

$$\begin{array}{ccccc}
X \otimes^{\mathbf{L}} (Y \otimes^{\mathbf{L}} Z) & \longleftarrow & \rho X \otimes (Y \otimes^{\mathbf{L}} Z) & \longleftarrow & \rho X \otimes (Y \otimes \rho Z) \\
\downarrow & & & & \downarrow \scriptstyle \simeq \alpha \\
(X \otimes^{\mathbf{L}} Y) \otimes^{\mathbf{L}} Z & \longleftarrow & (X \otimes^{\mathbf{L}} Y) \otimes \rho Z & \longleftarrow & (\rho X \otimes Y) \otimes \rho Z
\end{array}$$