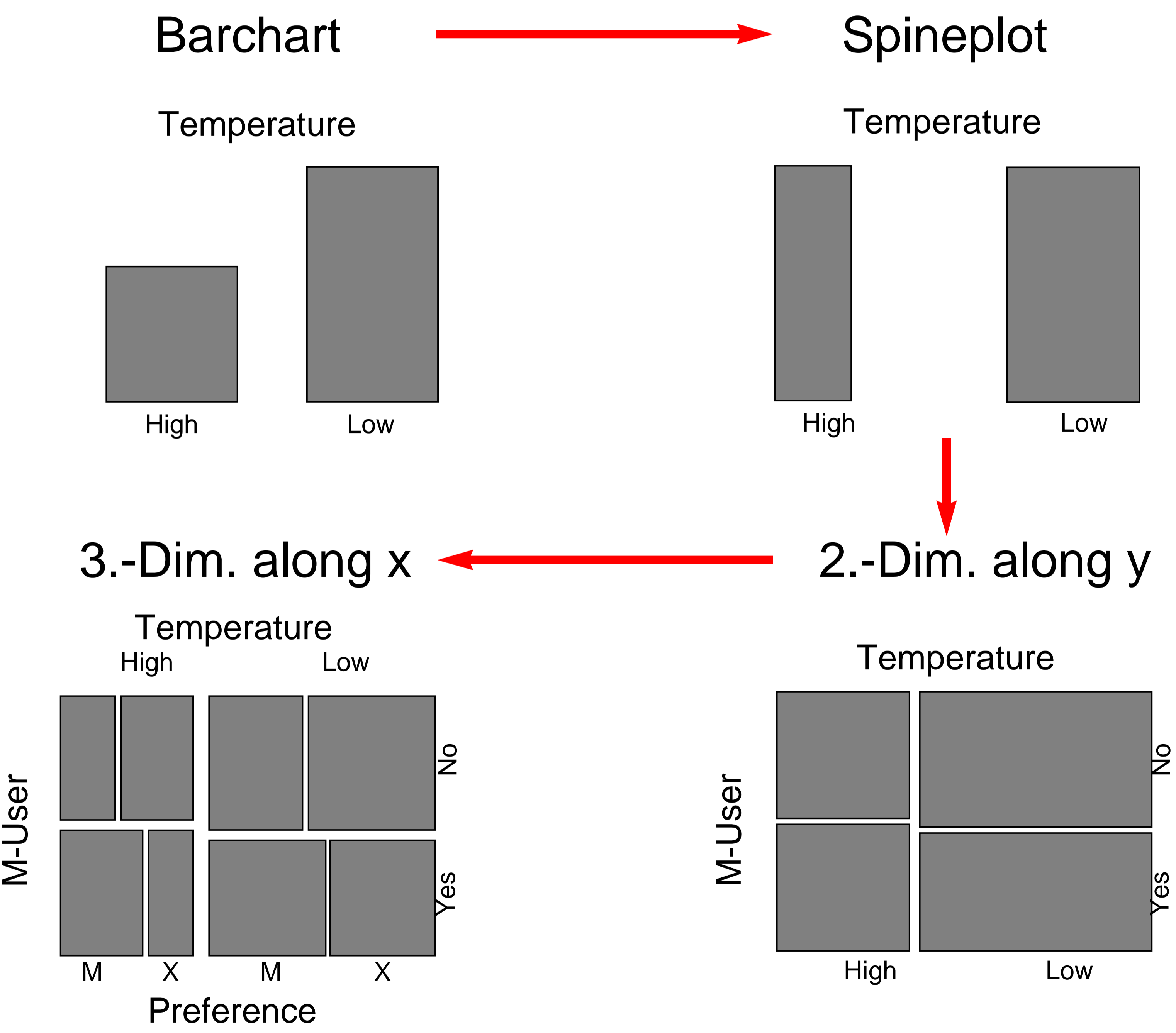
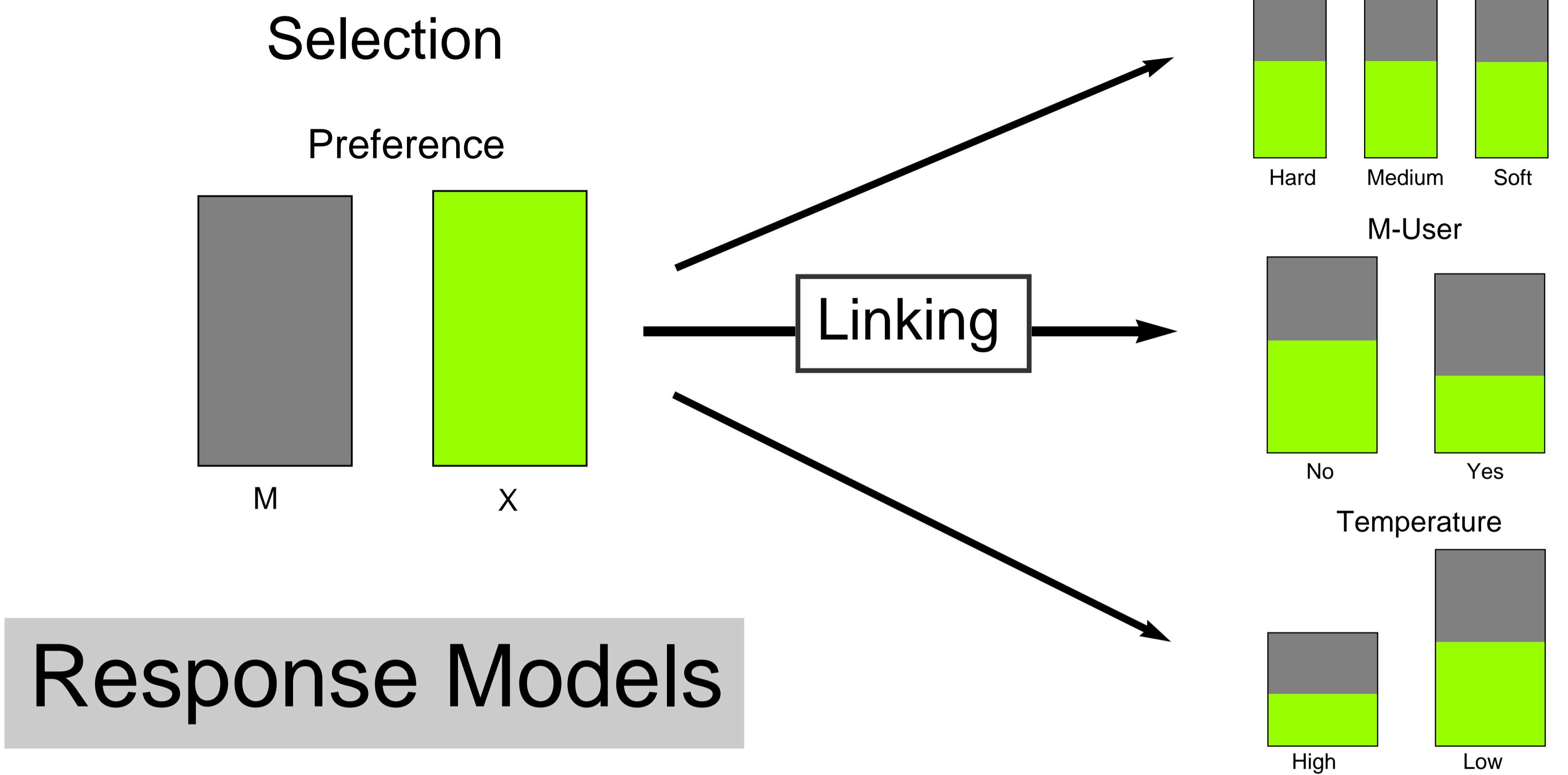


