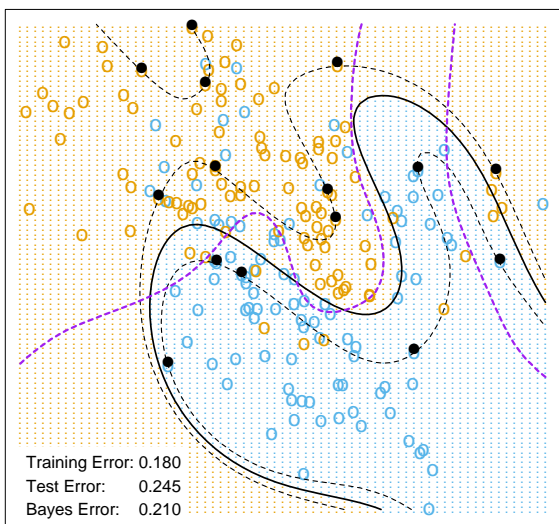
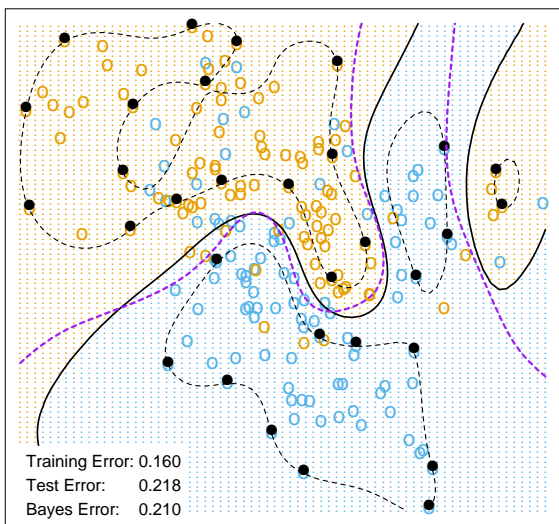


## SVM - Degree-4 Polynomial in Feature Space



## SVM - Radial Kernel in Feature Space



**FIGURE 12.3.** Two nonlinear SVMs for the mixture data. The upper plot uses a 4th degree polynomial kernel, the lower a radial basis kernel (with  $\gamma = 1$ ). In each case  $C$  was tuned to approximately achieve the best test error performance, and  $C = 1$  worked well in both cases. The radial basis kernel performs the best (close to Bayes optimal), as might be expected given the data arise from mixtures of Gaussians. The broken purple curve in the background is the Bayes decision boundary.