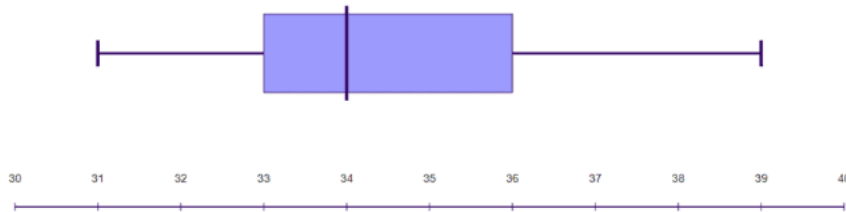
Visualization Technique Lexicon 2025

1D

1D Quantitative:

Just a set of numbers, e.g. all ages in the room

- Histogram
- Violin
- Boxplot, Box and whiskers plot
- Bee swarm plot



1D Qualitative:

All we have are categorical values e.g. haircolors

- Piechart
- Waffle chart (works as long as not too many data points)
- Barchart
- Radarchart (works as long as not too many categories)
- Treemap (scale areas of tree maps according to time)

1D Temporal:

All we have is a series of time steps (i.e. no related quantity).

- Histogram (if data not too sparse)
- Instance chart (time on one axis and then data plotted as instances)
 - Can be transformed into 1D heatmap
- Time map (plotting time from previous event on x-axis, time to next event on y-axis. Data must be from same source)
 - Example: scatter plot (like the twitter plot where we saw bot pattern)

1D Spatial:

E.g. a column of positions (long, lat)

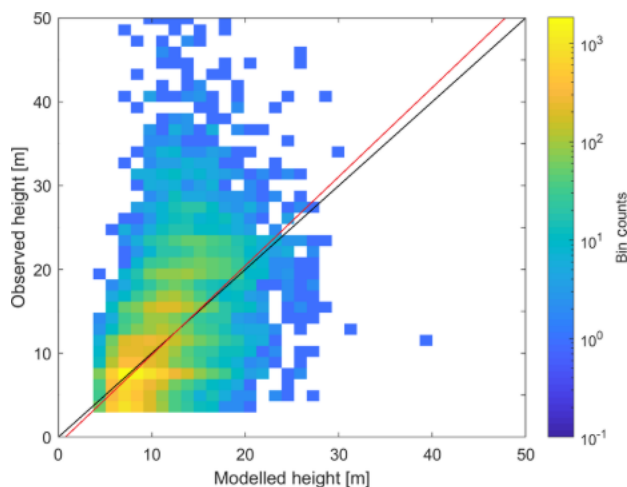
- Dotmap
 - equivalence of scatterplot on geospatial data (ex: crime map plot)
- Heatmap
- Binned Dotmap (brings out differences in distributions)

2D

2D Quantitative, Quantitative:

Pairs of numbers

- Scatterplot (alternatively binned scatterplot if you have too many data points)



- Bubble chart
- Heat map
- Marimekko chart (turn quantitative features into qualitative by binning, kind of like a 2d histogram but drawing space is divided)
 - Mosaic plot is Marimekko chart with qualities. Marimekko is for quantities only.
- Parallel sets (if values are binned)

2D Quantitative, Qualitative:

Pairs of categorical values and numerical values

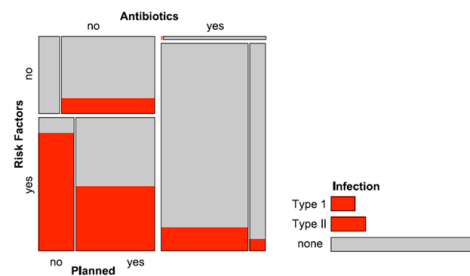
- Mix of mosaic and marimekko chart (not either since those are only for qual., quant., respectively)
- Parallel sets (with quantitative binned)

Note: We cannot use a bar chart since we'd need a one-to-one function mapping.

2D Qualitative, Qualitative:

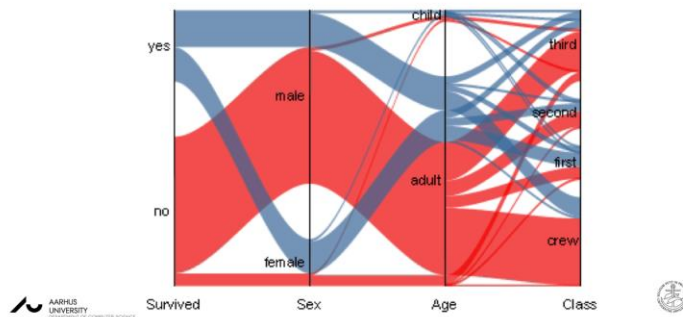
- Mosaic plot

MOSAIC PLOTS



- Parallel sets (mapping onto area)

PARALLEL SETS



- Matrix display (mapping onto color)

2D quantitative, temporal:

One quantity for each timestamp.

- Line chart (assuming we don't have multiple values for same timepoint (one-to-one))
- Area chart

2D qualitative, temporal:

Some quality for each timestamp.

- Stacked bar chart (discrete – like time on Mondays-)
- Stacked area chart (continuous temporal resolution)

2D Quantitative, Spatial (area):

- Choropleth map (when measurement is given for area (e.g. country))
- Cartogram

2D Quantitative, Spatial (point):

- Isopleth map
- Bubble map

2D Qualitative, Spatial (area):

- Choropleth map

2D Qualitative, Spatial (point):

- Chorochromatic map (equivalent to isopleth map)

2D Spatial, temporal

- Space-Time cube (dimension as 3rd dimension)
- Small Multiples
 - e.g. grid of timestamped choropleth maps
 - “Poor man’s Trellis Plot” - Hans-Jörg ☹️↕
- Animation (mapping time onto display time)

2D Spatial, Spatial

- Flow map (alternatively, origin-destination map)

2D Temporal, Temporal:

Pairs of time data points/values

- Triangular model
- Gantt chart

3D Quantitative, Quantitative, Quantitative

- Bubble chart
- Ternary plot (condition = add up to 1)
- Parallel coordinates
- Scatterplot matrix
- Radar chart (condition = not too many datapoints)
- Radviz/Radviz++/Radviz deluxe
- Marimekko chart (mosaic chart for quantitative variables)

3D Quantitative, Quantitative, Qualitative

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3D Quant, Quant, Temp:

- Connected scatterplot

3D Spatial, Spatial, Temporal:

- Small Multiples with Flowmaps

5D Qualitative, Qualitative, Qualitative, Qualitative, Qualitative:

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5D Quantitative, Quantitative, Quantitative, Quantitative, Quantitative:

- Scatterplot matrix
- Parallel coordinates

The bird flu? Yeah, they tend to do that.