# Mosaic Plots

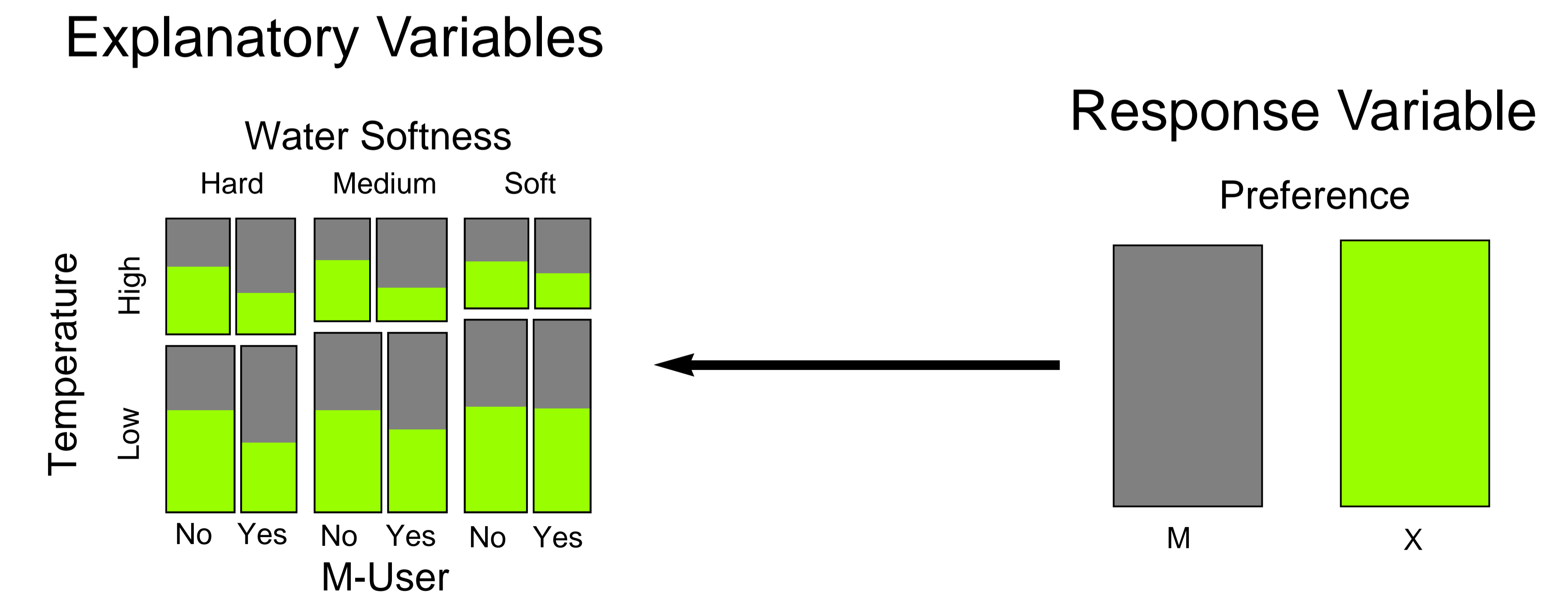
- Designed by Hartigan & Kleiner (1983)
- Generalization of Barcharts
- Recursive Display of Categorical Data



