

A Critics View on UGC Funded Project from Research Department of Mathematics, St. Albert's College, Ernakulam.

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Abstract— "Solution of the Traffic Jam Problem through Fuzzy Applications" is developed by Dr. Shery Fernandez as a part of UGC funded project. In this article the method used to solve the traffic jam problem is criticized. Comparison method which is easy to layman is introduced. The mistake in the definition in the thesis "Studies on Fuzzy Graphs" submitted by M S Sunitha under the guidance of Dr. A Vijayakumar Cochin University of Science and Technology, Kerala for the award of the degree of doctor of philosophy is pointed out. The suggestion to rectify the mistake is proposed. Also the proof that has been following by mathematicians for the statement "Smallest positive real number does not exist" is criticized and introduced an accurate proof. Application of Soul Analysis in horoscope is also invented.

Index Terms— Fuzzy Graphs, Union of Fuzzy Graphs, Soul Analysis

1 INTRODUCTION

Solution of the Traffic Jam Problem through Fuzzy Applications is developed by Dr. Shery Fernandez as a part of UGC funded project. In this article the method used to solve the traffic jam problem is criticized. Comparison method which is easy to layman is introduced. In this paper the mistake in the definition in the thesis "Studies on Fuzzy Graphs" submitted by M S Sunitha under the guidance of Dr. A Vijayakumar Cochin University of Science and Technology for the award of the degree of doctor of philosophy is pointed out. The suggestion to rectify the mistake is proposed. Also the proof that has been following by mathematicians for the statement "Smallest positive real number does not exist" is criticized and introduced an accurate proof. Application of Soul Analysis in horoscope is also invented.

2 CRITICS VIEW ON UGC FUNDED PROJECT

2.1 Criticism on Assumption and applicability: As per the assumption the driver must know traffic intensity, width of the road, etc. which is not practically applicable. Already existing method fuzzy linear programming is considered as time consuming and so the suggested method is considered as a simple one that can be done by a layman. This logic is not appealing to accept because the author assumes that a layman has good background in mathematics to workout the suggested method.

2.2 Suggested Comparison Method : Without using the technique suggested by Dr. Shery Fernandez, a comparison method as shown below is enough to get the same solution. Checking the google-map or consulting with drivers who are familiar with the route a layman can have the following data.^[1]

Factors / Routes	Route 1	Route 2	Route 3
Distance	27 KM	20.5 KM	21 KM
Signals	3	5	13
Schools, Hospitals & Public offices	2	1	7

Comparing the distance and number of schools, hospitals and public offices a layman shall conclude from the above table that route 2 is better in day time. The schools and public offices are not functioning during night (22pm-8am) time in Ernakulam and the number of vehicles is less during night comparing with day. So route 2 and 3 are equally better in night time for smooth journey.

3 CRITICS VIEW ON THESIS FROM COCHIN UNIVERSITY

3.1 Criticism on Definition and Results : In the thesis "Studies on Fuzzy Graphs" submitted by M S Sunitha under the guidance of Dr. A Vijayakumar Cochin University of Science and Technology, Kerala for the award of the degree of doctor of philosophy, the definition 1.29 in chapter 1 is as follows

Definition 1.29. Let $G_1 : (\sigma_1, \mu_1)$ and $G_2 : (\sigma_2, \mu_2)$ be two fuzzy graphs with $G_1^* : (V_1, E_1)$ and $G_2^* : (V_2, E_2)$ with $V_1 \cap V_2 = \emptyset$ and let $G^* = G_1^* \cup G_2^* = (V_1 \cup V_2, E_1 \cup E_2)$ be the union of G_1^* and G_2^* . Then the union of two fuzzy graphs G_1 and G_2 is a fuzzy graph $G = G_1 \cup G_2 : (\sigma_1 \cup \sigma_2, \mu_1 \cup \mu_2)$ defined by

$$(\sigma_1 \cup \sigma_2)(u) = \begin{cases} \sigma_1(u) & \text{if } u \in V_1 - V_2 \\ \sigma_2(u) & \text{if } u \in V_2 - V_1 \end{cases} \quad \text{and} \\
 (\mu_1 \cup \mu_2)(uv) = \begin{cases} \mu_1(uv) & \text{if } uv \in X_1 - X_2 \\ \mu_2(uv) & \text{if } uv \in X_2 - X_1 \end{cases}$$

In this definition the authors considered $V_1 \cap V_2$ as an empty set.

So this definition is not generalized definition and using this definition the union of the following fuzzy graphs is not possible.

