



FIGURE 6.1. In each panel 100 pairs x_i, y_i are generated at random from the blue curve with Gaussian errors: $Y = \sin(4X) + \varepsilon$, $X \sim U[0, 1]$, $\varepsilon \sim N(0, 1/3)$. In the left panel the green curve is the result of a 30-nearest-neighbor running-mean smoother. The red point is the fitted constant $\hat{f}(x_0)$, and the red circles indicate those observations contributing to the fit at x_0 . The solid yellow region indicates the weights assigned to observations. In the right panel, the green curve is the kernel-weighted average, using an Epanechnikov kernel with (half) window width $\lambda = 0.2$.