



Figure 5.21: (a) Contour plots and samples from two Gaussian class-conditional densities for two-dimensional feature vectors  $x_n = (x_n^1, x_n^2)$ . The Gaussians have means  $\mu_0$  and  $\mu_1$  for class  $q_n = 0$  and  $q_n = 1$ , respectively, and equal covariance matrices. (b) The solid lines are the contours of the posterior probability,  $p(q_n = 1 | x_n)$ . In the direction orthogonal to the linear contours, the posterior probability is a monotonically increasing function given by (Eq. (5.61)). This function is sketched at the top of the figure.