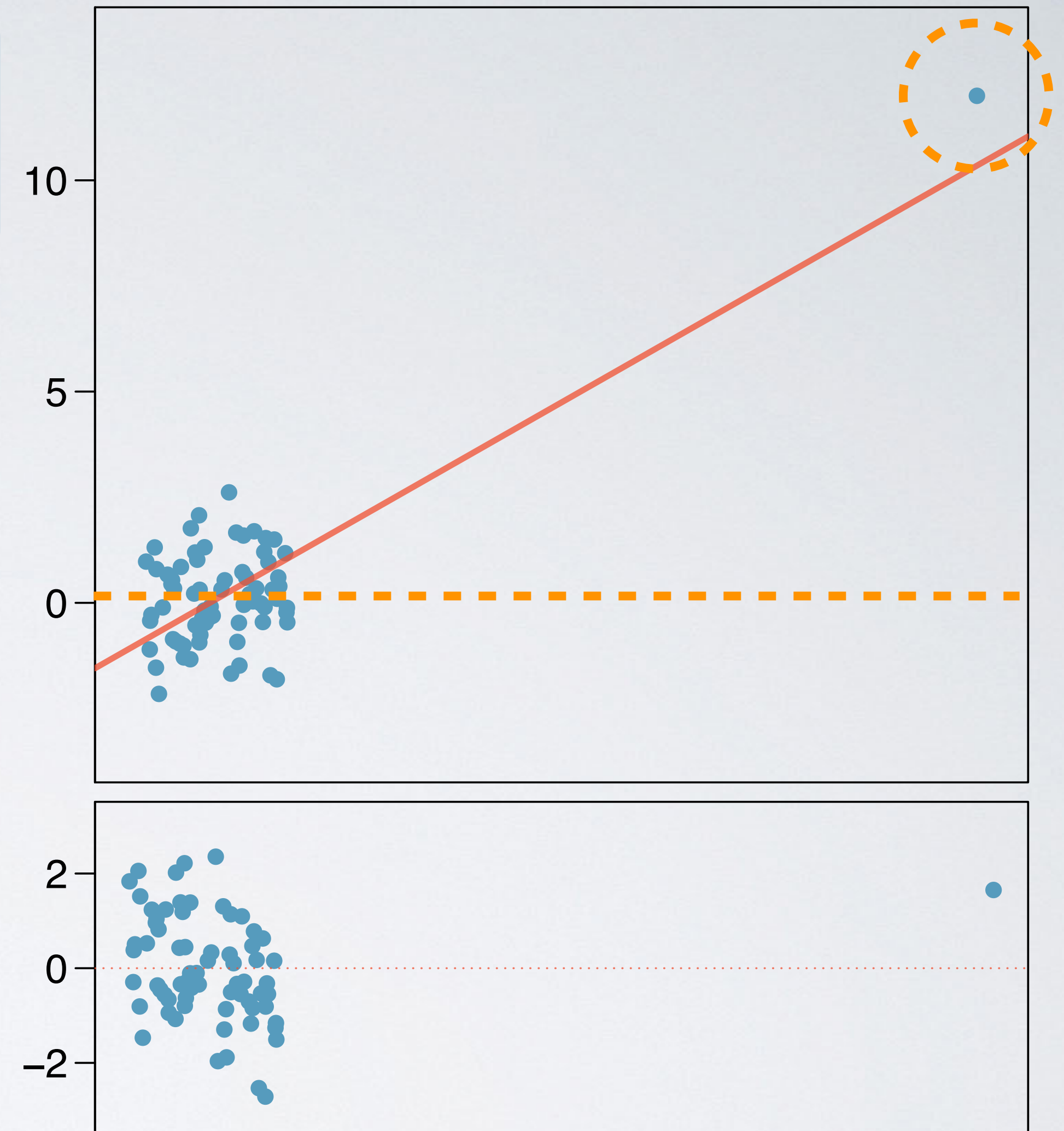


outliers in regression

How does the outlier influence the least squares line?

Without the outlier there is no relationship between x and y .

