

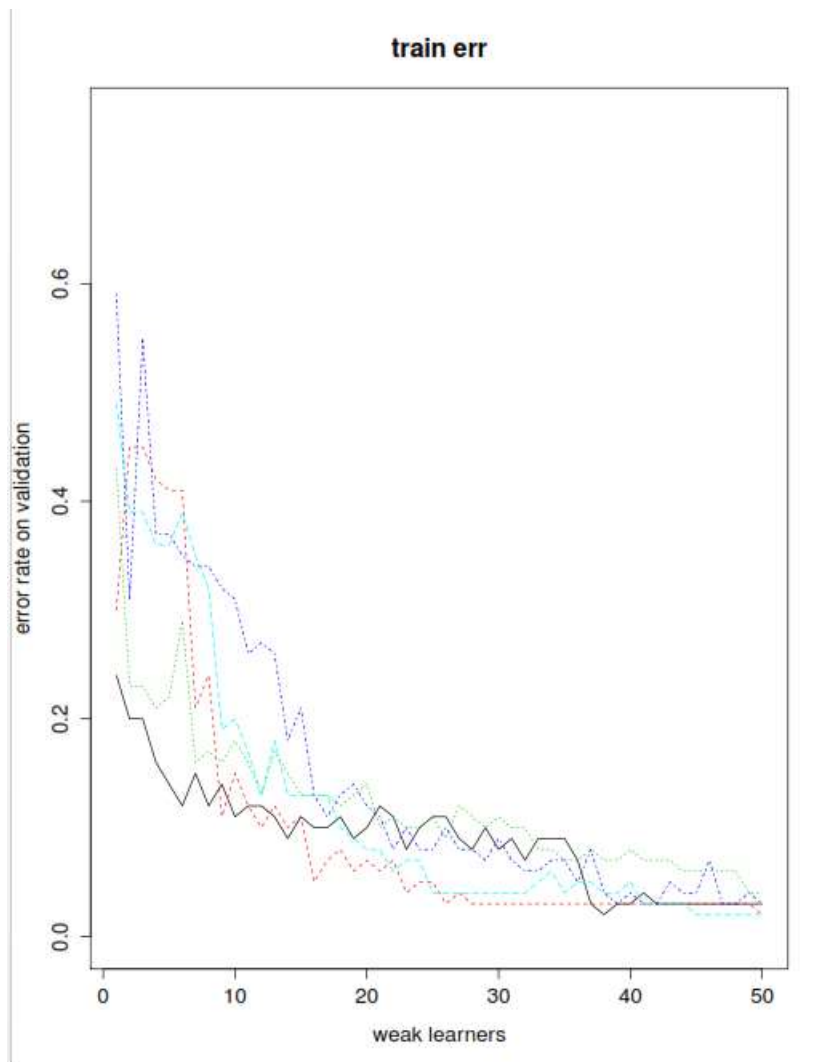
Name: Ethan Grant

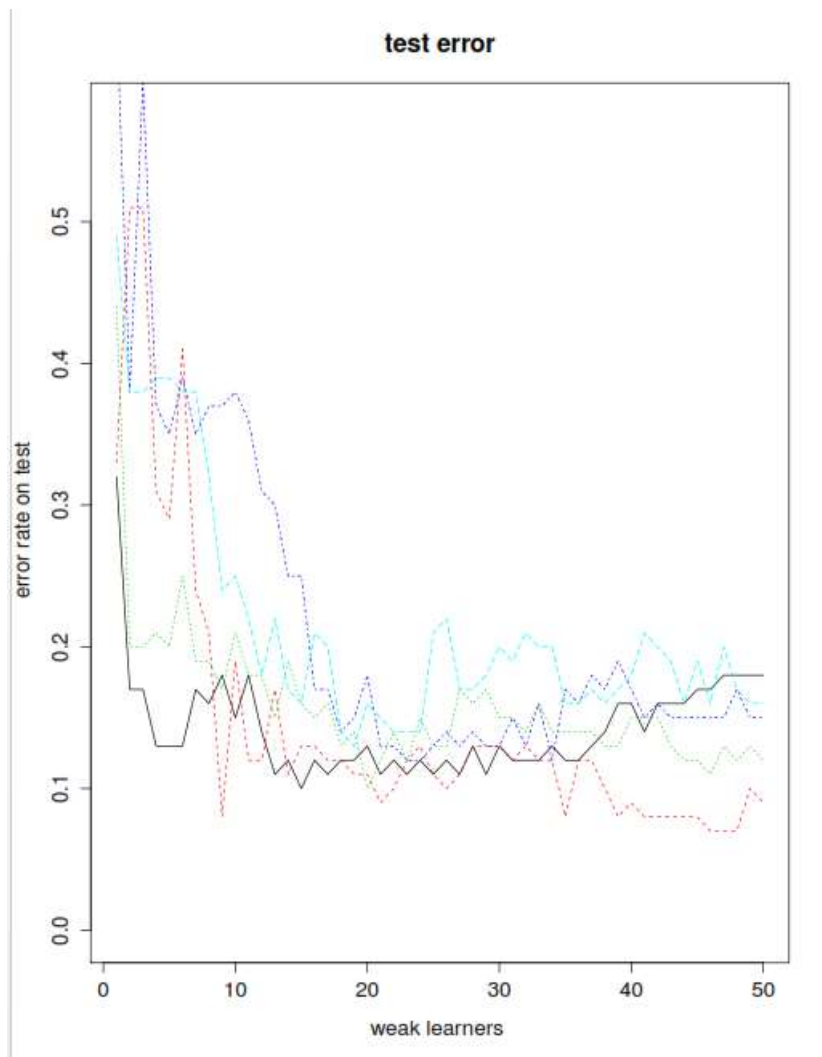
Uni: erg2145

Class: STAT W4400

Hw num: HW03

1.4





2.1) $q=.5$ encourages sparsity the penalty of a few large solutions is reduced while the penalty of smaller betas is not so they are pushed towards 0. $q=4$ does not encourage sparsity because it will favor entries of similar values as defined on the slides.

2.2) $q=.5$ the smallest cost is achieved by $x_{\{3\}}$ since it is located on the axis which is what the $q=.5$ favors. For $Q=4$ the smallest cost is achieved by $x_{\{4\}}$ because it lies within the penalty boundary