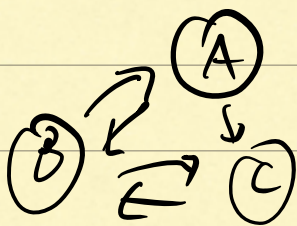


PS1 } → DUE FRIDAY
 PS2 }

NO JUN ON WED APR 68

MARKOV CHAIN

EX



$$\begin{bmatrix} P_{A \rightarrow A} & P_{B \rightarrow A} & \dots \\ \vdots & \ddots & \ddots \end{bmatrix}$$

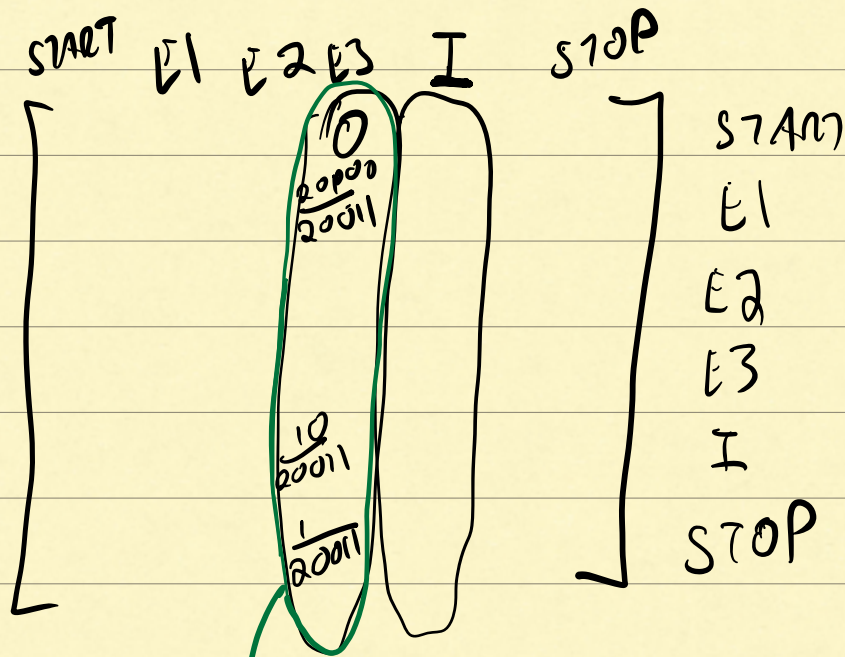
PS 2

→ → → BASEPAIRS

$$\left[\begin{array}{c} P_{START \rightarrow E1} \end{array} \right]$$

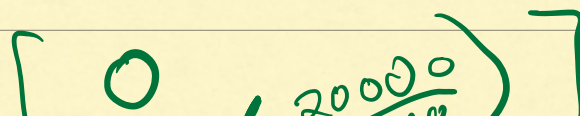
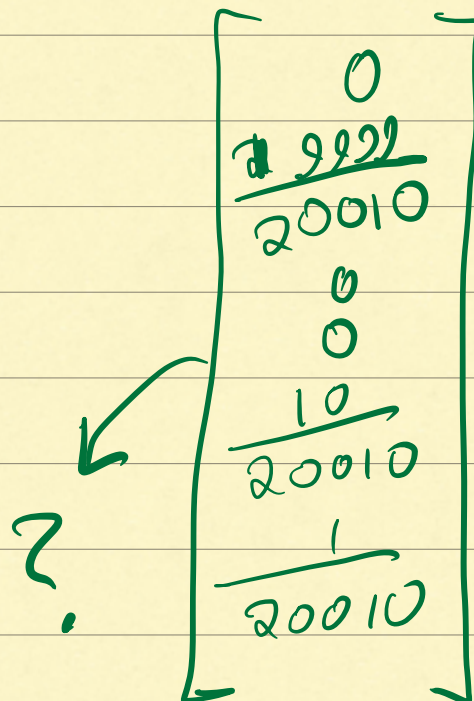
$$\Sigma = 1$$

6*6



?

E3



$$\left[\begin{array}{c} \frac{20000}{20001} \left(\frac{1}{20010} \right) \\ 0 \\ 0 \\ \frac{20000}{20001} \left(\frac{10}{20010} \right) \\ \frac{1}{20001} \end{array} \right]$$

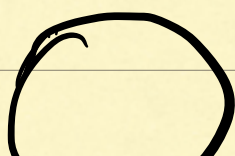
I →

$$\left[\begin{array}{c} 0 \\ \frac{1}{6000} \\ 0 \\ 0 \\ \frac{5999}{6000} \\ 0 \end{array} \right]$$

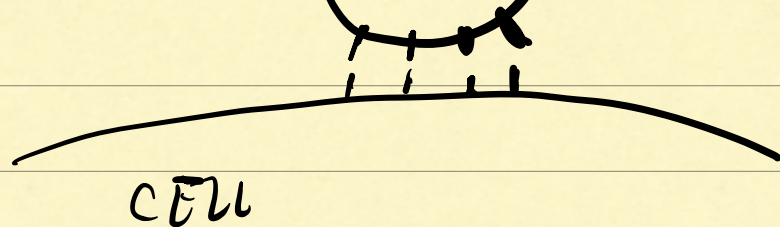
✓✓

MEAN FIRST PASSAGE TIME

EX



NANOPARTICLE



HAUN

IF CURRENTLY BOUND
WITH 2 LEOS, HOW
LONG UNTIL 0 LEOS?

$2 \rightarrow 3 \rightarrow 2 \rightarrow 3 \rightarrow 4 \rightarrow 3 \rightarrow 2 \rightarrow 1 \rightarrow 0$

EX TRANSCRIPTION
FACTOR



HOW LONG UNTIL IT
FINDS TARGET

THEOREM

M - TRANSITION MATRIX

DEFINE

$$M_{-j} =$$

$$\begin{bmatrix} & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \end{bmatrix}_j$$

REMOVE ROW j
& COLUMN j

LET T_{kj} BE MEAN TIME

FROM k TO j

$$\vec{T}_j = \begin{bmatrix} T_{1j} \\ T_{2j} \\ \vdots \\ T_{kj} \\ \vdots \\ T_{N-1,j} \end{bmatrix}$$

(NO j ELEMENT)

$(N-1) \times (N-1)$
IDENTITY
MATRIX

THEN

$$\begin{bmatrix} -1 \\ -1 \\ -1 \\ -1 \\ -1 \\ -1 \\ -1 \\ -1 \\ -1 \\ -1 \end{bmatrix} = (M_{-j} - I) \cdot \vec{T}_j$$

THINGS WE
WANT

2 3

