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Likelihood Loom to Secure Focal Point with Dynamic Input and Brawny Output

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Abstract

The proposed approach provides maximum level of optimization on fixing and transmission of the network in active level with respect to input and output cables. Also, it determines probability ranges for different types of primary regulated networks in best, better good and worst levels.

Keywords: *Adjacent, Cyclic, Input, Linear, Network, Node, Non-Adjacent, Output, Wheel.*

Introduction

Graph Theory and Matrix Algebra are the subject involves avoiding crucial states in network analysis. This field utilizes the concept of nodes and relationships between them represented by connecting lines, to represent any system.

Graph theory has a broad range of applications across diverse fields, making it a popular area of research. The problem of finding the shortest path in a graph is particularly significant and has been the focus of much research. Including its dynamic nature, ability to handle negative directed edges, and capability to minimize network costs. It can find the shortest path from one node to another without the need for building many router paths

Additionally, it is a simple procedure that does not require complicated data structures and is highly efficient and accurate in finding the minimum path weight. However, when used in the Routing Information Protocol, there are some disadvantages is available.

To avoid the above said disadvantages we added matrix algebra along with Graph theory so called discrete mathematics.

Example

Consider the linear network with 8 nodes, and here considered corresponding adjacent (G_1) and non-adjacent matrix (G_1^c) representation in the following table (1.1 &1.2).

Observation on G_1 (From Table 1.1)

- There are no Worst and Best cases will be appeared in linear network with Active input and Active output.
- Resultant Probability with respect to final result, case Good is greater than the case Better in all linear type of network with Active input and output.

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Observation on G_1^c (From Table 1.2)

- There is no Worst and Good cases will be appeared in linear network with Active input and Active output.
- Resultant Probability with respect to final result, case Best is greater than the case Better in linear type of network with Active input and Active output.

On the Whole, observation on G and G^C having the Best, Better and Good cases along with Active input and Active output.

Example

Consider the Cyclic network with 6 nodes, and here considered corresponding adjacent (G_2) and non-adjacent matrix (G_2^c) representation in the following table (2.1&2.2)

Observation on G_2 (From Table 2.1)

- There is no Worst and Best cases will be appeared in recurring network with Active input and Active output

Resultant Probability with respect to final result, case Good is greater than the case Better in all recurring type of network with Active input and output.

Observation on G_2^c (From Table 2.2)

- There is no Worst and Best cases will be appear in recurring network with Active input and Active output
- Resultant Probability with respect to final result, case Good is equal to case Better in recurring network with Active input and Active output

On the Whole, observation on G and G^C having the better and good cases along with Active input and Active output.

Example

Consider the Crown type network with 6 nodes, and here considered corresponding adjacent (G_3) and non-adjacent matrix (G_3^c) representation in the following table (3.1&3.2)

Observation on G_3 (From Table 3.1)

- There is no Worst cases will be appeared in crown network with Active input and Active output.
- Resultant Probability with respect to final result, case Good is greater than the case Better and Best in all crown type of network with Active input and Active output.

Observation on G_3^c (From Table 3.2)

- There is no Worst cases will be appear in crown network with Active input and Active Output
- Resultant Probability with respect to final result, case good case Better and case Best all are equal in crown network with Active input and Active output

On the Whole, observation on G_3 and G_3^C having the Best, Better and Good cases along with Active input and Active output

Example

Consider the Regular type network with 6 nodes, and here considered corresponding adjacent (G_4) and non-adjacent matrix (G_4^c) representation in the following table (4.1&4.2)

Observation on G (From Table 4.1)

- There is no Worst and Good cases will be appeared in regular network with Active input and Active output.
- Resultant Probability with respect to final result, case Better is greater than the case Best in all regular type of network with Active input and Active output.

Observation on G_4^c (From Table 4.2)

- There is no Worst and Good cases will be appear in regular network with Active input and Active output
- Resultant Probability with respect to final result, case Better is greater than case Best in regular network with Active input and Active output

On the Whole, observation on G_4 and G_4^C having the best and better cases along with Active input and Active output.

