CHAPTER – 5
PRAYER AND MIRACLES USING COMBINED FUZZY RELATIONAL MAPS
5.1 Introduction

Faith gives birth to prayer. Prayer is absolutely dependent upon faith. virtually it has no existence apart from it, and accomplishes nothing unless it be its inseparable companion. Faith makes prayer effectual and in a certain importance sense, must precede it.

Prayer is a channel of communication between the creator and the created. It brings solace, healing and does wonders, is the breath of life and free approach of human beings to God to seek the divine benevolence and the benefits one needs both for temporal and spiritual life. Is any effort to enter into communion with God. This will make one realize one’s littleness and thus create in one a disposition of praise, thanksgiving, contrition and petition. It is the most powerful form of energy one can generate.

5.2 Prayer is experiencing the presence of God

The Bible says that God’s presence brings us great joy. (psalm 16:11) you have made known to me the path of life you will fill me with joy in your presence with eternal pleasures at your right hand when we feel the presence of God in prayer, our heart and tongues rejoices . We also get hope and confidence in our lives. Moreover as we realize the presence of God, we draw nearer to Him, and our heart gets filled with joy.
5.3 Prayer is establishing a fellowship with God

In Revelation 3:20, we find that God is knocking at the door of your heart. He says if you open the door he will come in and eat with you and have fellowship with you. In these modern days, Restaurants with fast food are rapidly growing as people don’t have enough time to sit and enjoy the food. Rather they prefer to stand and quickly swallow some food. Similarly without hurry from the presence of God we must quietly stay and have fellowship with god in prayer\(^59\).

5.4. FUZZY RELATIONAL MAPS (FRM).

In our study, the elements of the domain space are taken from the real vector space of dimension \(n\) and that of the range space are real vectors from the vector space of dimension \(m\) (\(m\) in general need not be equal to \(n\)). We denote by \(R\) the set of nodes \(R_1, \ldots, R_m\) of the range space, where \(R_i = \{(x_1, x_2, \ldots, x_m) / x_j = 0 \text{ or } 1\} \) for \(i = 1, \ldots, m\). If \(x_i = 1\) denotes the node \(R_i\) is in the ON state and if \(x_i = 0\) denotes the node \(R\) is in the OFF state. Similarly \(D\) denotes the nodes \(D_1, D_2, \ldots, D_n\) of the domain space where \(D_i = \{(x_1, x_2, \ldots, x_n) / x_j = 0 \text{ or } 1\} \) for \(i = 1, \ldots, n\). If \(x_i = 1\), denotes the node \(D_i\) is in the ON state and if \(x_i = 0\) denotes the node \(D_i\) is in the OFF state.

Definition: 5.4.1 A FRM is a directed graph or a map from Domain Space to Range Space with concepts like policies or events etc. as nodes and causalities as edges. It represents casual relations between spaces \(D\) and \(R\).

Definition 5.4.2 The directed edge from \(D\) to \(R\) denotes the casualty of \(D\) on \(R\), called relations. Every edge in the FRM is weighted with a number in the set \([0, 1]\).
Definition 5.4.3 Let $D_i$ and $R_j$ denote the two nodes of an FRM. Let $e_{ij}$ be the weight of the edge $D_i R_j$, $e_{ij} \in \{0, 1\}$. The weight of the edge $D_i R_j$ is positive if increase in $D_i$ implies increase in $R_j$ or decrease in $D_i$ implies decrease in $R_j$, i.e., causality of $D_i$ on $R_j$ is 1. If $e_{ij} = 0$ then $D_i$ does not have any effect on $R_j$. We do not discuss the cases when increase in $D_i$ implies decrease in $R_j$ or decrease in $D_i$ implies increase in $R_j$. When the nodes of the FRM are fuzzy sets, then they are called fuzzy nodes, FRMs with edge weights $\{0, 1\}$ are called simple FRM. Let $D_1, \ldots, D_n$ be the nodes of the domain space $D$ of an FRM and $R_1, \ldots, R_m$ be the nodes of the range space $R$ of an FRM.

Definition 5.4.4 Let the matrix $E$ be defined as $E = (e_{ij})$ where $e_{ij} \in \{0, 1\}$; is the weight of the directed edge $D_i R_j$ (or $R_j D_i$), $E$ is called the relational matrix of the FRM. It is pertinent to mention here that unlike the FCM, the FRM can be a rectangular matrix with rows corresponding to the domain space and columns corresponding to the range space. This is one of the marked differences between FRM and FCM.

