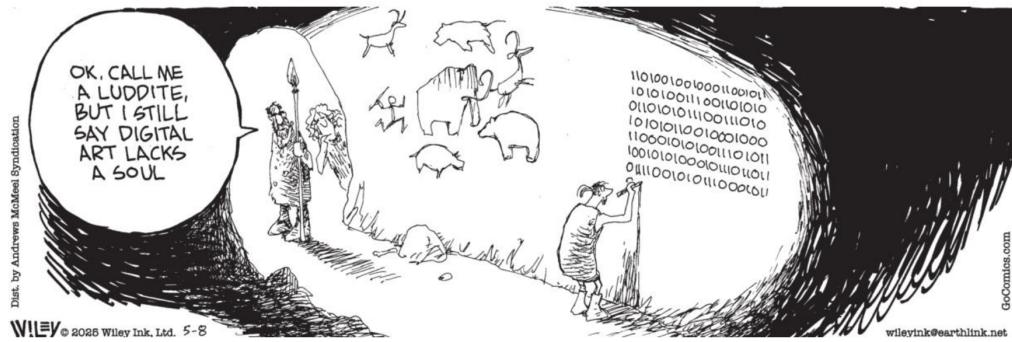


CSCI 3202

Lecture 16

October 1, 2025

NON SEQUITUR: By Wiley Miller



Non Sequitur by Wiley Miller. <https://www.gocomics.com/nonsequitur>

Announcements

- HW #5 released today
 - Due on Friday, October 10
 - Look through the HW before the Midterm
 - Some material in HW will be on the Midterm
- Quiz #6 on Friday
 - Enumeration
 - Solve a network
 - Causal and diagnostic networks
- Midterm on Wed, October 8, 2024 in class

Bayesian Networks

- How can we add a probability to our distribution then sum it out?

$$\text{WTS: } P(A, B) = \sum_c P(A, B | c) \cdot P(c)$$

$$P(A, B | c) = \frac{P(A, B, c)}{P(c)}$$

$$\Rightarrow P(A, B, c) = P(A, B | c) \cdot P(c)$$

$$P(A, B) = \sum_c P(A, B, c)$$

$$\text{so } P(A, B) = \sum_c P(A, B, c)$$

$$= \sum_c P(A, B | c) \cdot P(c)$$

James Dye

Joint
Dist
↓
Cond
Dist

- 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](#)

Upcoming

- Quiz #6 on Friday
- Midterm on Wed, October 8, 2024 in class
 - Review on Mon, October 6