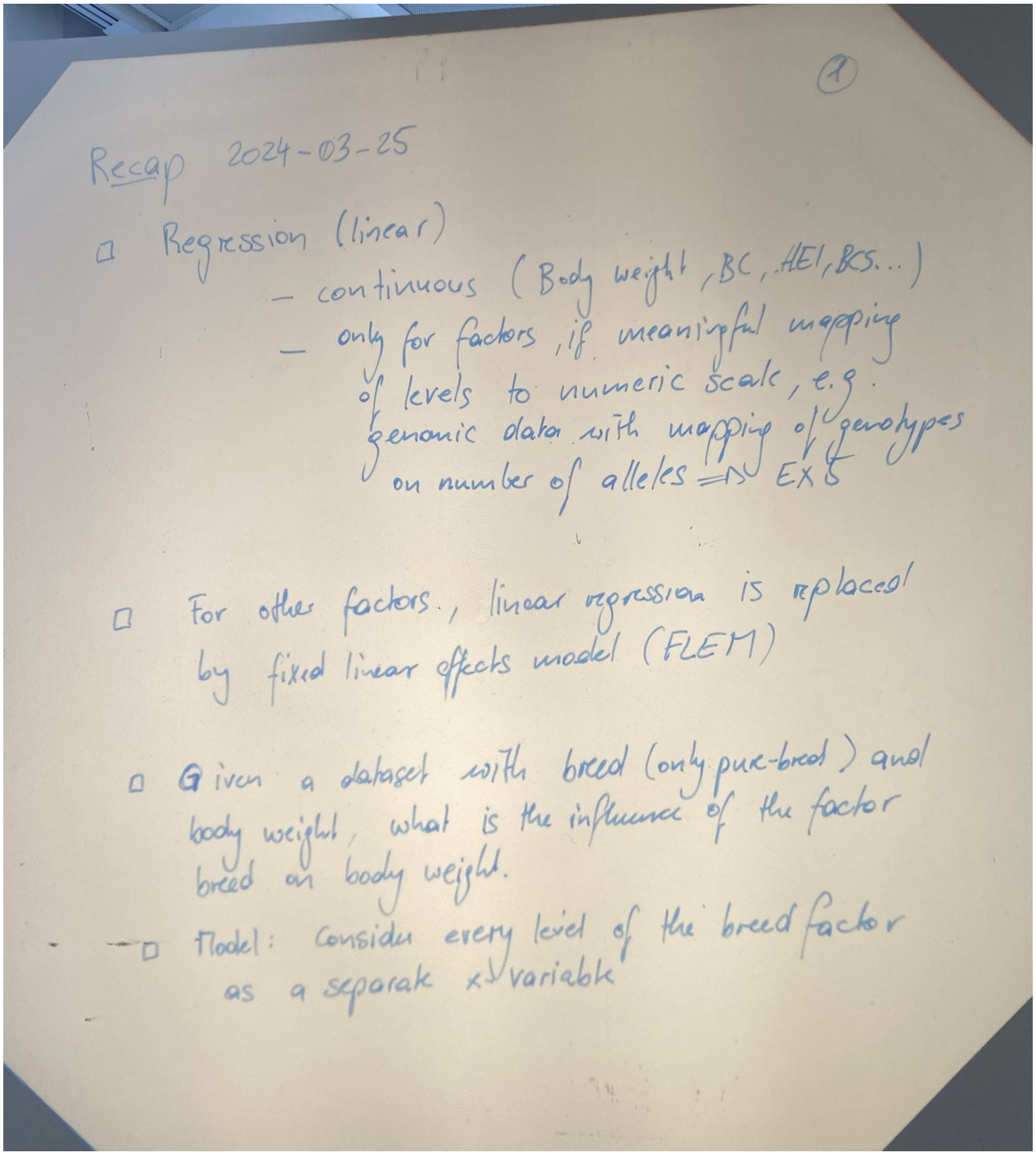
