UNIVERSIDAD DE CHILE

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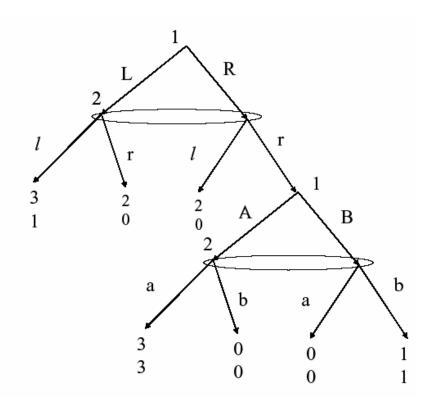
<u>Clase Auxiliar Nº 6</u> Economía Aplicada a la Gestión Bimestre Julio-Agosto 2007

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Pregunta 6

Para el siguiente juego, encuentre todos los equilibrios en estrategias puras perfectos en el subjuego.



Answer to Problem 1

This game has two subgames. One subgame is the game as a whole and the other is the subgame after players 1 and 2 choose to play R and r, respectively. In this last subgame we have 2 pure Nash equilibria (NE) which are (A, a) and (B, b).

To compute the subgame-perfect equilibrium (SPE) we have to check if the strategy profile is a NE in every subgame. Thus, to obtain the SPE, we have to assume that outcome of the smaller subgame will be one of those NE.

When players 1 and 2 play (A, a) in the smaller subgame, the reduced form of the game is:

$$\begin{array}{ccc} & l & r \\ L & 3,1 & 2,0 \\ R & 2,0 & 3,3 \end{array}$$

There are two NE in this case (L, l) and (R, r). Therefore, the SPE are (LA, la) and (RA, ra).

When they play (B,b) in the smaller subgame, the reduced form of the game is:

$$\begin{array}{cccc} & l & r \\ L & 3, 1 & 2, 0 \\ R & 2, 0 & 1, 1 \end{array}$$

In this case there is just one NE (L, l). Therefore, the SPE is (LB, lb). Therefore, this game has three SPE: (LA, la), (RA, ra) and (LB, lb).