Definition 5.4.5 Let $D_1, \ldots, D_n$ and $R_1, \ldots, R_m$ be the nodes of an FRM. Let $D_i R_j$ (or $R_j D_i$) be the edges of an FRM, $j = 1, 2, \ldots, m$, $i = 1, 2, \ldots, n$. The edges form a directed cycle if it possesses a directed cycle. An FRM is said to be a cycle if it does not possess any directed cycle.

Definition 5.4.6 An FRM with cycles is said to have a feedback when there is a feedback in the FRM, i.e., when the casual relations flow through a cycle in a revolutionary manner the FRM is called a dynamical system.
Definition 5.4.7 Let D_iR_j (or R_jD_i), 1 \leq j \leq m, 1 \leq i \leq n. When R_j (or D_i) is switched on and if causality flows through edges of the cycle and if it again causes R_i (D_j), we say that the dynamical system goes round and round. This is true for any node R_j (or D_j) for 1 \leq i \leq m, (or 1 \leq j \leq n). The equilibrium state of this dynamical system is called the hidden pattern. If the equilibrium state of the dynamical system is a unique state vector, then it is called a fixed point. Consider an FRM with R_1 \ldots R_m and D_1 \ldots D_n as nodes. For example let us start the dynamical system by switching on R_1 or D_1. Let us assume that the FRM settles down with R_1 and R_m (or D_1 and D_n) ON i.e. the state vector remains as (1 0 \ldots 0 1) in R [or (1 0 \ldots 0 1) in D], this state vector is called the fixed point. If the FRM settles down with a state vector repeating in the form A_1 \rightarrow A_2 \rightarrow \ldots \rightarrow A_i \rightarrow A_1 or (B_1 \rightarrow B_2 \ldots B_i \rightarrow B_1) then this equilibrium is called a limit cycle.

Definition 5.4.8 Finite number of FRM can be combined together to produce the joint effect of all the FRM. Let E_1, \ldots, E_p be the relational matrices of the FRM with nodes R_1, R_2, \ldots, R_m and D_1, D_2, \ldots, D_n, then the combined FRM is represented by the relational matrix E = E_1+\ldots+E_p.  

5.5 Method of Determination of Hidden Pattern

Let R_1, \ldots, R_m and D_1, \ldots, D_n be the nodes of a FRM with feedback. Let E be the \(n \times m\) relational matrix. Let us find a hidden pattern when D_1 is switched ON i.e. when an input is given as vector A_1 = (1 0 0 0 \ldots 0) in D the data should pass through the relational matrix M. This is done by multiplying A_1 with the relational matrix M. Let A_1M = (k_1, \ldots, k_m) after thresholding and updating the resultant vector (say B) belongs to R. Now we pass on B into M^T and obtain BM^T. After thresholding and updating BM^T we see the resultant vector say A_2 belongs to D. This procedure is repeated till we get a limit cycle or a fixed point.
5.6 Description and Adoption of CBFRM Model to Study About Miracles Using Holy Bible

A survey from around 100 Believers, priests and Pastors living in Chennai was taken using a questionnaire. From the feedback, nodes were identified as domain space and range space and reasons for Miracles in the Holy Bible were charted out to bring out the strong relationship among the attributes, using combined Fuzzy Relational Maps (CBFRM)

$S_1$ Human attitudes identified that release the Power of Christ as miracles (domain space) include:

- $D_1$ – Faith
- $D_2$ - Hearing the word of God
- $D_3$ - Repentance
- $D_4$ - Obedience
- $D_5$ - Trust
- $D_6$ - Endurance
- $D_7$ - Humility
- $D_8$ - Complete surrender/ whole hearted acceptance
- $D_9$ - Persistence/ Perseverance in prayer

$S_2$ Emotional Quotient (EQ) of Christ while performing miracles(Range space)

- $R_1$ - Authority in the spiritual realm
- $R_2$ - Obedience to the Father
- $R_3$ - Compassion
- $R_4$ - Patience
- $R_5$ - Mercy/ Merciful
- $R_6$ - Loving
\( R_7 \) - Forgiving/ Forgiveness
\( R_8 \) - Restraint/ Anger
\( R_9 \) - Forbearance

The Pasteur in independent churches leader was asked to give his opinion keeping the same nodes for the range space and the domain space i.e. as in case of the first expert. The directed graph given by the Pasteur of independent church is given by the following diagram.

