



**Definition**

A function  $f : \mathbf{R}^n \rightarrow \mathbf{R}$  is called a *functional*. If  $f$  is linear, then  $f(x) = a^\top x$  for all  $x$ . So every vector  $a \in \mathbf{R}^n$  can be thought to correspond to a linear functional.



