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Linguistic Fuzzy Matrix analysis of the Triumph of Historical Movies in Hotspot Generation

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Abstract: Films are the source of entertainment ever since the origin of technology. People especially the youngsters have very closer attraction towards cinemas as they can visualize the unseen, impossible, astonishing aspects. On other hand it has become a challenging task for the film makers to satisfy the expectations of the audience and to get good comments from social media; therefore they must highly concentrate on the attributes of film. Movies generally focus on romance, mystery, humour, horror but recently the historical movies are getting trendy these days as it is an embodiment of all expressions and therefore it reaches the audience of all categories including the people of younger age, which is a hurdling task. This paper aims in determining the reasons making the reach of historical movies to the hotspot generation, using linguistic fuzzy matrix

Keywords: Historical movies, Hotspot generation, linguistic fuzzy matrix, trapezoidal fuzzy number

1. Introduction

The Film Industry has travelled several centuries with the expertise which has made it to undergo several transformations and it has different names in every part of the world. Globally Hollywood ranks first but in Indian cinemas it is the bollywood followed by kollywood, tollywood, mollywood and so on. The conventional practice of watching movies in cinema theatres is slowly running down with the advancement of the technology as it make them to watch at their own pace. People visit theatres only if the film is attractive with good story and screenplay, but as the recent movies are devoid of it people don't prefer to watch it in theatres at high cost, rather they download from the websites at cheaper rates. This is the prevailing conditions of films but now the upcoming historical movies are exception to it which is now getting emblazed. Astounding examples of such movies are many in number such as Gladiator, The Patriot, Braveheart but the recent historical blockbuster Bahubali has created history by crossing more than thousand crores at box office is indeed a strong evidence. These historic movies are unique and it steals the hearts of the spectators of this hotspot generation. Historical movies portray the history of past events; leaders and also it reflect the culture of the people. These movies have dramatic touch, strong character play and it takes to the world of fantasy. Usually young people get fascinated to adventurous, animated movies but now, also to these historic movies. This paper mainly finds the attractive features of these historic movies over other films that pave way for the reach of it to the people of this generation.

Presently we live in a world of uncertainty and the process of decision making is a tedious task. To make this process compatible the concept of fuzzy set theory is used. The evolution of this theory runs back to several decades. The concept of fuzzy matrix was first used by Sanchez in building the diagnostic models for medical analysis. This fuzzy matrix was then extended to fuzzy interval valued matrix, researchers also developed arithmetic mean matrix of an interval valued matrix. Neog and Sut [5] have made the representation by using fuzzy soft set. The aspect of intutionistic fuzzy set is also used for representation. But in this paper the concept of linguistic fuzzy matrix is introduced, though the matrices of such type are used in Fuzzy Cognitive maps in the name of connection matrix, in this article linguistic fuzzy matrix is initiated and defined.

The paper is organized as follows: section 2 consists of the basic definitions, section 3 comprises of the procedure, section 4 contains the adaptation to the considered study, section 5 encompasses of the results and discussions.

2. Preliminaries

This basic concepts pertaining to this study are defined as follows: [1,6,7]

Fuzzy Set

Let X be a nonempty set. A fuzzy set A in X is characterized by its membership function

A: X $\rightarrow [\mathbf{0}, \mathbf{1}]$, where A(x) is interpreted as the degree of membership of element x in fuzzy A for each $x \in \boldsymbol{X}$

Fuzzy Number

A fuzzy set $\tilde{\boldsymbol{A}}$of the real line R with membership function $\mu_A\ (x): R\ \rightarrow [0,1]$ is called fuzzy number if

i) A must be normal and convex fuzzy set;

ii) the support of $\widetilde{\boldsymbol{A}}$, must be bounded
iii) $\boldsymbol{\alpha_A}$must be a closed interval for every $\boldsymbol{\alpha} \in [\mathbf{0}, \mathbf{1}]$

Trapezoidal Fuzzy Number

Let $\widetilde{A} = (a, b, c, d)$, *a<b<c<d,* be a fuzzy set on $R = (-\infty, \infty)$. (1) represents the membership function

$$\mu_{\widetilde{A}}(x) = \begin{cases} \dfrac{x-a}{b-a}, \; if \;\; a \le x \le b \\ 1, \qquad if \;\; b \le x \le c \\ \dfrac{d-x}{d-c}, \; if \;\; c \le x \le d \\ 0, \qquad otherwise \end{cases} \qquad (1)$$

Fuzzy Matrix

A matrix [aij] is said to be fuzzy matrix if the entries of it are fuzzy values

Linguistic Fuzzy matrix

A linguistic matrix is one in which the entries of it are linguistic variables.

3. Methodology

Let G denotes the set of all attributes of the film, R denotes the set of reachability to the audience and M denotes the genre of movies.[5]

(i) Construct a trapezoidal linguistic fuzzy matrix (F,R) over G, where F is a mapping given by F: R → F_{Tr} (G), which is the set of all trapezoidal linguistic fuzzy matrix. This matrix is represented by *R0* which is the matrix of attributes – reachability

(ii) Build a trapezoidal linguistic fuzzy matrix (F1,R) over M, where F is a mapping given by F1: G → F_{Tr} (M), which is the set of all trapezoidal linguistic fuzzy matrix. This matrix is represented by *Rs* which is the matrix of genre - attributes

(iii) Compute *R1, R2, R3,R4,R5* where *R1 = Rs.R0; R2 = Rs.*$R0^C$*; R3 =* Rs^C*.R0, R4 = Max{R2,R3}; R5 = R1-R4 [*$R0^C$ *&* Rs^C represents the complement of *R0 & Rs* respectively*]*

4. Adaptation to the Study

Let us consider the following
G = {G1,G2,G3,G4.G5}
G = {characterization, costumes, depiction of events, magnification, conventionalism, fantasy}
R= {D1,D2}
R = { Attractive Caliber, Repulsive inductive}
M = {M1,M2,M3,M4,M5,M6}
M ={Action, Comedy, Crime, Historic, Drama, Horror}

The matrix *R0* expressing the relation between G and R is build from the outsources (experts)where each entries is a linguistic variable and it is quantified by Trapezoidal fuzzy numbers.

