Least Squares Regression
y precipitation in each state against that state’s record-high 24-hour precipitation. Hawaii is a high outlier, with a yearly record of 704.83 inches recorded at Kukui in 1982. The correlation for all 50 states in Figure 5.4 is 0.408. If we leave out Hawaii, the correlation drops to $r = 0.195$. The solid line in the figure is the least-squares line for predicting the annual

15.4 Least-squares regression lines are strongly influenced by outliers. The solid line is based on all 50 data points. The dotted line leaves out Hawaii.
Variable $x$ is explanatory, $Y$ is a response variable, and $z$ is a lurking variable. A dashed line shows an association. An arrow shows a cause-and-effect link.

A few explanations for an observed association