

Proof

Let $\varphi \in W'$, then

$$\begin{aligned} \triangleright (S+T)'(\varphi) &= \varphi(S+T) \quad \text{by def'n dual map} \\ &= \varphi \cdot S + \varphi \cdot T \quad \text{by 3.9 Axiom} \\ &= S' + T' \end{aligned}$$

$$\begin{aligned} \triangleright (\lambda T)'(\varphi) &= \varphi(\lambda T) \quad \text{by definition dual map} \\ &= \lambda(\varphi \cdot T) \quad \text{by 3.6 \& 3.9 Axiom} \\ &= \lambda T' \end{aligned}$$