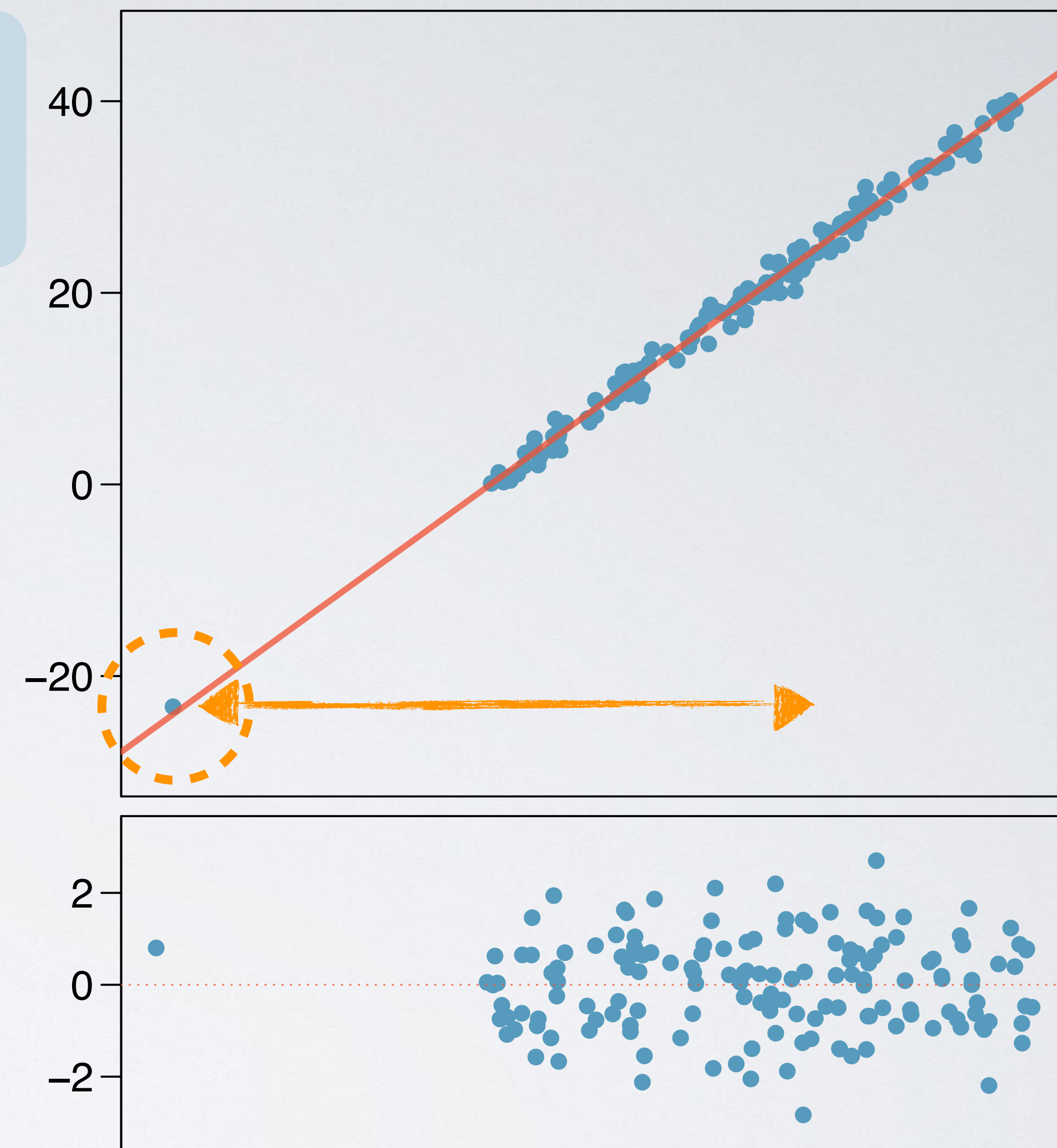


types of outliers

- ▶ **outliers** are points that fall away from the cloud of points
- ▶ outliers that fall horizontally away from the center of the cloud but don't influence the slope of the regression line are called **leverage points**
- ▶ outliers that actually influence the slope of the regression line are called **influential points**
 - ▶ usually high leverage points
 - ▶ to determine if a point is influential, visualize the regression line with and without the point, and ask: *Does the slope of the line change considerably?*

