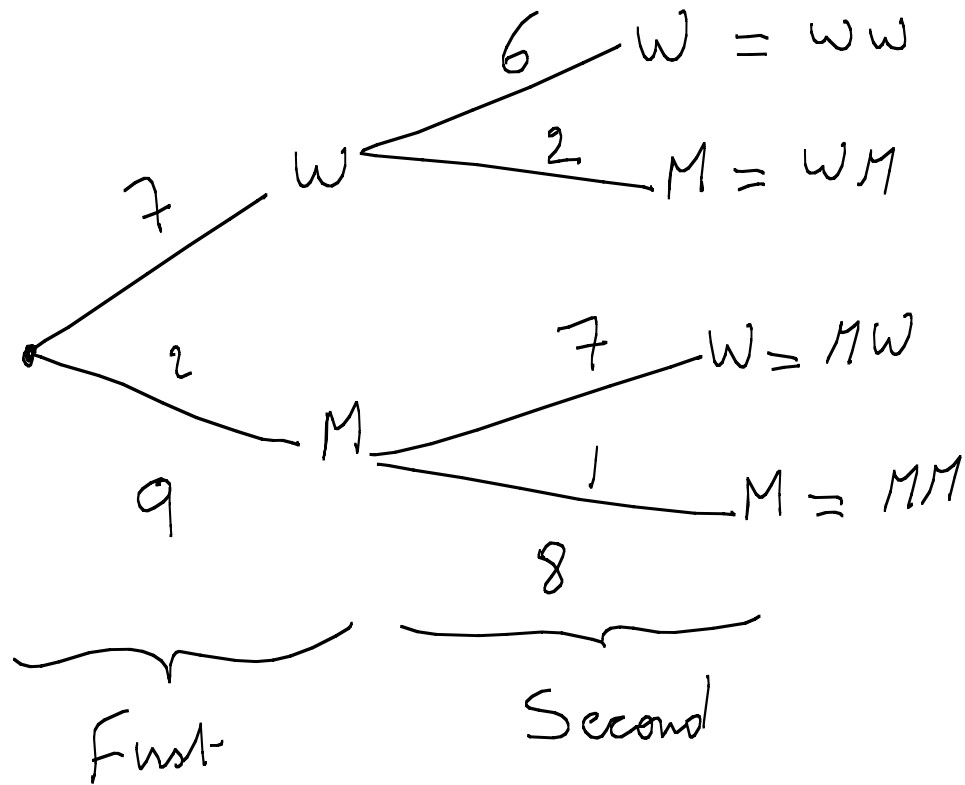


## Chapter 3

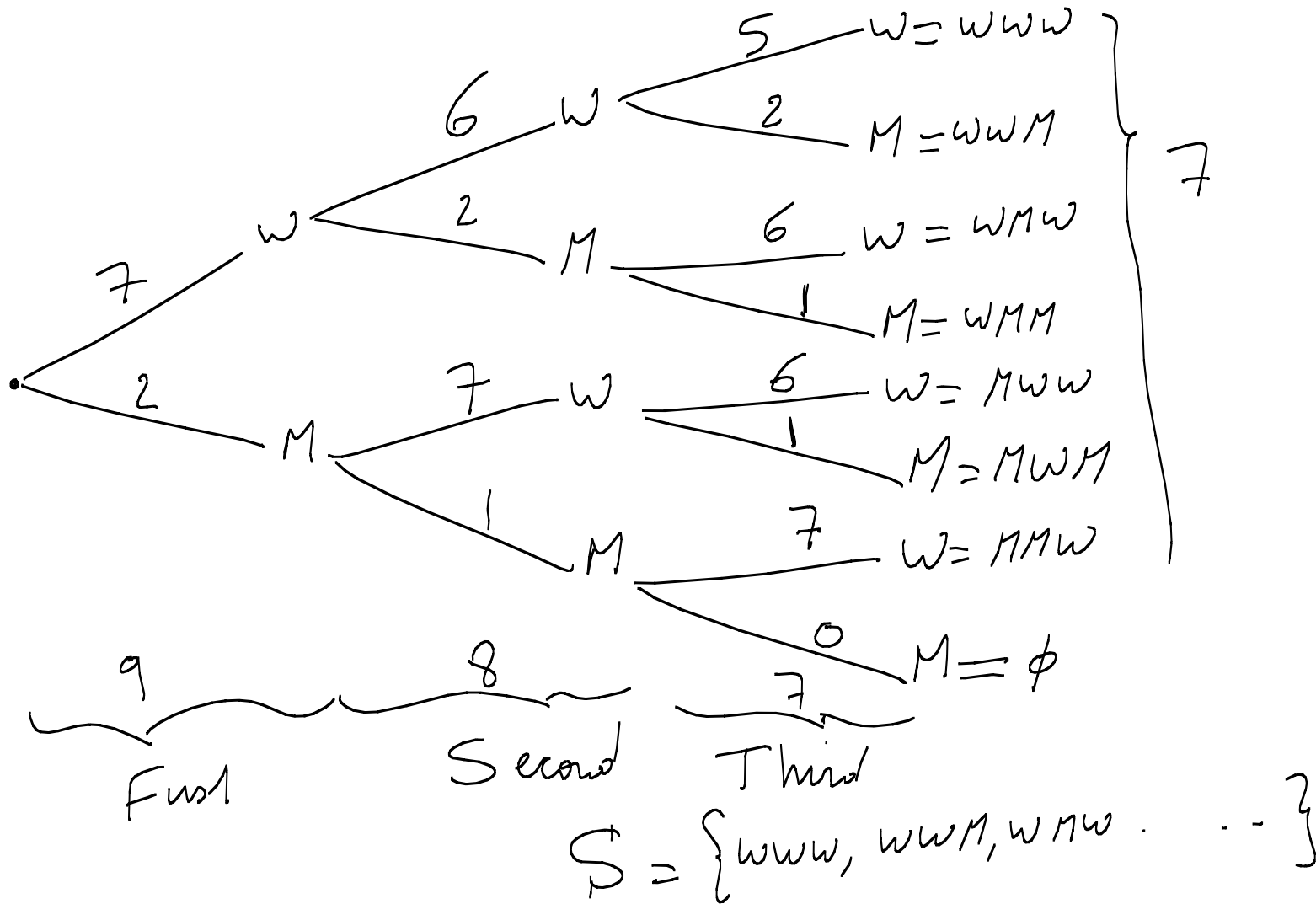
### Section 3.1: Trees

Example 1: Two people will be selected without replacement out of 7 women and 2 men, draw the tree and show all the possibilities. What is the sample space?