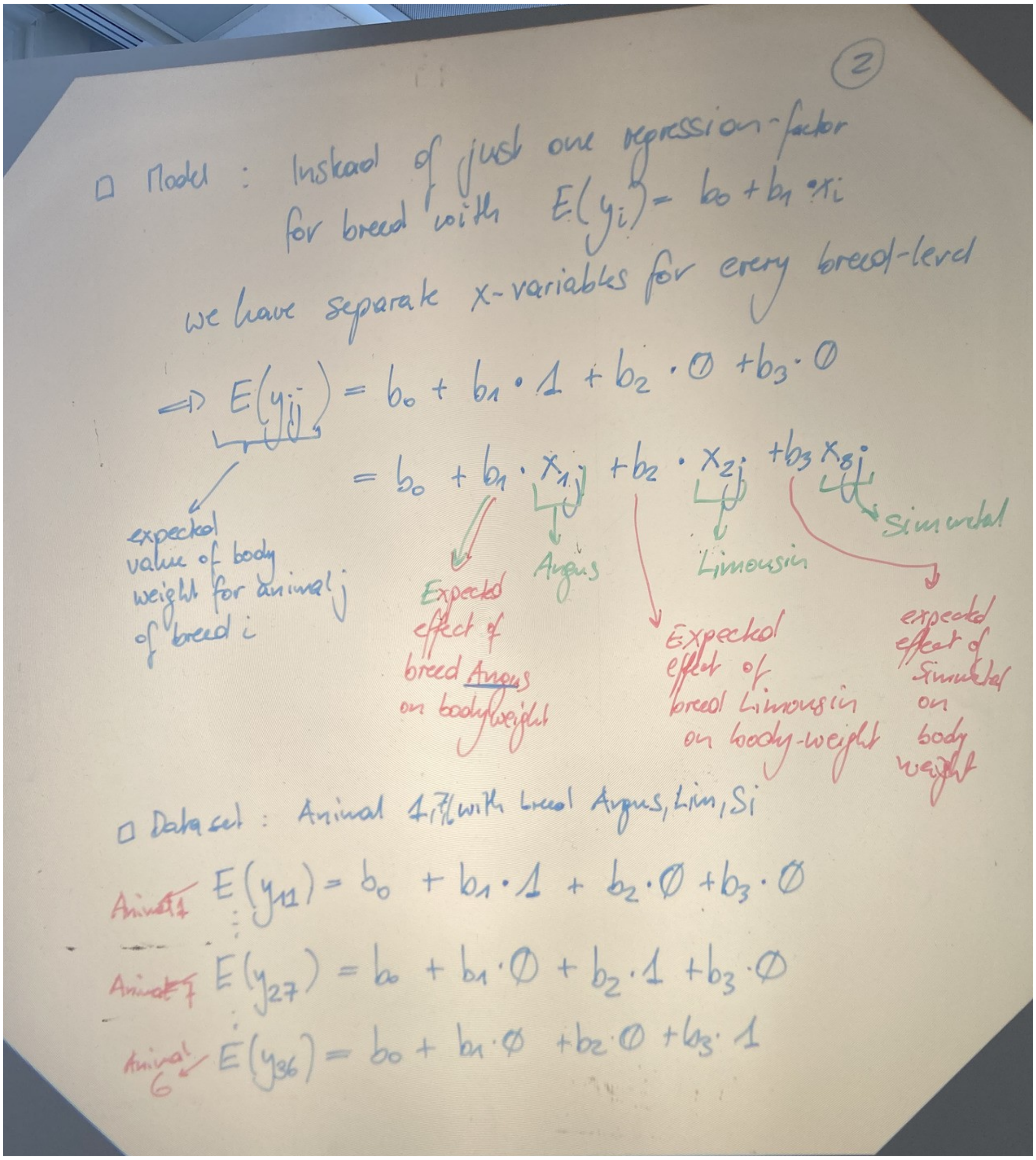
