Inverse of Matrix A:

- $A^{-1} = (L^T)^{-1} \cdot D^{-1} \cdot L^{-1}$ why?

$A \cdot A^{-1} = I$ with $A = L \cdot D \cdot L^T$

$A \cdot A^{-1} = I$

$[L \cdot D \cdot L^T] \cdot (L^T)^{-1} \cdot D^{-1} \cdot L^{-1} =$

$L \cdot D \cdot \underbrace{L^T \cdot (L^T)^{-1}}_{I} \cdot D^{-1} \cdot L^{-1} = L \cdot \underbrace{D \cdot D^{-1}}_{I} \cdot L^{-1} = L \cdot L^{-1} = I$

- Useful because L^{-1} and D^{-1} are easy to compute

- Decomposition of breeding values: $u_i = \frac{1}{2} u_s + \frac{1}{2} u_d + m_i$

$$
\left.\begin{aligned}
u_1 &= m_1 \\
u_2 &= m_2 \\
u_3 &= m_3 \\
u_4 &= \tfrac{1}{2} u_1 + \tfrac{1}{2} u_2 + m_4 \\
u_5 &= \tfrac{1}{2} u_3 + \tfrac{1}{2} u_2 + m_5
\end{aligned}\right\}
\begin{bmatrix} u_1 \\ u_2 \\ u_3 \\ u_4 \\ u_5 \end{bmatrix} =
$$

$u = P \cdot u + m$