

Problem for Week 5

You are playing a game of chance which works as follows. You are given 20 balls of which 10 are white and 10 are black. They are otherwise identical. You are asked to distribute the 20 balls in any way you wish into two identical-looking boxes. After you have done this the two boxes will be placed on a table (but their contents will not be disturbed), and you will not know which box is which. You will then be asked to select a box and to draw a ball from that box without looking. If you draw a white ball you win the game. If the box that you pick is empty or if the ball that you draw is black, you lose the game.

How should you distribute the balls in order to maximize your chances of winning?