

$$\begin{array}{ccccc}
& \xrightarrow{\underline{R} \otimes^{\mathbf{L}} (l_{\underline{R} \otimes^{\mathbf{L}} X}^{\rho})} & & & \\
\rho \underline{R} \otimes \rho(\rho \underline{R} \otimes \rho X) & \longrightarrow & \rho \underline{R} \otimes \rho(\underline{R} \otimes \rho X) & \xlongequal{\quad} & \rho \underline{R} \otimes \rho \rho X & \xrightarrow{1 \otimes c} & \rho \underline{R} \otimes \rho X \\
\parallel & \searrow 1 \otimes c & & \searrow 1 \otimes c & & \nearrow \parallel & \parallel \\
\underline{R} \otimes^{\mathbf{L}} (\underline{R} \otimes^{\mathbf{L}} X) & & \rho \underline{R} \otimes (\rho \underline{R} \otimes \rho X) & \xrightarrow{1 \otimes (c \otimes 1)} & \rho \underline{R} \otimes (\underline{R} \otimes \rho X) & & \underline{R} \otimes^{\mathbf{L}} X \\
\downarrow \alpha^{\rho} & \blacktriangle & \downarrow \alpha & & \downarrow \alpha & & \downarrow \parallel \\
(\underline{R} \otimes^{\mathbf{L}} \underline{R}) \otimes^{\mathbf{L}} X & & (\rho \underline{R} \otimes \rho \underline{R}) \otimes \rho X & \xrightarrow{(1 \otimes c) \otimes 1} & (\rho \underline{R} \otimes \underline{R}) \otimes \rho X & \star & \underline{R} \otimes^{\mathbf{L}} X \\
\parallel & & & \nearrow c \otimes 1 & \parallel & & \parallel \\
\rho(\rho \underline{R} \otimes \rho \underline{R}) \otimes \rho X & \xrightarrow{c \otimes 1} & \rho(\underline{R} \otimes \rho \underline{R}) \otimes \rho X & \xlongequal{\quad} & \rho \rho \underline{R} \otimes \rho X & \xleftarrow{c \otimes 1} & \rho \underline{R} \otimes \rho X \\
& \xrightarrow{(l_{\underline{R} \otimes^{\mathbf{L}} X}^{\rho}) \otimes^{\mathbf{L}} X} & & & & &
\end{array}$$