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

- C^{22} is part of inverse of coefficient Matrix M of mixed model equations

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

$$\hat{S} = r$$

$$M^{-1} = \left[\begin{array}{c|c} X^TR^{-1}X & X^TR^{-1}Z \\ \hline Z^TR^{-1}X & Z^TR^{-1}Z+G \end{array}\right]^{-1} = \left[\begin{array}{c|c} C^{11} & C^{12} \\ \hline C^{21} & C^{22} \end{array}\right]$$

Anzahl col $\hat{=}$
Number of animals in pedigree

C^{22} is symmetric with dimensions $q \times q$ with q being the number of animals in Pedigree.