# Linked Highlighting



# Response Models

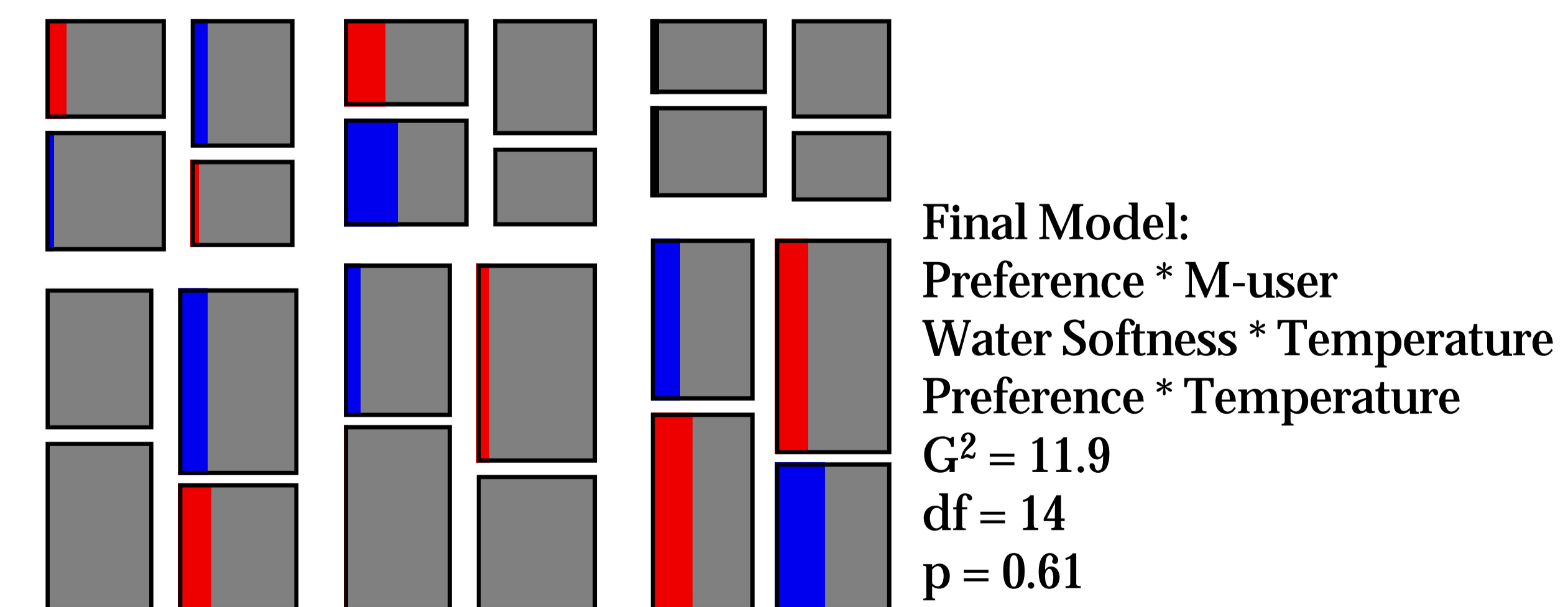
