

ORIGIN := 1

$$x_1 := \begin{pmatrix} 0.1622 \\ 0.2721 \\ 0.5132 \\ 0.8252 \\ 0.9061 \\ 0.9668 \\ 0.9892 \end{pmatrix} \quad y_1 := \begin{pmatrix} 0.0144 \\ 0.0205 \\ 0.0352 \\ 0.1170 \\ 0.2211 \\ 0.4953 \\ 0.7370 \end{pmatrix} \quad T := \begin{pmatrix} 337.9 \\ 339.5 \\ 344.4 \\ 360.8 \\ 378.2 \\ 398.7 \\ 410.0 \end{pmatrix}$$

i := 1 .. 7 P := 400

$$x_{2_i} := 1 - x_{1_i} \quad y_{2_i} := 1 - y_{1_i}$$

$$P_{1_i} := \exp\left(16.784 - \frac{3942.79}{T_i - 53.797}\right) \quad P_{2_i} := \exp\left(20.421 - \frac{4657.84}{T_i - 13.722}\right)$$

$$\gamma_{1_i} := \frac{y_{1_i} \cdot P}{x_{1_i} \cdot P_{1_i}} \quad \gamma_{2_i} := \frac{y_{2_i} \cdot P}{x_{2_i} \cdot P_{2_i}}$$

$$Gex_i := x_{1_i} \cdot \ln(\gamma_{1_i}) + x_{2_i} \cdot \ln(\gamma_{2_i})$$

$$Gex = \begin{pmatrix} 0.192 \\ 0.235 \\ 0.215 \\ 0.187 \\ -7.54 \times 10^{-4} \\ -0.016 \\ -0.012 \end{pmatrix} \quad \gamma_1 = \begin{pmatrix} 1.942 \\ 1.525 \\ 1.1 \\ 1.102 \\ 0.952 \\ 0.971 \\ 0.982 \end{pmatrix} \quad \gamma_2 = \begin{pmatrix} 1.106 \\ 1.179 \\ 1.405 \\ 1.841 \\ 1.593 \\ 1.478 \\ 1.677 \end{pmatrix}$$

$$d_i := \frac{Gex_i}{x_{1_i} \cdot x_{2_i}}$$

$$z_i := x_{1_i} - x_{2_i}$$

$$F(z) := \begin{pmatrix} 1 \\ z \\ z^2 \\ z^3 \\ z^4 \end{pmatrix}$$

$$C := \text{linfit}(z, d, F) = \begin{pmatrix} 0.914 \\ 0.532 \\ 1.957 \\ -1.918 \\ -2.889 \end{pmatrix}$$

$$g(z) := F(z) \cdot C$$

$$\text{corr}(\vec{g(z)}, d) = 0.981$$