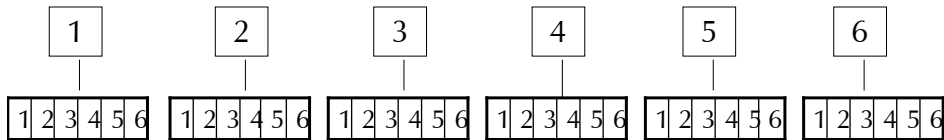


## 6:6a Problem Solving with Probability

### Example 1

Two die are rolled. All the possible outcomes could be illustrated using a tree diagram:

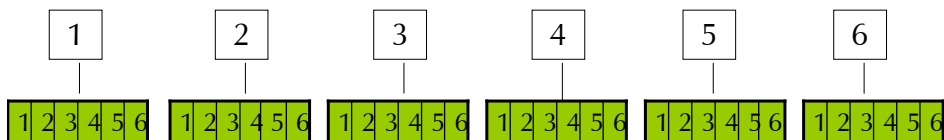
For the first roll, the possible outcomes are:



But for each of these outcomes, there are 6 possible outcomes for the second roll.

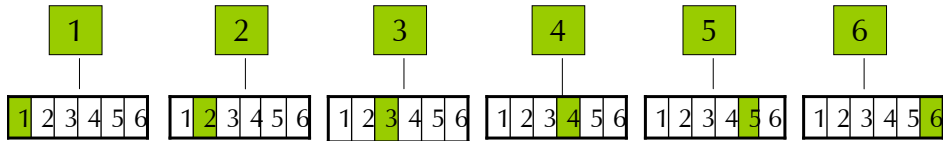
## 6:6b Problem Solving with Probability

We see, then, that there are in total, 36 possible outcomes when rolling 2 die (by counting the number of “leaves” on the bottom row.”



## 6:6c Problem Solving with Probability

Now, what is the probability that a double is rolled?



We see that there are 6 possible ways to roll a double.

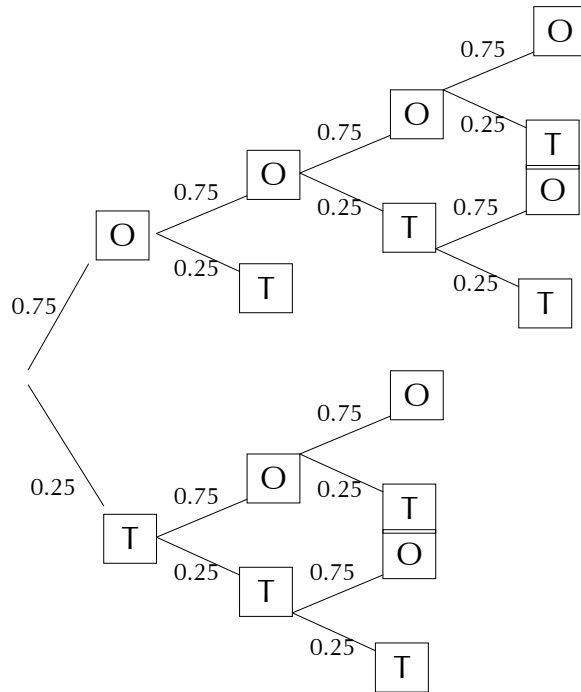
Thus, the probability to roll a double is  $6/36 = 1/6$

## 6:6d Problem Solving with Probability

### Example 2

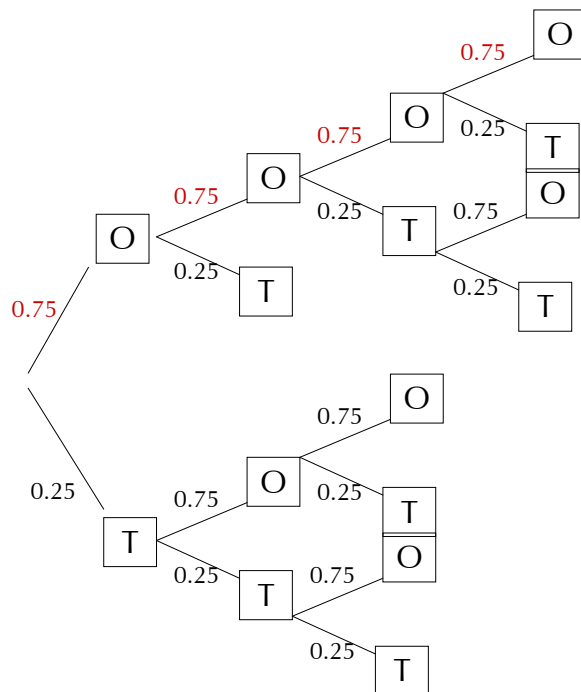
Two NHL teams, The Ottawa Senators and Toronto Maple Leafs are in a best of 7 series. History shows that the Senators have a 75% chance of winning a game over the Maple Leafs. Illustrate the possible outcomes of the series in a tree diagram.

## 6:6e Problem Solving with Probability



For the sake of space, here is the top and bottom portions of the tree.

## 6:6f Problem Solving with Probability



Using the diagram, we can see that the probability that Ottawa will win the series in 4 straight games is:

$$(0.75)^4 = 0.32$$