* $\underbrace{R_y} = \sum \underbrace{(\lambda_i+\beta)}_{\mu_i} \underline{u}_i \underline{u}_i^{+} + \beta \sum_{i=m+1}^{N} u_i u_i^{+}$, $\lambda_i \geq 0 \Rightarrow \beta = \underline{\text{least eigenvalue of } R_y}$

μ_i = 'Dominant' eigenvalues of R_y

$$R_y^{-1} = \sum \mu_i^{-1} \underline{u}_i \underline{u}_i^{+} + \frac{1}{\beta} \sum \underline{u}_i \underline{u}_i^{+}$$

$$L = I - \beta R_y^{-1} = \sum_{i=1}^{m} \left(1 - \frac{\beta}{\mu_i}\right) \underline{u}_i \underline{u}_i^{+}$$

$$1 - \frac{\beta}{\mu_i} = 1 - \frac{\beta}{\lambda_i+\beta} = \frac{\lambda_i}{\lambda_i+\beta} = \frac{\lambda_i/\beta}{1+\frac{\lambda_i}{\beta}}$$

if $\beta/\mu_i \searrow 0$ $\therefore L \to P_{\mathcal{R}_{S}} = \sum_{i=1}^{m} \underline{u}_i \underline{u}_i^{+}$

* EXERCISE

$$Var(\varepsilon_{min}) = tr\{R_x - R_{xy} R_y^{-1} R_{yx}\}$$

$$= \beta \sum_{i=1}^{m} \frac{\lambda_i}{\beta+\lambda_i} \leq m\beta$$

$$Var(\underline{w}) = N\beta$$

$$\frac{Var(\varepsilon_{min})}{Var(W)} \leq \frac{m}{N}$$

* VAN TREES

* SHELDON ROSS
  Applied probability