Mason McBride 3035925411 mason 2@ berkeley.edu STAT 155 1. to show the market sharing some is a potential game me must show (j,, (i) - (j, (-i)) = V; (j, (-i)) - (v, (j, (-i)))  $Vitos \Phi(j_i,c_i) = \sum_{j \in C} \sum_{i=1}^{N} v_i$  $Vi(ji,ci) - Wi(jz,c-i) = \frac{Vj}{n_{j_1}(c)} - \frac{Vjz}{n_{j_2}(c)+1}$ 

D(jz,Ci) = Vij Viz So the market sharing some ic a potential some 2-From section, it is sufficient to a non-zero cycle in the payout med to show it is mot a potential son ()-2+5+3=(G+0)

The NE cre Symmetric (A,A), (B,B) and (1, 1) X is ESS if for any pure strategy (a) ZTAX = XTAX (b) If zī Ax = x TAx, then ZTAZ L xTAZ (10)[43](3)=35 (0)[43](3)=3.5Both are equal so (b) ZAZ=S & XTAZ=Y

POT on ESS

ZAZ=Y & XTAZ=3

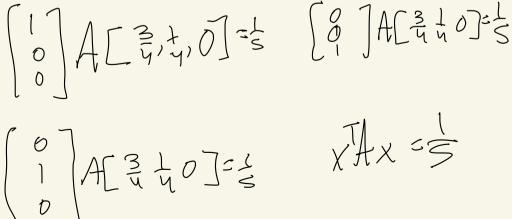
NOT on ESS

FOR CA,A): (1) AC1,D] = Z < x AX = Y (A,A), ESS) (6) - CB,B): (1) A(01] = 3 < (1) ACO1) = S (B,B) (ESS) Y. X is ESS if for any pure strategy Z (a) ZTAX = XTAX (b) If ZTAX = XTAX, then ZTAZ LX7AZ detine strategy i to be any pure strategy i in a symmetric some. define j EJ Where j 15 01 pros strategy where j ti. (or (a) j TA i = i 1 A i [00...i. 0] jTA picks out the jth new of payoft Marrix A because there are Ols for every index but the jth which turn all wheels of those rows to o by similar losic, jtai picks the ith column from the jth faw of A so j!Ai = aji

The same is the 60- iTAi=aii Because ajizaii by wonstruction, jTAiziTAi land pure strateon i is on £55]

). Al has two options: ABC or ADC all others are dominated because they will owler with EABC, ARC3 d2 als ves two aptions: BAD and RCD I BAD BCD ABC (16+7) 16+10) (13+23, 29+21) 1 ADC((StZ1, 15+13) (LO+14, 7+14) BAD BCD ABC (23, 26) (36, 44) ADC (36,28) (24, 21) Pure NE: (ARC, BAD) where dI boles roads AD, DC and d2 tolecs roads BC, OD (ABC, BCD) Where dl toles ro-as AB, BC and d2 toles roads BC, CD

(b) If zī Ax = x TAx, then ZTAZ L x TAZ



because of egality, ZTAZ < xTAZ
muex be chedeed ( ) Ax = 0 < x /Az = 0.5 ( ) Ax = OE 4. S (°) AR =020.75 (80 (3,4,0) is ESS for (0,3,3) XTAX = 36 ( ) / Ax = 1.8 C?) Ax = 3.6 ( ?) Ax = 3.6 to check cases where ZTAX < xTAX, Z!A Z1 = O < XTAZ, = G, Y 25A2, = O CXTA2= ZM (50 (0, 3,3) is an ESS

Use the stability writeria of an ab-truly small population of helps B 201 C'S with 2 = (0, \frac{1}{2}, \frac{1}{2}) (a) ZTAX = XTAX (b) If zī Ax = x TAx, then ZTAZ L x TAZ 12/A[3,40]=1,5=xTAx=1.5 -2TA==3,75 \$ xTA== 2.625 Thus AB is not Stable assirest
Strategy 2 and pp.BC will wertake
pop. AB