Consider a two player game with a payoff matrix

\[
\begin{array}{cc}
(1)/(2) & L & R \\
U & (1, \ min\{a, b\}) & (1, 3) \\
D & (0, 0) & (2, a) \\
\end{array}
\]

where \(a \in \{2, 5\}\) and \(b \in \{3, 4\}\). Nature draws \(a\) and \(b\) and tells player 2 only.

1. What is the set of types of player 2?

**ANSWER:** \( \min\{a, b\} \) can take 3 different values:

- 2 when \(a = 2, b = 3\), or when \(a = 2, b = 4\)
- 3 when \(a = 5, b = 3\)
- 4 when \(a = 5, b = 4\)

Thus Player 2 has types as follows: \(T_2 = \{(2, 2), (3, 5), (4, 5)\}\) and there are 3 types.

2. What is the strategy set of player 2?

**ANSWER:** \(S_1 = \{a_1a_2a_3 : a_i \in \{L, R\}\} = \{L, R\} \times \{L, R\} \times \{L, R\}\) where \(a_1\) is the action for type \((2, 2)\), \(a_2\) is the action for \((3, 5)\) and \(a_3\) is the action for \((4, 5)\).

Player 1 has 18 strategies.

3. Find the strategies of player 2 after eliminating her weakly dominated strategies.

**ANSWER:**

When her type is \((2, 2)\), \(R\) strictly dominates \(L\).

When her type is \((3, 5)\), \(R\) weakly dominates \(L\).

Thus, \(RLa_3, LRa_3\) and \(LLa_3\) are all eliminated. Those which are left are \(RRR\) and \(RRL\).