

$$\begin{array}{ccc}
 X \otimes^{\mathbf{L}} (Y \otimes^{\mathbf{L}} Z) & \xlongequal{\quad} & \rho X \otimes \rho(\rho Y \otimes \rho Z) \xrightarrow{1 \otimes c^{-1}} \rho X \otimes (\rho Y \otimes \rho Z) \\
 \alpha^\rho \downarrow & & \downarrow \alpha \\
 (X \otimes^{\mathbf{L}} Y) \otimes^{\mathbf{L}} Z & \xlongequal{\quad} & \rho(\rho X \otimes \rho Y) \otimes \rho Z \xleftarrow{c \otimes 1} (\rho X \otimes \rho Y) \otimes \rho Z
 \end{array}$$