A

$$\hat{r}^T C \hat{r} = \hat{r}^T W^T W \hat{r} = (W\hat{r})^T (W\hat{r}) = (W\hat{r})\cdot(W\hat{r})$$

Endret prikkprodukt $\bar{u}\cdot\bar{v}$ med $(W\bar{u})\cdot(W\bar{v})$

Endret vektorer $\bar{u}$ og $\bar{v}$ med $W\bar{u}$ og $W\bar{v}$

Vekted. $A\bar{x} = \bar{l}$

Betrakt $WA\bar{x} = W\bar{l}$ ekte vekted

Normallikning $(WA)^T(WA)\bar{x} = (WA)^T W\bar{l}$

$$A^T C A\bar{x} = A^T W^T W A\bar{x} = A^T W^T W\bar{l} = A^T C\bar{l}$$

Normalligning

$$C = \sigma_0^2 \Sigma_l^{-1}$$

$$C^T = C$$

$$A^T C A \bar{x} = A^T C \bar{l}$$

Mindste kvadraters løsning:

$$\hat{x} = \left[(A^T C A)^{-1} A^T C\right] \bar{l}$$

$$\Sigma_{\hat{x}} = \left[(A^T C A)^{-1} A^T C\right] \Sigma_l \left[(A^T C A)^{-1} A^T C\right]^T =$$

$$(A^T C A)^{-1} A^T \underbrace{C \Sigma_l}\, C^T A (A^T C^T A)^{-1} =$$

$$\sigma_0^2 (A^T C A)^{-1} (A^T C A)(A^T C A)^{-1} = \sigma_0^2 (A^T C A)^{-1}$$