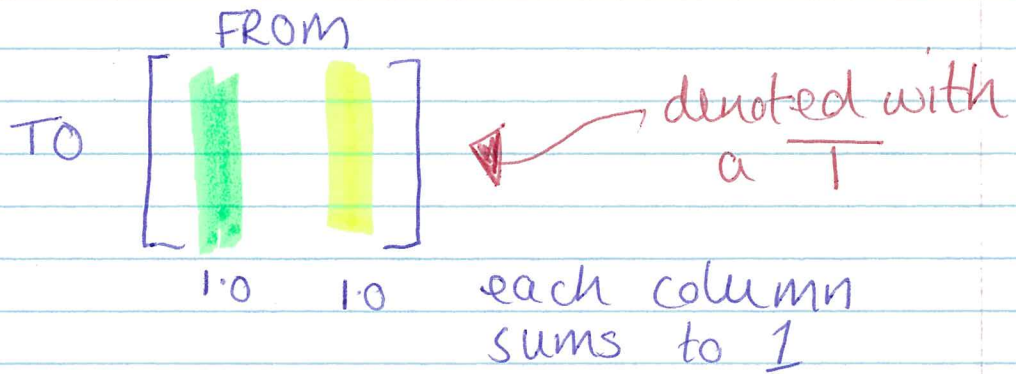


TRANSITION MATRICES

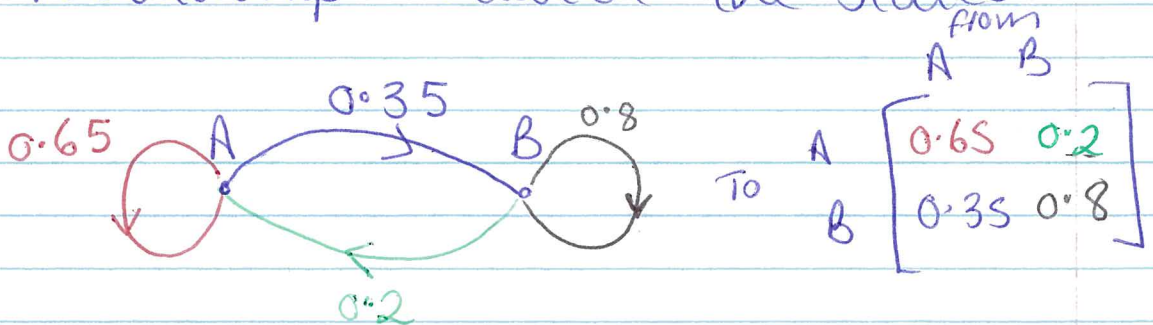
A transition matrix provides information about changes between two states.

The elements are written as probabilities (this means decimals between 0 and 1)

and they are set up as:



A transition diagram shows the visual relationship between the states



These provide the same information but in a different manner

Initial state vector gives the starting position for the states

↳ It is denoted S_0 ← at time zero

To work out the situation after n transitions use

$$S_n = T^n \times S_0$$

In the long run ... we are often interested in what happens over a long period of time. This is termed the

“STEADY STATE”

use a big number
↓

Remember

$$S_1 = T \times S_0$$

$$S_{SS} = T \times S_0$$

$$S_2 = T \times S_1$$

$$S_3 = T \times S_2 \quad \text{etc}$$

so we can write this generally as

}

$$S_n = T \times S_{n-1}$$

This has come up in recent exams

To check you have steady state, choose a larger number as the power e.g 100

then compare to a larger number again e.g 150.

- If there is no change, this is steady state
- If there is a change, try again with larger numbers.