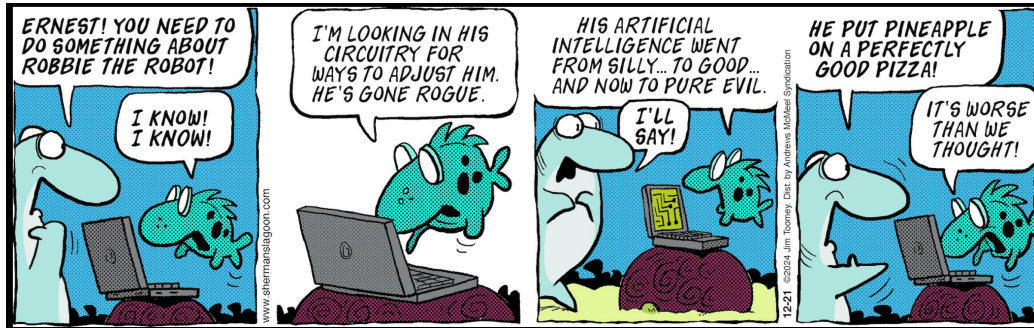


CSCI 3202

Lecture 14

September 24, 2025



Sherman's Lagoon by Jim Toomey: <https://www.gocomics.com/shermanslagoon>

Announcements

- Error on HW #4 explanation
 - Answers are correct, but notation had an error
 - See below for corrected version
- Quiz #5 Today
 - Bayes Nets
 - Enumeration
- HW #4 due on Monday, 9/29
- Midterm on Wed, October 8, 2024 in class

Quiz 4 Correction

| | A Not | A |
|-------|-------|-----|
| B Not | 0.1 | 0.6 |
| B | 0.1 | 0.2 |

- Calculate $P(A) = \sum_{i \in B} P(A, B_i)$
- $P(A) = P(A, B \text{ Not}) + P(A, B) = 0.6 + 0.2 = 0.8$
- $P(B) = P(B, A \text{ Not}) + P(B, A) = 0.1 + 0.2 = 0.3$
- $P(B|A) = P(B, A) / P(A) = P(A, B) / P(A) = 0.2 / 0.8 = 0.25$

- A and B are independent $\iff P(A,B)=P(A)*P(B)$
 - $P(A)P(B)=0.8 * 0.3= 0.24 \neq 0.2$
 - \therefore A is not independent of B

Bayesian Networks

- Creating a Bayes Network
 - [Bayes Nets Intro.pdf](#) (pg 5-19)
- Solving a Bayes Network
 - We begin with a joint distribution containing all of the variables in model
 - Define the conditional probability we want as our result in terms of this joint distribution
 - We "sum over" variables we don't want in the final
 - Plug in the values from your CPTs and calculate a final result
 - Your final result should be a numerical probability
- [Bayes Nets Part II Annotated.pdf](#)

Quiz #5

- Bayes Nets
- Enumeration

Readings

- AIMA Section 13.2-13.3

Upcoming

- Next week: Finish Bayes Networks then Local Optimization
- Midterm on Wed, October 8, 2024 in class
 - Review on Mon, October 6