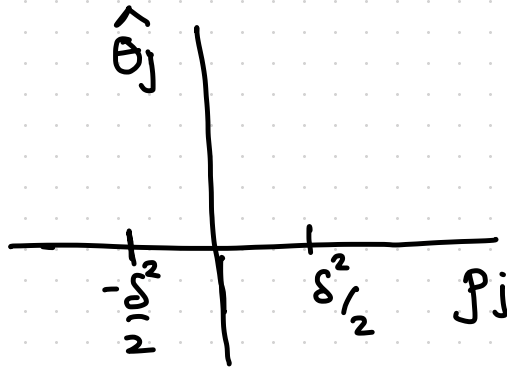


# LASSO (SOFT) THRESHOLDING

$$\theta_j = \begin{cases} \frac{\beta_j + \delta^2/2}{z_j} & \text{if } \beta_j < -\delta^2/2 \\ 0 & \text{if } -\frac{\delta^2}{2} \leq \beta_j \leq \frac{\delta^2}{2} \\ \frac{\beta_j - \delta^2/2}{z_j} & \text{if } \beta_j > \delta^2/2 \end{cases}$$

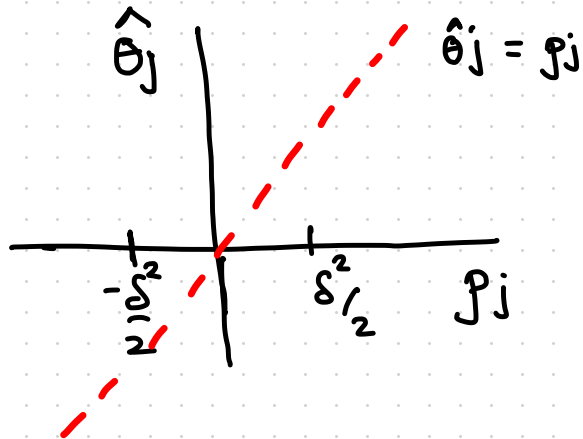
# LASSO (SOFT) THRESHOLDING

$$\hat{\theta}_j = \begin{cases} \frac{p_j + \delta^2/2}{z_j} & \text{if } p_j < -\delta^2/2 \\ 0 & \text{if } -\frac{\delta^2}{2} \leq p_j \leq \frac{\delta^2}{2} \\ \frac{p_j - \delta^2/2}{z_j} & \text{if } p_j > \delta^2/2 \end{cases}$$



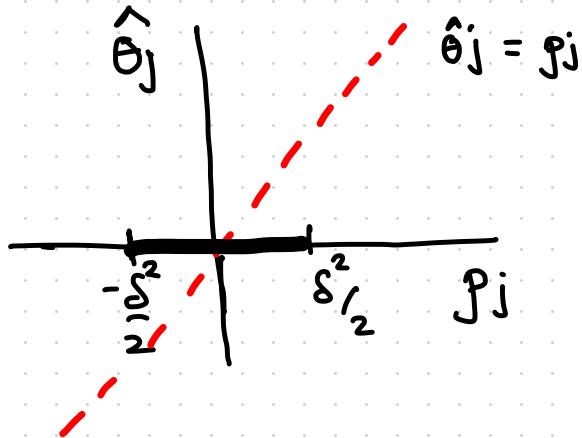
# LASSO (SOFT) THRESHOLDING

$$\hat{\theta}_j = \begin{cases} \frac{p_j + \delta^2/2}{z_j} & \text{if } p_j < -\delta^2/2 \\ 0 & \text{if } -\frac{\delta^2}{2} \leq p_j \leq \frac{\delta^2}{2} \\ \frac{p_j - \delta^2/2}{z_j} & \text{if } p_j > \delta^2/2 \end{cases}$$



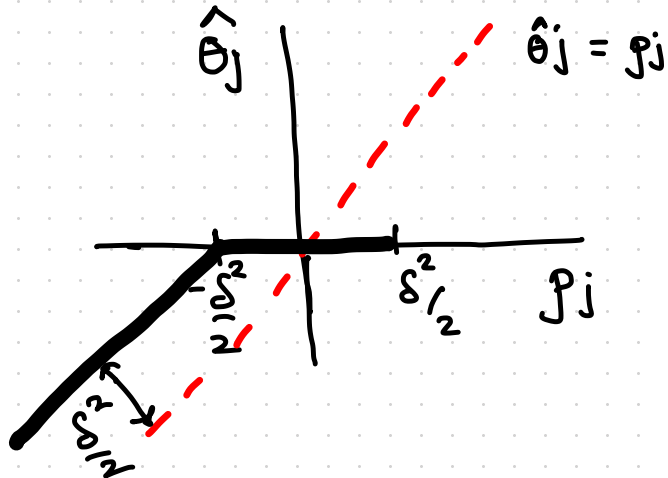
# LASSO (SOFT) THRESHOLDING

$$\hat{\theta}_j = \begin{cases} \frac{p_j + \delta^2/2}{z_j} & \text{if } p_j < -\delta^2/2 \\ 0 & \text{if } -\delta^2/2 \leq p_j \leq \delta^2/2 \\ \frac{p_j - \delta^2/2}{z_j} & \text{if } p_j > \delta^2/2 \end{cases}$$