	R1	R2
G1	H	L
G2	M	L
G3	H	L
G4	H	L
G5	L	H
G6	M	L

The matrix *Rs* expressing the relation between G and M is

	G1	G2	G3	G4	G5	G6
M1	L	L	L	M	L	L
M2	M	L	M	L	L	L
M3	M	L	M	M	L	L
M4	H	H	H	H	H	H
M5	H	M	M	L	L	L
M6	M	L	L	L	L	L

The quantification of the linguistic variables in terms of trapezoidal fuzzy numbers is done by arithmetic mean method.

Low (L)	(0.1,0.2,0.3,0.4)	0.25
Medium (M)	(0.4,0.5,0.6,0.7)	0.55
High (H)	(0.7,0.8,0.9,1)	0.85

The modified matrices are as follows

$(R_0)_{mem}$

	R1	R2
G1	0.85	0.25
G2	0.55	0.25
G3	0.85	0.25
G4	0.85	0.25
G5	0.25	0.85
G6	0.55	0.25

(Rs)mem

	G1	G2	G3	G4	G5	G6
M1	0.25	0.25	0.25	0.55	0.25	0.25
M2	0.55	0.25	0.55	0.25	0.25	0.25
M3	0.55	0.25	0.55	0.55	0.25	0.25
M4	0.85	0.85	0.85	0.85	0.85	0.85
M5	0.85	0.55	0.55	0.25	0.25	0.25
M6	0.55	0.25	0.25	0.25	0.25	0.25

R1

	R1	R2
M1	1.23	0.6
M2	1.49	0.675
M3	1.74	0.75
M4	3.31	1.784
M5	1.9	0.825
M6	1.23	0.6

R2

	R1	R2
M1	0.57	1.2
M2	0.615	1.43
M3	0.66	1.65
M4	1.785	3.31

M5	0.795	1.875
M6	0.575	1.2

R3

	R1	R2
M1	2.67	1.5
M2	2.415	1.42
M3	2.16	1.35
M4	0.585	0.315
M5	1.995	1.275
M6	2.67	1.5

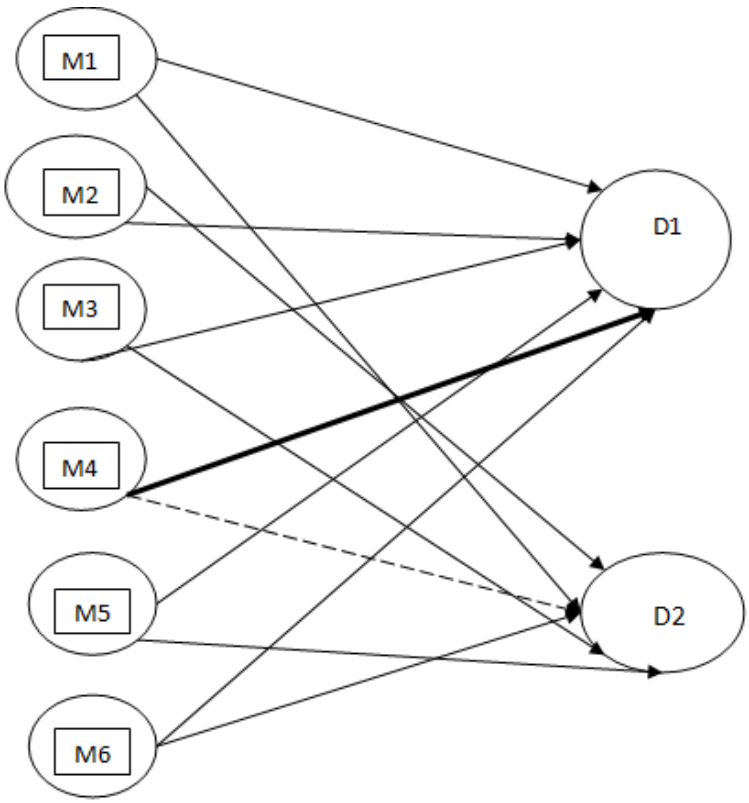
R4

	R1	R2
M1	2.67	1.5
M2	2.415	1.42
M3	2.16	1.65
M4	1.785	3.31
M5	1.995	1.875
M6	2.67	1.5

R5

	R1	R2
M1	-1.44	-0.9
M2	-0.925	-0.745
M3	-0.42	-0.9
M4	1.525	-1.56
M5	-0.095	-1.05
M6	-1.44	-0.9

The diagrammatic representation of the association between G and R



Conclusion

The association diagram and the entries of R5 clearly indicate the strong impact of historic movies. M4 gets the maximum score for the attractive caliber and it gets the least score for repulsive inductive. This also explicatively shows that the historic movies are embedded with the essential attributes of a movie. Therefore historical movies can be called as cocktail of emotions which drags the people of hotspot generation. These movies along with the sound technology have begun to create a new trend in Indian cinemas.

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