# Workings

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## Scagnostics

- Scagnostics : Nine measures to quantify a scatterplot based on density, shape, trend, outliers
- Implemented (Anand et al. 2015) "Automatic selection of partitioning variables for small multiple displays"
- Given a pattern between `X1` and `X2`, is there an interesting conditional structure (measured by one of the nine scagnostics) based on conditioning variable `Z` which can explain this pattern visually?
- Produce multiple displays between `X1` and `X2` for all possible conditioning variables `Z`.
- Rank these displays according to a score calculated to find out how extreme the original scagnostic is from randomly permuted scagnostic for each multiple display
- Looked at `trelliscopejs` package
- Produced a shiny app

## Binning problem

- While working on scagnostics, we encountered binning problem for highly skewed variables
- `correlationfunnel` package has a solution for the binning problem

## Regression patterns

- How does `Y` vs `X` relationship change when the data is disaggregated by the groups present? Looked mainly at Simpson's paradox.
- Our method outputs a list of variable pairs ranked based on a score comparing aggregated and disaggregated fits (measure of Simpson's paradox)
- Implemented a shiny app

## Correlation plots

- Looked at different methods to produce correlation plots. Our goal was to look at conditional correlation plots.
- Used different layouts like- matrix, network, linear
- Looked at seriating techniques for these layouts. Example `PairViz` for linear layout.
- Looked at different packages producing correlation plots
- Tried producing correlation plots using upset plots

| package | display | displayType | seriatedPlot | interactivePlot | highDimension |
|---|---|---|---|---|---|
| coreheat | heatmap | overlay | No | No | No |
| corrplot | heatmap | overlay | Yes | No | No |
| corrr | heatmap/network | facet/overlay | Yes | No | Yes |
| corrgrapher | network | overlay | No | No | Yes |
| corrarray | no display | none | No | No | No |
| correlationfunnel | funnel | overlay | No | No | Yes |
| linkspotter | network | overlay | No | Yes | Yes |
| correlation | heatmap/network | overlay | No | No | Yes |

- Correlation plots with glyphs
- Interactive correlation plots