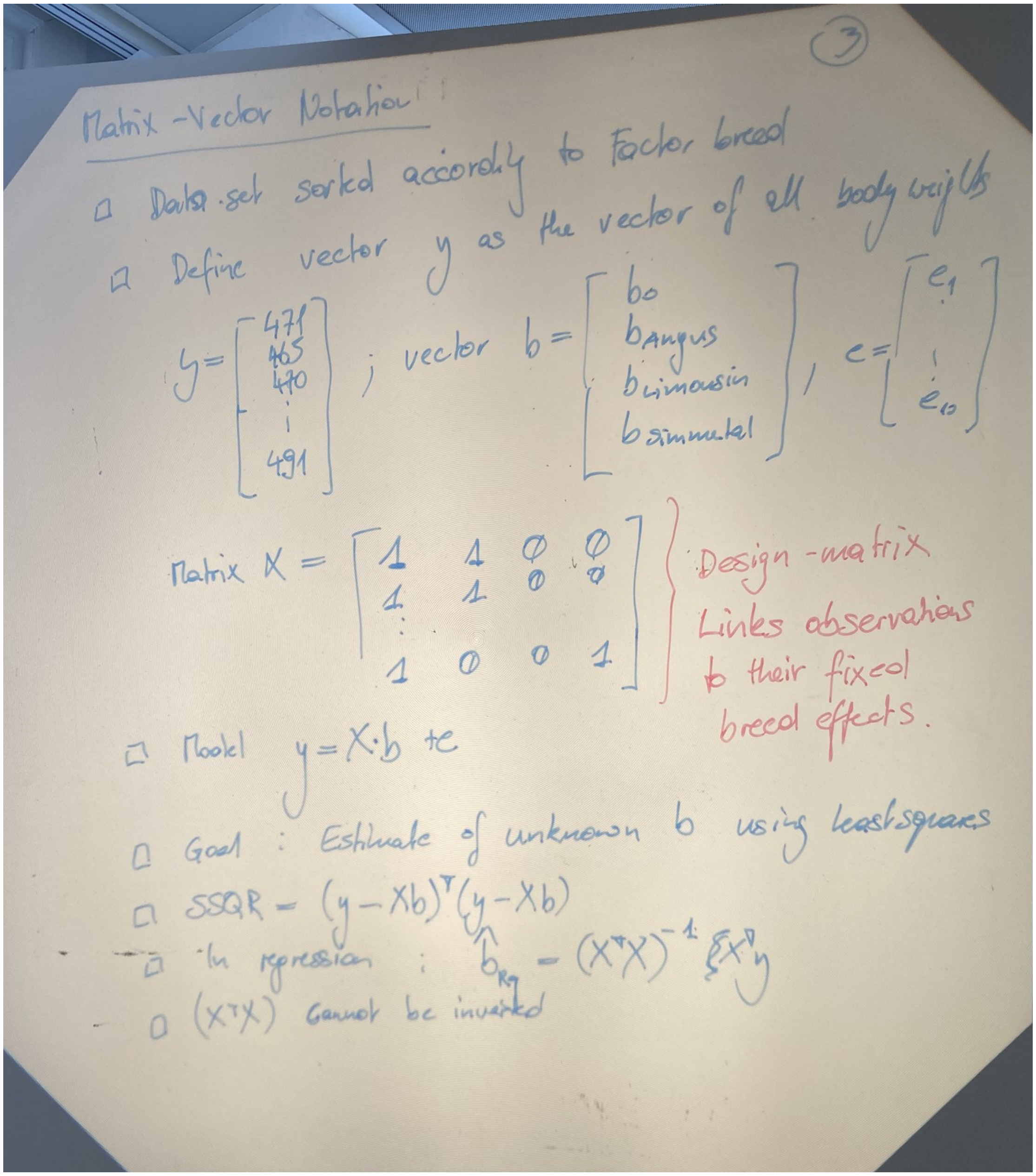
OHP Picture 1