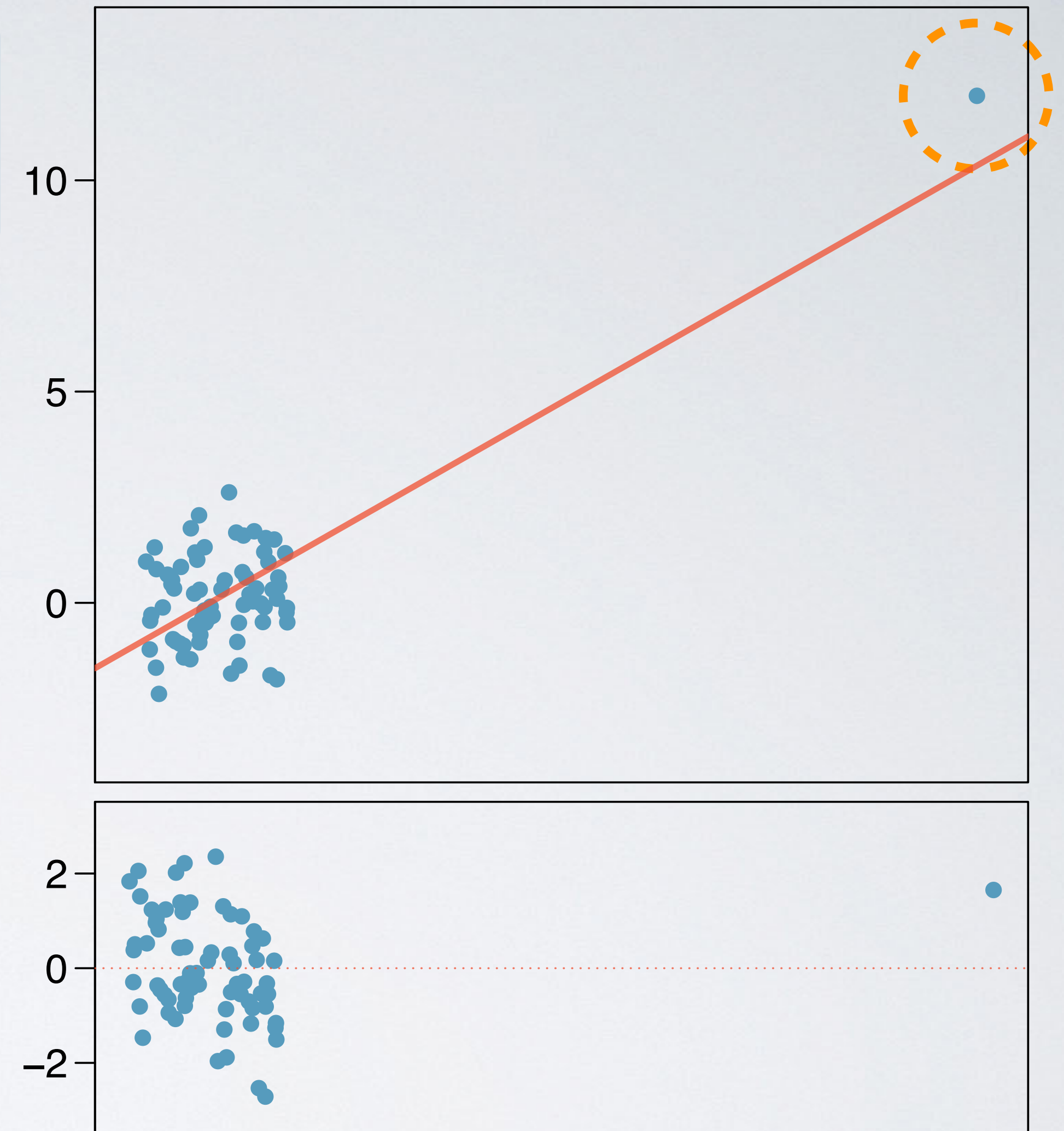
What type of outlier is this?

