CS1571
Fall 2019
10/30 Homework

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Skim Chapter 13 as a review of principles of probabilistic reasoning, and answer the following questions.

The following table represents a joint probability distribution for three variables *a*, *b,* and *c.* The different probabilities in the cells of the distribution are simply represented as P_i.

	a		~*a*	
	b	~*b*	*b*	~*b*
c	P_1	P_2	P_3	P_4
~*c*	P_5	P_6	P_7	P_8

Answer the following questions.

1. (4 pts) What is P(~*c*)? Give your answer in terms of P_1 ... P_n.

   (P5+P6+P7+P8)

2. (4 pts) What is P(*b* | *a*)? Give your answer in terms of P_1 ... P_n.

   (P1+P5) * (P1+P2+P5+P6)

3. (2 pts) If the following equation is true, which of the variables involved are conditionally independent? Check all that apply.

   P(*a* ^ *b* | *c*) = P(*a* | c)P(*b* | *c*)

   _X_ *a* and *b*
   ___ *a* and *c*
   ___ *b* and *c*
   ___ None of them