The associated relational matrix \( E_1 \) of the First expert’s opinion got from the directed graph given in Figure 5.1 is as follows:
\[
\begin{array}{c|cccccccc}
& R_1 & R_2 & R_3 & R_4 & R_5 & R_6 & R_7 & R_8 & R_9 \\
C_1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & -1 & 1 \\
C_2 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 \\
C_3 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & -1 & 1 \\
C_4 & 0 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 \\
C_5 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & -1 & 1 \\
C_6 & 0 & 0 & 1 & 1 & 1 & 1 & -1 & 1 & 1 \\
C_7 & 0 & 1 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\
C_8 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 \\
C_9 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & -1 & 1 \\
\end{array}
\]

\[E_1 = \begin{pmatrix}
R_1 \\
R_2 \\
R_3 \\
R_4 \\
R_5 \\
R_6 \\
R_7 \\
R_8 \\
R_9
\end{pmatrix}
\]

\[A_1 = (0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 1)
\]

\[A_1 E_1 = (1 \ 1 \ 1 \ 1 \ 1 \ 1 \ -1 \ 1) \rightarrow (1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 0 \ 1) = B_1
\]

\[B_1 E_1^T = (8 \ 8 \ 8 \ 7 \ 8 \ 6 \ 2 \ 8 \ 8) \rightarrow (1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 1) = A_2
\]

\[A_2 E_1 = (6 \ 8 \ 8 \ 9 \ 8 \ 8 \ 8 \ -5 \ 8)
\rightarrow (1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 0 \ 1) = B_2
\]

\[B_2 E_1^T = (8 \ 8 \ 8 \ 7 \ 8 \ 6 \ 2 \ 8 \ 8) \rightarrow (1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 1) = A_3
\]

(\text{where } \rightarrow \text{ denotes the resultant vector after thresholding and updating}) A_2 = A_3.

Hence the pair of limit point is
\[(1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 1) (1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 0 \ 1).
\]

A Priest from the Catholic church was asked to give his opinion keeping the same nodes for the range space and the domain space i.e. as in case of the
second expert. The directed graph given by the priest from catholic church is given by the following diagram.

\[
E_2 = \begin{bmatrix}
C_1 & 1 & 1 & 1 & 1 & -1 & -1 & 0 & -1 \\
C_2 & 1 & 1 & -1 & -1 & 1 & 1 & -1 & 1 \\
C_3 & 0 & 0 & 0 & 1 & 0 & 1 & 1 & -1 & 1 \\
C_4 & 0 & 1 & 0 & 0 & 0 & 1 & 0 & -1 & 0 \\
C_5 & 1 & 0 & 0 & 1 & 1 & 1 & 1 & 0 & 1 \\
C_6 & 0 & 0 & 1 & 1 & 1 & 1 & 1 & 0 & 1 \\
C_7 & 0 & 0 & 1 & 1 & 1 & 1 & 1 & -1 & 0 \\
C_8 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 \\
C_9 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & -1 & 1 \\
\end{bmatrix}
\]
\[ A_1 = \begin{pmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 \end{pmatrix} \]

\[ A_1 E_2 = \begin{pmatrix} 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 \end{pmatrix} \rightarrow \begin{pmatrix} 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 \end{pmatrix} = B_1 \]

\[ B_1 E_2^T = \begin{pmatrix} 1 & 2 & 4 & 1 & 6 & 6 & 4 & 8 & 8 \end{pmatrix} \rightarrow \begin{pmatrix} 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 \end{pmatrix} = A_2 \]

\[ A_2 E_2 = \begin{pmatrix} 6 & 8 & 8 & 9 & 8 & 8 & 8 & 5 & 8 \end{pmatrix} \rightarrow \begin{pmatrix} 1 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 \end{pmatrix} = B_2 \]

\[ B_2 E_2^T = \begin{pmatrix} 1 & 2 & 4 & 1 & 6 & 6 & 4 & 8 & 8 \end{pmatrix} \rightarrow \begin{pmatrix} 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 \end{pmatrix} = A_3 \]

(where \( \rightarrow \) denotes the resultant vector after thresholding and updating) \( A_2 = A_3 \).

Hence the pair of limit point is

\[ \begin{pmatrix} 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 \end{pmatrix} \begin{pmatrix} 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 \end{pmatrix} \]

An evangelist from Jesus Calls was asked to give his opinion keeping the same nodes for the range space and the domain space i.e., as in case of the third expert. The directed graph given by the evangelist from Jesus calls is given by the following diagram.

