PEV depends on inverse coefficient matrix of MME

$$\begin{bmatrix} X^TR^{-1}X & X^TR^{-1}Z \\ Z^TR^{-1}X & Z^TR^{-1}Z + G^{-1} \end{bmatrix} \begin{bmatrix} \hat{\beta} \\ \hat{u} \end{bmatrix} = \begin{bmatrix} X^TR^{-1}y \\ Z^TR^{-1}y \end{bmatrix}$$

Coefficient matrix of MME

$$\begin{bmatrix} X^TR^{-1}X & X^TR^{-1}Z \\ Z^TR^{-1}X & Z^TR^{-1}Z+G^{-1} \end{bmatrix}^{-1} = \begin{bmatrix} C^{11} & C^{12} \\ C^{21} & C^{22} \end{bmatrix}$$

$$PEV(\hat{u}) = var(u) - var(\hat{u}) = C^{22}$$

PEV for $\hat{u}$ of all animals in pedigree

- Single animal i:

$$PEV(\hat{u}_i) = (C^{22})_{ii}$$

i-th diagonal element of C^{22}