

Applied Machine Learning

Graphical Models I

Graphical Models I

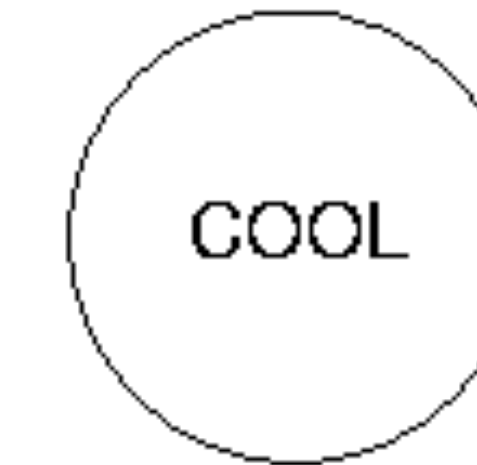
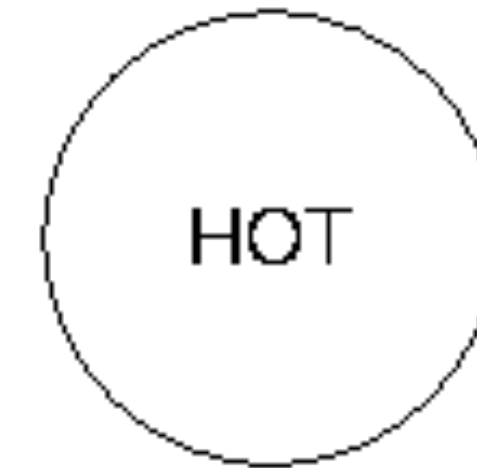
- Graphical Models
- Markov Chains
- Hidden Markov Models

Graphical Models

- Process sequences
 - words in text, speech
 - require some memory
- Markov Chains
 - encode states and transitions between states
- Hidden Markov Models
 - sequences of observations linked to sequence of states

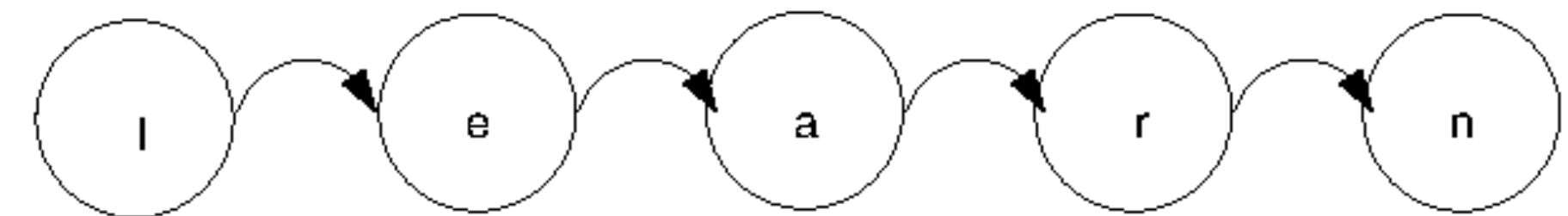
Markov Chains

- Sequence of states:
 - [HOT, WARM, HOT, WARM, WARM, WARM]
 - states are finite
- Transition probabilities
- Markov property
- Model processes that produce sequences
 - Sentence generation
- Basic block for Hidden Markov Models



Hidden Markov Models

- Processes that generate noisy sequences
 - Typos in text input
- Hidden Markov Models (HMMs)
 - Set of states with transition probabilities
 - Initial distribution of states
 - Emission distribution



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