

Given an integer  $n > 1$ , let  $S_n$  be the group of permutations of the numbers  $1, 2, \dots, n$ . Two players,  $A$  and  $B$ , play the following game. Taking turns, they select elements (one element at a time) from the group  $S_n$ . It is forbidden to select an element that has already been selected. The game ends when the selected elements generate the whole group  $S_n$ . The player who made the last move loses the game. The first move is made by  $A$ . Which player has a winning strategy?