Selection of the regularisation parameter $\alpha$

Figures 1 and 2 display the bi-cross validation error, the reconstruction error, and the concordance of $H$ for various values of $k$. The three criteria are globally constant when $\alpha$ is smaller that $10^{-1.5} = 0.0316$ and deteriorate more significantly when $\alpha = 0.1$ for most values of $k$, except for the concordance of $H$ for $k = 6$, which displays a constant decrease rate as $\alpha$ increases; nevertheless, the distribution of the concordance for each random split indicates that the variations of the mean are not strongly significant. Therefore, the value $\alpha = 10^{-1.5}$ was chosen.

Figure 1: Bi-cross validation error (left) and reconstruction error (right) as a function of $\alpha$, for various values of $k$
Figure 2: Concordance of $H$ for each random split (black circles), median (dotted blue line) and mean (solid red line) as a function of $\alpha$, for various values of $k$. 