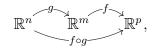
## Vectors, directional derivatives and the chain rule

## Sean Fitzpatrick

December 2, 2012



we have the corresponding composition

$$T_{\mathbf{x}}\mathbb{R}^{n}$$
 $T_{\mathbf{y}}\mathbb{R}^{m}$ 
 $T_{\mathbf{z}}\mathbb{R}^{p}$ 

$$\mathbf{x} \in \mathbb{R}^{n} \xrightarrow{F} \mathbf{y} \in \mathbb{R}^{n} .$$

$$g(\mathbf{x}) \in \mathbb{R} = f(\mathbf{y}) \in \mathbb{R}$$