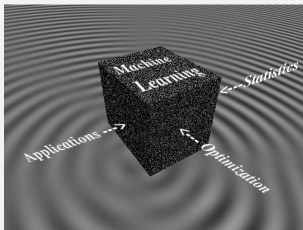


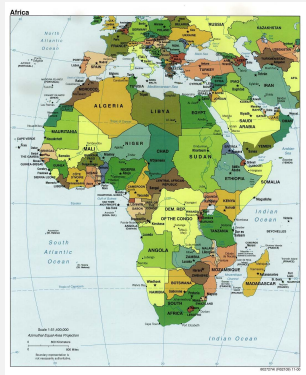
Algorithms for Graph Label Prediction: Design of \mathcal{H}

18 November 2008



What is a good Hypothesis Space

For learning Concept of 'Continent'



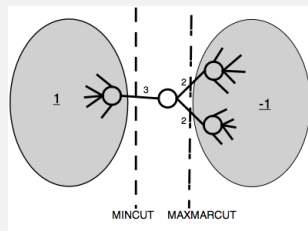
$$\mathcal{H} \subset \{q: \mathcal{V} \rightarrow \{-1, 1\}\}$$

- 1 Counterpart to **margin**?
- 2 Graph Cut

$$\text{cut}(q) = \sum_{q(v_i) \neq q(v_j)} a_{ij} = \frac{1}{4} q^T L q$$

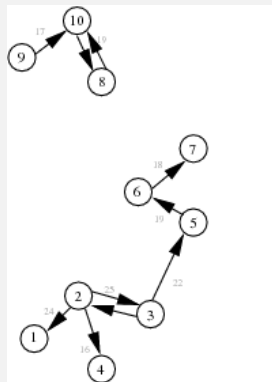
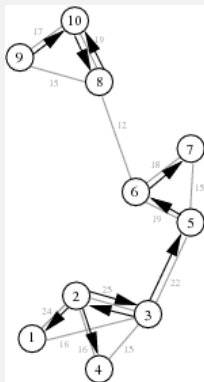
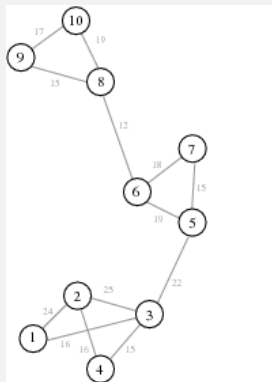
- 3 Bounded Graph Cut

$$\mathcal{H}_B = \{q: \mathcal{V} \rightarrow \{-1, 1\} : \text{cut}(q) \leq B\}$$



Plausible Hypothesis Spaces

Local Consistency with 1NN





- 1 Form of \mathcal{G}
- 2 Suitable \mathcal{H} and regularization?
- 3 Model Selection?
- 4 Tuning Graph or Algorithm?
- 5 Extension Operator?
- 6 Noise Sources/ Robustness w.r.t. \mathcal{G}