leverage point



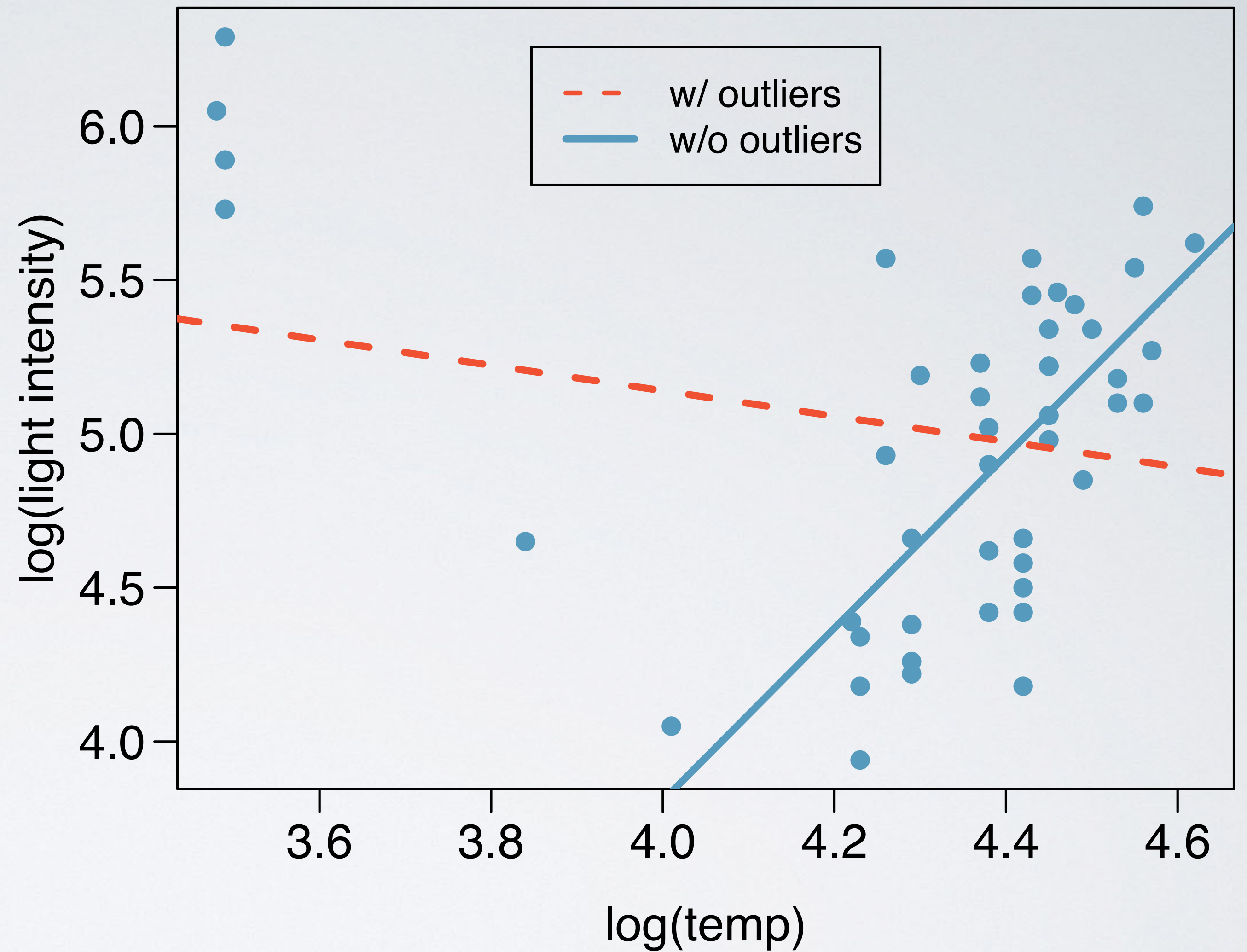
What type of outlier is this?

influential point



influential points

light intensity and surface temperature (logged) of 47 stars in the star cluster CYG OBI



True or false: Influential points always reduce R^2 .

