

Tree Diagrams

Starter

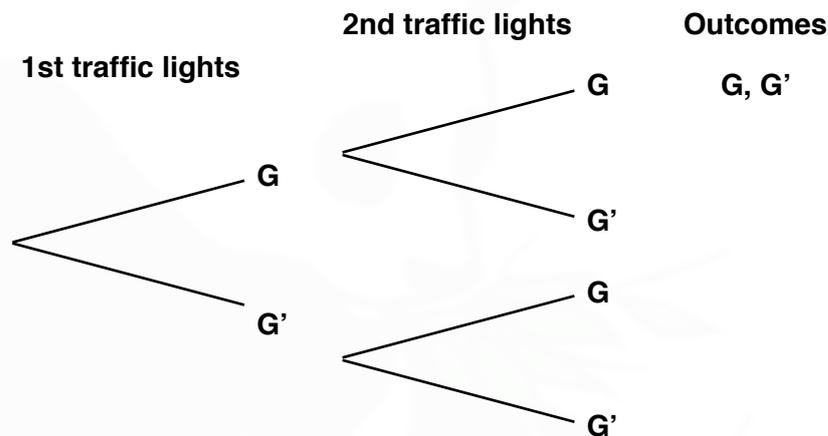
1. **(Review of last lesson)** Erik has a takeaway twice a week. The probability he has an Indian is 0.3, the probability he has Chinese is 0.5 and the probability he has a Thai meal is 0.2. Find the probability that he has the same type of meal on each day one week.

N.B. When going across a tree diagram, multiply the probabilities.

2. While driving to work, Sarah passes through 2 sets of traffic lights. The probability the 1st is green is 0.4 and the probability the second is green is 0.3.

(a) Copy and complete the tree diagram.

N.B. G' means “not green”



- (b) Find:
- (i) $P(\text{1st set is green but 2nd set is not green})$,
 - (ii) $P(\text{only one set of traffic lights is green})$,
 - (iii) $P(\text{at least one set of traffic lights is green})$

Notes

Tree diagrams:

- Write the probability on the branch — the sum of the probabilities on each pair of branches is 1.
- Write the outcome at the end of the branch.
- Write the final outcomes to the right of the tree diagram.
- When going across the tree diagram — multiply.
- When going down the tree diagram — add.

N.B. “One green light” means G, G' or G', G — **THIS IS IMPORTANT**
When working with fractions, do not cancel the fractions on the branches.

E.g. 1 A bag has 9 discs — 4 red and 5 blue. A disc is chosen at random from the bag and the colour is noted. The disc is then replaced before another disc is chosen.

- (a) Draw a tree diagram to represent the above..
- (b) Use your tree diagram to find:
 - (i) $P(R, R)$
 - (ii) $P(\text{only 1 red disc})$
 - (iii) $P(\text{at least 1 red disc})$

Exercise

9-1 class textbook:	p253 M8.10 Qu 2-12 (even)
A*-G class textbook:	p216 M8.7 Qu 2-12 (even)
9-1 homework book:	p87 M8.7 Qu 1-5
A*-G homework book:	p62 M8.7 Qu 1-5 (qu 3 - draw a tree diagram)

Summary

When going across the tree diagram — multiply.

When going down the tree diagram — add.

[Homework book answers \(only available during a lockdown\)](#)

