(6)

B Finding the minimum of PEV is done be setting $\frac{\partial PEV}{\partial b} = 0$ and the vector b that satisfies this condition is the desired solution.

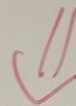$$PEV = \bar{\sigma}_u^2 + b^T P b - 2 b^T G$$

$$\frac{\partial PEV}{\partial b} = 0 + 2 P b - 2 G = 0$$

$$\Rightarrow 2 P b = 2 G$$

$$b = P^{-1} G$$

Index Method
‼
↓

Aggregate genotype (H)
(Gesamtzucht wert)

$$H = v^T \cdot u$$

Final $I = b^T \hat{u}^*$ such that

$$var(H - I) \rightarrow minimal$$

Problem with combining different sources of information to get $\hat{u}_i$ is solved by index method.

$$\Rightarrow \hat{u}_i = I = b^T y^* = P^{-1} G y^*$$