Ludwig-Maximilians-Universität München   Munich, June 27, 2019
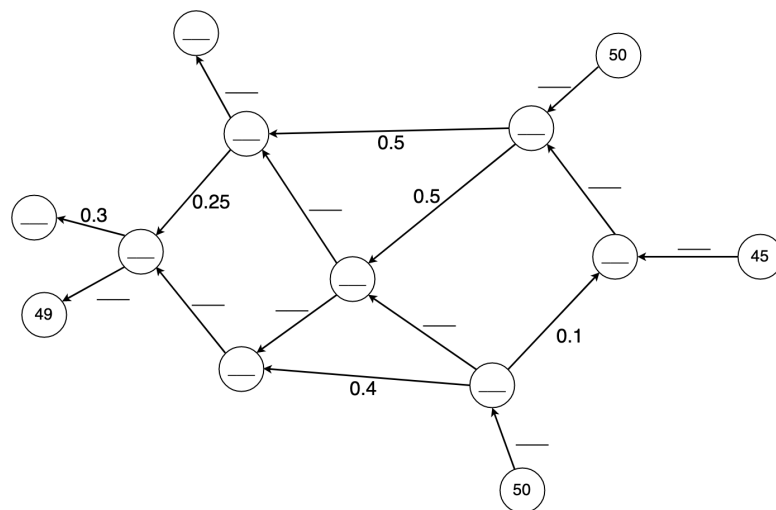**Institut für Informatik**
Prof. Dr. Matthias Schubert
Felix Borutta

Managing Massive Multiplayer Online Games
SS 2019

Exercise Sheet 9: Temporal and Spatial Behavior
The assignments are due July 3, 2019

Assignment 9-1   *Network Propagation Models*

Let the following extract of a road network be given:


Let the nodes be intersections resp. dead ends and the edges denote road segments. Nodes are labeled with the number of entities, e.g., game characters in a computer game, and edge weights are labeled with the probabilities with which entities decide to travel across the corresponding road segment.

Calculate the missing transition probabilities and the expected number of entities that may be located at the intersections resp. dead ends. Transition probabilities per node shall sum up to 1.

Assignment 9-2   *Spatial Outlier Detection*

Given the following positions as relevant spatial positions (e.g. starting positions in an FPS or frequent camp positions in an MMORPG). For every position a score that depicts semantic information about the quality of the position (e.g. the average number of frags in an FPS or the average count of EP/coins per hour in an MMORPG) is given additionally.
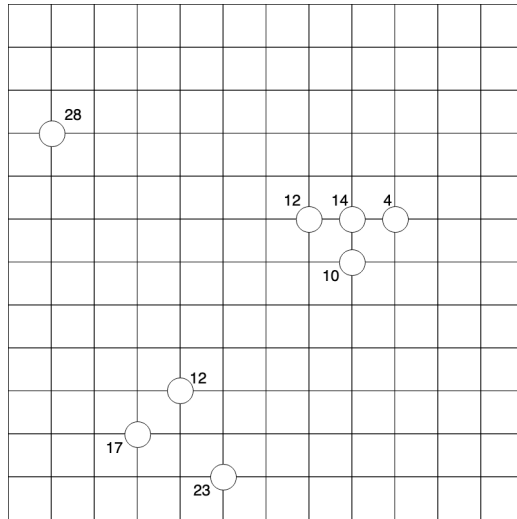
Find the three strongest outliers in this dataset by applying the Point Outlier Detection Algorithm with $k = 2$. Use the absolute score difference as weighting function.

Assignment 9-3   *Compression of trajectories*

Approximate the following trajectories with the Douglas Peucker Algorithm.