Pullback / vjp rule of scalar multiplication

$$f(x, y) = x \cdot y = z$$

$$f : \mathbb{R} \times \mathbb{R} \to \mathbb{R}$$

$$\bar{x} = \bar{z} \frac{\partial f}{\partial x} = \bar{z} y$$

$$\bar{y} = \bar{z} \frac{\partial f}{\partial y} = \bar{z} x$$

$$B(\cdot, (x, y), (\bar{z})) = ((\underbrace{x \cdot y}_{z}, (\underbrace{\bar{z} y}_{\bar{x}}, \underbrace{\bar{z} x}_{\bar{y}}))$$