Example

Consider the Ladder type network with 8 nodes, and here considered corresponding adjacent (G_5) and non-adjacent matrix (G_5^c) representation in the following table (5.1&5.2)

Observation on G_5 (From Table 5.1)

- There is no Worst cases will be appeared in ladder network with Active input and Active output.
- Resultant Probability with respect to final result, case Good is greater than Best, Better cases in Ladder type of network with Active input and Active output.

Observation on G_5^c (From Table 5.2)

- There is no Worst cases will be appear in Ladder network with Active input and Active output
- Resultant Probability with respect to final result, case Good, Better and Best all are equal in ladder network with Active input and Active output.

On the Whole, observation on G_5 and G_5^C having the Best, Better and Good cases along with Active input and Active output.

Example

Consider the Wheel type network with n+1 nodes, and here considered corresponding adjacent (G_6) and non-adjacent matrix (G_6^c) representation in the following table (6.1&6.2)

Observation on G_6(From Table 6.1)

- There is no Worst and Good cases will be appeared in wheel network with Active input and Active output.
- Resultant Probability with respect to final result, case Best is greater than better cases in wheel type of network with Active input and Active output**.**

Observation on G_6^c (From Table 6.2)

- There is no Worst cases will be appeared in Wheel network with Active input and Active output
- Resultant Probability with respect to final result, case Good is greater than better and best case in wheel network with Active input and Active output.

On the Whole, observation on G_6 and G_6^C having the Best, Better and Good cases along with Active input and Active output.

Example

Consider the complete network with n nodes, and here considered corresponding adjacent (G_7) and non-adjacent matrix (G_7^c) representation in the following table (7.1&7.2)

Observation on G_7 (From Table 7.1)

- There is no Worst and Better cases will be appeared in complete network with Active input and Active output.
- Resultant Probability with respect to final result, case Best is greater than good case in complete network with Active input and Active output.

Observation on G_7^c (From Table 7.1)

- There is no Best, Better and cases will be appeared in complete network with Active input and Active output
- There is only Worst cases will be appear in complete network with Active input and Active output.

On the Whole, observation on G_7 and G_7^C having the Best, Better, Good and Worst cases along with Active input and Active output.

Theorem

Theorem: The resultant cases of all G^C network is worst if and only if the given G is complete network.

Theorem: The resultant cases of all G and G^C networks are not worst if and only if the given G and G^C are connected.

Theorem: The given network G is isolated network with more than one node if and only if resultant cases in G^C are the best case.

Note: All the above said theorems verified by examples from Examples (1 to 7)

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Appendices

Table 1.1

I_A	T_A							O_A	1	1p	0p	Cases
1	0	1	0	0	0	0	0	1	3	3/9	6/9	GOOD
1	1	0	1	0	0	0	0	1	4	4/9	5/9	GOOD
1	0	1	0	1	0	0	0	1	4	4/9	5/9	GOOD
1	0	0	1	0	1	0	0	1	4	4/9	5/9	GOOD
1	0	0	0	1	0	1	0	1	4	4/9	5/9	GOOD
1	0	0	0	0	1	0	1	1	4	4/9	5/9	BETTER
1	0	0	0	0	0	1	0	1	3	3/9	6/9	GOOD

Table 1.2

I_{NA}	T_{NA}							O_{NA}	1	1p	0p	Cases
1	0	0	1	1	1	1	1	1	7	7/9	2/9	BEST
1	0	0	0	1	1	1	1	1	6	6/9	3/9	BEST
1	1	0	0	0	1	1	1	1	6	6/9	3/9	BEST
1	1	1	0	0	0	1	1	1	6	6/9	3/9	BEST
1	1	1	1	0	0	0	1	1	6	6/9	3/9	BEST
1	1	1	1	1	0	0	0	1	6	6/9	3/9	BETTER
1	1	1	1	1	1	0	0	1	7	7/9	2/9	BETTER

