



## Result

**Proposition 1.** *Suppose  $V$  is a finite-dimensional vector space and  $\phi$  is a linear functional on  $V$ . Then there exists a unique vector  $u \in V$  satisfying*

$$\phi(v) = \langle v, u \rangle \quad \text{for all } v \in V$$

The above result is sometimes called the *Riesz Representation Theorem*.



