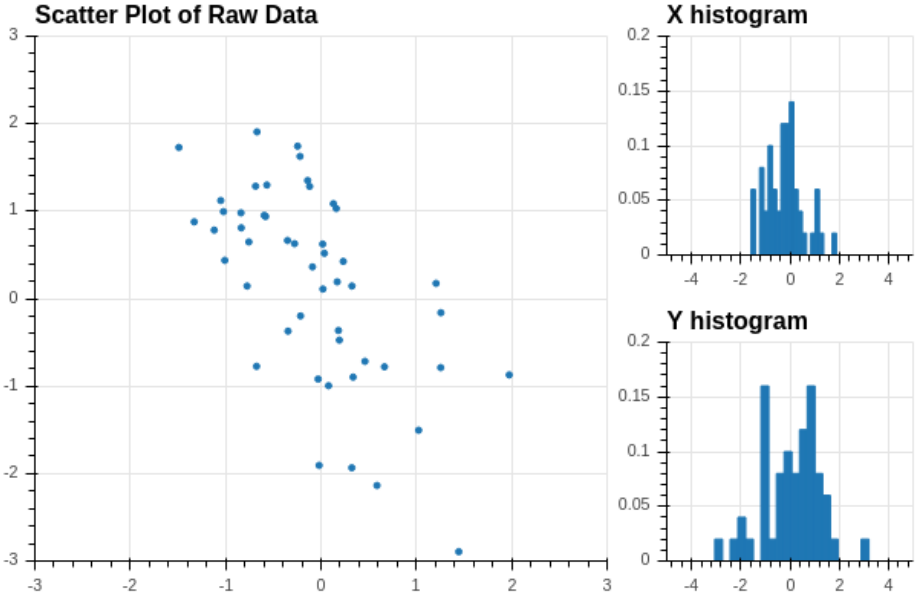
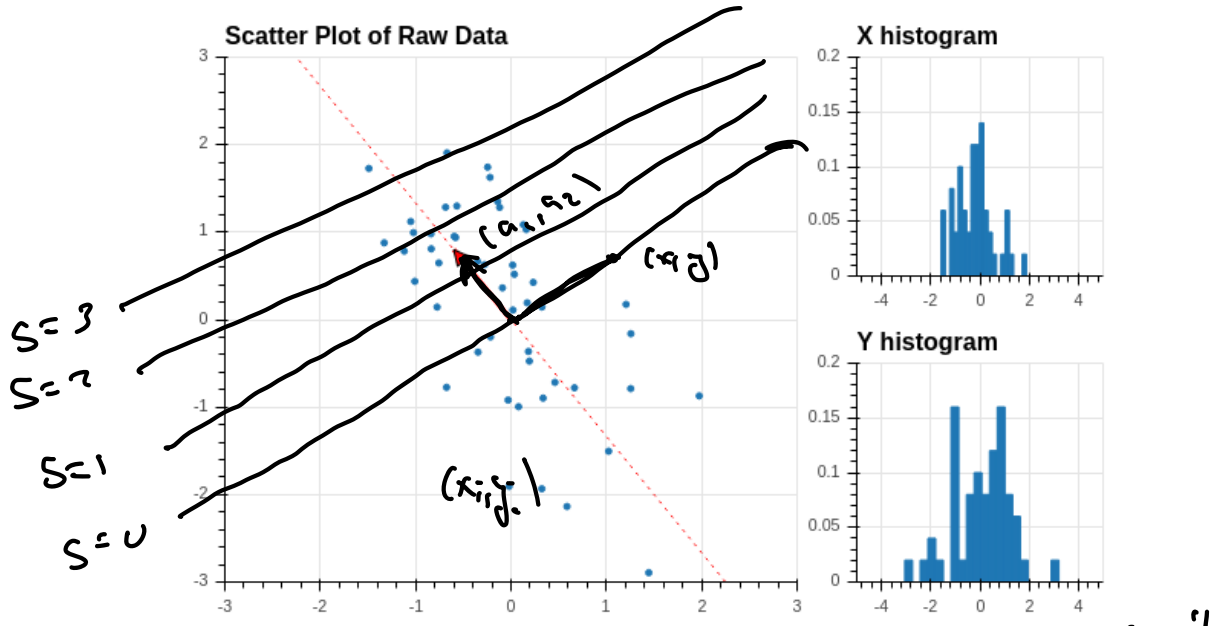
Geometry of Scores

