Consider a two player game with a payoff matrix

\[
\begin{array}{cc}
\text{U} & (1,1) \quad (0,n) \\
\text{D} & (0,m) \quad (1,5)
\end{array}
\]

where \(m \in \{1, 3, 4\}\) and \(n \in \{0, 5\}\) are parameters known by player 2 only.

1. How many types does player 2 have?
   **Answer:** Player 2 has 6 types. \(T_2 = \{(1,0), (1,5), (3,0), (3,5), (4,0), (4,5)\} = \{1,3\} \times \{0,2\}\)

2. What is the strategy set for player 2?
   **Answer:** \(S_2 = \{a_1a_2a_3a_4a_5a_6 : a_i \in \{L,R\}\} = \{L,R\} \times \{L,R\} \times \{L,R\} \times \{L,R\} \times \{L,R\} \times \{L,R\}\)
   Player 2 has 64 strategies.

3. Which pure strategies of player 2 will never be played by player 2?
   **Answer:**
   When player 2’s type is (1,5), (3,5) and (4,5), R strictly dominates L.
   Let a strategy \(a_1a_2a_3a_4a_5a_6\) denote the following strategy: \(a_1\) if type is \((1,0)\), \(a_2\) if type is \((1,5)\), \(a_3\) if type is \((3,0)\), \(a_4\) if type is \((3,5)\), \(a_5\) if type is \((4,0)\), \(a_6\) if type is \((4,5)\).
   So all strategies except those of the form \(a_1Ra_3Ra_5R\) where \(a_1, a_3, a_5 \in \{L, R\}\) are eliminated.