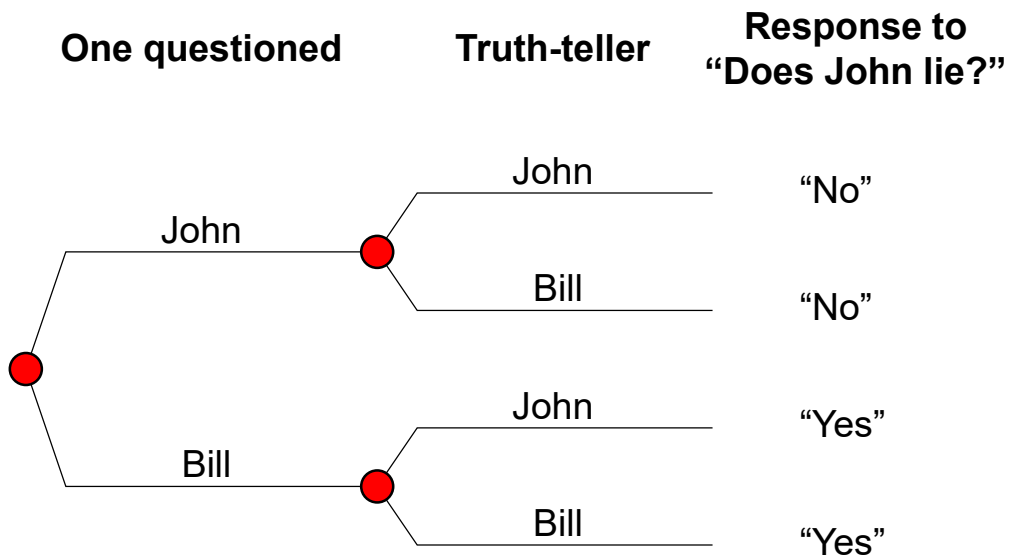


Who is John?

You meet two brothers, named John and Bill, but you do not know which is which. One of them always tells the truth while the other always lies. By hearing the answer to a single question asked of one of the brothers, it is possible to determine which one is John. The question contains only three words and is answerable by “yes” or “no”. What is the question?

Solution to Who is John?

Consider the probability tree representing two key uncertainties – 1) Whether the brother you ask is John or Bill, and 2) Whether the truth-teller is John or Bill. At each of the four end-points in this tree, we note the response that we would get to the question “Does John Lie?”



In the top-most end-point, John truthfully answers that he does not lie. In the second one, he falsely says that he does not lie. In the third, Bill falsely says that John lies. And in the last one, Bill truthfully says that John lies. So, if the one questioned answers “No”, he is John. Otherwise, he is Bill. With this question, you can determine which brother is John, but you cannot learn who is the truth-teller. To discover that, you must ask “Are you John?”

And equally valid solution to this problem is “Is John truthful?”, in which case the responses in the tree would be reversed.