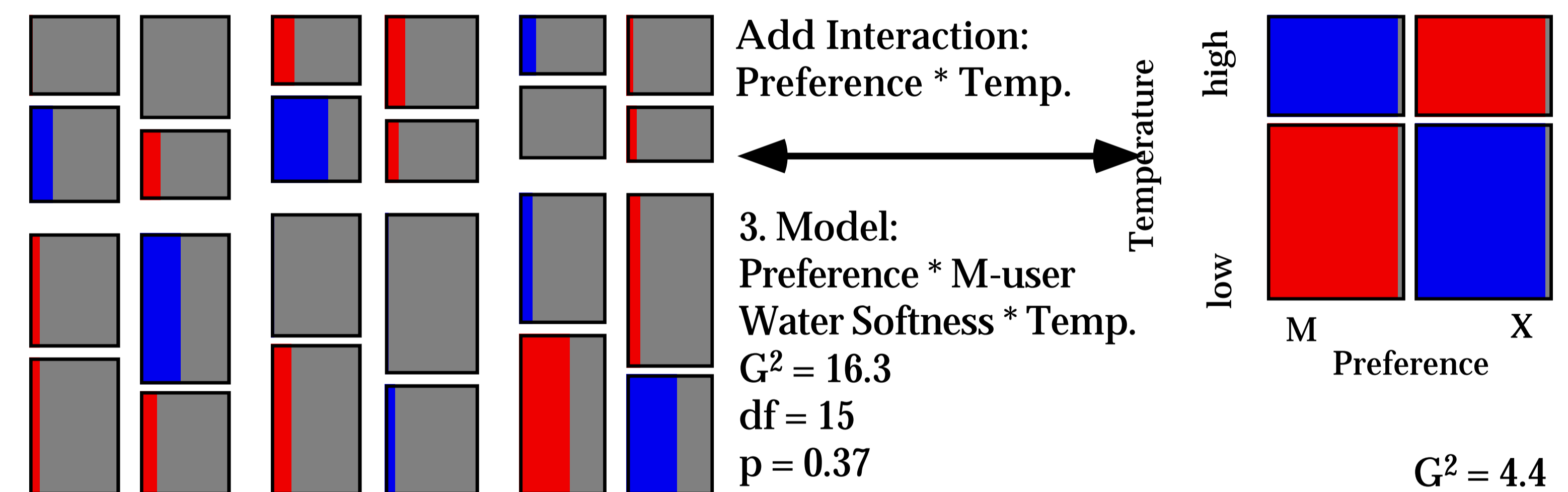
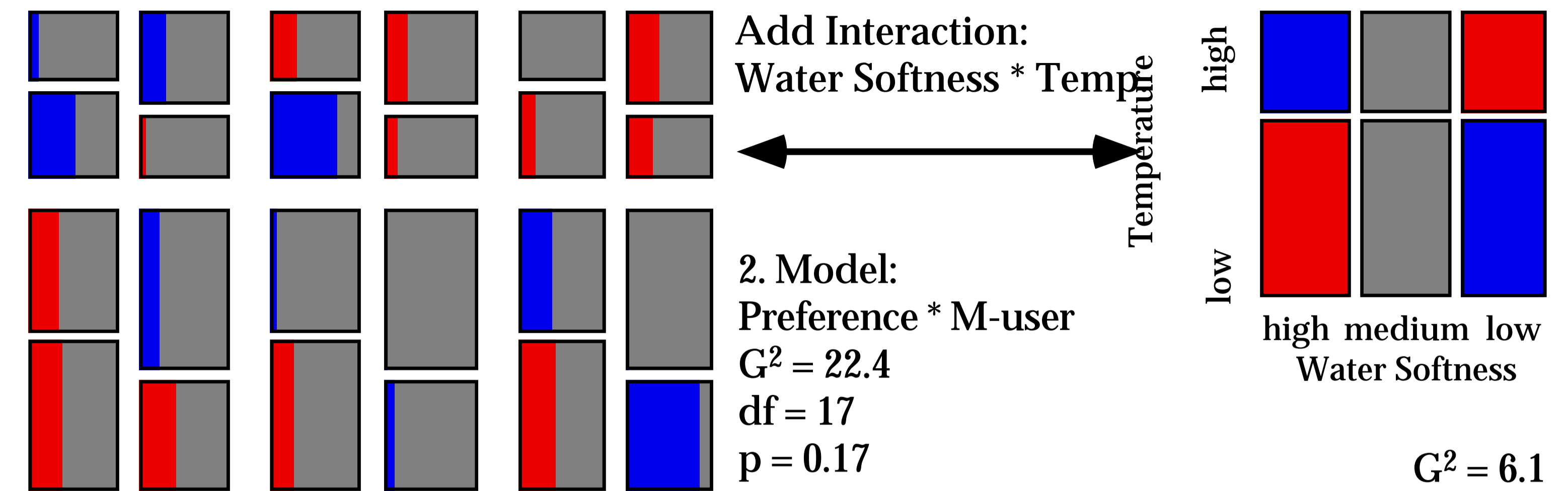
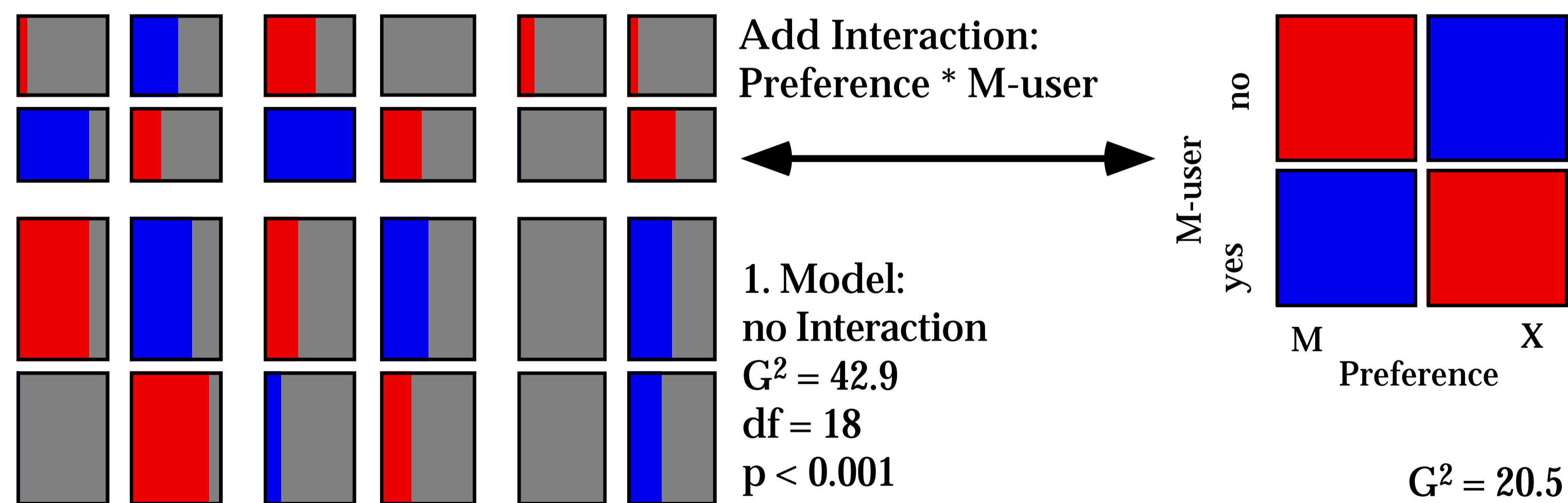


