

John Deszyck, j_deszyc@eos.ncsu.edu

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The 100 wise men line up. Each Man counts the number of white hoods in front of him.

The wise man at the back of the line answers first. He can see 99 hats. 99 is an odd number, and can only be the sum of 1 odd and 1 even number. If he sees an even number of white hats, he answers white. If he sees an odd number of white hats, he answers black.

All of the other wise men have agreed to keep track of how many times 'white' has been answered. Moving forward, each man adds the number of previous 'white' answers to the number of white hats he sees in front of him. He then compares this number to the answer given by the first wise man. If the first man saw an even number of white hats, and Wise Man # n can only account for an odd number of hats, then Wise Man # n himself must be wearing the missing white hat and answers 'white.' Otherwise, his answer is black.

Each wise man receives enough information from the wise men behind him to give a fully-informed answer, And so none of the wise men die. Except, that is, for the wise man at the back of the line. There is no information about his hat because no one is standing behind him to see it, so his answer amounts to a guess. A Random distribution of the hats gives him a 50% chance of survival. The other wise men all have a 100% survival rate, making the overall rate 99.5%. Since every man whose hat can be seen by at least one other man is guaranteed to live, and the man with the 'unknowable hat' has even odds of surviving, this solution is optimal.