

Step 6

$$\begin{array}{ccccc}
 & S^0 \wedge S^0 & \xrightarrow{\text{id}_{\text{Sets}_*|S^0,S^0}^{\otimes,-1}} & S^0 \otimes_{\text{Sets}_*} S^0 & \xrightarrow{S^0 \text{id}_{S^0} \wedge \text{id}_{\mathbb{1}|\text{Sets}_*}^{\otimes,-1}} \\
 \nearrow \rho_{S^0}^{\text{Sets}_*,-1} & & & & \\
 S^0 & \xrightarrow{\rho_{S^0}^{\prime,-1}} & S^0 \otimes_{\text{Sets}_*} \mathbb{1}_{\text{Sets}_*} & & \\
 \downarrow [x] \text{ (3)} & \downarrow [x] \wedge \text{id}_{S^0} & \downarrow [x] \otimes_{\text{Sets}_*} \text{id}_{S^0} & \downarrow [x] \wedge \text{id}_{\mathbb{1}|\text{Sets}_*} & \\
 & X \wedge S^0 & \xrightarrow{\text{id}_{\text{Sets}_*|X,S^0}^{\otimes,-1}} & X \otimes_{\text{Sets}_*} S^0 & \xrightarrow{-\text{id}_X \wedge \text{id}_{\mathbb{1}|\text{Sets}_*}^{\otimes,-1}} \\
 \nearrow \rho_X^{\text{Sets}_*,-1} & & & & \\
 X & \xrightarrow{\rho_X^{\prime,-1}} & X \otimes_{\text{Sets}_*} \mathbb{1}_{\text{Sets}_*} & & \\
 & \text{(5)} & & &
 \end{array}$$

Diagram illustrating Step 6 of a proof, showing a commutative diagram involving objects S^0 , X , and their tensor products and wedge products over the category Sets_* .

The diagram consists of several nodes and arrows:

- Top Row:**
 - $S^0 \wedge S^0 \xrightarrow{\text{id}_{\text{Sets}_*|S^0,S^0}^{\otimes,-1}} S^0 \otimes_{\text{Sets}_*} S^0$
 - $S^0 \otimes_{\text{Sets}_*} S^0 \xrightarrow{S^0 \text{id}_{S^0} \wedge \text{id}_{\mathbb{1}|\text{Sets}_*}^{\otimes,-1}} S^0 \otimes_{\text{Sets}_*} \mathbb{1}_{\text{Sets}_*}$
- Middle Row:**
 - $S^0 \xrightarrow{\rho_{S^0}^{\prime,-1}} S^0 \otimes_{\text{Sets}_*} \mathbb{1}_{\text{Sets}_*}$
- Bottom Row:**
 - $X \wedge S^0 \xrightarrow{\text{id}_{\text{Sets}_*|X,S^0}^{\otimes,-1}} X \otimes_{\text{Sets}_*} S^0$
 - $X \otimes_{\text{Sets}_*} S^0 \xrightarrow{-\text{id}_X \wedge \text{id}_{\mathbb{1}|\text{Sets}_*}^{\otimes,-1}} X \otimes_{\text{Sets}_*} \mathbb{1}_{\text{Sets}_*}$
- Left Column:**
 - $S^0 \xrightarrow{\rho_{S^0}^{\text{Sets}_*,-1}} S^0 \wedge S^0$
 - $S^0 \xrightarrow{[x]} X$ (labeled (3))
 - $X \xrightarrow{\rho_X^{\text{Sets}_*,-1}} X \wedge S^0$
- Right Column:**
 - $S^0 \otimes_{\text{Sets}_*} S^0 \xrightarrow{[x] \otimes_{\text{Sets}_*} \text{id}_{S^0}} X \otimes_{\text{Sets}_*} S^0$ (labeled (4))
 - $X \otimes_{\text{Sets}_*} S^0 \xrightarrow{-\text{id}_X \wedge \text{id}_{\mathbb{1}|\text{Sets}_*}^{\otimes,-1}} X \otimes_{\text{Sets}_*} \mathbb{1}_{\text{Sets}_*}$
- Central Connections:**
 - $S^0 \wedge S^0 \xrightarrow{[x] \wedge \text{id}_{S^0}} X \wedge S^0$ (labeled (5))
 - $X \otimes_{\text{Sets}_*} S^0 \xrightarrow{[x] \wedge \text{id}_{\mathbb{1}|\text{Sets}_*}} X \otimes_{\text{Sets}_*} \mathbb{1}_{\text{Sets}_*}$