# Superposing Residuals

1. Display the residual information in the Mosaic Plot of the corresponding model.
2. Use areal highlighting for the quantity of the error.
3. Use colour for the quality (**negativ** or **positiv**) of the error.
4. Let the biggest residual highlight its whole cell.
5. Scale all residuals with the  $\chi^2$ -quantile of the model.
6. Optionally raise all residuals to the power of  $\lambda$ .
  - $\lambda > 2$ , only bad fits are visual significant
  - $\lambda = 2$ , structure of the residuals can be seen clearly

## Graphical Forward Selection

Start with no interaction included, and add interactions step by step with graphical support.

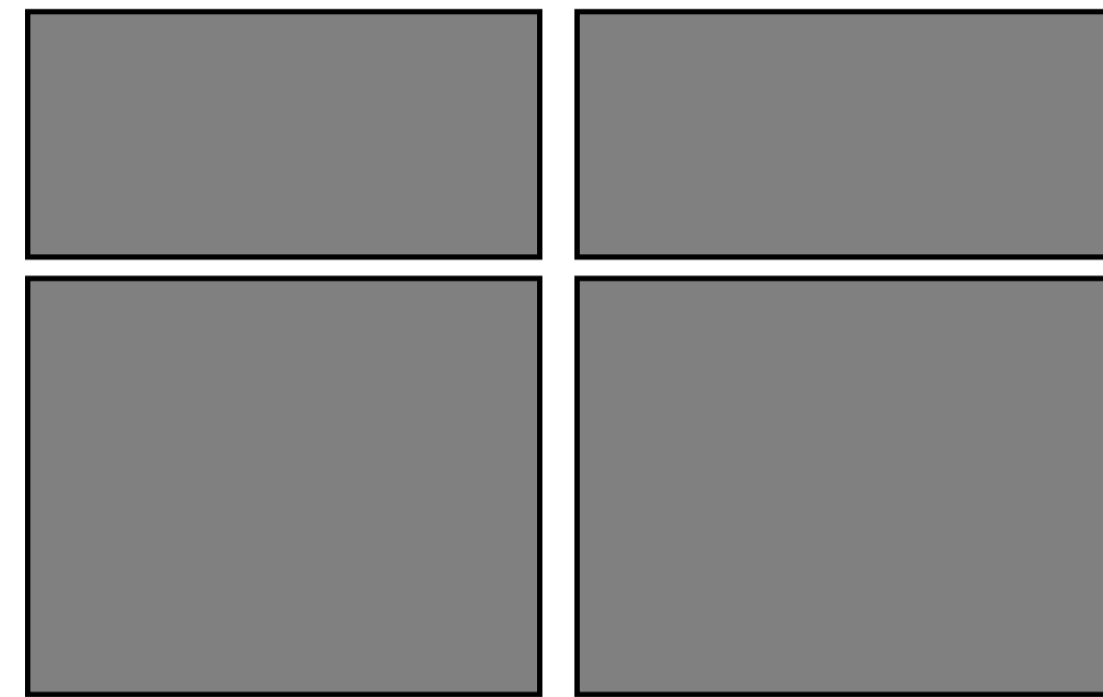


# Graphical Backward Selection

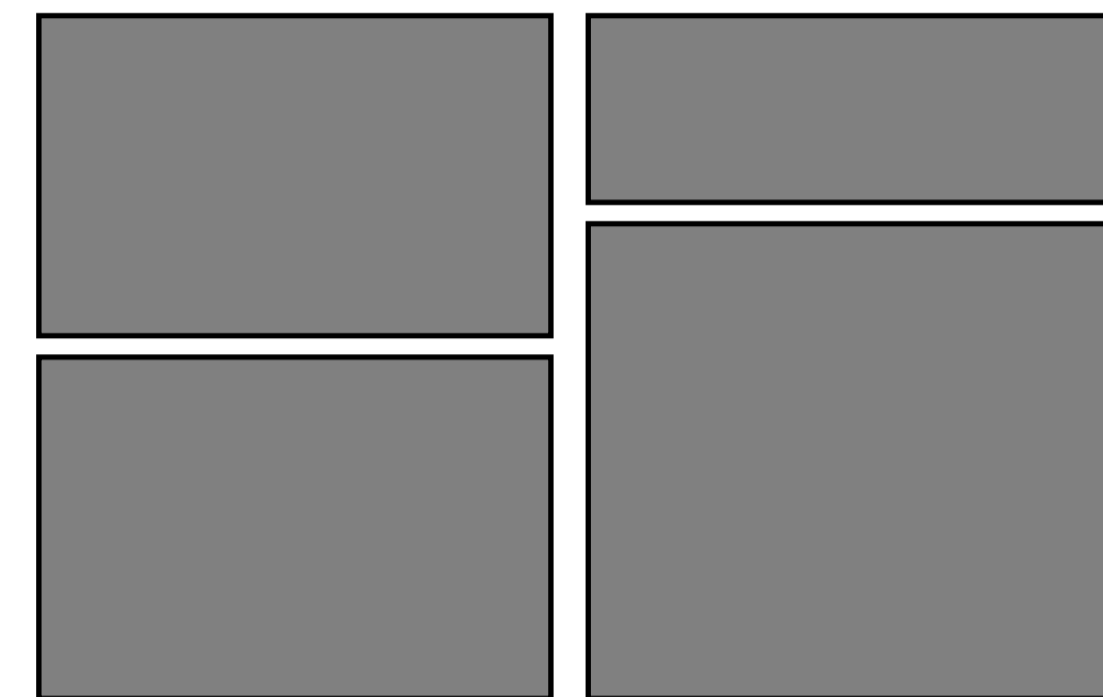
- Every model has a specific shape – independent of the data
- Stepwise deletion of 2- and 3-dim. independent variables

2-dim.

