

Visualizing Hierarchical Data



Matthew Renze

SOFTWARE CONSULTANT

@matthewrenze www.matthewrenze.com



Overview



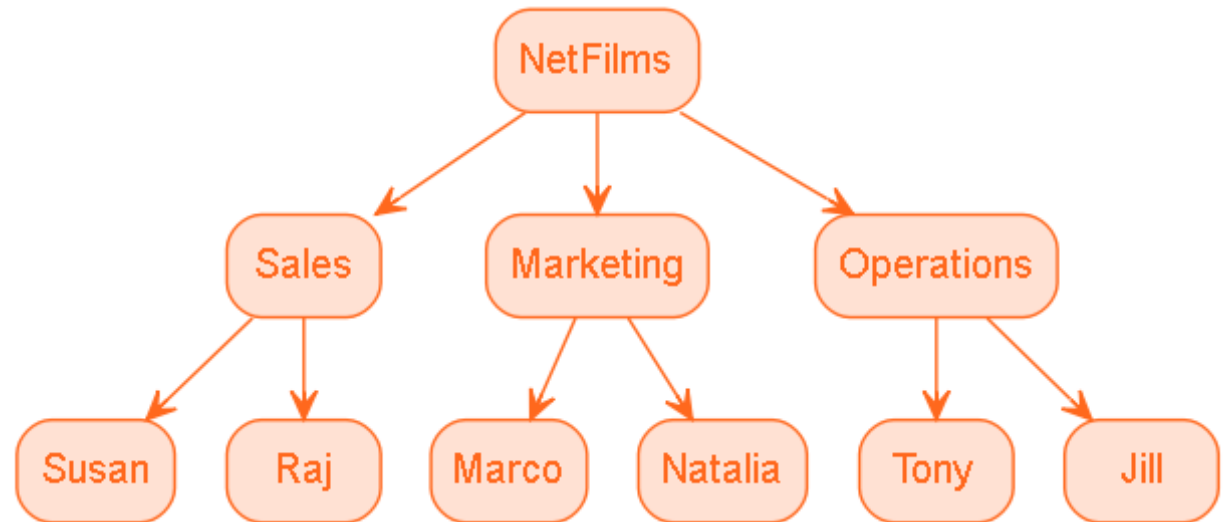
Visualizing Hierarchical Data

Demo



Hierarchical Data Analysis

NetFilms Organizational Chart



Parent-child relationship

Modeled as trees

Multiple levels

Hierarchical Data Analysis

Two-level hierarchy

Third numeric variable

Continent	Country	Count of Movies
Asia	India	27
Asia	Japan	41
Europe	France	184
Europe	Germany	306
North America	Canada	211
North America	Mexico	24



