General:

Linear Function $q^t b$ is estimable, if

$$q^t \cdot b^{(i)} = t^T E(y) = t^T X b^{(i)}$$

where $b^{(i)}$ is a solution to Normal Equations

$q^T = t^T \cdot X$

why?

$$q^t \cdot b^{(i)} = q^t \cdot G X^T y$$

$$= t^T X \cdot G X^T y$$

Because XGX^T is the same for all choices of G

Definition of G:

$$X^T X G X^T X = X^T X$$

$$X^T X G X^T X = X^T X$$

$$X G X^T X = X$$

Some other Generalized inverse F of $X^T X$:

$$X^T X F X^T X = X^T X$$

$$X F X^T X = X$$