Independence

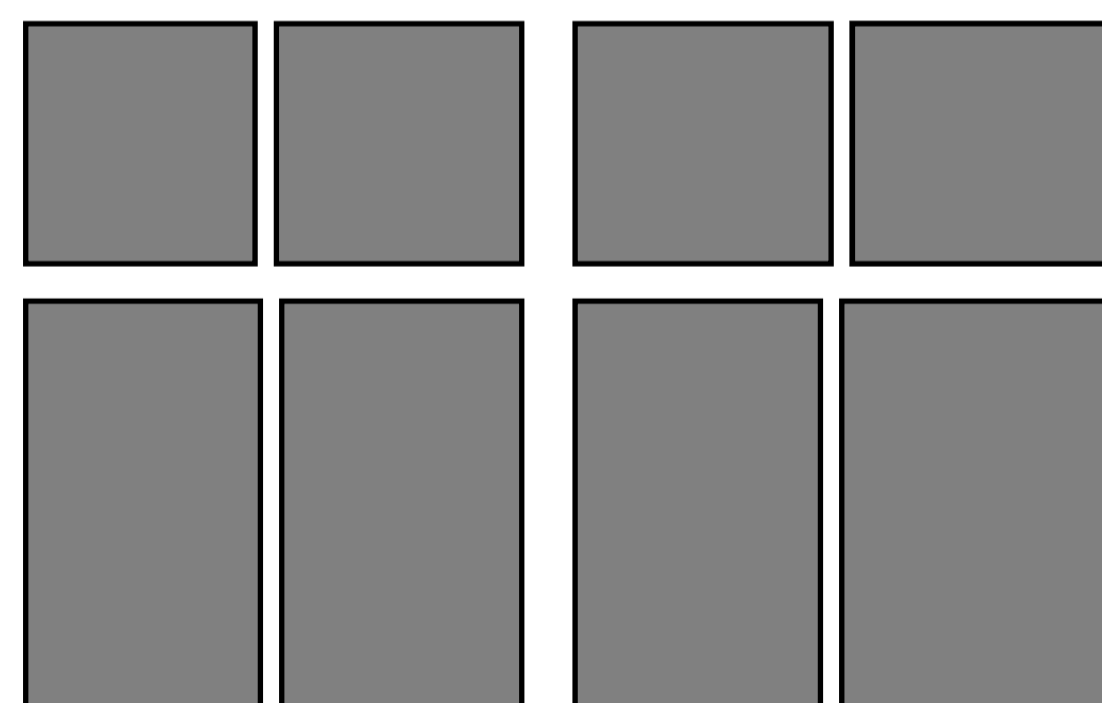


Interaction

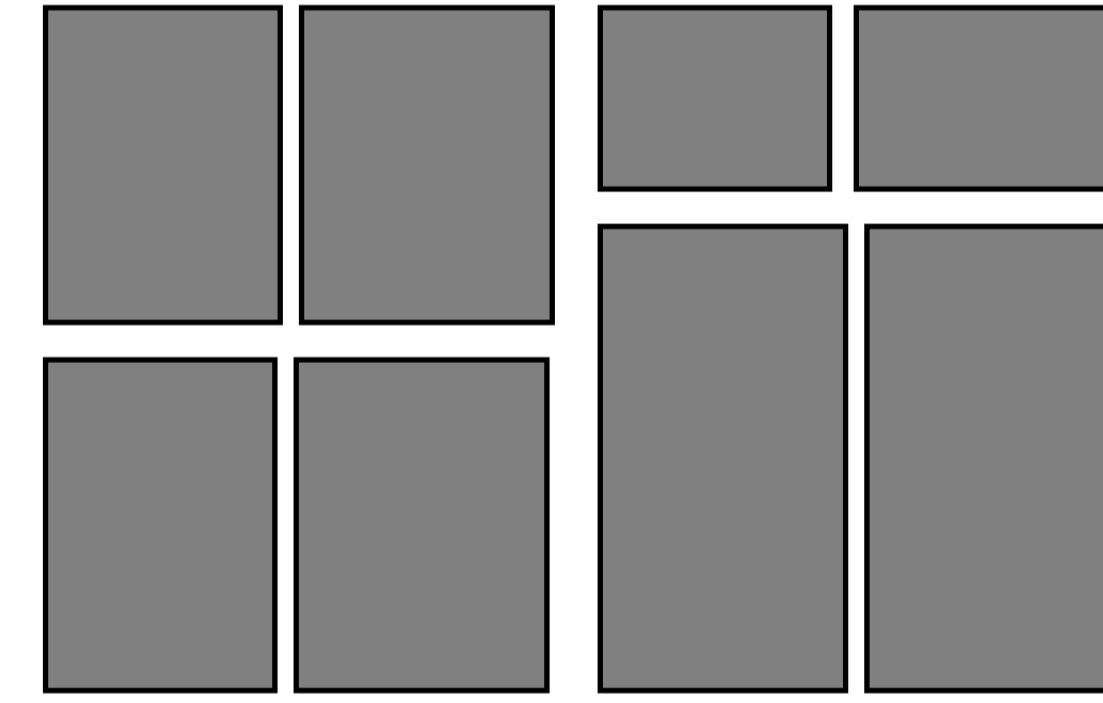


3-dim.

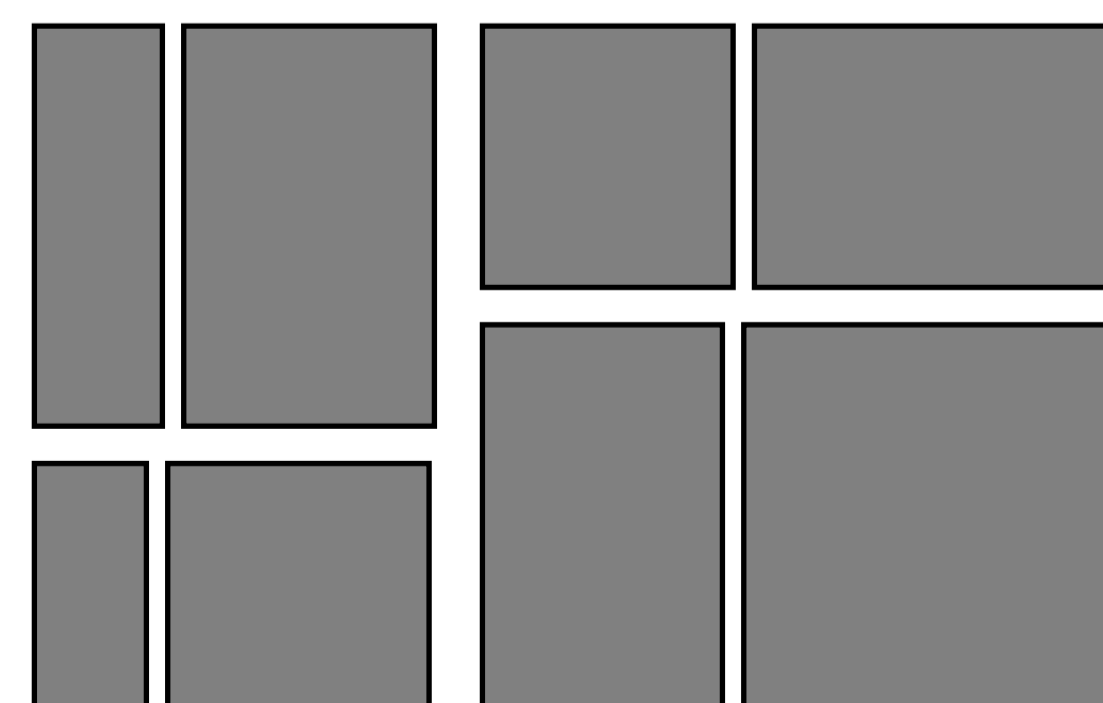
Independence



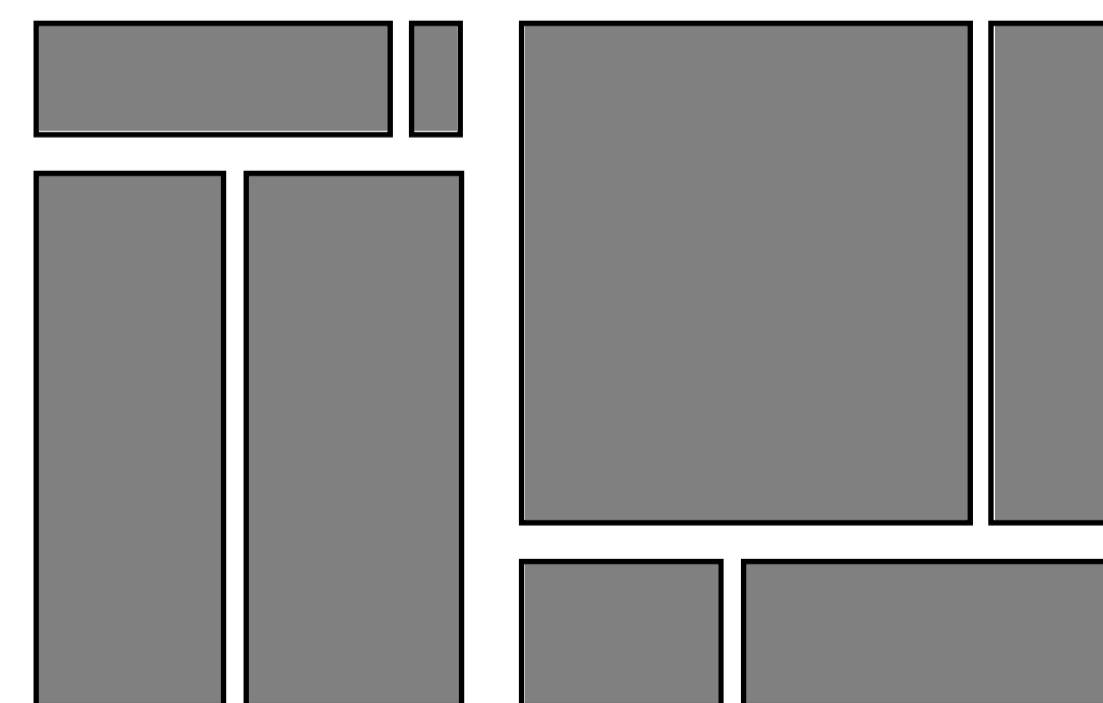
Partial Independence



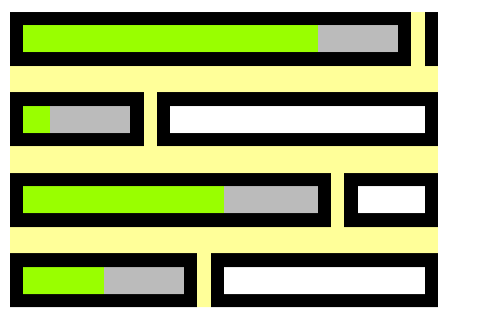
Conditional Independence



no 3way Interaction



# The Software



MANET has been developed for two reasons:

- to implement interactive graphics tools for data sets with missing values;
- to provide a platform for trying out new interactive ideas.

MANET is for exploring data, whether raw data, transformed data or model residuals. MANET provides a range of graphical tools specially designed for studying multivariate features. Anyone involved in analysing data will find MANET useful for gaining insights into the structure and relationships of their data sets.

MANET  
runs on any  
Macintosh  
Computer



# Interactive Contingency Tables

Interactive contingency tables are new tools for flexibly investigating categorical data. The main operations possible in interactive tables are:

- **pooling** categories
- **deleting** categories
- manipulating data to see **what-if-effect**
- **toggleing** between **raw data**, **expected values** and **summands of test statistics**
- **collapsing** tables
- **colouring** numbers according to their relation to observed data.

