$$s_n = \sum_{i=1}^{n} x_i \, y_i \, \underbrace{(1+\eta_i) \prod_{j=i}^{n} (1+\varepsilon_j)}_{\theta_i}$$

==

$$s_n = \sum_{i=1}^{n} x_i \, y_i \, (1+\theta_i)$$

$\Longrightarrow |\theta_i| \le \gamma_n$

$\le 1.01\, n\, \bar{u}$

$|fl(y^T x) - y^T x| = |\sum x_i \, y_i \, \theta_i| \le \sum |x_i| \, |y_i| \, |\theta_i|$

$|fl(y^T x) - y^T x| \le \gamma_n \sum |x_i| \, |y_i|$

==

I-E nonsingular?

Assume it is singular.. there is a nonzero x s.t.

$(I-E)x = 0 \Longrightarrow x = Ex \Longrightarrow \|x\| = \|E x\| \Longrightarrow$

$\|E x\| / \|x\| = 1 \Longrightarrow \|E\| \ge 1$ contrad.

============

$(I-E)(I+E+E^2+E^3) = (I+E+E^2+E^3) - E (I+E+E^2+E^3)$

$(I-E)(I+E+E^2+E^3) + E^4 = I$

$(I-E)^{-1} = I + E + .. E^4 - (I-E)^{-1} E^4$

$\| (I-E)^{-1} E^k \| \le .... \| E \|^k \to$-

===========

$I-E \Longrightarrow A+E = A(I + A^{-1} E)$

If $\| A^{-1} E \| < 1$ then $(I + A^{-1} E)$ is invertible

$(A+E)^{-1} = (I + A^{-1} E)^{-1} A^{-1}$

$(A+E)\, y = b + eb$

$A\, x = b$

$(A + E)y - Ax = eb$

$(A + E)(y - x) + Ex = eb$

$\| Ax \| \le \|A\| \, \| x\| \Longrightarrow \|b\| \le \|A\| \, \| x\|$