A look at sample data



A direction in the data (a score)



$S = a_1 x + a_2 y$

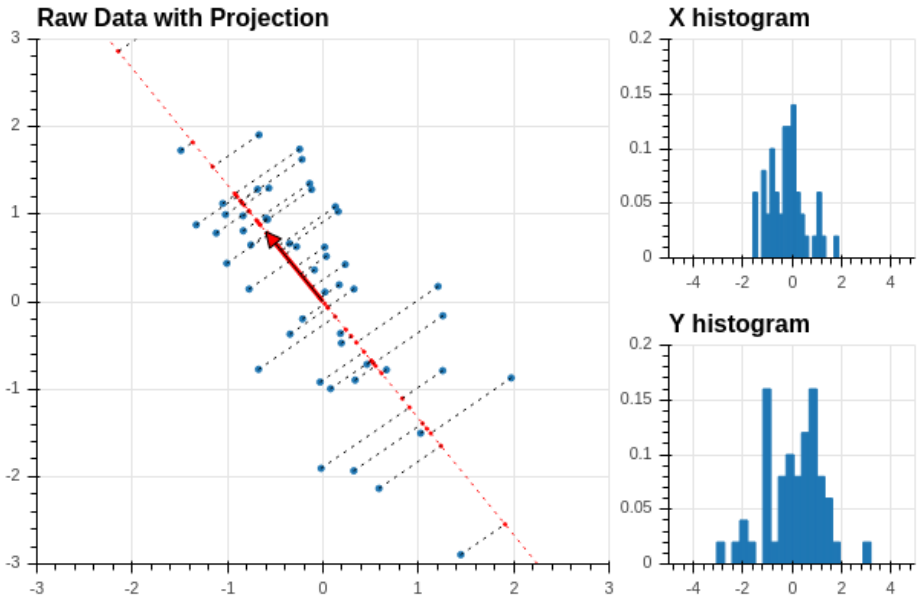
$a_1 a_2$ "weight"

$S = 0$
$S = 1$

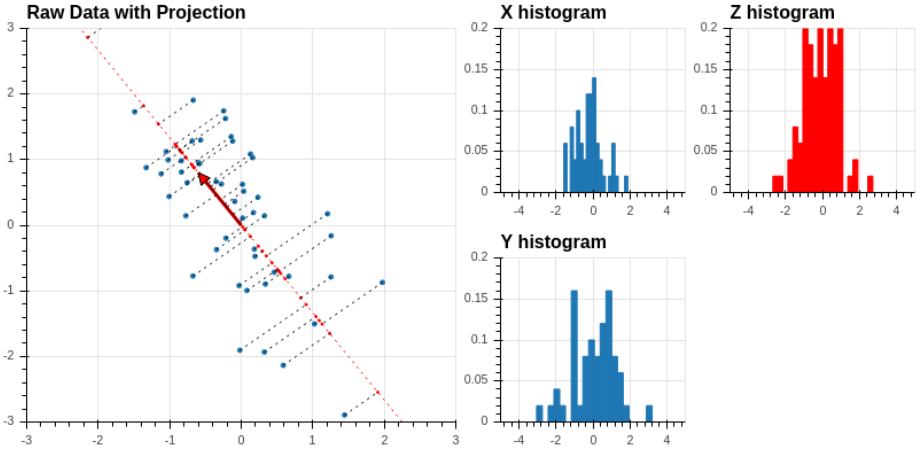
$a_1 x + a_2 y = 0$

$(a_1, a_2) \cdot (x, y) = 0$

Projection onto the score direction



Histogram of the score



$$\sigma_s^2 = a^T D_0 a$$