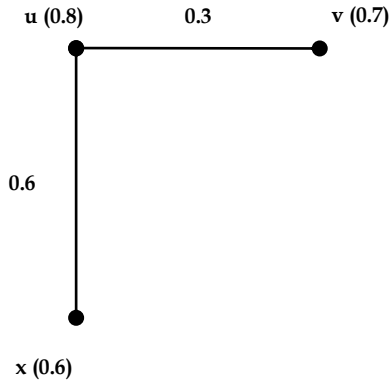


Figure 3.1 (a): Fuzzy Graph G_1

$X_1 \cup X_2$ as follows.

- $(\sigma_1 \cup \sigma_2)(u) = \sigma_1(u)$ if $u \in V_1 - V_2$.
- $(\sigma_1 \cup \sigma_2)(u) = \sigma_2(u)$ if $u \in V_2 - V_1$, and
- $(\sigma_1 \cup \sigma_2)(u) = \max\{\sigma_1(u), \sigma_2(u)\}$ if $u \in V_1 \cap V_2$.
- $(\mu_1 \cup \mu_2)(u, v) = \mu_1(u, v)$ if $(u, v) \in X_1 - X_2$.
- $(\mu_1 \cup \mu_2)(u, v) = \mu_2(u, v)$ if $(u, v) \in X_2 - X_1$, and
- $(\mu_1 \cup \mu_2)(u, v) = \max\{\mu_1(u, v), \mu_2(u, v)\}$ if $(u, v) \in X_1 \cap X_2$.

The fuzzy graph $G = (\sigma_1 \cup \sigma_2, \mu_1 \cup \mu_2)$ is the union of the fuzzy graphs $G_1 = (\sigma_1, \mu_1)$ and $G_2 = (\sigma_2, \mu_2)$

As per above definition, the union of G_1 and G_2 is as follows.

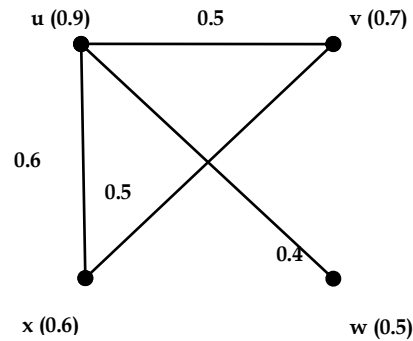


Figure 3.2: Union of the Fuzzy Graphs, $G = G_1 \cup G_2$

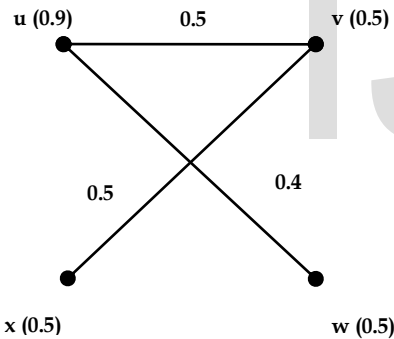


Figure 3.1 (b): Fuzzy Graph G_2

In the chapter 5, the results derived in 5.2:“Operations of fuzzy graphs” are based on the above definition. So those results cannot be accepted as generalized results.

3.2 Suggestion to rectify the mistake: The authors are suggested to use the following definition as definition 1.29. and impose the condition “whenever $V_1 \cap V_2$ is empty” in the statements of results of 5.2.

Definition 1.29 : Consider the union $G = G_1 \cup G_2$, of two graphs $G_1 = (V_1, X_1)$ and $G_2 = (V_2, X_2)$. Let σ_i be a fuzzy subset of V_i and let μ_i be a fuzzy subset of $X_i, i=1,2$. Define the fuzzy subsets $\sigma_1 \cup \sigma_2$ of $V_1 \cup V_2$ and $\mu_1 \cup \mu_2$ of

4 CRITICS VIEW ON EXISTING PROOF

4.1 The Smallest positive real number does not exist :

The existing proof for the statement “Smallest positive real number does not exist is not accurate. That needs further testing to show that the half of the smallest positive real number is not an infinitesimal. If there does not exist the definition and studies on infinitesimals, this testing was not mandatory.

The proof that has been following is given below:

Assume that “ a ” is the smallest positive real number. Now “ $a/2$ ” is a real number smaller than “ a ” which contradicts our assumption.

In this proof, initially there is an assumption on “ a ” that it is the smallest positive real number. Now what is the number which is smaller than the smallest positive real number and very close to zero?

If there does not exist the concept infinitesimal in mathematics, we shall say “ $a/2$ ” is surely a real number. But now there is a possibility that “ $a/2$ ” can become an infinitesimal. So the proof needs further testing that “ $a/2$ ” is not an infinitesimal for accuracy.