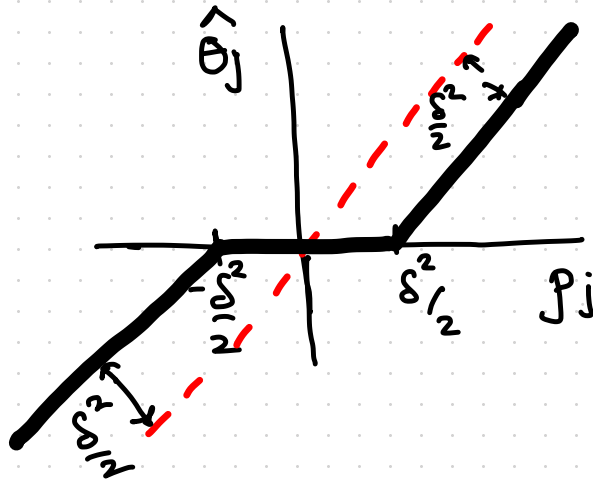
# LASSO (SOFT) THRESHOLDING

$$\hat{\theta}_j = \begin{cases} \frac{p_j + \delta^2/2}{z_j} & \text{if } p_j < -\delta^2/2 \\ 0 & \text{if } -\frac{\delta^2}{2} \leq p_j \leq \frac{\delta^2}{2} \\ \frac{p_j - \delta^2/2}{z_j} & \text{if } p_j > \delta^2/2 \end{cases}$$



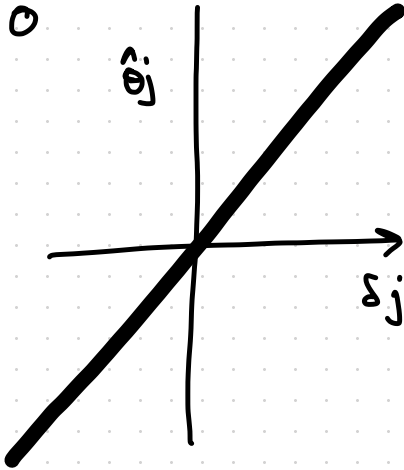
# LASSO (SOFT) THRESHOLDING

$$\hat{\theta}_j = \begin{cases} \frac{p_j + \delta^2/2}{z_j} & \text{if } p_j < -\delta^2/2 \\ 0 & \text{if } -\frac{\delta^2}{2} \leq p_j \leq \frac{\delta^2}{2} \\ \frac{p_j - \delta^2/2}{z_j} & \text{if } p_j > \delta^2/2 \end{cases}$$



# LASSO (SOFT) THRESHOLDING

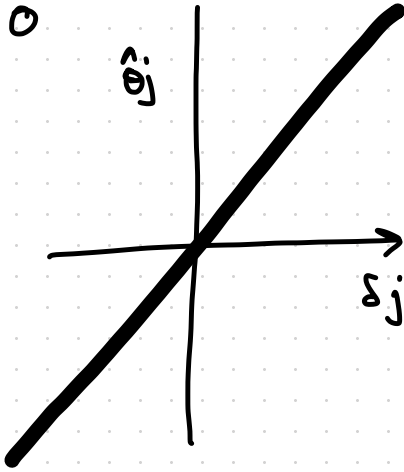
$$s^2 = 0$$



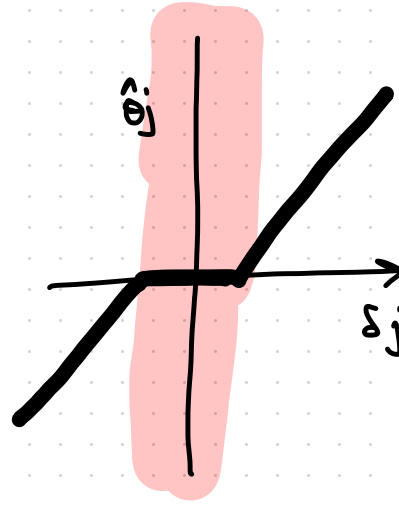
NO REGULARISATION

# LASSO (SOFT) THRESHOLDING

$$s^2 = 0$$



NO REGULARISATION



REGULARISATION



SPARSITY