

Step 3

$$\begin{array}{ccccc}
 S^0 & \xrightarrow{\lambda_{S^0}^{\text{Sets}_*, -1}} & S^0 \wedge S^0 & \xrightarrow{\text{id}_{\text{Sets}_*|S^0, S^0}^{\otimes, -1}} & S^0 \otimes_{\text{Sets}_*} S^0 \\
 \downarrow [x] & & \downarrow \text{id}_{S^0} \wedge [x] & \downarrow \text{id}_{S^0} \otimes_{\text{Sets}_*} [x] & \downarrow \text{id}_{\mathbb{1}_{\text{Sets}_*}} \wedge [x] \\
 X & \xrightarrow{\lambda_X^{\text{Sets}_*, -1}} & S^0 \wedge X & \xrightarrow{\text{id}_{\text{Sets}_*|S^0, X}^{\otimes, -1}} & S^0 \otimes_{\text{Sets}_*} X \\
 & & \downarrow & \downarrow & \downarrow \\
 & & & & \mathbb{1}_{\text{Sets}_*} \otimes_{\text{Sets}_*} S^0 \\
 & & & & \downarrow \\
 & & & & \mathbb{1}_{\text{Sets}_*} \otimes_{\text{Sets}_*} X
 \end{array}$$

(3) (4) (5)

(1) (2)

(\neq)

$\lambda_{S^0}^{\text{Sets}_*, -1}$ $\lambda_X^{\text{Sets}_*, -1}$ $\lambda_{S^0}^{\text{Sets}_*, -1}$ $\lambda_X^{\text{Sets}_*, -1}$ $\lambda_{S^0}^{\text{Sets}_*, -1}$ $\lambda_X^{\text{Sets}_*, -1}$ $\lambda_{S^0}^{\text{Sets}_*, -1}$ $\lambda_X^{\text{Sets}_*, -1}$

$\text{id}_{\text{Sets}_*|S^0, S^0}^{\otimes, -1}$ $\text{id}_{\text{Sets}_*|S^0, X}^{\otimes, -1}$ $\text{id}_{\mathbb{1}_{\text{Sets}_*}} \wedge \text{id}_{S^0}$ $\text{id}_{\mathbb{1}_{\text{Sets}_*}} \wedge \text{id}_X$

$\mathbb{1}_{\text{Sets}_*} \otimes_{\text{Sets}_*} S^0$ $\mathbb{1}_{\text{Sets}_*} \otimes_{\text{Sets}_*} X$