

Recap:

□ Numerator relationship matrix A
and its inverse A^{-1}
 $\Rightarrow A^{-1} = (L^T)^{-1} D^{-1} L^{-1}$

$$L^{-1} = I - P$$

□ Problem 2 in Exercise 8 show rules to construct A^{-1}
 L^{-1}

D^{-1}

	$ \begin{array}{c ccc} \boxed{1} & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & - & - & - \\ 0 & 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & \boxed{2} & 0 & 0 \\ & & & 0 & 2 & 0 \\ & & & 0 & 0 & 2 \end{array} $	$ \begin{array}{c} 1 \\ 0 \quad 1 \\ 0 \quad 0 \quad 1 \\ \boxed{-0.5} \quad -0.5 \quad 0 \quad 1 \\ 0 \quad -0.5 \quad -0.5 \quad 0 \quad 1 \\ 0 \quad 0 \quad 0 \quad -0.5 \quad -0.5 \quad 1 \end{array} $
$ \begin{array}{l} 1: 1 \ 0 \ 0 \ \boxed{-0.5} \ -0.5 \ 0 \\ 2: 0 \ 1 \ 0 \ -0.5 \ -0.5 \ 0 \\ 3: \\ 4: 0 \ 0 \ 0 \ 1 \ 0 \ -0.5 \end{array} $	$ \begin{array}{c ccc} 1 & 0 & 0 & -1 & 0 & 0 \\ 0 & 1 & 0 & -1 & -1 & 0 \\ 0 & 0 & 0 & 2 & 0 & -1 \end{array} $	$ \boxed{1.5} $

2.5

$$(L^T)^T$$

$$(L^T)^T D^{-1}$$

$$(A^{-1})$$

$$(A^{-1})_{11} = (D^{-1})_{11} + \frac{1}{4}(D^{-1})_{44} = 1 + 0.5 = 1.5$$

$$(A^{-1})_{44} = (D^{-1})_{44} + \frac{1}{4}(D^{-1})_{66} = 2 + 0.5 = 2.5$$