1. Consider the following game. Nature selects A with probability 1/2 and B with probability 1/2. If nature selects A, then players 1 and 2 interact according to matrix "A." If nature selects B, then the players interact according to matrix "B." These matrices are pictured here.

1 \ 2	V	W
X	6, 0	4, 1
Y	0, 0	0, 1
Z	5, 1	3, 0

A

1 \ 2	V	W
X	0, 0	0, 1
Y	6, 0	4, 1
Z	5, 1	3, 0

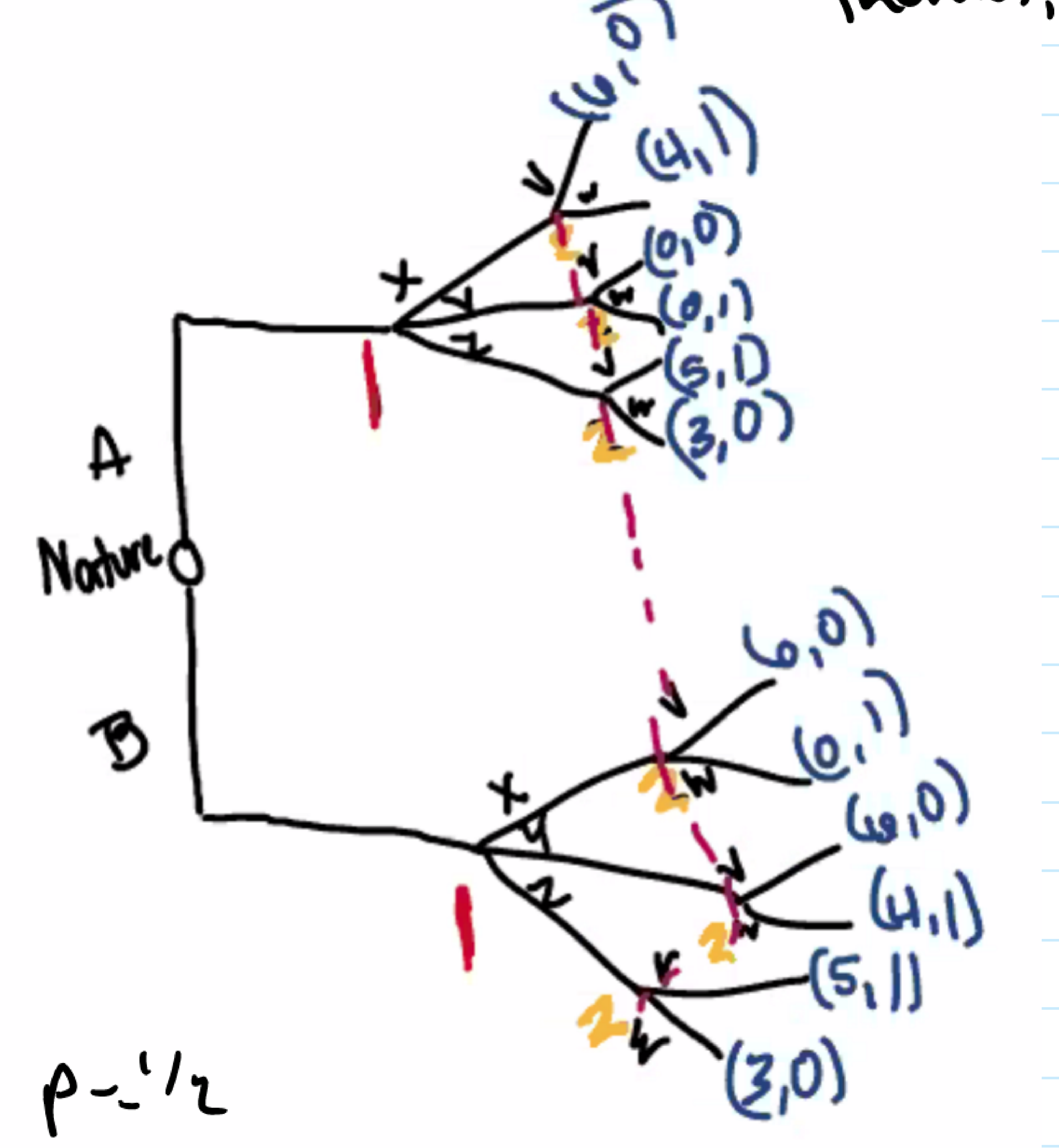
B

(a) Suppose that, when the players choose their actions, the players do not know which matrix they are playing. That is, they think that with probability 1/2 the payoffs are as in matrix A and that with probability 1/2 the payoffs are as in matrix B. Write the normal-form matrix that describes this Bayesian game. (This matrix is the "average" of matrices A and B.) Using rationalizability, what is the strategy profile that is played?

1 \ 2	V	W
~~X~~	~~3, 0~~	~~2, 1~~
~~Y~~	~~3, 0~~	~~2, 1~~
Z	5, 1	~~3, 0~~

(b) Now suppose that, before the players select their actions, player 1 observes nature's choice. (That is, player 1 knows which matrix is being played.) Player 2 does not observe nature's choice. Represent this game in the extensive form and in the Bayesian normal form. Using dominance, what is player l's optimal strategy in this game? What is the set of rationalizable strategies in the game?

Thanks, Iz



	V	W
Xx	3, 0	2, 1
Xy	6, 0	4, 1
Xz	5.5, .5	3.5, .5
Yx	0, 0	0, 1
Yy	3, 0	2, 1
Yz	2.5, .5	1.5, .5
Zx	2.5, .5	1.5, .5
Zy	5.5, .5	3.5, .5
Zz	5, 1	3, 0

$p = 1/2$

XX, V and YY, V
$6(1/2) + 0(1 - 1/2) = 3 + 0 = 3$ $\qquad 0(1/2) + 0(1 - 1/2) = 0 + 0 = 0$

XY, V
$6(1/2) + 6(1/2) = 3 + 3 = 6$ $\qquad 0(1/2) + 0(1/2) = 0 + 0 = 0$

XZ, V and ZY, V
$6(1/2) + 5(1/2) = 3 + 2.5 = 5.5$ $\qquad 0(1/2) + 1(1/2) = 0 + 1/2 = 1/2$