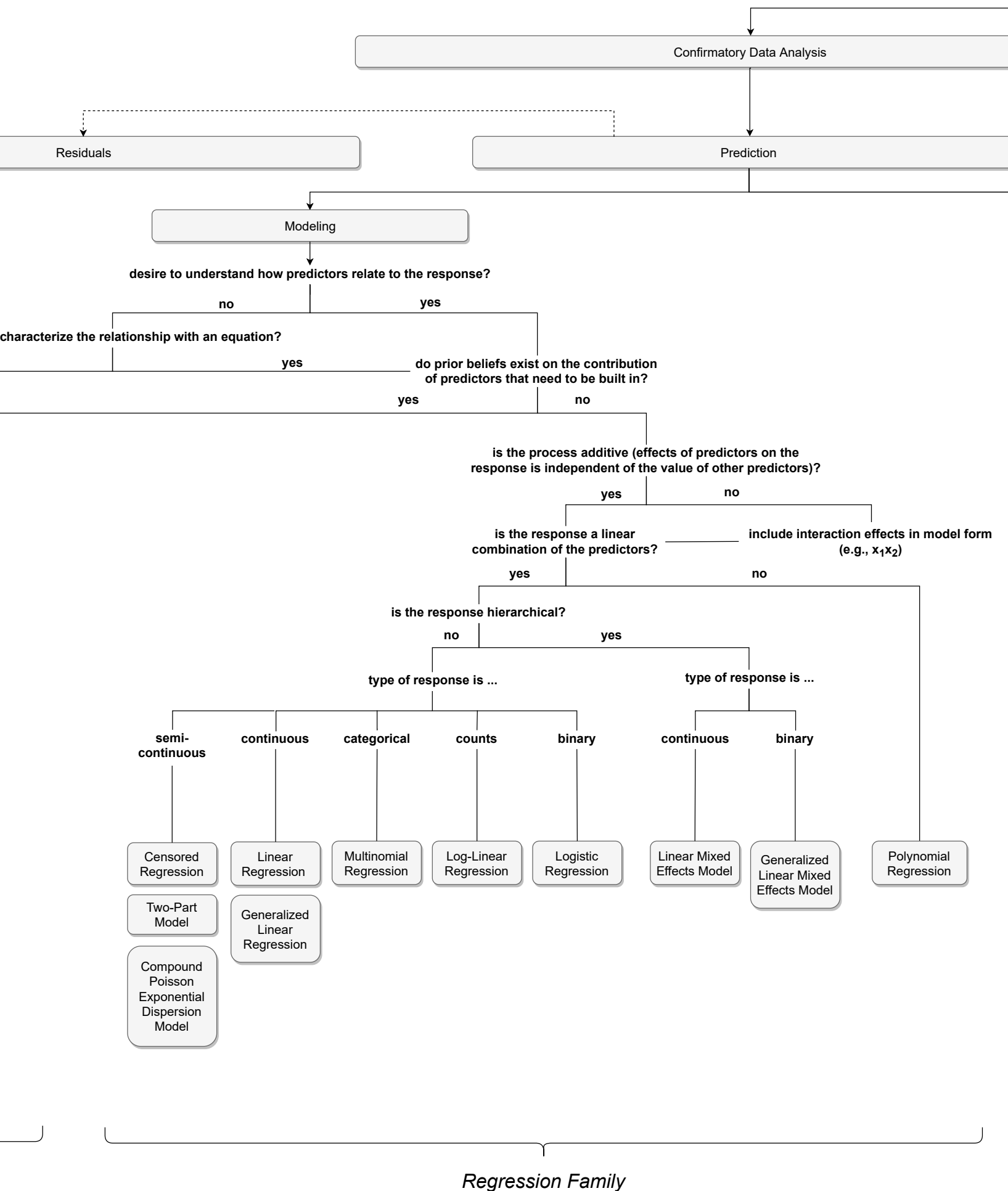


Supervised Machine Learning



Time Dependent Modeling

observe a trend in the response?

yes

no

have non-seasonal time series predictors?

have time series predictors?

no

yes

yes

no

have more seasonal time series predictors?

no

yes

desire to visualize the trend, seasonality & noise?

no

yes

ARIMA
Exponential Smoothing (with trend & seasonality)

Time Series Decomposition

Vector Autoregression (VAR)

Transfer Function Models

Simple Exponential Smoothing

Time Series Analysis

Space Dependent Modeling

interested in dealing with ...

spatial variability

local uncertainty

spatial uncertainty

Variograms

Kriging (point and block)

CoKriging (to account for secondary information)

Indicator Methods

Simulation Methods (e.g. Sequential Gaussian Simulation, Transition Probability Geostatistics, TPROGS)

Geostatistics

Natural Groupings

in tabular data

visual
the data is ...