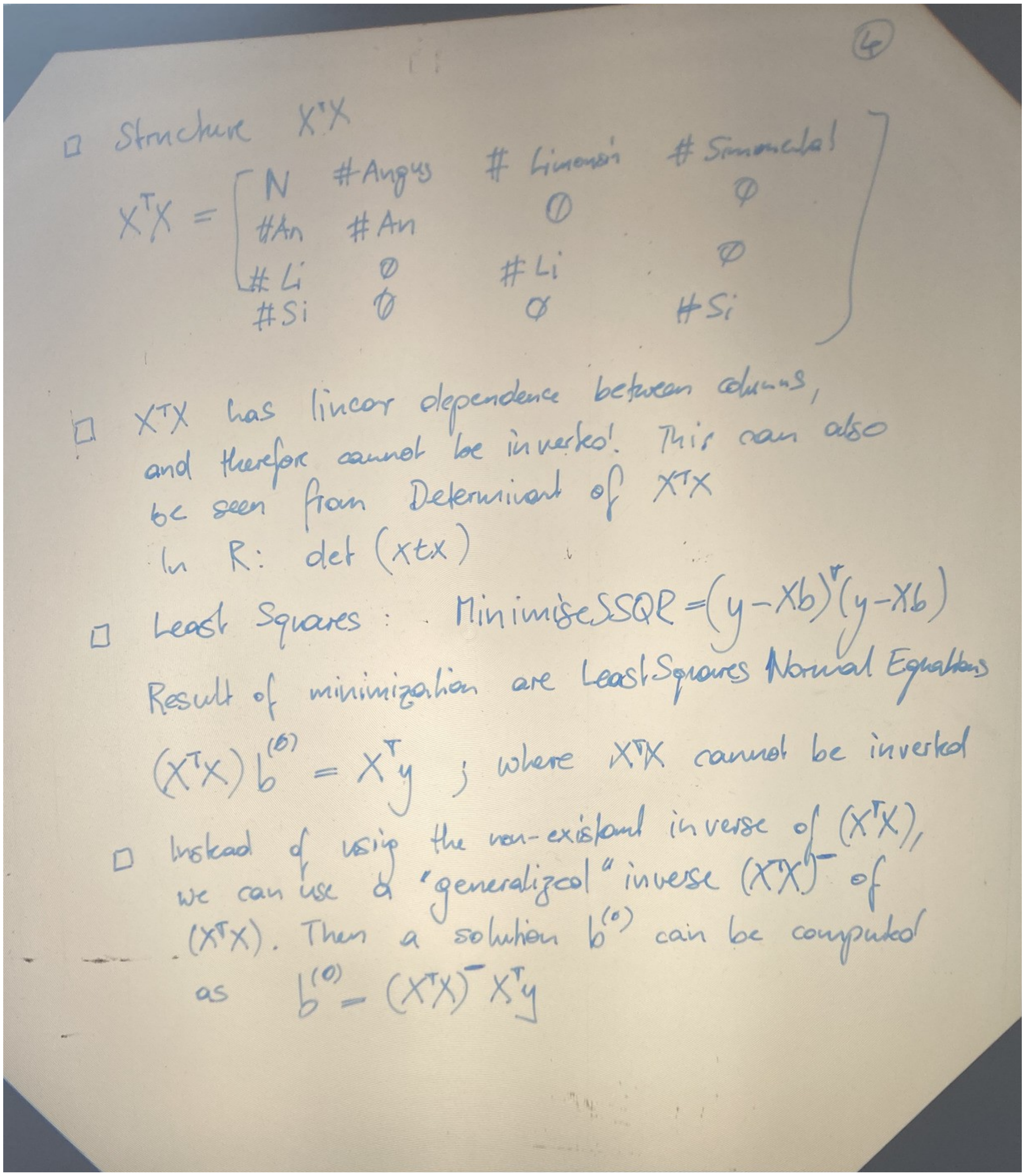
OHP Picture 2



OHP Picture 3



OHP Picture 4



(4)

□ Structure X^TX

$$X^TX = \begin{bmatrix} N & \#Angus & \#Limousin & \#Simmental \\ \#An & \#An & 0 & 0 \\ \#Li & 0 & \#Li & 0 \\ \#Si & 0 & 0 & \#Si \end{bmatrix}$$

□ X^TX has linear dependence between columns, and therefor cannot be inverted. This can also be seen from Determinant of X^TX

In R: det (xtx)

