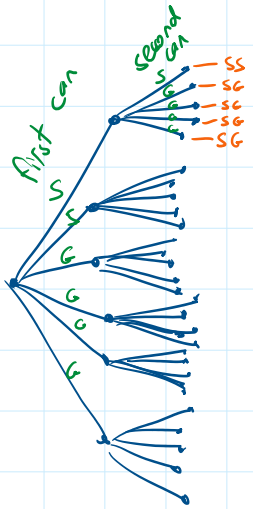
1. A painter has six cans of paint, each containing a different color. Two of the cans contain paint with a satin finish, and four contain glossy paint.

(a) If the painter selects one can of satin paint and one can of glossy paint, how many different color combinations are possible? How does this relate to the Fundamental Counting Principle?

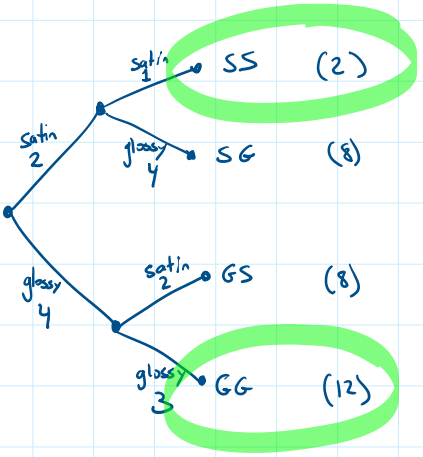
2 choices of satin paint, 4 choices of glossy paint

FCP: $2 \cdot 4 = 8$ possible choices

(b) Suppose the painter forgets that the cans contain paint with different finishes, and simply selects two cans at random. Use a tree diagram to help you find the probability that the two selected cans have the same finish.



Or



probability of same finish:

$$\frac{2+12}{30} = \frac{14}{30} = \frac{7}{15}$$

NOTE: AND vs. OR IN COUNTING AND PROBABILITY

- AND corresponds to multiplication, as when choosing a glossy paint and another glossy paint
- OR corresponds to addition, as when choosing either two satin paints or two glossy paints