4.2 The suggested accurate proof: Assume that “ x ” is the smallest positive real number. Then $x < y$ for every positive real number y . For every natural number n , $1/n$ is a positive real number. There fore $x < 1/n$ for every natural number n . This implies that $1/x > n$ for every natural number n . i.e, The reciprocal of x is not bounded

above. By Archimedean property, for any real number x , there exists two integers p and q such that $p < x < q$. This implies that for any real number x , there exists two integers p and q such that $1/p > 1/x > 1/q$. i.e, For any real number x , The reciprocal of x is bounded above. Now the assumed " x " does not satisfy the Archimedean property. So " x " cannot exist as a real number. Hence the smallest positive real number does not exist.

5 SOUL ANALYSIS

Soul Analysis is the analysis of Soul objects. Soul Analysis is a new branch in mathematics introduced by Nishad T M on 2016. In this new branch, mathematical and philosophical views are combined to analyse real life situations and solve related problems.

In philosophical view a number stands for the measure on how much importance that a creature pays to implement the soul object in the soul set $A^{[5]}$ at a particular time. The generalized concept of God is taken as A . The Philosophical view of Zero is A that represents origin of all vices and virtues. Its value varies from nothing to everything. The philosophical view of number close to zero (infinitesimal) is the measure on a creature that implements some soul objects in A up to very close to full judgment independent of time. In other words that measure is replaced by naming Blessed if the creature is a human being. In this article the application of Soul Analysis in Horoscope using extrapolation of bounded soul is discussed with an example.

5.1 Application of Soul Analysis in Horoscope :

Example 5.1: Based on the report from family and friends of Mrs. Aswathy Menon during first three weeks of June 2018, the bounded Soul of Aswathy Menon is given below. What are the steps in Soul Analysis to find the Soul status of Mrs. Aswathy Menon on fourth week of June 2018?

Bounded Soul of Mrs. Aswathy Menon

Soul Object	Week 1	Week 2	Week 3
Caring Baby	0.69	0.67	0.65
Responsibility	0.8	0.9	0.7
Enthusiasm	0.7	0.4	0.5

Answer: The given data is in equal interval of time (say) one week. So we shall use Newton's formula for equal intervals. Since we are trying to find the status of 4th week, it is better to use Newton's Backward formula.

Step 1: Take the x values as 1,2,3 and 4 representing first, second, third and fourth week respectively.

Step 2: Find the Newton's Backward polynomial $S(x)$ to each of the soul objects.

Step 3: Find $S(4)$ of each of the soul objects that gives Soul status of fourth week.

If $S(4) < 0$, then consider the corresponding judgment as 0 and if $S(4) > 1$, consider the corresponding judgment as 1.

Note: After getting $S(4)$, using the 4 weeks data, Mrs. Aswathy Menon shall find her Soul Status of first week of July 2018, i.e, $S(5)$. and so on.

This method brings a scientific prediction of status of soul objects. Based on this study (i.e, realising the status of soul) and the upcoming events in family and in working place, Mrs. Aswathy Menon shall concentrate on specific soul objects as per requirement.

6 CONCLUSION

In this article, I did the following research.

1. Prepared the critics view on UGC funded project from Dr. Shery Fernandez, Research Department of Mathematics, St Albert's College, Ernakulam, Kerala, India.
2. An easy method applicable to layman is suggested.
3. Prepared a critics view on definition and results of the thesis that was submitted by M S Sunitha under the guidance of Dr. A Vijayakumar for the award of PhD from Cochin University of Science and Technology, Kerala, India.
4. A solution to rectify the mistake is suggested.
5. Prepared the critics view on the proof followed by mathematicians for the statement "smallest positive real number does not exist".
6. An accurate proof is derived.
7. Application of Soul Analysis in Horoscope is invented.

REFERENCES

- [1] Shery Fernandez, Solution of the Traffic jam problem through Fuzzy Applications, American Institute of Physics 2010.
- [2] Fu, K Tanaka, M, Shimura Fuzzy sets and Their Applications to Cognitive and Decision Process, Academic Press, New York 1975.
- [3] J.N Mordeson and C.S Peng, Operations on Fuzzy graphs. Information Sciences 79(1994).
- [4] M.S Sunitha, A Vijayakumar, Complement of fuzzy-graphs, Indian J, Pure and Appl, Maths(2002).
- [5] Nishad T M, Origin, Vol 8, Issue 7, July 2017, IJSER, ISSN 2229-5518.
- [6] Nishad T M, Soul Process, Vol 8, Issue 6, June 2017, IJSER, ISSN 2229-5518.
- [7] Nishad T M, An Introduction to Soul Sets, Vol 7, Issue 11, Nov 2016, IJSER, ISSN 2229-5518.