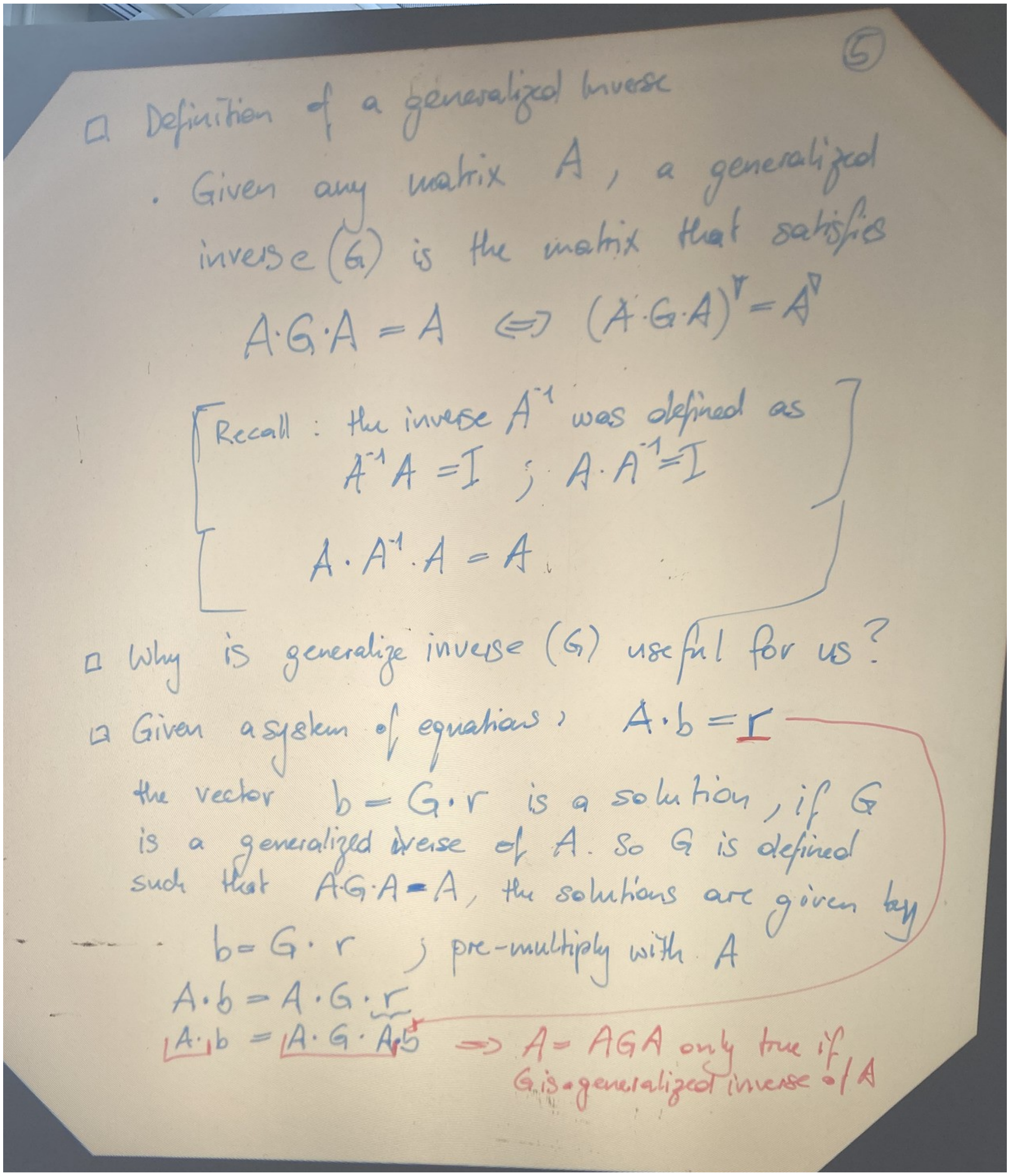
□ Least Squares: Minimise $SSQR = (y - Xb)^T(y - Xb)$

Result of minimization are Least Squares Normal Equations

$(X^TX)\, b^{(0)} = X^Ty$; where X^TX cannot be inverted

□ Instead of using the non-existent inverse of (X^TX), we can use a "generalized" inverse $(X^TX)^-$ of (X^TX). Then a solution $b^{(0)}$ can be computed as $b^{(0)} = (X^TX)^- X^Ty$

OHP Picture 5



OHP Picture 6