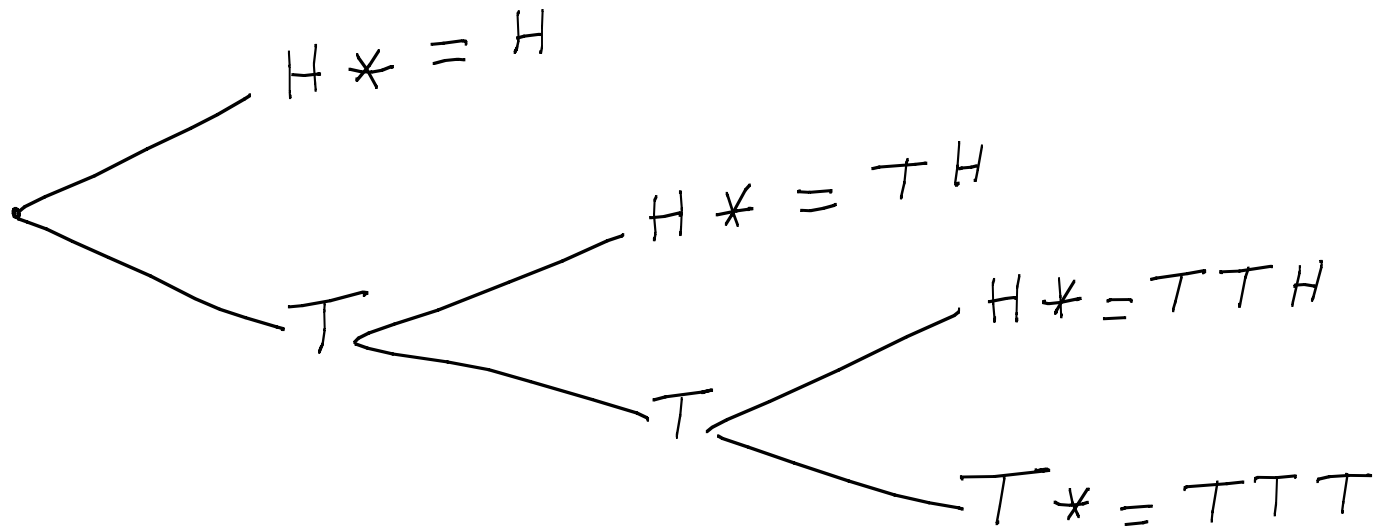
$$S = \{ww, wM, Mw, MM\}$$

**Example 2:** Repeat Example 1 but this time 3 people are selected without replacement out of 7 women and 2 men, draw the tree and show all the possibilities. What is the sample space?



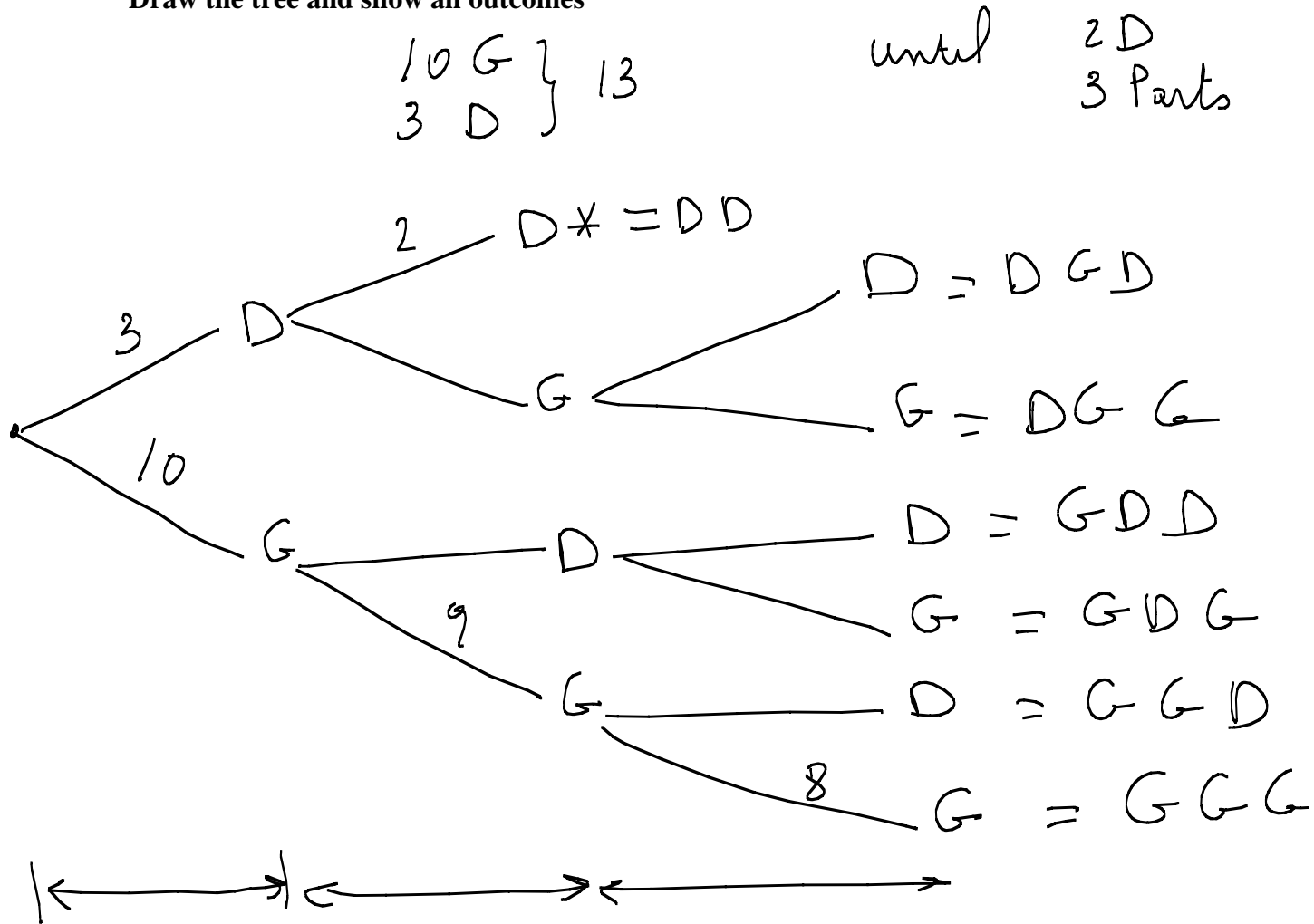
Example 3: : A fair coin is flipped until 1 head occur or 3 flips. How many outcomes in the sample space?

