

CS5002

Spring 2024

In-Class Assignment 1

Assigned: January 10, 2024

Deadline: January 11, 2024 @ 6pm eastern

In-Class Assignments (ICAs) will be assigned during lecture, and we'll set aside time for everyone to work on them. You may work alone or with a partner.

You receive full credit for completing and submitting the first 2 problems below and submitting your work on gradescope. (Feel free to complete all problems for extra practice!) We'll review solutions in class on the same day, so your gradescope submission will be graded on completion.

ICAs must be submitted no later than 6pm eastern after the day they are assigned (i.e., they are due the Thursday after our usual Wednesday lecture).

You may not submit ICAs late, but three of them will be dropped and not count towards your final grade

For today's ICA, consider the statements S , R , U , and V below, about Laney's dogs, Grizz and Carol.

S = Grizz is awake

R = Grizz is hungry

U = Carol plays fetch

V = Carol jumps on Keith

Problem #1

Complete the truth table below for the statement $S \wedge \neg(R \vee U)$. Remember that, in a truth table, we always do one step per column!

S	R	U			
T	T	T			
T	T	F			
T	F	T			
T	F	F			
F	T	T			
F	T	F			
F	F	T			
F	F	F			

Problem #2

Translate the relevant part of each of the following English sentences into logical statements, using only the symbols \neg , \wedge , and/or \vee .

A Carol never jumps on Keith!

B The calmest time in our house is when Grizz is sound asleep but Carol is playing fetch.

C Grizz is always either hungry or asleep.

Problem #3

Negate each of the following statements, simplifying as much as possible.

A $S \vee U$

B $\neg S \vee U$

Problem #4

Translate the following statement, and its negation, into English: $\neg S \vee U$

Statement in English:

Negation in English: