

$$\underbrace{1 \times 1}_{\mathbb{Z}} \times \mathbb{H} \xrightarrow{\pi} \mathbb{K} \xleftarrow{\pi} 1 \times 1$$

$$\pi 1 = 1_{\alpha} \times \gamma^{\alpha} \Rightarrow \frac{1}{\pi} 1 = 1_{\alpha} \times \underbrace{S \gamma^{\alpha}}$$

$$\pi 1 = 1_{\beta} \times \gamma^{\beta}$$

$$\Rightarrow Td(\pi) 1 \times 1 = 1_{\beta} \times 1_{\alpha} \times \underbrace{S \gamma^{\alpha}}$$