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NEUTROSOPHIC CONCEPT OF INDETERMINISTIC DATA PROCESSING FOR PROPER JUDGEMENT

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ABSTRACT

We have introduced a concept using Neutrosophic logic to solve the problem. Any neutrosophic data is based on three members. Neutrosophic logic is been used to handle in deterministic part of a neutrosophic data. We have focused to solve the real problem of a patient. Fuzzy and vague both data are not able to handle indeterminacy part .Only neutrosophic data can handle indeterminacy part of a fuzzy data for generating fruitful results.

Keywords- Neutrosophic Concepts, Neutrosophic Data, Approach of Neutrosophic.

I. INTRODUCTION

Uncertain data in common fields could be caused by difficulties in classical mathematical modelling. The fuzzy sets [1, 2, 3] and vague set [4, 5, 6, 7] are applied in various real problems in uncertain and incomplete information based environment. Few cases it might be very difficult to handle the membership value. The vague set is used for the real problems of truth and false membership values. It does not handle the indeterminacy based problems. Smarandache [8, 9, 10] first time proposed the neutrosophic logic of imprecise data. A lot of literature found in this regard in [11, 12, 13, 14]. We are introduced an approach using neutrosophic logic to take more accurate decision. We are applied this approach to solve the real problem and show the results.

II. BASIC DEFINITIONS

2.1 Definition

A classical subset *B* of *U* can be viewed as a fuzzy subset with membership function μ_{FS} taken binary values, i.e.,

μ_B =1 if $u \epsilon B$

=0 otherwise

A neutrosophic set X on U is defined as X = {< a_1, T_X (a_1), I_X (a_1), F_X (a_1) >, $a_1 \epsilon$ U }, where $T_X (a_1) \rightarrow [0,1]$; $I_X (a_1) \rightarrow [0,1]$; $F_X (a_1) \rightarrow [0,1]$ and $T_X (a_1) + I_X (a_1) + F_X (a_1) \leq 2$ and U is the discourser of world.

2.2 Example

Now consider books (B) and parameters (P^1) two sets. Consider P^1 = {Database, Java}.Suppose that, there are three books in B which is given by, B = {b_1, c_1} and the set of parameters P^1 = {p_1, p_2}, where p_1 stands for the parameter 'Database', p_2 stands for the parameter 'Java'. We are expressing the knowledge from **Table 1**.

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Neutrosophic set with parameter name	Neutrosophic representation of three books
B(Database)	< b,0.5, 0.7, 0.35 >,< c, 0.35, 0.7, 0.55 >
B(Java)	< b,0.8, 0.4, 02 >,< c, 0.67, 0.4, 0.3 >

Table 1: Neutrosophic set with parameter names which are containing neutrosophic values (T, I, F) of two existing books.

III. NEW APPROACH USING NEUTROSOPHIC LOGIC

3.1 Approach

Step1: If T > I , T > F and the difference of (I- F) is highest +ve value then I can tell that patient has been recovered by the medicine.

Step 2: If the difference of (t>(F+I)) is the highest +ve value then I can tell that patient is recovered by the medicine.

Step 3: If sum of T values + sum of I values greater than sum of F values + sum of I values and the highest +ve value then I can say that patient has been recovered from disease.

3.2 Problem

We have taken a neutrosophic data of medicines for one particular problem of the patient. Then I have tried to recover the patient from the problem and make the decision which medicine is more appropriate for the treatment.

Medicine(M)	Neutrosophic Distribution (T, I, F)
M_1	(0.78,0.6,0.3)
M_2	(0.6,0.3,0.21)
M_3	(0.32,0.1,0.4)
M_4	(0.54,0.5,0.45)
M_5	(0.6,0.3,0.34)

Table 2: Problem data

3.2.1 Solution

Step 1: T > I , T > F and the difference of (I-F) is highest +ve value.

M_1 = .78>.6 , .78>.3 ; it is true with 0.3(+ve)

M_2 = .6>.3 , .6>.21 ; it is true with 0.09(+ve)

M_3 = .32>.1 , .32>.4 ; it is false

M_4 = .54>.5 , .54>.45 ; it is true with 0.05(+ve)

M_5 = .6>.3 , .6>.34 ; it is false

So, the patient has been recovered from disease by medicine $M_{1.}$

Step 2: the difference of (t>(F+I)) is the highest +ve value

M_1 = (.78>(.6+.3)) ; it is false

M_2 = (.6>(.3+.21)); it is true with 0.09(+ve)

M_3 = (.32>(.1+.4)) ; it is false

M_4 = (.54>(.5+.45)); it is false

M_5 = (.6>(.3+.34)) it is false

So, the patient has been recovered from disease by medicine M_2.

Step 3: sum of T values + sum of I values greater than sum of F values + sum of I values and the difference is highest +ve value

M_1 = ((.78+.6)>(.6+.3)) ; it is true with.48(+ve)

M_2 = ((.6+.3)>(.3+.21)); it is true with 0.39(+ve)

M_3 = ((.32+.1)>(.1+.4)) ; it is false

M_4 = ((.54+.5)>(.5+.45)); it is true with .09(+ve)

M_5 = ((.6+.3)>(.3+.34)) it is true with .26(+ve)

So, the patient has been recovered from disease by medicine M_1.

I have seen that among the several medicines for a particular disease, one medicine is more appropriate than other medicines to recover the patient from the disease. So, the patient is relief from disease by the medicine M_1 in this particular problem.

IV. CONCLUSION

A new approach of inconsistent data has been used to solve the real life problem by choosing proper medicine, with the help of neutrosophic concepts. In different application field, the neutrosophic logic has been used in a database for handling inconsistent data. My approach has been used for solving the problem which is based on indeterminacy data. This approach should not be applicable on fuzzy and vague data related problems because these two type of data unable to handle indeterminacy membership value of a inconsistent data.

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