Table 2.1

I_A	T_A						O_A	1	1p	0p	Cases
1	0	1	0	0	0	1	1	4	4/8	4/8	BETTER
1	1	0	1	0	0	0	1	4	4/8	4/8	GOOD
1	0	1	0	1	0	0	1	4	4/8	4/8	GOOD
1	0	0	1	0	1	0	1	4	4/8	4/8	GOOD
1	0	0	0	1	0	1	1	4	4/8	4/8	BETTER
1	1	0	0	0	1	0	1	4	4/8	4/8	GOOD

Table 2.2

I_{NA}	T_{NA}						O_{NA}	1	1p	0p	Cases
1	0	0	1	1	1	0	1	4	4/8	4/8	GOOD
1	0	0	0	1	1	1	1	4	4/8	4/8	BETTER
1	1	0	0	0	1	1	1	4	4/8	4/8	BETTER
1	1	1	0	0	0	1	1	4	4/8	4/8	BETTER
1	1	1	1	0	0	0	1	4	4/8	4/8	GOOD
1	0	1	1	1	0	0	1	4	4/8	4/8	GOOD

Table 3.1

I_A	T_A						O_A	1	1p	0p	Cases
1	0	1	1	1	0	1	1	6	6/8	2/8	BEST
1	1	0	1	0	1	1	1	6	6/8	2/8	BEST
1	1	1	0	1	1	0	1	6	6/8	2/8	BETTER
1	1	0	1	0	0	0	1	4	4/8	4/8	GOOD
1	0	1	1	0	0	0	1	4	4/8	4/8	GOOD
1	1	1	0	0	0	0	1	4	4/8	4/8	GOOD

Table 3.2

I_{NA}	T_{NA}						O_{NA}	1	1p	0p	Cases
1	0	0	0	0	1	0	1	3	3/8	5/8	GOOD
1	0	0	0	1	0	0	1	3	3/8	5/8	GOOD
1	0	0	0	0	0	1	1	3	3/8	5/8	BETTER
1	0	1	0	0	1	1	1	5	5/8	3/8	BEST
1	1	0	0	1	0	1	1	5	5/8	3/8	BEST
1	0	0	1	1	1	0	1	5	5/8	3/8	BETTER

Table 4.1

I_A	T_A									O_A	1	1p	0p	Cases
1	0	1	1	0	1	1	0	0	0	1	6	6/11	5/11	BETTER
1	1	0	1	1	1	0	0	0	0	1	6	6/11	5/11	BETTER
1	1	1	0	1	0	1	0	0	0	1	6	6/11	5/11	BETTER
1	0	1	1	0	0	0	1	1	0	1	6	6/11	5/11	BETTER
1	1	1	0	0	0	0	0	1	1	1	6	6/11	5/11	BEST
1	1	0	1	0	0	0	1	0	1	1	6	6/11	5/11	BEST
1	0	0	0	1	0	1	0	1	1	1	6	6/11	5/11	BEST
1	0	0	0	1	1	0	1	0	1	1	6	6/11	5/11	BEST
1	0	0	0	0	1	1	1	1	0	1	6	6/11	5/11	BETTER

Table 4.2

I_{NA}	T_{NA}									O_{NA}	1	1p	0p	Cases
1	0	0	0	1	0	0	1	1	1	1	6	6/11	5/11	BEST
1	0	0	0	0	0	1	1	1	1	1	6	6/11	5/11	BEST
1	0	0	0	0	1	0	1	1	1	1	6	6/11	5/11	BEST
1	1	0	0	0	1	1	0	0	1	1	6	6/11	5/11	BEST
1	0	0	1	1	0	1	1	0	0	1	6	6/11	5/11	BETTER
1	0	1	0	1	1	0	0	1	0	1	6	6/11	5/11	BETTER
1	1	1	1	0	1	0	0	0	0	1	6	611	5/11	BETTER
1	1	1	1	0	0	1	0	0	0	1	6	6/11	5/11	BETTER
1	1	1	1	1	0	0	0	0	0	1	6	6/11	5/11	BETTER

