Exam on Thursday Nov. 29, 2018 6:00-8:00

topics: Point Algebra
Quantitative temporal networks
Ch. 13
Ch. 14

Ch. 16 will be a "mini" exam after this

week  M T W Th F
12  
13  
14  prro prro prro

6:00-7:00 6:00-7:00

all presentations during the 14th week

two extra classes:
Tuesday: Dec. 11 6:00-7:00
Thursday: Dec. 13 6:00-7:00

No report on the presentation.
I'll adjust the percentages.
\[ P(C | MB(c)) = <n_1, n_2> \]

sample C from this.
The probability of a variable given its Markov blanket is proportional to the probability of the variable given its parents times the probability of each child given its respective parents:

\[
P(x_i | mb(X_i)) = \alpha P(x_i | \text{parents}(X_i)) \prod_{Y_j \in \text{children}(X_i)} P(y_j | \text{parents}(Y_j))
\]

Consider the query \( P(R | S = t, W = t) \).

\( S \) is true from the evidence. Suppose that \( R \) is true in the state.

We will be sampling for \( C \).

The Markov blanket of \( C \) is its parents (\( \emptyset \)), its children (\( \{R, S\} \)), and the other parents of its children (\( \emptyset \)). We use the following distributions to sample \( C \).

\[
P(C | MB(C)) = P(C | R = t, S = t) = \alpha P(C) P(S = t | C) P(R = t | C)
\]

\[
= \alpha < 0.5, 0.5 > < 0.1, 0.5 > < 0.8, 0.2 >
\]

\[
= \alpha < 0.04, 0.05 >
\]

\[
= \frac{1}{9}
\]

For the states where \( R \) is false, \( P(C | \neg R, S) \) is calculated similarly.

\( S \) is true from the evidence. Suppose that \( C \) is true in the state.

We will be sampling for \( R \).

The Markov blanket of \( R \) is its parents (\( \{C\} \)), its children (\( \{W\} \)), and the other parents of its children (\( \{S\} \)). We use the following distributions to sample \( R \).

\[
P(R | MB(R)) = P(R | C = t, S = t, W = t) = \alpha P(R | C = t) P(W = t | R, S = t)
\]

\[
= \alpha < 0.8, 0.2 > < 0.99, 0.90 >
\]

\[
= \alpha < 0.792, 0.18 >
\]

\[
= \alpha < \frac{0.792}{0.972}, \frac{0.18}{0.972} > < \frac{22}{27}, \frac{5}{27} >
\]

\( P(R | \neg C, S, W) \) is calculated similarly.
Chapter 16
Making Simple Decisions

↓
one shot

- information on the present situation (state)
  - fully observable

- some information about the future
  - probabilities
  - the preference for the future states