Tree Diagram

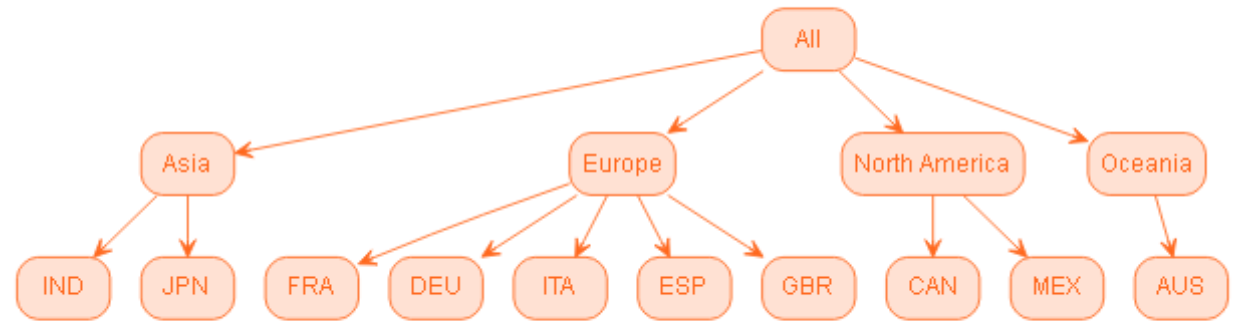
Geographic Distribution Hierarchy

Parent-child relationship

Nodes and edges

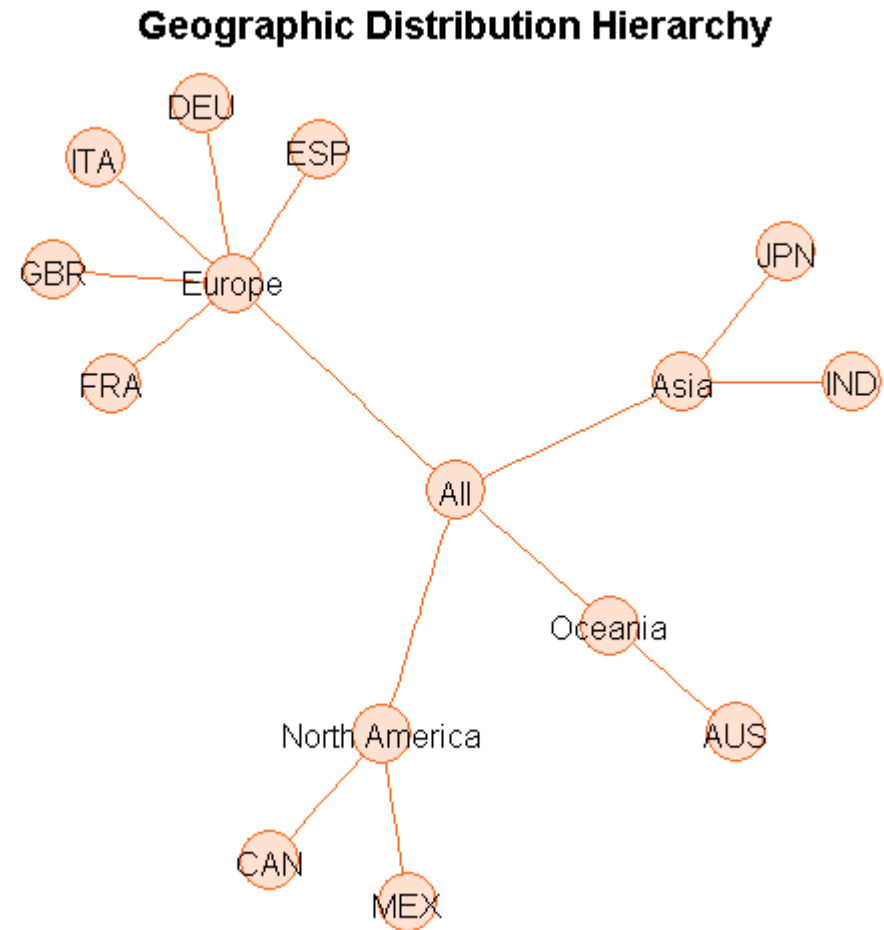
Small number of nodes

Color and size



