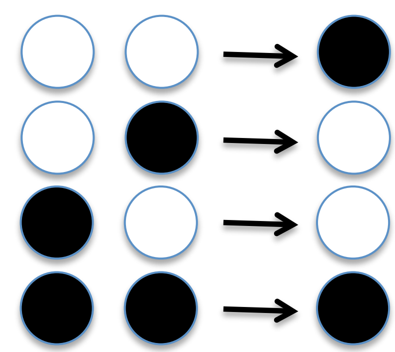
Silly game (0)

An arbitrary positive number of black and white balls is put into an urn. The player repeats the following moves: he takes two balls at random from the urn; if those two balls have the same color he throws one black ball into the urn, otherwise he returns one white ball into the urn.

Because each move decreases the total number of balls into the urn by 1, the game is guaranteed to terminate after a finite number of moves with exactly 1 ball in the urn.

What can we say about the color of the final ball when we are given the initial contents of the urn?



Silly game (1)

"Of two known integers between 2 and 99 (bounds included) a person P is told the product and person S is told the sum. When asked whether they know the two numbers, the following dialog takes place:

- P: "I don't know them."
- S: "I knew that already."
- P: "Then I know the two numbers."
- S: "Then I now know them too."

With the above data we are requested to determine the two numbers and to establish that our solution is unique."

[0] E. W. Dijkstra, EWD 666, "A Problem Solved in My Head" (undated)

Silly game (2)

"Suppose we play a two-player game played with identical coins on a table. We have a bag of coins with as many as we need. The two players alternatively take a coin from the bag and place it on the table.

The rules of the game forbid the coin to sit on top of another coin on the table, but it could hang off the table as long as it does not fall off. The player who puts the last coin on the table wins the game.

Is there an algorithm for one of the players to win always?" [0]

[0] Sorin Istrail, Storytelling about Lighthouses. Conduit (19), Brown University.