

Aside: projections onto vectors

- If \mathbf{X}' is an $n \times p$ data matrix and \mathbf{a} a $p \times 1$ vector then $\mathbf{Y}' = \mathbf{X}'\mathbf{a}$ is the projection of \mathbf{X}' onto \mathbf{a}
 - ◆ Values of \mathbf{Y}' give the coordinates of each observation along the vector \mathbf{a}
- Example: $\mathbf{x}_1 = (1, 2)'$, $\mathbf{x}_2 = (2, 1)'$, $\mathbf{x}_3 = (-1, 1)'$
 $\mathbf{a} = (3, -4)/5$,
 - ◆ So $\mathbf{X}' = \begin{pmatrix} 1 & 2 \\ 2 & 1 \\ -1 & 1 \end{pmatrix}$ $\mathbf{Y}' = \begin{pmatrix} -1 \\ \frac{2}{5} \\ -\frac{7}{5} \end{pmatrix}$

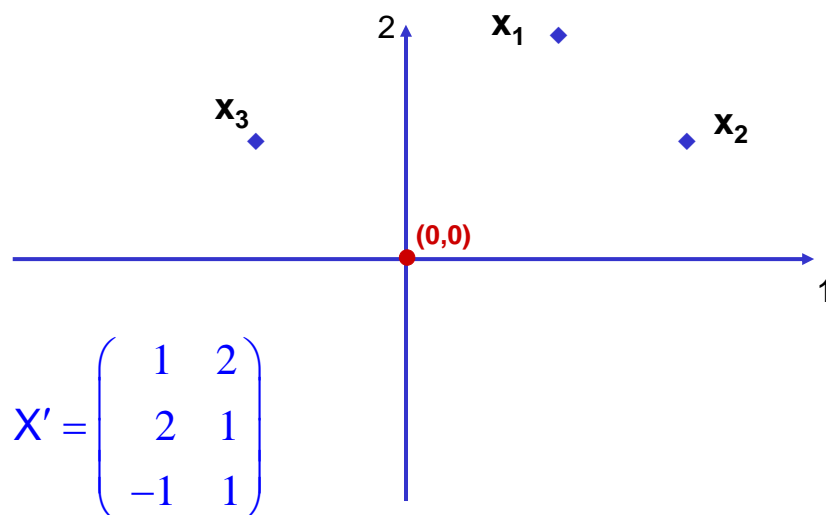


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Multivariate Data Analysis

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Multivariate Data Analysis

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