The Naïve Bayes Model

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Introduction to Machine Learning

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Generation vs. Discrimination

Generative Models

- Represent both the data and the labels

- Often, makes use of conditional independence and priors

- Examples
  - Naïve Bayes classifier
  - Bayesian network
  - Single/Dual-wing harmonium
  - Variational autoencoder

- Models of data may apply to future prediction problems

Discriminative Models

- Learn to directly predict the labels from the data

- Often, assume a simple boundary (e.g., linear)

- Examples
  - Logistic regression
  - SVM, perceptron, discriminants
  - Decision tree / An ensemble
  - MLP

- Often easier to predict a label from the data than to model the data

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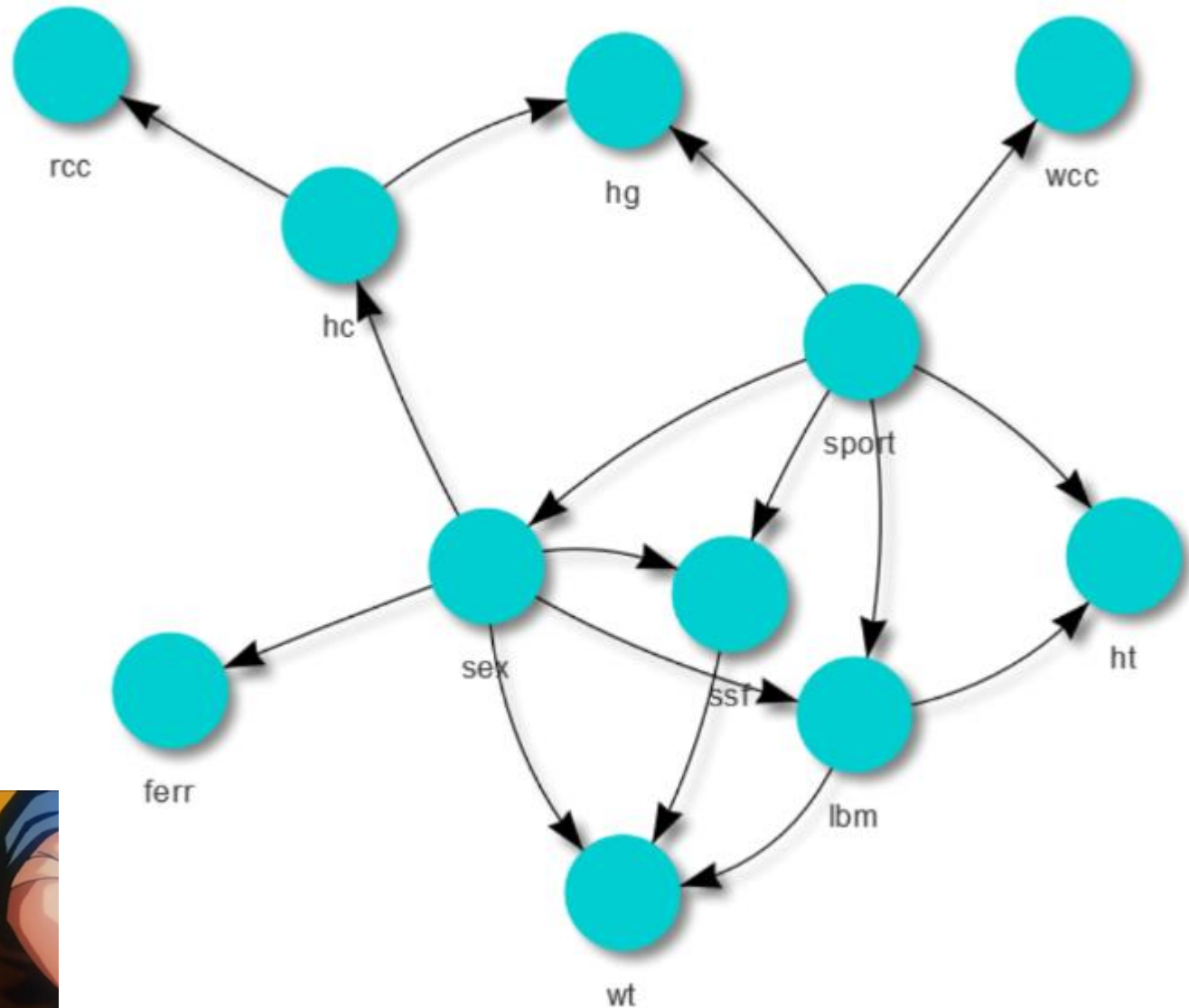
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Construction: Crafting a Naïve Bayes graphical model!

What would be beyond Naïve Bayes?
Answer: Bayesian Networks

QUESTIONS?

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