automated

mixed

categorical

continuous

and Euclidean?

no

yes

small dataset

large dataset

desire to examine
structure?

yes

no

desire to examine
structure?

no

yes

Self Organizing
Maps

Latent Class
Analysis

Multi
Dimensional
Scaling

Self Organizing
Maps

Principal
Component
Analysis

Self Organizing
Maps

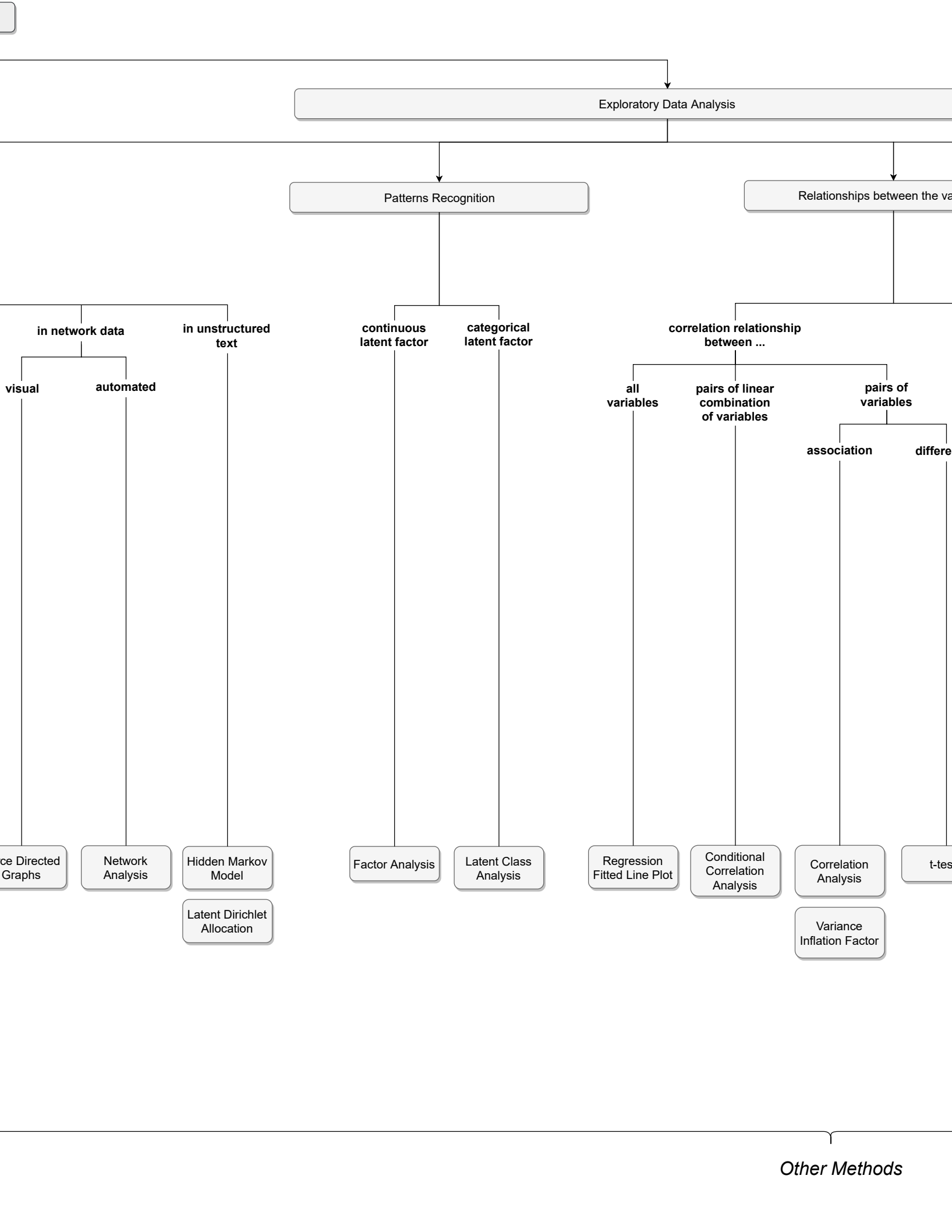
K-means
Clustering

Hierarchical
Clustering

BIRCH
Clustering

Multi-Variate Analysis

Unsupervised Machine Learning



variables

conditional
dependency
relationship

nces

ts

Bayesian Nets
or Inference
Nets

Description

Distribution
Fitting

Descriptive
Statistics

Statistics

Graphics

Tests

Continuous
Scales

Discrete
Scales

Skewness

Coefficient of
Variation

Kurtosis

Histogram

Box-plot

Probability plot

Kolmogorov-
Smirnov

Anderson-
Darling

Shapiro-Wilk

Lillifors

Mean

Standard
Deviation

Median

Range

Quantiles

Counts

Proportions