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FUZZY SETS IN MODELLING OF COMPLEX SPACE

The tendency of refusal from strict determined concepts and structures become more frequent in mathematic of second half XX ct. L.A. Zadeh introduce concepts erode the plural (fuzzy sets), for researching of system with no clear sting parameters. Braun changed this concepts in plurals of pairs $\{x , \mu_{A(X)}\}$, $\mu_{A(X)}$ is interpretation as measure of belonging of object x to plural A[1]. This concept put the beginning of researching flood in theory of plurals and in area of mathematic logic (fuzzy logic, fuzzy concepts).The real meanings are the numerous numbers from interval (0; 1), where worked by L.A. Zadeh in logical systems FL (fuzzy logic).The function that is under this interval some number- probability or power of belonging this point to under plural.

The basic meaning theory about erode plural was looking by L.A. Zadeh as point of classification objects that are given set of features, separately when we going out from imagination of erode plurals as family of plurals that are broaden. Their connection with the plurals that are fixed as pairs $\tau = (\varepsilon, F)$, ε- the region of effective, F/ε- the region indistinct. Erode F-birth, that can be used for approximate geometrical modeling and researching natural and technology processing and at operating on models leading in this article. The system {X} c-ordinate layers $X_1,\ldots,X_k$, that are parallel to responsible co-ordinate lines so the limits layers X_{ij} ($j=1,\ldots k$; $j=0,..,\infty$) in system {X} are lines $X=X_{i,j} \pm \Delta$, $\Delta= 0.5 \cdot |Xi,j– X_i|$ Is leading in right – angled system {X} Decarts axles coordinates $X_1, \ldots , X_k$. Let the point E will have co-ordinate ξ_j. If this point belonging to layer X_j and have co-ordinates ξ_j, ξ_{j+1}, if belonging to crossing $R=^{X}\xi_j \cap ^{X+1} \xi_{j+1}$ layers X_j and X_{j+1} in system {X}. Vague F- birth is leading with this condition [2]

$$\rho_c (R_1, R_2) \le \rho_F (E_1, E_2) \le \rho_H(R_1, R_2),$$

ρ_c – C –Cantors birth $\quad \rho_c(R_1, R_2) = \inf \rho (E_1, E_2)$

$E_1 \in R_1, E_2 \in R_2$

ρ_H – H – Hausdorfrs birth $\quad \rho_H(R_1, R_2) = \sup \rho (E_1, R_2), \rho(E_2, R_1).$

$E_1 \in R_1, E_2 \in R_2$

Galders norm in space $\quad \|X\| = \left(\sum_1^n |X|^\rho \right)^{1/\rho}_{(1 \le \rho \le \infty)},$

is including octaedering ($\rho = 1$), spherical ($\rho=2$) and cubic ($\rho=\infty$) norms as critical.

C- , H- births are analogous in system {X}. The angle between line

$$g \ni E^1 (f_1^1, f_2^1), E^2 (f_1^2, f_2^2)$$

$$h \ni E^1, E^3 (f_1^3, f_2^3)$$

$$\gamma(g,h) = \left| arctg \frac{\rho_F (E_1^2, E^*)}{\rho_F (E_1^1, E^*)} - arctg \frac{\rho_F (E_1^3, E^{**})}{\rho_F (E_1^1, E^{**})} \right|,$$

$E^* \subset R^* = X^1 \cap X_2^1$, $E^{**} \subset R^{**} = X^1 \cap X_2^3$.

F-birth leading in like for describing in system {X} , in system {r,φ} polar co-ordinates r, φ. The concentration rings $\Phi_1, \Phi_2, \ldots$ with centre O in pole system { r, φ}and rings sector $\Sigma_1, \Sigma_2, \ldots$ with top in O here are coordinate layers. The angular births that fixed supporting lines $\{t\} \supset O$ and crossing $\Phi_i \cap \Sigma_i$. Free point k^n space is suitable to two erode plurals of real numbers that make complex number . The angle between straight lines is fixing cited above dependences with account of geometrical explanation of complex number .

1.Zadeh L.A. Fuzzy Logic and approximate reasoning// Synthese – 30.№ 3-4.-1975.p.-407-408.

2.Martyn E.V. The models of surfaces k^n space // Geometry and computer.-VIII Conference.- Ustron, 2004.-p.42-43.