

Black and White Hats

Solution

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The first person announces a parity: whether the number of black hats they see is even or odd. Everyone after them can determine their own hat.

Agree that the first person says “white” for an even number of black hats and “black” for an odd number. This first answer is a signal, not a reliable guess about that person’s own hat.

The next person counts the black hats they can see. If this count has the announced parity, their own hat is white. If its parity is different, their hat must be black: adding one black hat changes an even count to odd, or an odd count to even.

That person says their actual hat color. The remaining people now know it. Before the next person answers, everyone updates the announced parity: if the last hat was black, switch even to odd or odd to even; if it was white, leave the parity unchanged. The updated parity describes exactly the hats whose wearers have not answered yet.

Continue this way down the line. At every turn, the person answering knows the parity of their own hat together with the hats ahead of them, and can see all those other hats. That determines their own color.

Guarantee: 99 correct answers, which is better than the requested 75. The first person might also be correct, but is not guaranteed to be. Their success probability is 50% only under an additional assumption such as independently assigned, equally likely hat colors.

No strategy can guarantee 100 correct answers. The first person sees exactly the same thing in two situations that differ only in their own hat. They must give the same answer in those two situations, so it is wrong in one of them.

History and sources: [companion history PDF](#).