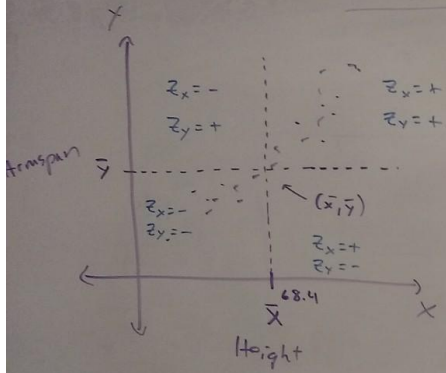


3-2 5.2 Correlation



Sample correlation coefficient:

$$r = \frac{\sum z_x \cdot z_y}{n-1}$$

measure of strength
and direction of a
linear relationship between
two variables.

← About the average product of z-scores

population

ρ

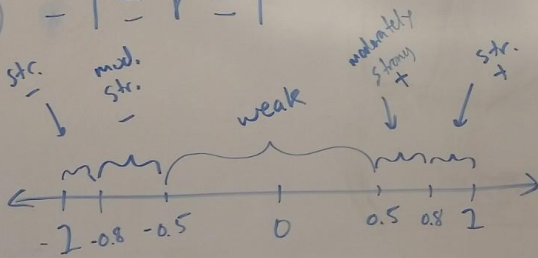
$$r_{\text{total}} = 0.959$$

$$\bar{X} = 68.4143 \quad S_x = 3.6716$$

$$\bar{y} = 68.4643 \quad S_y = 41.3684$$

Facts

(1) $-1 \leq r \leq 1$



(2) $r = 1$ all observations form perfect line sloping upwards
 $r = -1$ " " " " downwards

(3) r only measures linearity

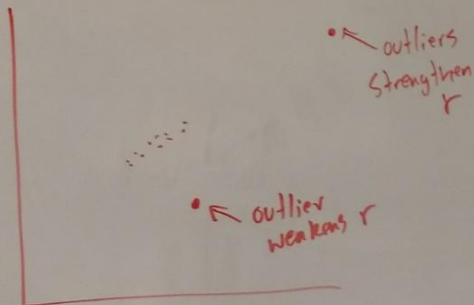


- but there a relationship that is non-linear

④ units don't matter
standardization

Correlation doesn't
imply causation

⑤ which var. is on which axis
doesn't matter



5.1
5.3
5.5
5.7
5.11
5.13