Econ 327: Game Theory
Homework #4

University of Oregon

Due: Oct. 24th

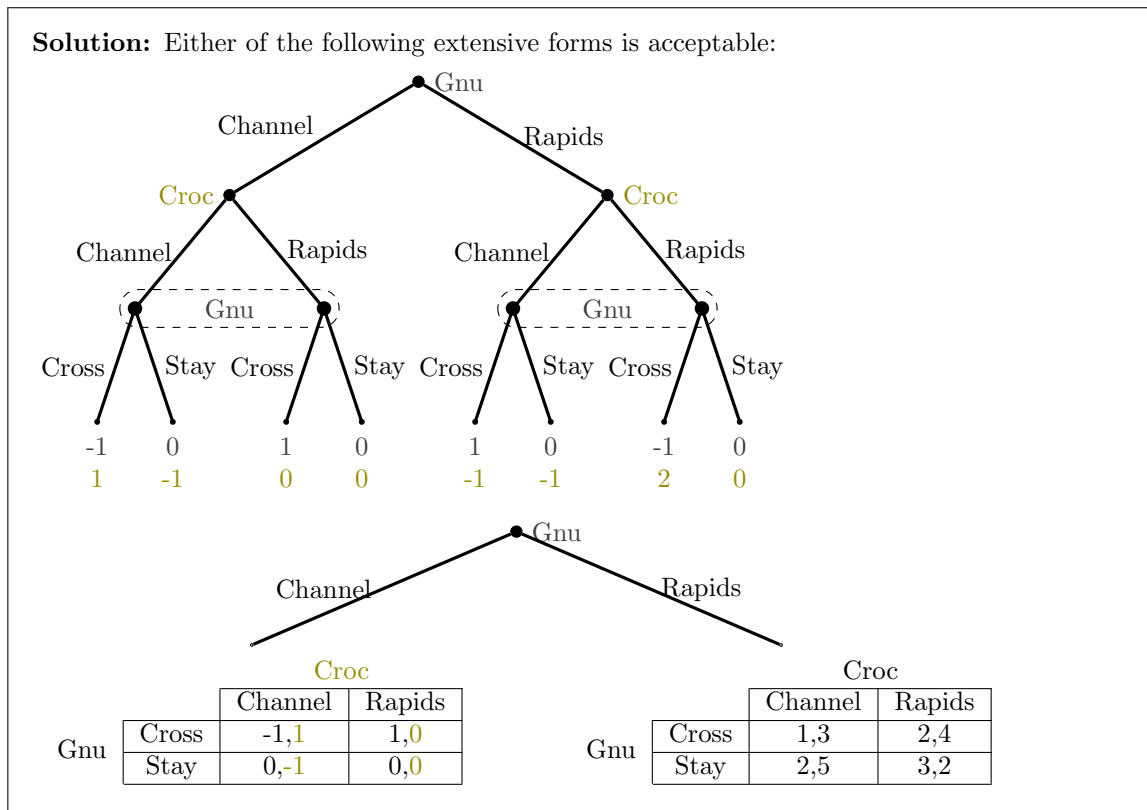| Question:	**Q1**	Total
Points:	12	12
Score:		

For homework assignments:

- Complete *all* questions and parts.

- You will be graded on not only the content of your work but on how clearly you present your ideas. Make sure that your handwriting is legible. Please use extra pages if you run out of space but make sure that all parts of a question are in the correct order when you submit.

- You may choose to work with others, but everyone must submit to Canvas individually.

  Please include the names of everyone who you worked with below your own name.

Name _____

Q1. Recall the gnu and croc river crossing game from Homework 2, Question 3. Now, consider what happens if the gnu have bad eyesight and can't see where the crocs are choosing to lie in wait.

(a) [8 points] Draw out the new extensive form game.

Solution: Either of the following extensive forms is acceptable:

Gnu
— Channel → Croc
  — Channel / Rapids → Gnu (information set)
    Cross / Stay / Cross / Stay
    -1 0 1 0
     1 -1 0 0
— Rapids → Croc
  — Channel / Rapids → Gnu (information set)
    Cross / Stay / Cross / Stay
    1 0 -1 0
    -1 -1 2 0

Gnu
— Channel →

Gnu	Croc	Channel	Rapids
	Cross	-1,1	1,0
	Stay	0,-1	0,0

— Rapids →

Gnu	Croc	Channel	Rapids
	Cross	1,3	2,4
	Stay	2,5	3,2

(b) [4 points] How does your prediction change from homework 2? Would you still expect to always see the gnu safely crossing at the channel?

Solution: If the Gnu can't see the Crocs, they can't use a strategy where they only selectively cross the Channel if the Crocs are there. If they choose to Cross the Channel in this case, then the Crocs will decide it's worth it to go to the Channel. So the equilibrium from earlier doesn't apply because the information sets of the extensive form game have changed.