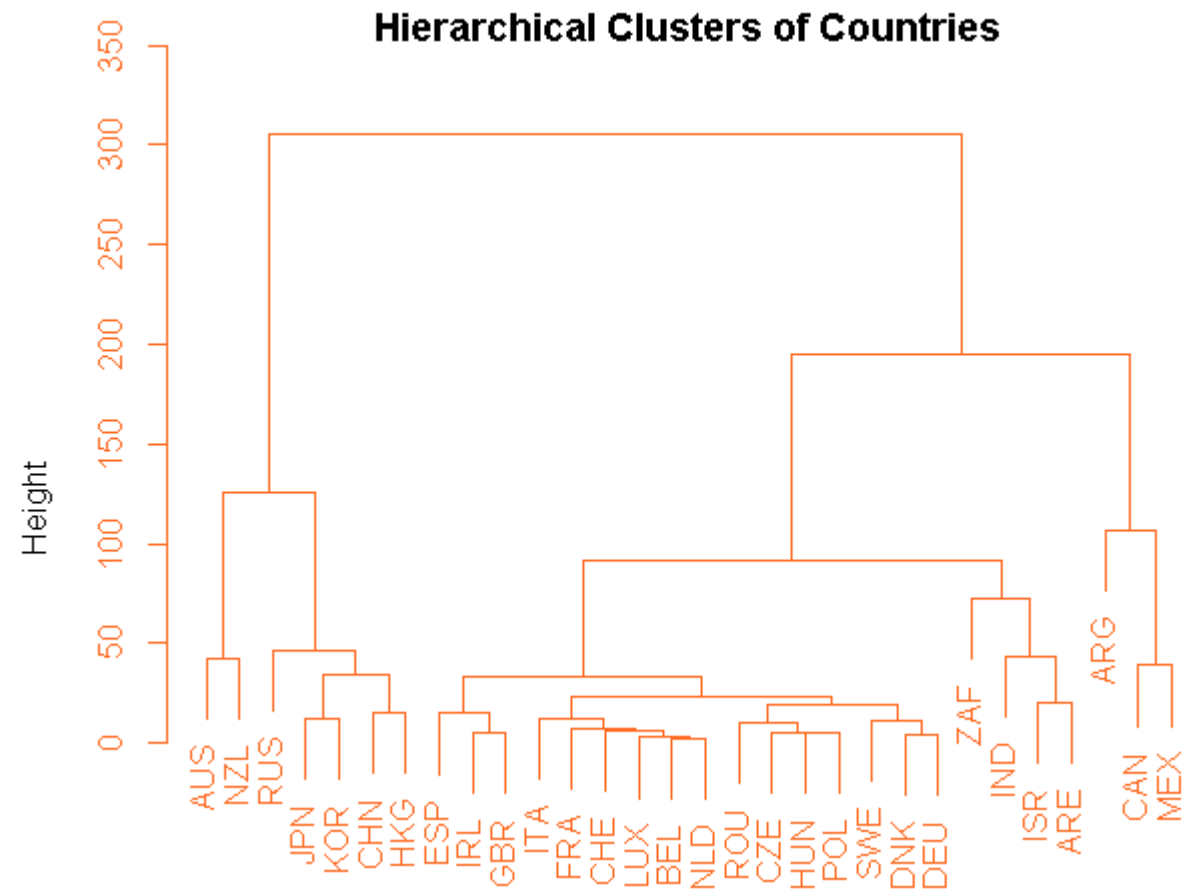
Tree Graph

Graph layout algorithm
Readability / aesthetics
Large number of nodes



Dendrogram

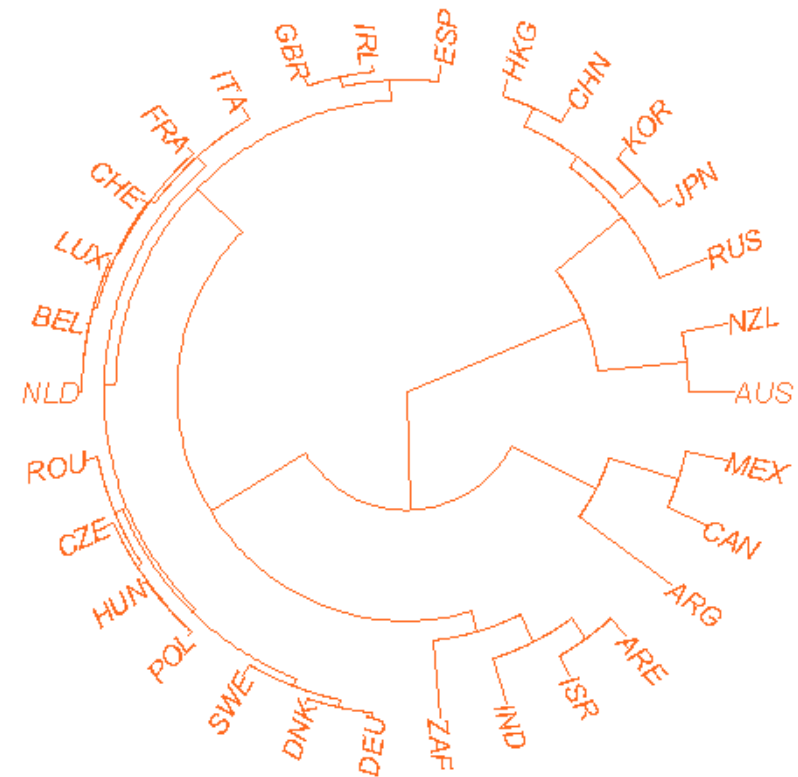
Cluster analysis
Distance metric
Phylogenetic trees



Radial Tree

- Polar coordinate system
- Large number of nodes
- More difficult to compare

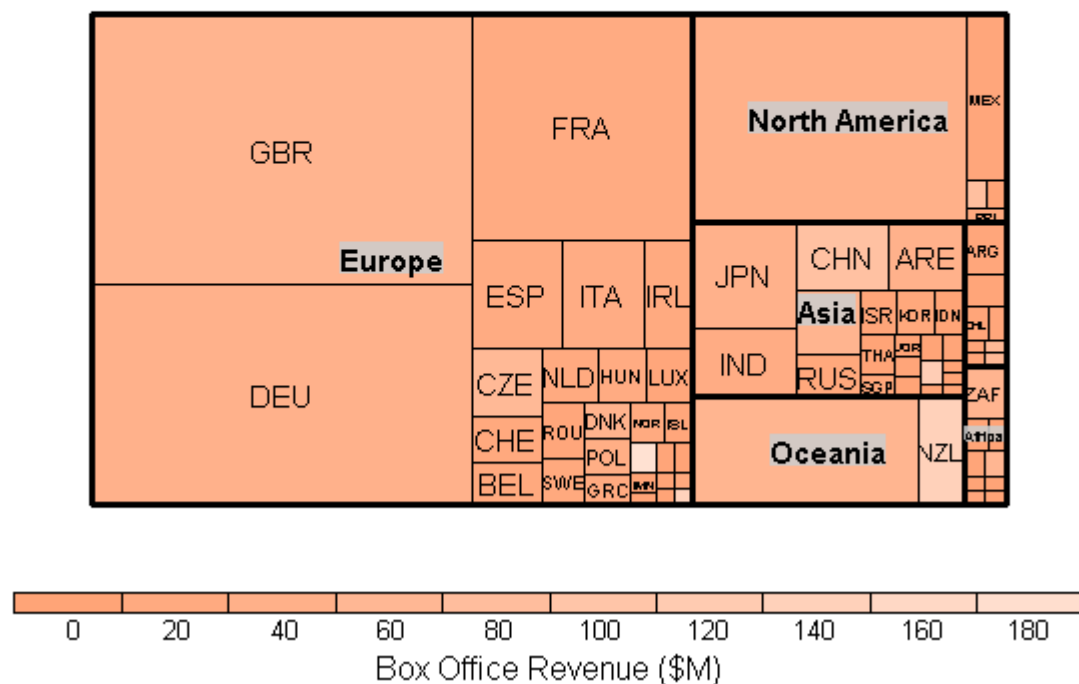
Hierarchical Clusters of Countries



Tree Map

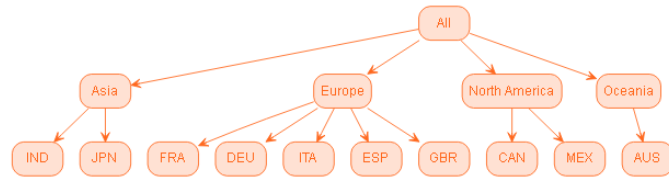
Count of Movies and Box Office Revenue
by Continent and Country

Nested rectangles
Sized by numeric variable
Colored by other variable

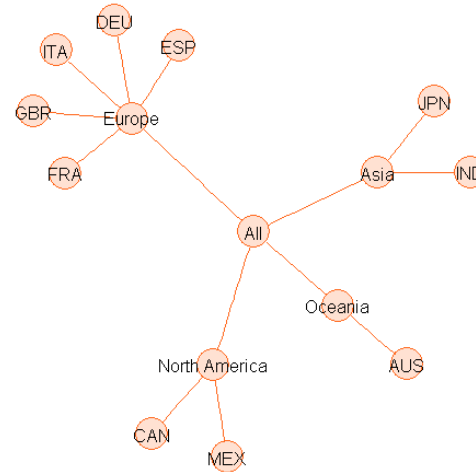


Hierarchical Data Visualization

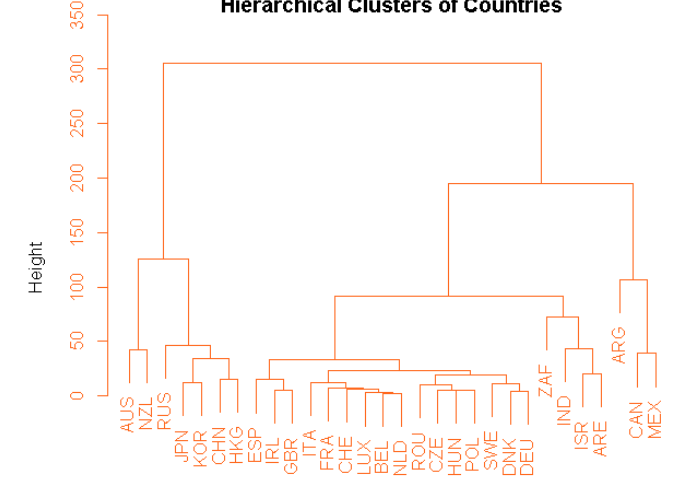
Geographic Distribution Hierarchy



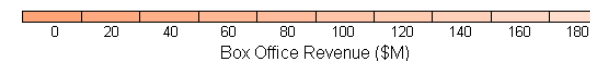
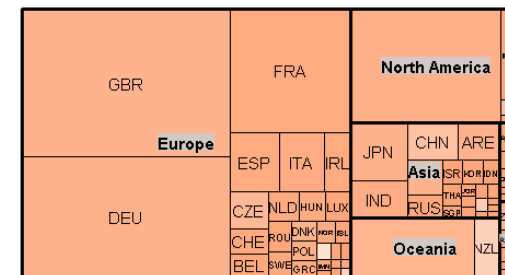
Geographic Distribution Hierarchy



Hierarchical Clusters of Countries



Count of Movies and Box Office Revenue
by Continent and Country







1. What regions contain our top 10 distributions?
2. What is their average box office revenue?



Load Hierarchical Data



Create Tree Path



Create a Data Tree



Plot a Tree Diagram



Create a Tree Graph



Assign Row Names



Hierarchical Clustering Setup



Create Distance Matrix



Create Hierarchical Clusters



Create Dendrogram



Create a Radial Tree



Create a Tree Map (Categorical)



Create a Tree Map (Numeric)





Summary



Visualizing Hierarchical Data

Demo

