What does this mean? $\mathbf{V}$ spans the row space of $\mathbf{Y} \equiv \frac{1}{\sqrt{n-1}}\mathbf{X}^T$. Therefore, $\mathbf{V}$ must also span the column space of $\frac{1}{\sqrt{n-1}}\mathbf{X}$. We can conclude that finding the principal components[10] amounts to finding an orthonormal basis that spans the *column space* of $\mathbf{X}$.