Interactivity not only means that the user can interact with the data, but also that the results from the changes made by the user can be seen instantaneously.

slice for Watersoftness = **hard** Temperature = **high**

		M-User	
		No	Yes
P r e f	X	6.3	-6.7
	M	-4.9	13.1

cells contain summands of power-divergence-statistic with parameter 1.0 for loglinear model:  $u + u_1 + u_2 + u_3 + u_4 + u_{12}$

total PDS: 7.5489

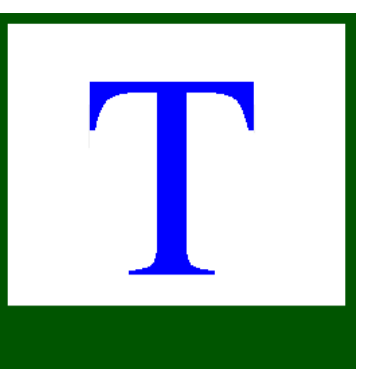
slice for Watersoftness = **soft** Temperature = **low**

		M-User	
		No	Yes
P r e f	X	5.0	3.7
	M	-4.0	-3.3

cells contain summands of power-divergence-statistic with parameter 1.0 for loglinear model:  $u + u_1 + u_2 + u_3 + u_4 + u_{12}$

total PDS: 1.1948

# The Software



TURNER is a highly **interactive** tool for analysing **multidimensional discrete data**. Including standard features for contingency tables like Pearson's chi-squared test it offers advanced methods like pooling rows by a single mouse click and 'what-if' scenarios. For data in more than two dimensions we offer simple actions like collapsing data or extracting two-dimensional distributions as well as calculating **loglinear models**.