1 H or 3 Flips



$$S = \{H, TH, TTH, TTT\}$$

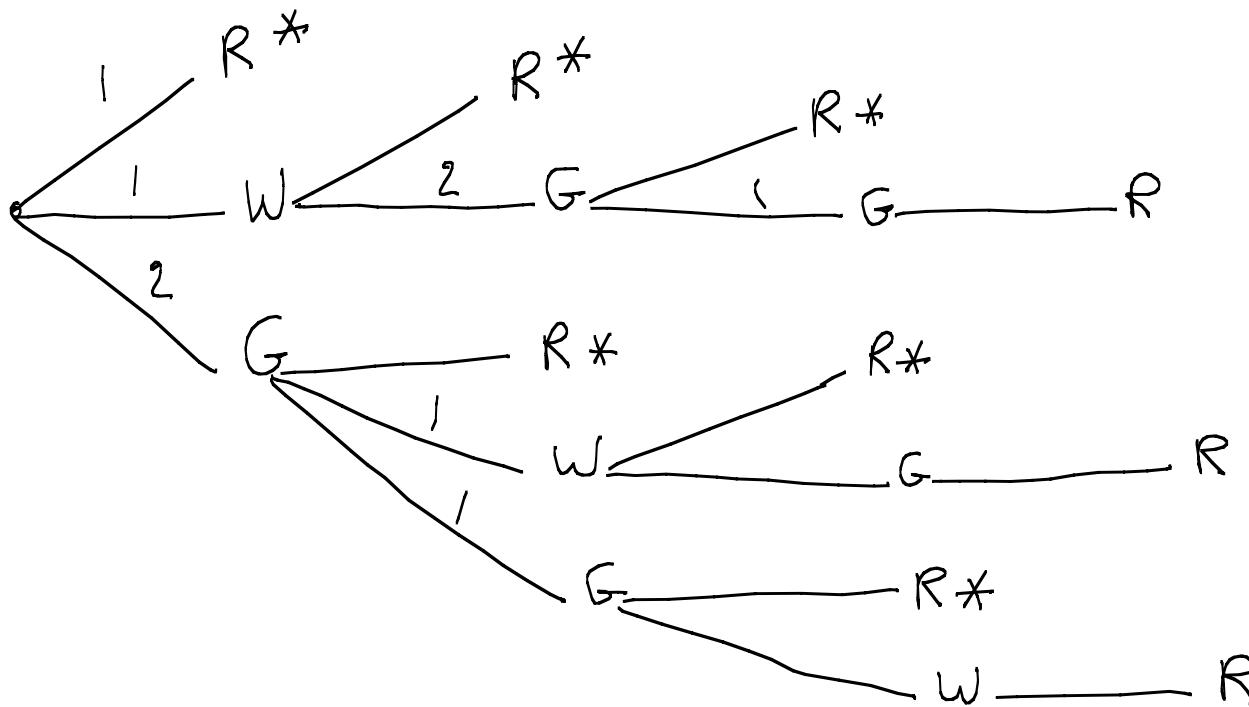
**Example 4:** A box contains 10 good parts and 3 defective parts, if parts are selected without replacement one after another until either 2 defective parts are found or three are selected. Draw the tree and show all outcomes



**Example 5:** A box contains 1 red, 1 white and 2 green balls. An experiment consists of drawing balls in succession without replacement, and noting the color of each until a red ball is drawn. Draw the tree diagram and find how many outcomes in the sample space.

1R, 1W, 2G

9 outcomes



**Example 6:** Suppose you have \$50 to spend on meals and that a meal in an expensive restaurant (E) costs \$20 and a meal in a moderate priced restaurant (M) costs \$10. An experiment consists of deciding on a sequence of meals (expensive or moderate) whose total cost is exactly \$50. Draw a tree diagram and find the sample space.

