

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