参考数列

$x_0 = \{x_0(k) \mid k=1,2,\dots,n\} = (x_0(1), x_0(2), \dots, x_0(n))$

有m个比较数列

$x_i = \{x_i(k) \mid \underbrace{k=1,2,\dots,n}_{\text{时刻}}\} = x_i(1) \dots x_i(n) \quad i=1,\dots,m$

分辨系数 $\in [0,1]$

关联系数：$\xi_k = \dfrac{\min\limits_s \min\limits_t |x_0(t)-x_s(t)| + \rho \max\limits_s \max\limits_t |x_0(t)-x_s(t)|}{|x_0(k)-x_i(k)| + \rho \underbrace{\max\limits_s \max\limits_t |x_0(t)-x_s(t)|}_{\text{两极最大差}}}$

两极最小差

x_i 对 x_0 的关联度：$r_i = \frac{1}{n}\sum\limits_{k=1}^{n} \xi_i(k)$

实例

① 计算关联度前，要对数据进行初始化处理 $x = [x(1), x(2), \dots x(n)]$

1) 初始化数列 $\bar{x} = \left[1, \frac{x(2)}{x(1)}, \dots, \frac{x(n)}{x(1)}\right]$

正数

对倒序的数列（数越小越好）

$x_i = \left[1, \frac{x_i(1)}{x_i(2)}, \dots, \frac{x_i(1)}{x_i(n)}\right]$

r越大，相关性越大．

但要判断正负关联，要另用

$\sigma = \sum\limits_{k=1}^{n} k x_i(k) - \sum\limits_{k=1}^{n} x_i(k) \sum\limits_{k=1}^{n} \frac{k}{n}$

$i=1,2,\dots,n$

$\mathrm{sign}(\sigma_i) = \mathrm{sign}(\sigma_j)$ 为正关联