Lecture C3. Discrete Time Markov Chain 3

Reinforcement Learning Study

2021-01-11

차 례

Example 1

Trainsition Matrix :

$$P = \begin{pmatrix} 1/2 & 1/2 & 0 \\ 1/2 & 1/4 & 1/4 \\ 0 & 1/3 & 2/3 \end{pmatrix}$$

Trainsition Diagram :

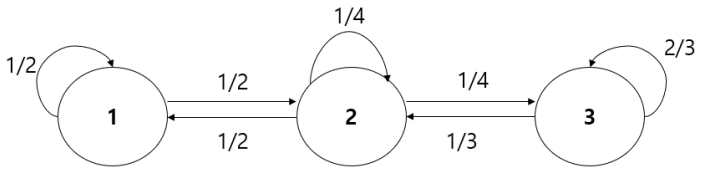

그림 1: Example 1 Trainsition Diagram

Remark

- A state i is said to be recurrent if, starting from i, the probability of getting back to i is 1
- A state i is said to be trainsient if, starting from i, the probability of getting back to i is less than 1

recurrent state :{1,2,3} ,All states communicate, all states recurrent

Example 2

Trainsition Matrix :

$$P = \begin{pmatrix} 1 & 0 & 0 \\ 1/4 & 1/2 & 1/4 \\ 0 & 0 & 1 \end{pmatrix}$$

Trainsition Diagram :

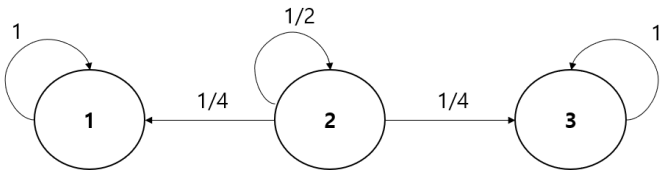

그림 2: Example 2 Trainsition Diagram

Remark

- A state i is said to be recurrent if, starting from i, the probability of getting back to i is 1
- A state i is said to be trainsient if, starting from i, the probability of getting back to i is less than 1
- A state i is said to be abosrbing state, as a special case of reccurent state, if $P_i i = 1$ (You can naver leave the state i if you get there)

recurrent state : {1,3}

trainsient state : {2}

abosrbing state : {1,3}

Example 3

Trainsition Matrix :

$$P = \begin{pmatrix} 1 & 0 & 0 \\ 1/3 & 1/2 & 1/6 \\ 0 & 0 & 1 \end{pmatrix}$$

Trainsition Diagram :

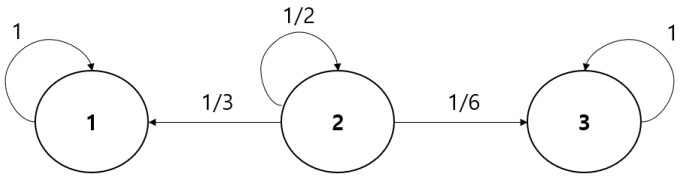

그림 3: Example 3 Trainsition Diagram

Remark

- A state i is said to be recurrent if, starting from i, the probability of getting back to i is 1
- A state i is said to be trainsient if, starting from i, the probability of getting back to i is less than 1
- A state i is said to be abosrbing state, as a special case of reccurent state, if $P_i i = 1$ (You can naver leave the state i if you get there)

recurrent state : {1,3}

trainsient state : {2}

abosrbing state : {1,3}

Example 4

Trainsition Matrix :

$$P = \begin{pmatrix} 1/2 & 1/2 & 0 & 0 \\ 1/2 & 1/2 & 0 & 0 \\ 1/4 & 1/4 & 1/4 & 1/4 \\ 0 & 0 & 0 & 1 \end{pmatrix}$$

Trainsition Diagram :

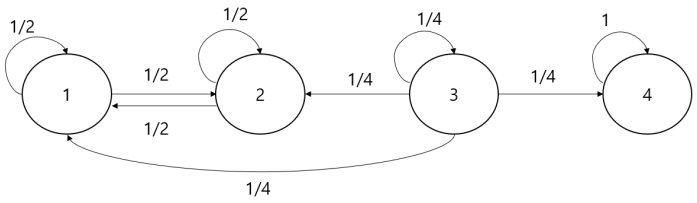

그림 4: Example 4 Trainsition Diagram

Remark

- A state i is said to be recurrent if, starting from i, the probability of getting back to i is 1
- A state i is said to be trainsient if, starting from i, the probability of getting back to i is less than 1
- A state i is said to be abosrbing state, as a special case of reccurent state, if $P_i i = 1$ (You can naver leave the state i if you get there)

recurrent state : {1,2}

trainsient state : {3}

abosrbing state : {4}

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"Done, Lecture C2. Discrete Time Markov Chain2 "
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## [1] "Done, Lecture C2. Discrete Time Markov Chain2 "
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