Exam tomorrow at 6:00pm

Nov 28, 2018 Thursday

Topic: Bayesian networks inference

exact sampling

second part of exam 2: Friday 12/7

class time

next assignment (Ch 16) due

Tuesday 12/4 11:59 pm

Friday 11/30 no class

Monday 12/3 no class

Wednesday 12/5 (optional, review)

Friday 12/7 second part of exam

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Last day of classes
CS5811 In class exercise - Value of information

- $n$ blocks, $C$ worth of oil in exactly one block, each block $C/n$ dollars

- A seismologist offers the company the results of a survey of block number 3, which indicates definitely whether the block contains oil.

- How much should the company be willing to pay for the information?

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Expected value of buying the survey:
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CS5811 In class exercise - Value of information

- $n$ blocks, $C$ worth of oil in exactly one block, each block $C/n$ dollars
- A seismologist offers the company the results of a survey of block number 3, which indicates definitely whether the block contains oil.
- How much should the company be willing to pay for the information?

![Diagram of decision process]

The expected value (profit) for buying the survey for block 3:

$$
\frac{1}{n} \times \frac{(n-1)C}{n} + \frac{(n-1)}{n} \times \frac{1}{(n-1)} \times \frac{(n-1)C}{n} + \frac{(n-1)}{n} \times \frac{(n-2)}{(n-1)} \times \frac{-C}{n}
$$

$$
= \frac{(n-1)C}{n^2} + \frac{(n-1)C}{n^2} + \frac{(n-2) \times (-C)}{n^2}
$$

$$
= \frac{C(n-1 + n-1 - n + 2)}{n^2} = \frac{Cn}{n^2} = \frac{C}{n}.
$$