(Fig 5.3)
The associated relational matrix $E_3$ of the Third expert’s opinion got from the directed graph given in Figure 5.3 is as follows:

\[
E_3 = \begin{pmatrix}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\
1 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 \\
0 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 \\
0 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 \\
C_5 & 1 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\
C_6 & 0 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 \\
C_7 & 0 & 1 & 1 & 1 & 0 & 0 & 0 & 0 & 0 \\
C_8 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 \\
C_9 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1
\end{pmatrix}
\]

\[
A_1 = \begin{pmatrix} 0 & 0 & 0 \end{pmatrix} \quad A_2 = \begin{pmatrix} 0 & 0 \end{pmatrix} \quad A_3 = \begin{pmatrix} 0 \end{pmatrix}
\]

\[
A_1 E_3 = \begin{pmatrix} 1 & 1 & 1 & 1 & 1 & 1 & 1 & 0 & 1 \end{pmatrix} \rightarrow (1 1 1 1 1 1 1 0 1) = B_1
\]

\[
B_1 E_3^T = \begin{pmatrix} 2 & 7 & 7 & 7 & 1 & 7 & 3 & 7 & 7 \end{pmatrix} \rightarrow (1 1 1 1 1 1 1 1 1) = A_2
\]

\[
A_2 E_3 = \begin{pmatrix} 3 & 8 & 8 & 7 & 6 & 7 & 6 & 0 & 6 \end{pmatrix} \rightarrow (1 1 1 1 1 1 1 1 1 0 1) = B_2
\]

\[
B_2 E_3^T = \begin{pmatrix} 1 & 2 & 4 & 1 & 6 & 6 & 4 & 8 & 8 \end{pmatrix} \rightarrow (1 1 1 1 1 1 1 1 1 1)
\]

(\text{where } \rightarrow \text{ denotes the resultant vector after thresholding and updating})

$A_2 = A_3.$
Hence the pair of limit point is

\[(1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 1) \ (1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 0 \ 1).\]

Now we proceed on to find the combined FRM. We take the opinion of the three experts discussed above and find their opinions. We first draw the directed graph of all the three experts, which is given by the Figure 5.4
The corresponding fuzzy relational matrix is given as the sum of the three fuzzy relational matrices $E_1$, $E_2$ and $E_3$. Let $E = E_1 + E_2 + E_3$

$$E = E_1 + E_2 + E_3$$
\[ A_1 = (0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 1 ) \]
\[ A_1 E = (3 \ 3 \ 3 \ 3 \ 3 \ 3 \ 2 \ 3 ) \rightarrow \]
\[ (1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 0 \ 1 ) = B_1 \]
\[ B_1 E^T = (7 \ 17 \ 17 \ 15 \ 15 \ 18 \ 9 \ 84 \ 22 ) \rightarrow \]
\[ (1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 1 ) = A_2 \]
\[ A_2 E = (14 \ 21 \ 19 \ 21 \ 18 \ 22 \ 20 \ 0 \ 19 ) \rightarrow (1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 0 \ 1 ) = B_2 \]
\[ B_2 E^T = (7 \ 17 \ 17 \ 15 \ 15 \ 18 \ 9 \ 84 \ 22 ) \rightarrow (1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 1 ) \]
\[ = A_3. \]

(\text{where } \rightarrow \text{ denotes the resultant vector after thresholding and updating})

\[ A_2 = A_3. \]

Hence the pair of limit point is

\[ (1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 1 ) (1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 1 \ 0 \ 1 ). \]

5.7 Conclusion

While analyzing CBFRM, when the concept D_9 “Perseverance in prayer is in the on state, the other concepts D_2, D_3, D_4, D_5, D_6, D_7, D_8, D_9, are also in the on state. Hence, it can be concluded mathematically that the Perseverance in Prayer results due the various concepts identified as D_1-D_9, all of which have been proved to be on-state just as Perseverance in Prayer is.

Each of these concepts are inter-dependant and necessary for an individual to build up, sustain and continue to persevere in prayer. The concepts have their individuality and have a significant influence on the final perseverance but working together strengthens this perseverance. All the concepts are drawn from the internal quality of an individual. The Holy Bible has ample proof as to the
perseverance of many saints of God and the disciples who followed the precepts laid down by the everlasting Father. Perseverance in Prayer has been the key for an individual towards sustaining themselves emotionally through difficult situations and coming out richer in terms of experience and redemption of the soul. Thus, it is concluded that it is the God’s way to have fullness of joy, way out of all trouble, to have the power of the holy spirit for Gods work, it help us to come out from worries and anxious care, it is insistently commands it in the Bible. Some reference from the scripture, Luke 18:1. And He speak a parable unto them to this end, that men ought always to pray, and not to faint. This verses says that not some men will pray, but that men, mankind, everywhere and in all times, should pray .It is an impelling duty which Jesus taught. Based on the feedback received from the experts following are the conclusion and suggestions on how Prayer can be cultivated through

1. Talking with God.
2. Being with God
3. Listening with God.
4. Sharing with God what is in one’s heart
5. Asking Gods help when needed
6. Experiencing Gods love and forgiveness
7. Sharing our experience with others
8. Being Generous
9. Detaching our Attractions away from worldly things.