Another Regularization method: LASSO

Goal is to choose a sparse β.

$$P(\beta)_{\text{sparse}} = \prod_{i=1}^{d} e^{-\lambda|\beta|}$$, penalty prior $P_{\text{sparse}}(\beta)$

$$-\log\left(P_{\text{Lasso}}(\beta)\right) = \lambda \sum_{i=1}^{d} |\beta| \quad .$$ // LASSO, least absolute solution operation

- Favors β values to be exactly $\emptyset$.

- SPARSENESS penalty., penalty measures when you invested in a beta value.

$$-\log P_{\text{sparse}}(\beta) = \underset{\uparrow}{\infty} \sum_{j=1}^{d} \Pi_{\{\beta_j \neq 0\}}$$

penalty term

Now, this leads to a combinatorial optimization problem.