New Approach of Connectivity

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Abstract- This is a new concept in networking on many points. This paper shows how many ways we can network one point to another.

GJSFR-F Classification: DDC Code: 577.16 LCC Code: QH541
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Abstract: This is a new concept in networking on many points. This paper shows how many ways we can network one point to another.

I. INTRODUCTION

If we want to connect one point to another point in a region with many points, then we need some definitions.

II. SOME DEFINITIONS

There are two types of connectivity. 1. Proper connectivity 2. Improper connectivity

Proper connectivity: A distinct way or path to go from one point to another point is called proper connectivity. Another point may exist between two points. It is denoted by C.

Figure 1

A                                     B

Figure 1 represents the Connectivity from A point to B point or B point to A point. It is denoted by $C_{AB}$ or $C_{BA}$. A is called the origin point and B is called the goal point of $C_{AB}$. B is called the origin point and A is called the goal point of $C_{BA}$. But we just ignore the reverse way.

Figure 2

A                           B

Figure 2 also represents a Connectivity from A point to B point through C. It is denoted by $C_{ACB}$ or $C_{AB}$.

A pair of two points taking twice isn't allowed for proper connectivity.

Figure 2.1

A                           B

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In figure 2.1 If we take C_{ACB} then C_{ABC} isn’t allowed because pair of BC twice which is not defined for proper connectivity.

*Number of Ppoint:* total point in a figure. It is denoted by n(p). Figure 2 shows that n(p) = 3.

*Number of Connectivity:* Total distinct way or path from one point to another point. It is denoted by n(C).

![Figure 3](image)

In Figure 3 we can go from A to C in two ways that is C_{AC} & C_{ABC}. So number of connectivity from A to C is 2. It is denoted by n(C)_{AC}.

We can write n(C)_{AC} = 2

**Triangle Law for Connectivity**

![Figure 4](image)

*Theorem 1:*
Statement: In a triangle, the difference between n(p) and n(C) is equal to one i.e.

\[ n(c) = n(p) - 1. \]

**Proof:**

\[ n(p) - n(C) = 1 \]
\[ n(c) = n(p) - 1 \]

(1)

In figure 4, n(p) = 3 & n(C) = 2 that is C_{AC}, C_{ABC}.

Putting the value in (1)

\[ 3 - 2 = 1 \]
\[ 1 = 1 \text{ [proved]} \]
Theorem 2:
Statement: if we add one point in any edge in triangle then \( n(c) = n(p) - 1 \).

**Figure 5**

**Figure 6**

**Figure 7**

**Proof:** Let us will find \( n(c) \) from A to B
In figure 5, by theorem 1
For triangle ABD

\[
n(c)_{\Delta ABD} = n(p)_{\Delta ABD} - 1 \quad \text{.................(2)}
\]

For triangle ADC

\[
n(c)_{\Delta ADC} = n(p)_{\Delta ADC} - 1 \quad \text{.....................(3)}
\]

Adding (2) & (3)

\[
n(c)_{\Delta ABD} + n(c)_{\Delta ADC} = n(p)_{\Delta ABD} - 1 + n(p)_{\Delta ADC} - 1
\]

Or, \( n(c)_{\Delta ABC} = 3 - 1 + 3 - 1 \)
Or, \( n(c)_{\Delta ABC} = 4 \)
AD is used twice, indicating that it is common and must be deducted
Or, \( n(c)_{\Delta ABC} = 4 - 1 \)
Or, \( n(c)_{\Delta ABC} = n(p) - 1 \)
In figure 6, by theorem 1
For triangle ABD

\[
n(c)_{\Delta ABD} = n(p)_{\Delta ABD} - 1 \quad \text{.........................(4)}
\]

For triangle BDC

\[
n(c)_{\Delta BDC} = n(p)_{\Delta BDC} - 1 \quad \text{.............................(5)}
\]

Adding (4) & (5)

\[
n(c)_{\Delta ABD} + n(c)_{\Delta BDC} = n(p)_{\Delta ABD} - 1 + n(p)_{\Delta BDC}
\]

Or, \( n(c)_{\Delta ABC} = 3 - 1 + 3 - 1 \)
Or, \( n(c)_{\Delta ABC} = 4 \)
BD is used twice, indicating that it is common and must be deducted
Or, \( n(c)_{\Delta ABC} = 4 - 1 \)
Or, \( n(c)_{\Delta ABC} = n(p) - 1 \)
\[ n(c)_{ABC} = n(p) - 1 \]

In figure 7, by theorem 1

For triangle ADC

\[ n(c)_{ADC} = n(p)_{ADC} - 1 \] .................................(6)

For triangle BDC

\[ n(c)_{BDC} = n(p)_{BDC} - 1 \] .................................(7)

Adding (6) & (7)

\[ n(c)_{ADC} + n(c)_{BDC} = n(p)_{ADC} - 1 + n(p)_{BDC} \]

Or, \[ n(c)_{ABC} = 3 - 1 + 3 - 1 \]

Or, \[ n(c)_{ABC} = 4 \]

CD is used twice, indicating that it is common and must be deducted

Or, \[ n(c)_{ABC} = 4 - 1 \]

Or, \[ n(c)_{ABC} = n(p) - 1 \]

\[ n(c)_{ABC} = n(p) - 1 \]

**Theorem 3:**

**Statement:** If we add as many points on any one edge of the triangle

Then

\[ n(c) = n(p) - 1. \]
Let we'll find \( n(c) \) from A to B

By theorem 1,
For triangle ABF

\[
n(c)_{\triangle ABF} = n(p)_{\triangle ABF} - 1 \hspace{1cm} \text{(7)}
\]

For triangle BFE

\[
n(c)_{\triangle BFE} = n(p)_{\triangle BFE} - 1 \hspace{1cm} \text{(8)}
\]

For triangle BED

\[
n(c)_{\triangle BED} = n(p)_{\triangle BED} - 1 \hspace{1cm} \text{(9)}
\]

For triangle BDC

\[
n(c)_{\triangle BDC} = n(p)_{\triangle BDC} - 1 \hspace{1cm} \text{(10)}
\]

Adding (7), (8), (9) & (10)

\[
n(c)_{\triangle ABC} = 3 - 1 + 3 - 1 + 3 - 1 + 3 - 1
\]

Or, \( n(c)_{\triangle ABC} = 8 \)

BF, BE, and BD are used multiple times, so those are common and must be deducted

Or, \( n(c)_{\triangle ABC} = 8 - 3 \)

Or, \( n(c)_{\triangle ABC} = 5 \)

Or, \( n(c)_{\triangle ABC} = 6 - 1 \)

Or, \( n(c)_{\triangle ABC} = n(p) - 1 \)

Theorem is proved

Real Example –

*Application:* Network Engineering, Transportation, War.

### III. Conclusion

Networking or connecting is the vital issue in today's era. My method is a faster way to network or connection.