Table 5.1

I_A	T_A						O_A	1	1p	0p	Cases
1	0	1	1	1	0	1	1	6	6/8	2/8	BEST
1	1	0	1	0	1	1	1	6	6/8	2/8	BEST
1	1	1	0	1	1	0	1	6	6/8	2/8	BETTER
1	1	0	1	0	0	0	1	4	4/8	4/8	GOOD
1	0	1	1	0	0	0	1	4	4/8	4/8	GOOD
1	1	1	0	0	0	0	1	4	4/8	4/8	GOOD

Table 5.2

I_{NA}	T_{NA}						O_{NA}	1	1p	0p	Cases
1	0	0	0	0	1	0	1	3	3/8	5/8	GOOD
1	0	0	0	1	0	0	1	3	3/8	5/8	GOOD
1	0	0	0	0	0	1	1	3	3/8	5/8	BETTER
1	0	1	0	0	1	1	1	4	5/8	3/8	BEST
1	1	0	0	1	0	1	1	4	5/8	3/8	BEST
1	0	0	1	1	1	0	1	4	5/8	3/8	BETTER

Table 6.1

I_A	T_A								O_A	1	1p	0p	Cases
1	0	1	0	1	1	1	0	0	1	6	6/10	4/10	BETTER
1	1	0	1	0	0	1	0	1	1	6	6/10	4/10	BEST
1	0	1	0	1	0	0	1	1	1	6	6/10	4/10	BEST
1	1	0	1	0	1	0	1	0	1	6	6/10	4/10	BETTER
1	1	0	0	1	0	1	1	1	1	7	7/10	3/10	BEST
1	1	1	0	0	1	0	1	1	1	7	7/10	3/10	BEST
1	0	0	1	1	1	1	0	1	1	7	7/10	3/10	BEST
1	0	1	1	0	1	1	1	0	1	7	7/10	3/10	BETTER

Table 6.2

I_{NA}	T_{NA}								O_{NA}	1	1p	0p	Cases
1	0	0	1	0	0	0	1	1	1	5	5/10	5/10	BETTER
1	0	0	0	1	1	0	1	0	1	5	5/10	5/10	GOOD
1	1	0	0	0	1	1	0	0	1	5	5/10	5/10	GOOD
1	0	1	0	0	0	1	0	1	1	5	5/10	5/10	BEST
1	0	1	1	0	0	0	0	0	1	4	4/10	6/10	GOOD
1	0	0	1	1	0	0	0	0	1	4	4/10	6/10	GOOD
1	1	1	0	0	0	0	0	0	1	4	4/10	6/10	GOOD
1	1	0	0	1	0	0	0	0	1	4	4/10	6/10	GOOD

Table 7.1

I_{NA}	T_A						O_A	1	1p	0p	Cases
1	0	1	0	1	1	1	1	6	6/8	2/8	BEST
1	1	0	1	0	1	1	1	6	6/8	2/8	BEST
1	0	1	0	1	1	1	1	6	6/8	2/8	BEST
1	1	0	1	0	1	1	1	6	6/8	2/8	BEST
1	1	1	1	1	0	0	1	6	6/8	2/8	GOOD
1	1	1	1	1	0	0	1	6	6/8	2/8	GOOD

Table 7.2

I_A	T_{NA}						O_{NA}	1	1p	0p	Cases
1	0	0	0	0	0	0	1	2	2/8	6/8	WORST
1	0	0	0	0	0	0	1	2	2/8	6/8	WORST
1	0	0	0	0	0	0	1	2	2/8	6/8	WORST
1	0	0	0	0	0	0	1	2	2/8	6/8	WORST
1	0	0	0	0	0	0	1	2	2/8	6/8	WORST
1	0	0	0	0	0	0	1	2	2/8	6/8	WORST